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I4R DP No. 168

A Comment on "The Political Consequences of Green Policies: Evidence from Italy"

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A Comment on "The Political Consequences of Green Policies: Evidence from Italy"*

Florian Caro, Asher Labovich, Chidubem Okechi, David Reinstein, and Maria Clara Rodrigues

April 2024

Abstract

Colantone et al. (2024a) use survey data to examine how a major ban on combustion engine cars in Milan, Italy affected voting behavior of treated car owners. The authors find that the ban raised the probability of voting for the populist right wing Lega party by 15.4-18.3 percentage points, a 70-80% increase relative to the average car owner. The estimate is statistically significant at the 5% level. These effects are driven by dissatisfaction with money losses rather than more antagonistic attitudes towards environmental protection. In this report, we inspect the data and replication package of the paper with two sets of exercises. First, we successfully computationally reproduce all the main results of the paper. Second, we test the robustness of the authors' main results by exploring different definitions of control variables, variations in the regression specifications, and alternative econometric models and research designs. Our results generally confirm the authors' conclusions, but are smaller in magnitude and suggest that the ATTs in the original paper might have been overstated.

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1 Paper Overview

1.1 Introduction

Colantone et al. (2024a) study how a large-scale ban on combustion engine cars in the city of Milan, Italy influenced voting behavior among car owners affected by the ban. The authors argue that this setting provides an opportunity to examine the political costs associated with the enforcement of green policies and the often substantial and unevenly distributed costs that such policies entail for citizens.

In this case, the ruling Democratic party enacted a car ban in early 2019 to reduce air pollution in Milan, a policy that met strong opposition from the populist right wing Lega party. Colantone et al. (2024a) compare voting for Lega in the subsequent European Parliament elections between marginally affected car owners and marginally unaffected car owners, and interpret the difference as the effect of the policy on voting behavior. In their empirical analysis, based on survey data collected by YouGov, the authors find that the ban led to substantial increases in the Lega vote share among affected car owners. The main point estimates are significant at the 5% level.

The present report, prepared for the Institute for Replication (Brodeur, Mikola and Cook, 2024), tests the computational reproducibility of Colantone et al. (2024a) as well as robustness to: (1) different definitions of control variables, (2) variations in the regression specifications, and (3) alternative model and empirical designs.

Using the replication package provided by the authors, we successfully reproduced all results reported in the main paper and the online appendix.¹ Moreover, an independent replication of the data preparation based on the raw survey data yielded an analysis dataset identical to the one provided in the replication package.

For the sensitivity analysis, we perform a variety of robustness checks including alternative definitions of control variables, alternative regression specifications, and alternative econometric models and research designs. Our results generally support the original findings, although we consistently find somewhat smaller point estimates, especially when using a triple diff approach to account for unobserved, time-invariant heterogeneity between owners of different car types.

1.2 Limitations

We identified a few key limitations that have implications for interpretability and generalizability of the main conclusions of the paper. First, the authors do not provide details on important information about their survey design and implementation, including sampling strategy, response rate, attrition, item non-response, or duration of survey. These are important statistics to understand who the respondents are, to evaluate the suitability of the identification strategy, and to aid the interpretation of the size and relevance of estimates (Stantcheva, 2023). The information available on the website of the authors' partner, YouGov, clarified that the survey methodology is based on "active sampling" with cell-weight poststratification, but their documentation focuses on surveys implemented in the UK rather than Milan, Italy (the paper's study site).

In addition, given that surveys *generate* rather than merely collect, data (Stantcheva, 2023), we argue the authors missed key opportunities to elicit additional factual and behavioral information in their questionnaire. For example, one of their main claims is that car owners affected by the ban switched their vote to Lega due to income shocks associated with the policy instead of a shift against environmentalism. Yet, they only evaluate this hypothesis on the extensive margin, failing to show heterogeneities in the effect of monetary losses across the respondents' income distribution.

Another potential limitation relates to their choice of empirical design. Their differences-in-differences approach relies on the assumption that they can create a good control group for owners of Euro4 diesel cars by comparing owners of Euro4 and Euro5 cars on the one hand and owners of diesel and petrol cars on the other

¹The figures produced by the replication package differ from those in the paper which, as pointed out in the already published corrigendum (Colantone et al., 2024b), show 90% instead of 95% level CIs.

hand. In Section 3, we show results for a triple diff approach that adds time as an additional dimension and allows us to compare the voting behavior of the same individual before and after the ban. This approach thereby accounts for any unobserved, time-invariant heterogeneity between owners of different car types. Similar to the diff-in-diff approach, however, it does not account for changes in voting behavior caused by other events if they took place at the same time as the ban and had different effects on owners of different car types.

