Online Appendix

Looking retrospectively at the 2018 Italian general election: the state of the economy and the presence of foreigners

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Contents

Codebook

Table A.1 presents the main variables used in the text and in the robustness checks of this appendix, together with the specific index used, the source of the data and how to retrieve them. Further indices can be easily computed by drawing on the same sources.

Table A.1 Table of main variables, indicators and sources

Variable	Index	Source	URL
Incumbent votes	% PD for the Chamber of Deputies in the 2018 and 2013 elections (proportional part of the ballot)	Ministry of the Interior	https://bit.ly/2QXJotw
Delta Turnout	Difference between % votes / electorate in 2018 and 2013	Ministry of the Interior	https://bit.ly/2QXJotw
Unemployment	Monthly weighted average of the 2018 and 2017 unemployment rates	Istat – provincial data	https://bit.ly/2F9IQOQ
Growth	Monthly weighted average of the increase in added value in 2018 and 2017	Istat – provincial data	https://bit.ly/2ZVzxt3
Increase foreign population	Ratio between the percentage of foreign population on 1 January 2018, and the same value (a) in 2017, and (b) in 2013	Istat – municipal and provincial data	https://bit.ly/2FdIrek
Change in foreign population	Delta between the percentage of foreign population on 1 January 2018, and the same value (a) in 2017, and (b) in 2013	Istat – municipal and provincial data	https://bit.ly/2FdIrek
Geographic data	Shapefiles with municipality and provincial borders matched between 2018 and 2013 for possible changes	Istat	https://bit.ly/2F5S2ng

Descriptives

Table A.2 reports the descriptive statistics regarding the main variables used in the article for the Italian municipalities

Table A.2 Descriptive statistics at the municipal level

Variable	Mean	Std. Dev.	Median	Min	Max
% PD 2018	17.14	6.32	16.52	0.00	53.70
% PD 2013	24.12	7.84	23.20	2.81	59.31
Unemployment	11.06	5.85	9.35	3.04	28.74
Growth	2.31	0.98	2.29	-0.29	4.98
% Foreigners 2018	6.68	4.29	5.97	0.00	38.20
% Foreigners 2017	6.56	4.29	5.81	0.00	41.25
Ratio % Foreigners 2018/2017	1.04	0.26	1.02	0.00	12.03
Change in turnout 2018-2013	-1.29	4.44	-1.54	-41.85	78.86

Figure A.1 maps the distribution of the two main variables of interest: unemployment and the increase in foreign population between 2017 and 2018.
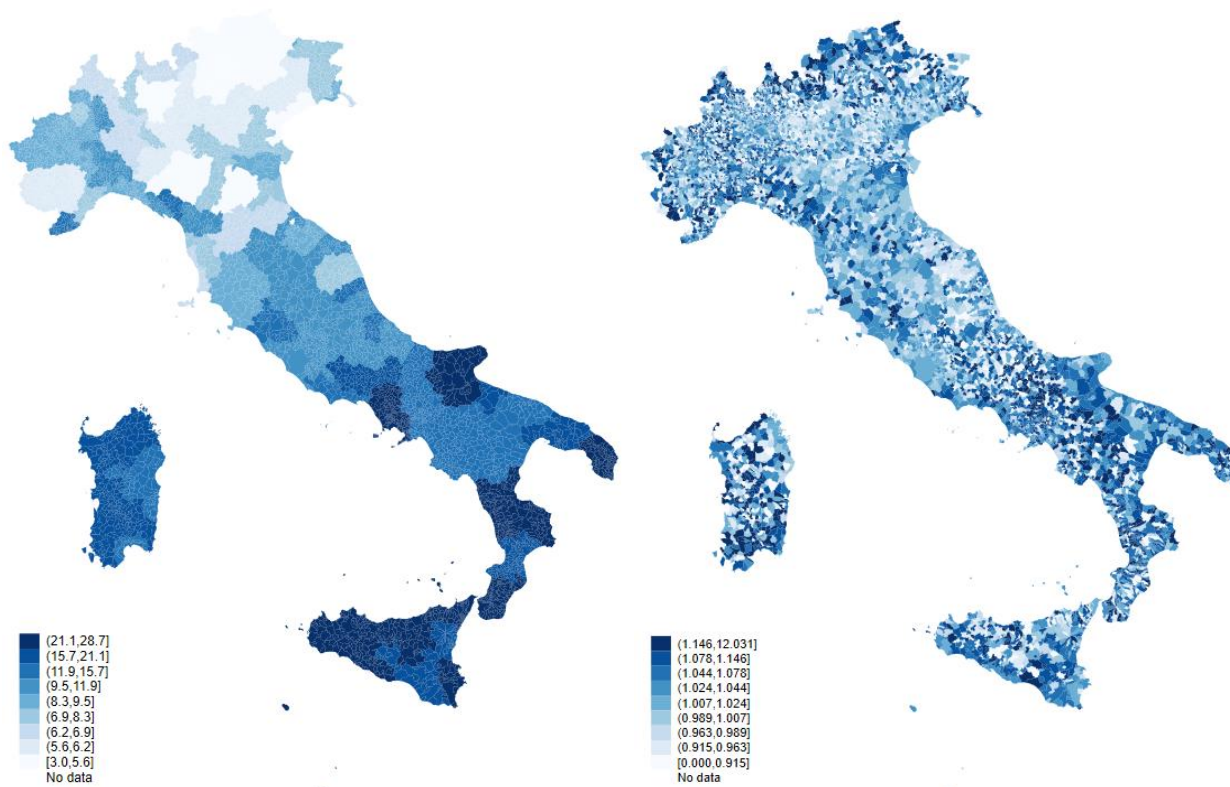