2 Computational Reproducibility

The Supplementary Materials on APSR contain the data and code to reproduce the paper, which satisfactorily pass the "push" test and reproduce the tables and figures in the main text (or the published *corrigendum*). Only a few modifications to the code were necessary, e.g., defining local directory paths and adding one R package that was overlooked by the authors. We verified that the published results hold across different software, i.e., code written in Stata was successfully replicated in R. Table 1 provides a summary of the computational reproducibility based on I4R's guidelines.

Table 1. Replication Fackage Contents and Replotation	Diffug
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Replication Package Item	Fully	Partial	No
Raw data provided	\checkmark		
Analysis data provided	\checkmark		
Cleaning code provided	\checkmark		
Analysis code provided	\checkmark		
Reproducible from raw data Reproducible from analysis data	\checkmark		

Notes: This table summarizes the replication package contents contained in Colantone et al. (2024a).

We still encountered minor issues in the authors' replication package when reviewing their build and analysis code. First, while their code successfully the figures reported in the paper, it does not produce any formatted tables. Second, the authors code the education level of *Laurea vecchio ordinamento* as equivalent to a bachelor's degree in contrast with official Italian regulations, which classify it as equivalent to a master's degree.²

As shown in Panel D.2 of Table A1, the definition used in the original paper suggests a larger/smaller share of survey respondents with a bachelor's/post-baccalaureate degree. With respect to the regression results reported in Colantone et al. (2024a), the results in Panel (a) of Table A3 suggest the coefficient of interest generally seems to slightly decline when using our alternative definition of the education variable. Overall, however, the conclusions remain qualitatively the same.

3 Alternative Econometric Approaches

We conduct a series of robustness checks that test the sensitivity of the analysis in Colantone et al. (2024a) to alternative econometric methods and specifications. We focus on the main results reported in their Table 2 and report the p-value of the interaction term, i.e., ATT. All tables are displayed in Appendix A.1.

Non-linear Age Controls: Colantone et al. (2024a) includes age as a linear variable. This imposes the assumption that there is a linear relationship between age and the probability of voting for Lega. This

²See https://web.archive.org/web/20230307021733/http://attiministeriali.miur.it/anno-2009/luglio/ di-09072009.aspx, accessed April 25, 2024.

assumption seems unnecessarily restrictive. We therefore consider versions of the original regression model that include age as a non-linear control to allow for more flexible relationships between age and voting behavior. In Table A2, we report specifications with age as a binned variable (Panel (a)), as fixed effects for each age (Panel (b)), and with a quadratic term (Panel (c)).

The results from this exercise look generally similar to those reported by Colantone et al. (2024a). For our most demanding specification with age-specific fixed effects in Table A2, Panel (b), the coefficients of interest decrease by about 17.5% and lose in statistical significance, dropping from a 5% to a 10% level of statistical significance. Given the comparatively small sample size and considering the evidence from other specifications, we still view these results as in support of the authors' original results.

Alternative Encoding of Education: As discussed in Section 2, the authors coded the education variable in a way that does not align with official regulations on the equivalence relationships between old and new university degrees. Table A3, Panel (a) shows their main results when correcting the coding of the education variable. Our point estimates are slightly smaller, but overall the results remain mostly unchanged. As an additional check, we also estimate the regression while dropping observations with missing or non-reported education and/or income.

Addressing Non-Response and Missing Values: The paper treats non-response and missing values of education and income as a separate category. Table A4 shows alternative approaches to dealing with missing data: imputing missing values with a random forest and including a dummy for observations with imputed values (Panel (a)) or dropping observations with missing values (Panel (b)). Our results again suggest somewhat smaller point estimates than those reported by Colantone et al. (2024a). Statistical significance levels mostly remain the same, although we see a drop from the 5% to the 10% level for a few coefficients in Panel (b) when dropping observations with missing information on education and/or income.

Preferred Specification: Table A5 reports results for a specification that combines elements of the different robustness checks presented above. Specifically, we estimate a linear probability model using binned age dummies, our updated coding of the education variable, and imputed values for missing/non-reported education and/or income. The results are again very similar to those reported in the original paper.

Non-linear Models Logit and Poisson: We estimate the treatment with non-linear models instead of the linear probability model used in the paper. Table A6 shows the marginal effects obtained with the logit model and standard errors calculated via the delta method³ and Table A7 shows the marginal effects of a Poisson model, expressed as percentage increase, with bootstrapped standard errors. The results from the logit model are overall similar to those from the linear probability model, both in magnitude and statistical significance. The point estimates from the Poisson model are slightly larger in magnitude, e.g., a 109.2% increase in the sample average of 0.24 corresponds to additional 0.26 p.p. Yet, these are considerably noisier with no coefficient reaching statistical significance at the traditional levels.

Triple Diff Approach: We exploit a question of the survey that asks about past voting behavior to construct a pseudo panel and implement a triple diff regression. The idea is to account for unobserved time-invariant heterogeneity between owners of different car types that the original specification might have missed. Specifically, we run the specification

$$Vote \ Lega_{it} = \beta_1 Diesel_i + \beta_2 Euro4_i + \beta_3 Post_t$$

$$+ \beta_4 Diesel_i \times Euro4_i + \beta_5 Diesel_i \times Post_t + \beta_6 Euro4_i \times Post_t$$

$$+ \beta_7 Diesel_i \times Euro4 \times Post_t + \eta_i + \varepsilon_{it}$$

$$(1)$$

Using this approach, we find point estimates for the ATT of the ban on affected car owners that are between one-half and two-thirds the size of those reported in the original paper. This suggests that the simple diff-in-

 $^{^3\}mathrm{Bootstrapped}$ standard errors are virtually the same, and we omit them for concision.

diff used by the authors might have missed unobserved heterogeneity between owners of different car types. All coefficients are significant at the 5% level.

4 Conclusion

We successfully perform a computational reproduction of all results in Colantone et al. (2024a) using the replication package provided by the authors with only a few modifications. As our sensitivity checks demonstrate, the main results of the paper prove generally robust to alternative definitions of control variables, regression specifications, and econometric models.

However, some shortcomings in the documentation of their survey data hindered our ability to more critically evaluate the validity of their claims. We also argue that the differences-in-differences approach proposed by the authors might overlook unobserved heterogeneity between owners of different car types. Our triple-diff approach utilizes the information on previous voting behavior collected in the survey, and yields considerably smaller effects than those reported in the original paper.

Overall, we believe that the paper offers interesting insights on the political economy of green policies that were reasonably, albeit not perfectly, supported by the data. In future work, we consider it necessary to provide more transparency in the data sources and a clearer identification strategy to derive stronger conclusions.

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A Appendix

A.1 Appendix Tables

	Full Sample	Diesel-Euro4	Diesel-Euro5	Petrol-Euro4	Petrol-Euro5
Panel A - Voting (Euro 2019)					
Lega	0.23	0.24	0.15	0.22	0.24
Democrats (PD)	0.24	0.31	0.16	0.21	0.25
Forza Italia	0.13	0.20	0.19	0.10	0.12
Five Stars (M5S)	0.13	0.11	0.18	0.14	0.12
Panel B - Age					
18-24	0.03	0.01	0.02	0.03	0.03
25-34	0.11	0.06	0.13	0.13	0.10
35-44	0.35	0.43	0.22	0.31	0.36
45-54	0.31	0.42	0.35	0.27	0.31
55 and above	0.21	0.07	0.28	0.26	0.20
Panel C					
Female	0.48	0.31	0.38	0.54	0.49
Male	0.52	0.69	0.62	0.46	0.51
Panel D.1 - Education (Paper)					
High School	0.34	0.16	0.37	0.40	0.33
Bachelors	0.27	0.31	0.28	0.26	0.27
MA and higher	0.38	0.53	0.35	0.33	0.39
Unknown	0.01	0.01	0.01	0.01	0.01
Panel D.2 - Education (Alternative)					
High School	0.34	0.16	0.37	0.40	0.33
Bachelors	0.10	0.06	0.11	0.12	0.10
MA and higher	0.55	0.77	0.52	0.47	0.56
Unknown	0.01	0.01	0.01	0.01	0.01
Panel E - Income					
Below EUR 14,999 per year	0.07	0.04	0.06	0.08	0.07
Between EUR 15,000-29,999 per year	0.20	0.08	0.24	0.25	0.20
Between EUR 30,000-49,999 per year	0.22	0.30	0.17	0.19	0.22
Between EUR $45,000-69,999$ per year	0.15	0.15	0.21	0.15	0.14
Above EUR 70,000 per year	0.27	0.39	0.20	0.22	0.28
Don't know/Prefer not to sav	0.09	0.04	0.12	0.11	0.09