Figure A.1 Unemployment rates at the provincial level in the year before the 2018 election, and ratios of the percentage of foreign population at the municipal level between 1 January 2018 and 1 January 2017.

Robustness

State of the economy

We start by replicating Table 1 in the text with data at the provincial (instead of municipal) level (see Table A.3).

Table A.3 The effect of unemployment, growth and immigration on electoral support for the incumbent (provincial level)

	(1)	(2)	(3)
% PD 2013	0.72***	0.72***	0.73***
	(0.04)	(0.04)	(0.04)
Unemployment rate	-0.25***	-0.25***	-0.21***
	(0.03)	(0.03)	(0.03)
Growth		0.03	0.03
		(0.15)	(0.15)
Ratio % foreigners 2018/2017			-14.62***
			(4.68)
Change in turnout	0.25**	0.25**	0.26**
	(0.11)	(0.11)	(0.10)
Constant	3.19***	3.11***	17.63***
	(1.15)	(1.07)	(4.83)
Observations	106	106	106
R-squared	0.90	0.90	0.90

Robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results entirely confirm those presented in the main text. Both unemployment and an increased presence of foreigners triggered punishment of the incumbent party, while growth appears to be statistically insignificant, albeit with the expected positive sign.

Furthermore, to avoid any bias due to extreme decreases/increases in the foreign population during the year preceding the election caused by contingent factors, we also replicated the third model, excluding those municipalities that experienced either a reduction of more than 40% or an increase of more than 90% in the size of its foreign population. The results are

comparable to the one presented in the article, with a sizeable increase of the coefficient regarding the immigration trend, though this time at a p<0.05 level of statistical significance.

Since the literature on retrospective economic voting discusses whether level variables, like the unemployment rate, should be preferred to change indices, like the difference between unemployment rates in the usual 1-year time-horizon (Healy and Malhotra 2013), in Table A.4 and A.5 we check what happens to the models reported in the article if the former is substituted for the latter.

Table A.4 The effect of change in unemployment, growth and immigration on electoral support for the incumbent (municipal level)

	(1)	(2)	(3)
% PD 2013	0.59***	0.60***	0.60***
	(0.03)	(0.03)	(0.03)
Delta unemployment rate	-0.13	-0.11	-0.11
	(0.16)	(0.16)	(0.16)
Growth		0.37*	0.36*
		(0.20)	(0.20)
Ratio % foreigners 2018/2017			-1.01***
			(0.20)
Change in turnout	0.04	0.05	0.04
	(0.05)	(0.05)	(0.05)
Constant	2.80***	1.92***	2.93***
	(0.65)	(0.64)	(0.68)
Observations	7883	7883	7833
R-squared	0.55	0.55	0.55

Clustered standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

It is immediately apparent that the coefficient of the change variable – the increase/decrease in unemployment rates at the time of the election compared to the previous year – is never significant. Interestingly, the coefficient of the growth variable becomes weakly significant (p<0.10) and with the correct positive sign: those municipalities which experienced better economic performances supported the incumbent party more (or punished it less). The variable regarding migration remains highly significant, as in the model presented in the text.