Table A1:	Descriptive	Statistics	of the	Sample
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Notes: This table replicates the descriptive statistics shown in Table 1 by Colantone et al. (2024a). We provide an additional "Panel D.2 - Education (Alternative)" which recodes the education variable, and suggests that authors underestimated the share of survey respondents with post-baccalaureate degrees and overestimated those with a bachelor's degree.

(a) Binned (# Bins = 5)							
			Vote 1	Lega (Euro	2019)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Diosol × Euro4	0.110	0.004	0.188**	0.158**	0.117**	0.003*	0.1/5**
Diesei × Euro4	(0.075)	(0.094)	(0.100)	(0.138)	(0.017)	(0.093)	(0.145)
Diesel	-0.093*	-0.080	-0.109*	-0.084	-0.027	0.003	-0.003
Diosor	(0.056)	(0.058)	(0.057)	(0.055)	(0.036)	(0.040)	(0.049)
Euro4	-0.048	-0.022	-0.043	-0.016	0.010	0.035	-0.019
	(0.058)	(0.063)	(0.059)	(0.059)	(0.034)	(0.036)	(0.044)
p-value of interaction term	0.112	0.234	0.017	0.042	0.012	0.071	0.016
Prior Lega Vote		0.202	0.0-1	0.0	L2018	R2018	M2016
Socio-demographic Controls			\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Observations	602	543	602	665	583	551	533
Dependent variable mean	0.24419	0.23020	0.24419	0.27068	0.23842	0.24501	0.24203
R^2	0.00499	0.00414	0.13740	0.15532	0.60361	0.58236	0.49825
Within R^2			0.06132	0.06678	0.56819	0.54372	0.45174
		(b) Fully	Saturated				
			Vote 1	Lega (Euro	2019)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Diesel \times Euro4$	0.119	0.094	0.151^{*}	0.141*	0.053	0.055	0.102
	(0.075)	(0.079)	(0.085)	(0.085)	(0.048)	(0.059)	(0.065)
Diesel	-0.093*	-0.080	-0.050	-0.049	0.010	0.020	0.019
	(0.056)	(0.058)	(0.057)	(0.056)	(0.037)	(0.043)	(0.050)
Euro4	-0.048	-0.022	-0.116*	-0.088	-0.011	-0.027	-0.085
	(0.058)	(0.063)	(0.065)	(0.066)	(0.038)	(0.044)	(0.053)
p-value of interaction term	0.112	0.234	0.078	0.095	0.264	0.350	0.114
Prior Lega Vote					L2018	R2018	M2016
Socio-demographic Controls				\checkmark	\checkmark	\checkmark	\checkmark
Observations	602	543	602	665	583	551	533
Dependent variable mean	0.24419	0.23020	0.24419	0.27068	0.23842	0.24501	0.24203
\mathbb{R}^2	0.00499	0.00414	0.35066	0.33252	0.73231	0.72663	0.66096
Within R ²			0.29339	0.26255	0.70839	0.70134	0.62953
		(c) Age -	Quadratic				
			Vote 1	Lega (Euro	2019)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Diesel \times Euro4$	0.119	0.094	0.180**	0.153^{*}	0.115**	0.089^{*}	0.144**
	(0.075)	(0.079)	(0.079)	(0.078)	(0.047)	(0.052)	(0.060)
Diesel	-0.093^{*}	-0.080	-0.109^{*}	-0.089	-0.025	0.001	-0.002
	(0.056)	(0.058)	(0.057)	(0.055)	(0.036)	(0.040)	(0.049)
Euro4	-0.048	-0.022	-0.046	-0.019	0.007	0.029	-0.026
	(0.058)	(0.063)	(0.059)	(0.059)	(0.033)	(0.036)	(0.043)
p-value of interaction term	0.112	0.234	0.023	0.050	0.015	0.086	0.017
Prior Lega Vote					L2018	R2018	M2016
Socio-demographic Controls			\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Observations	602	543	602	665	583	551	533
Dependent variable mean \mathbb{R}^2	0.24419	0.23020	0.24419	0.27068	0.23842	0.24501	0.24203
R ²	0.00499	0.00414	0.13560	0.15907	0.60115	0.57970	0.49402
Within R ²			0.05936	0.07092	0.56552	0.54082	0.44713

Table A2: Alternative Age Specifications

Notes: This table shows the main results from Colantone et al. (2024a) with different age specifications. Panel (a) includes age as a binned variable, Panel (b) has a fully saturated model, and Panel (c) includes a quadratic term. Across the different panels, Column (2) drops observations with missing education and missing income.

Table A3: Robustness – Alternative Education Categori

(a) Alternative Education Bins

	Vote Lega (Euro 2019)					
	(1)	(2)	(3)	(4)	(5)	(6)
$Diesel \times Euro4$	0.119	0.178^{**}	0.153^{**}	0.105^{**}	0.087^{*}	0.145^{**}
	(0.075)	(0.078)	(0.077)	(0.048)	(0.051)	(0.058)
Diesel	-0.093^{*}	-0.093*	-0.075	-0.010	0.020	0.011
	(0.056)	(0.055)	(0.054)	(0.036)	(0.038)	(0.046)
Euro4	-0.048	-0.038	-0.014	0.014	0.027	-0.026
	(0.058)	(0.060)	(0.059)	(0.036)	(0.036)	(0.043)
p-value of interaction term	0.112	0.023	0.048	0.029	0.091	0.012
Prior Lega Vote				L2018	R2018	M2016
Socio-demographic Controls		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Observations	602	602	665	583	551	533
Dependent variable mean	0.24419	0.24419	0.27068	0.23842	0.24501	0.24203
\mathbb{R}^2	0.00499	0.12228	0.14820	0.58776	0.56362	0.48662
Within \mathbb{R}^2		0.05727	0.06754	0.55676	0.53089	0.44837

(b) Alternative Education Bins, Drop Missing Values

	Vote Lega (Euro 2019)					
	(1)	(2)	(3)	(4)	(5)	(6)
$Diesel \times Euro4$	0.094	0.152^{*}	0.115	0.101^{*}	0.087	0.144**
	(0.079)	(0.083)	(0.082)	(0.053)	(0.056)	(0.062)
Diesel	-0.080	-0.089	-0.067	-0.019	0.015	0.007
	(0.058)	(0.059)	(0.057)	(0.037)	(0.041)	(0.050)
Euro4	-0.022	-0.006	0.023	0.027	0.043	-0.022
	(0.063)	(0.064)	(0.063)	(0.040)	(0.041)	(0.047)
p-value of interaction term	0.112	0.023	0.048	0.029	0.091	0.012
Prior Lega Vote				L2018	R2018	M2016
Socio-demographic Controls		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Observations	543	543	600	530	499	488
Dependent variable mean	0.23020	0.23020	0.25833	0.22453	0.23046	0.22746
\mathbb{R}^2	0.00414	0.12259	0.15351	0.56161	0.54803	0.46277
Within \mathbb{R}^2		0.06706	0.07672	0.53435	0.52076	0.43060

Notes: This table replicates Table 2 from Colantone et al. (2024*a*), but re-defines the education dummies by moving responses with a value of "Laurea vecchio ordinamento" into the group reflecting an education level of a master's degree or above (see https://web.archive.org/web/20230307021733/http://attiministeriali.miur.it/anno-2009/luglio/di-09072009.aspx, accessed April 25, 2024). Panel (a) otherwise mirrors the original regression specifications whereas panel (b) drops observations with missing/non-response for education and/or income and.