There are three main reasons why we prefer the original model to this one. In the former: a) the main variable of interest (unemployment) is highly significant (p<0.001), while here its

alternative version (growth) is borderline (p<0.1); b) the explained variance is systematically higher; and c) the Akaike information criteria confirm that the original model should be preferred to this substitute.

An additional reason is that the models with the unemployment trend are not even robust to the specification with provinces as units of analysis. As outlined in Table A.5, in this case, all the variables capturing the state of the economy prove to be statistically insignificant.

Table A.5 The effect of change in unemployment, growth and immigration on electoral support for the incumbent (provincial level)

	(1)	(2)	(3)
% PD 2013	0.82***	0.82***	0.80***
	(0.04)	(0.04)	(0.04)
Delta unemployment rate	-0.14	-0.13	-0.02
	(0.12)	(0.12)	(0.11)
Growth		0.23	0.15
		(0.21)	(0.20)
Ratio % foreigners 2018/2017			-29.22***
			(6.03)
Change in turnout	0.05	0.07	0.15*
	(0.10)	(0.10)	(0.09)
Constant	-2.79***	-3.16***	27.98***
	(0.93)	(0.93)	(6.72)
Observations	106	106	106
R-squared	0.84	0.85	0.87

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Regarding migration, we have already discussed in the text the substantive reasons why, in this case, we prefer the trend index to the level one.

Furthermore, using both variables in the same equation would produce biased results, as discussed in detail for a similar problem by Arel-Bundock et al. (2019).

Put briefly, and excluding the other control variables, electoral support would be a function of the presence of foreigners in 2018 and of its trend compared to the previous year:
$E = \alpha + \beta 1\ F2018 + \beta 2(F2018\text{-}F2017)$.

Rearranged, it becomes $E = \alpha + (\beta 1 + \beta 2)\ F2018 - \beta 2\ F2017$ demonstrating that the original coefficient for the presence of foreigners in 2018 was actually biased, and that the meaning of the coefficient of the trend is in reality the inverse of the coefficient for the one year lagged variable.

Moreover, since the two quantities F2018 and F2017 are obviously related, there would be a serious risk of collinearity in the regression model, producing odd results.

In Table A.6 we replicate the last model of Table 1 in the article, first by using a longer temporal horizon, and then by testing both specifications using provinces as units of analysis.

We obtain the same results: the two covariates of interest always have the correct sign and are highly significant, demonstrating that our results do not depend on the temporal horizon of our analysis or on the units chosen.

Interestingly, in the analyses at the provincial level, the coefficients for the change in turnout levels are positive (as in the text), but this time become statistically significant (as above in Table A.3). This means that the incumbent party suffers less when the state of the economy or the immigration issue does not also trigger political alienation and a reduction in electoral participation. This empirical evidence goes against what some retrospective scholars suppose, i. e. that the reduced turnout caused by political alienation mitigates the punishment of incumbents (Bengtsson 2004; Radcliff 1994).

By computing the standardized regression coefficients of all these models (original and replicates), we gain an initial idea of the relative power of the two variables of interest in triggering the electoral response. The state of the economy is almost always much more

important than the increase in the presence of foreigners, with the sole exception of the last model at the provincial level, in which their impact is similar.

Table A.6 The effect of unemployment and trend in the presence of foreigners on punishment of the incumbent (different units and temporal horizon)

	(1) % PD 2018	(2) % PD 2018	(3) % PD 2018
% PD 2013	0.60***	0.73***	0.73***
	(0.03)	(0.04)	(0.04)
Unemployment rate	-0.22***	-0.21***	-0.13***
	(0.03)	(0.03)	(0.04)
growth	-0.07	0.03	0.01
	(0.17)	(0.15)	(0.14)
Ratio % foreigners 2018/2013	-0.16**		-4.48***
	(0.08)		(1.00)
Ratio % foreigners 2018/2017		-14.62***	
		(4.68)	
Turnout 2018-2013	0.06	0.26**	0.22**
	(0.05)	(0.10)	(0.10)
Constant	5.61***	17.64***	6.92***
	(0.70)	(4.83)	(1.40)
Observations	7842	106	106
R-squared	0.59	0.90	0.91

Clustered (municipal level) and robust (provincial level) standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A.7 presents the complete model of the interaction effects plotted in the article in Figure 3.

Additionally, similar results are obtained with a different time horizon and replicating those models at the provincial level. Their marginal effects are plotted in Figure A.2 below.