Diesel

Euro4

 \mathbf{R}^2

p-value of interaction term

Socio-demographic Controls

Dependent variable mean

Prior Lega Vote

Observations

Within \mathbb{R}^2

			-			
		V	/ote Lega	(Euro 2019)	
	(1)	(2)	$(3)^{-}$	(4)	(5)	(6)
$Diesel \times Euro4$	0.119	0.171^{**}	0.150^{*}	0.107^{**}	0.099^{*}	0.140**
	(0.075)	(0.078)	(0.077)	(0.048)	(0.052)	(0.058)
Diesel	-0.093^{*}	-0.088	-0.072	-0.010	0.021	0.015
	(0.056)	(0.055)	(0.053)	(0.036)	(0.038)	(0.045)
Euro4	-0.048	-0.038	-0.015	0.010	0.021	-0.026
	(0.058)	(0.060)	(0.059)	(0.035)	(0.036)	(0.044)
p-value of interaction term	0.112	0.029	0.053	0.025	0.055	0.017
Prior Lega Vote				L2018	R2018	M2016
Socio-demographic Controls		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Observations	602	602	665	583	551	533
Dependent variable mean	0.24419	0.24419	0.27068	0.23842	0.24501	0.24203
\mathbb{R}^2	0.00499	0.12153	0.15204	0.58574	0.56227	0.48400
Within \mathbb{R}^2		0.06141	0.07223	0.55775	0.53363	0.45015
	(b) Dr	op Missing	Values			
	Vote Lega (Euro 2019)					
	(1)	(2)	(3)	(4)	(5)	(6)
$Diesel \times Euro4$	0.094	0.151^{*}	0.117	0.098^{*}	0.090	0.141**
	(0.079)	(0.083)	(0.082)	(0.052)	(0.056)	(0.061)

-0.091

(0.058)

-0.007

(0.064)

0.068

 \checkmark

543

0.23020

0.12214

0.06580

-0.080

(0.058)

-0.022

(0.063)

0.234

543

0.23020

0.00414

Table A4: Robustness – Missing/Non-Reported Education/Income

Notes: This table replicates Table 2 from Colantone et al. (2024*a*), but explicitly addresses missing values or non-response for the education and income variables. Panel (a) imputes missing/non-reported education and income using a random forest approach with age, gender, and non-missing income/education as predictors. We include imputation dummies, one for education and one for income, that are 1 if the education/income for an observation was imputed. Panel (b) drops observations with missing/non-reported education or income.

(a) Impute Missing Values

-0.069

(0.057)

0.022

(0.063)

0.157

 \checkmark

600

0.25833

0.15508

0.07595

0.013

(0.041)

0.043

(0.041)

0.107

R2018

 \checkmark

499

0.23046

0.55257

0.52446

-0.020

(0.037)

0.027

(0.040)

0.061

L2018

 \checkmark

530

0.22453

0.56222

0.53484

0.008

(0.050)

-0.022

(0.047)

0.022

M2016

 \checkmark

488

0.22746

0.46320

0.43040

	Vote Lega (Euro 2019)					
	(1)	(2)	(3)	(4)	(5)	(6)
$Diesel \times Euro4$	0.119	0.176^{**}	0.154^{**}	0.110^{**}	0.099^{*}	0.139**
	(0.075)	(0.078)	(0.077)	(0.047)	(0.051)	(0.059)
Diesel	-0.093^{*}	-0.092^{*}	-0.074	-0.013	0.019	0.013
	(0.056)	(0.055)	(0.053)	(0.036)	(0.038)	(0.045)
Euro4	-0.048	-0.035	-0.013	0.012	0.028	-0.017
	(0.058)	(0.060)	(0.059)	(0.036)	(0.037)	(0.044)
p-value of interaction term	0.112	0.024	0.046	0.021	0.056	0.018
Prior Lega Vote				L2018	R2018	M2016
Socio-demographic Controls		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Observations	602	602	665	583	551	533
Dependent variable mean	0.24419	0.24419	0.27068	0.23842	0.24501	0.24203
\mathbb{R}^2	0.00499	0.12829	0.15428	0.58781	0.56799	0.48867
Within \mathbb{R}^2		0.06416	0.07061	0.55779	0.53633	0.45162

Table A5:	Preferred	Specification
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Notes: This table replicates the main analysis from Colantone et al. (2024*a*), Table 2 using our preferred specification. Here, we group age into 5 bins, use our updated coding of the education variable, and impute missing/non-reported education and income using a random forest approach with age, gender, and non-missing income/education as predictors. We include imputation dummies, one for education and one for income, that are 1 if the education/income for an observation was imputed.