As in the article, the weak positive interaction effect is also confirmed in these robustness tests. The two quantities seem to be complementary, so that at comparatively lower levels of unemployment, the increase in the presence of foreigners activates punishment of the incumbent, while at higher levels of unemployment the poor state of the economy prevails and entirely absorbs the electoral penalty.

While, at the provincial level, the time horizon considered for the increase in the presence of foreigners does not make any difference, at the municipal level the confidence intervals of the five-year interval are so wide that they mask this conditional effect (figure A.2 below).

Table A.7 Interacting unemployment and trend in the presence of foreigners at the municipal and provincial levels

	(1) % PD 2018	(2) % PD 2018	(3) % PD 2018	(4) % PD 2018
% PD 2013	0.60***	0.60***	0.73***	0.73***
	(0.03)	(0.03)	(0.04)	(0.04)
Unemployment rate	-0.27***	-0.23***	-1.83*	-0.31**
	(0.06)	(0.03)	(1.04)	(0.15)
Growth	-0.07	-0.07	-0.01	-0.03
	(0.17)	(0.17)	(0.16)	(0.15)
Ratio % foreigners 2018/2017	-1.44**		-36.29**	
	(0.65)		(14.57)	
Ratio % for 2018/2017*Unemployment	0.05		1.57	
	(0.04)		(1.00)	
Ratio % foreigners 2018/2013		-0.35		-6.31***
		(0.28)		(1.96)
Ratio %for 2018/13*Unemployment		0.01		0.14
		(0.02)		(0.12)
Turnout 2018-2013	0.06	0.07	0.27***	0.22**
	(0.05)	(0.05)	(0.10)	(0.10)
Constant	6.90***	5.83***	40.05***	9.21***
	(0.96)	(0.70)	(15.02)	(2.48)
Observations	7850	7842	106	106
R-squared	0.59	0.59	0.90	0.91

Clustered (municipal level) and robust (provincial level) standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$
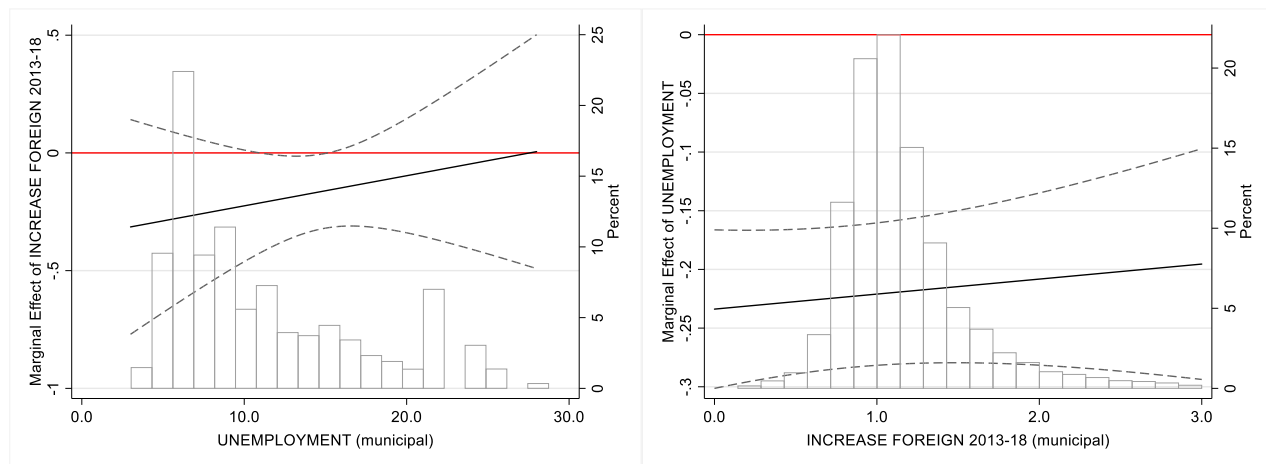

Figure A.2. The marginal effects of the symmetric conditional models (municipal level, increase in the presence of foreigners 2013-18) Model 2
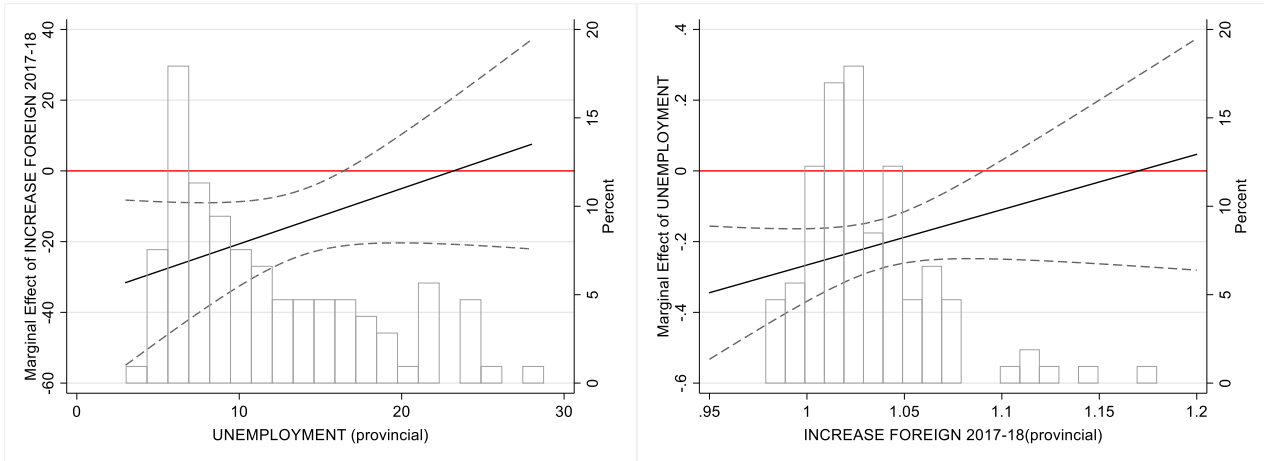
Figure A.3. The marginal effects of the symmetric conditional models (provincial level, increase in the presence of foreigners 2017-18) Model 3
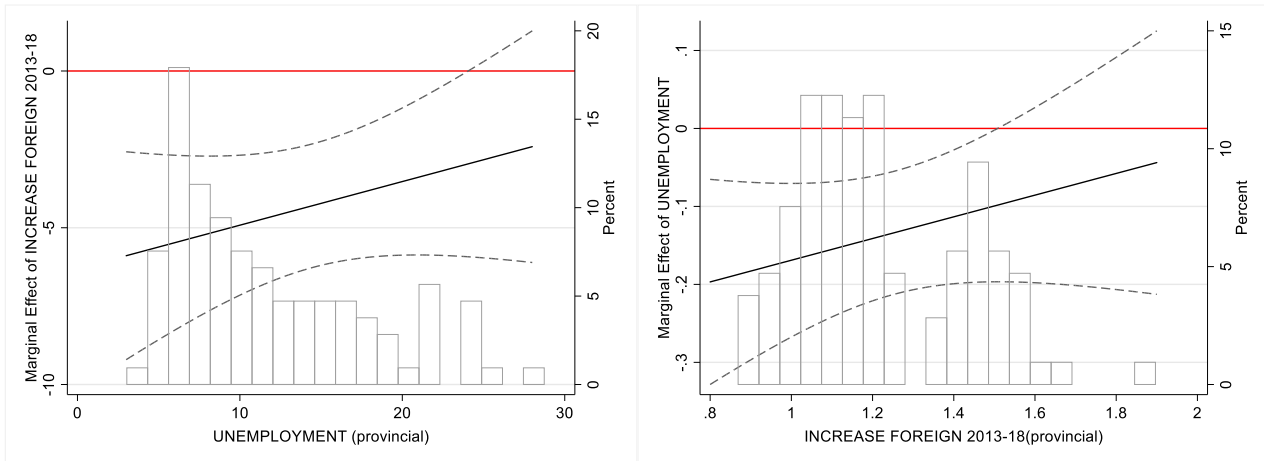

Figure A.4. The marginal effects of the symmetric conditional models (provincial level, increase in the presence of foreigners 2013-18) Model 4

References

Arel-Bundock, V., A. Blais and R. Dassonneville. 2019. "Do Voters Benchmark Economic Performance?". *British Journal of Political Science* 10.1017/s0007123418000236: 1-13.

Bengtsson, Å. 2004. "Economic Voting: The Effect of Political Context, Volatility and Turnout on Voters' Assignment of Responsibility". *European Journal of Political Research* 43 (5): 749-67.

Healy, A. and N. Malhotra. 2013. "Retrospective Voting Reconsidered". *Annual Review of Political Science* 16 (1): 285-306.

Radcliff, B. 1994. "Reward without Punishment: Economic Conditions and the Vote". *Political Research Quarterly* 47 (3): 721-31.