	Vote Lega (Euro 2019)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
$Diesel \times Euro 4$	0.125	0.100	0.198**	0.194**	0.1554	0.105	0.209**	
	(0.080)	(0.083)	(0.085)	(0.088)	(0.100)	(0.082)	(0.104)	
Euro 4	-0.047	-0.022	-0.053	-0.032	0.0291	0.054	-0.045	
	(0.059)	(0.062)	(0.065)	(0.068)	(0.071)	(0.056)	(0.084)	
Diesel	-0.101	-0.089	-0.079	-0.066	-0.0022	0.061	0.025	
	(0.063)	(0.068)	(0.062)	(0.064)	(0.067)	(0.052)	(0.068)	
p-value of interaction term	0.118	0.229	0.02	0.027	0.12	0.201	0.045	
Prior Lega Vote					L2018	R2018	M2016	
Socio-demographic controls			\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	
Observations	602	543	602	665	583	551	533	
	(b) Quadratic							
	Vote Lega (Euro 2019)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
$Diesel \times Euro 4$	0.125	0.100	0.196**	0.192**	0.1500	0.095	0.200*	
	(0.080)	(0.083)	(0.086)	(0.088)	(0.099)	(0.078)	(0.102^*)	
Euro 4	-0.047	-0.022	-0.058	-0.036	0.0306	0.055	-0.049	
	(0.059)	(0.062)	(0.064)	(0.068)	(0.070)	(0.055)	(0.084)	
Diesel	-0.101	-0.089	-0.074	-0.063	0.0068	0.068	0.039	
	(0.063)	(0.068)	(0.062)	(0.064)	(0.066)	(0.050)	(0.066)	
p-value of interaction term	0.118	0.229	0.022	0.029	0.128	0.226	0.051	
Prior Lega Vote					L2018	R2018	M2016	
Socio-demographic controls			\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	
Observations	602	543	602	665	583	551	533	

Table A6: Logit Model and Alternative Inclusion of Age

(a) Binned (# Bins = 5)

Notes: This table shows marginal effects of the regressions in Table A2 estimated with a logit model. Standard errors in parenthesis were obtained via the delta method and are similar to bootstrapped standard errors, which we omit.

	(1)	(2)	(3)	(4)	(5)	(6)
Diesel x Euro4	0.68 (0.705)	$1.092 \\ (0.919)$	$0.889 \\ (0.817)$	$0.36 \\ (0.416)$	$0.188 \\ (0.373)$	$0.525 \\ (0.588)$
Prior Lega Vote				L2018	R2018	M2016
Sociodemographic Controls	Υ	Υ	Υ	Υ	Υ	Υ
Observations	602	602	665	602	602	602
Dependent variable mean	0.244	0.244	0.271	0.238	0.245	0.242

Table A7: Poisson QMLE

Notes: This table replicates our preferred specification of Table 2 from Colantone et al. (2024*a*), but uses a Poisson QMLE approach instead of OLS. Standard errors are calculated via a nonparametric bootstrap using 1,000 draws.

	Vote Lega					
	(1)	(2)	(3)	(4)		
$Diesel \times Euro4 \times Post$	0.097**	0.081^{**}	0.091^{**}	0.074^{*}		
	(0.042)	(0.038)	(0.045)	(0.042)		
Post \times Diesel	0.023	0.022	0.020	0.020		
	(0.030)	(0.027)	(0.033)	(0.030)		
Post \times Euro4	0.006	0.006	0.015	0.015		
	(0.029)	(0.027)	(0.032)	(0.030)		
p-value of interaction term	0.020	0.042	0.020	0.042		
Individual FE	\checkmark	\checkmark	\checkmark	\checkmark		
Observations	2,319	2,557	2,105	2,323		
Dependent variable mean	0.18672	0.21822	0.17150	0.20577		
R^2	0.80170	0.83887	0.79076	0.83399		
Within \mathbb{R}^2	0.04882	0.04258	0.05062	0.04390		

Table A8: Triple Diff - Pseudo Election Panel

Notes: This table replicates columns (2) and (3) of Table 2 from Colantone et al. (2024a) using a triple diff approach instead of a simple diff-in-diff. We add time as a third dimension by exploiting the information on three earlier elections to create a pseudo panel. The elections prior to the announcement of the Area B policy are classified as the pre-period, i.e. Post = 0, and the Euro election in 2019 is defined as the post-period, i.e. Post = 1. Columns (3) and (4) report results when dropping respondents with missing values for education and/or income. All regressions include individual fixed effects and cluster standard errors at the individual level.