The Political Cycle of Road Traffic Accidents*

Paola Bertoli
University of Economics, Prague
CERGE-EI Fellow†

Veronica Grembi
University of Milan
University of Economics, Prague

This draft: November 2018.

Abstract

Road traffic accidents often mean lost productivity and medical expenditures. We explain trends in traffic accidents as a function of the political cycle using municipal data from Italy. We show that during municipal election years, the accident rate increases by 2.2%, with a 2.5% increase in the injury rate but no effect on the fatality rate. The effects are stronger in the two quarters prior the quarter in which the election is held, when the electoral campaign is intense, and in the second quarter after the election, when the elected mayor takes office. We argue that this is the result of a decrease in ticket rates during election years, as the expenditures on traffic police increase. Our results are robustly driven by the municipal political cycle defined in different ways, and their magnitude and direction are not explained by spillover effects between municipalities. Proximity to a national police station reduces the impact of local elections on injury rates.

JEL Classification: H70, H75, D72

Keywords: Road Traffic Accidents, Political Cycle, Municipalities, Elections

*We would like to thank Giulia Mugellini (Polis-Lombardia) and Diego Gasperini (Ufficio di Statistica della Regione del Veneto) for providing us with the traffic accident data on Lombardy and Veneto, as well as The Linh Bao Nguyen for her excellent work as our research assistant.

†CERGE-EI, a joint workplace of Charles University and the Economics Institute of the Czech Academy of Sciences, Politickych veznu 7, P.O. Box 882, 111 21 Prague 1, Czech Republic.

1 Introduction

Road traffic accidents are the main cause of mortality among people under age 45, and the leading cause for those between 15 and 29 (Eurostat, 2015). While there are more than 1.25 million deaths each year on the roads, between 20 and 50 million more people suffer non-fatal injuries, which can result in temporary or permanent disabilities (WHO, 2015). The economic losses are substantial both individually and nationwide: it has been estimated that most countries lose approximately 3% of their GDP in lost productivity and medical expenditures (WHO, 2015), which does not include the costs of traffic congestion and fuel waste associated with traffic accidents. As a result, reducing traffic accidents is a top priority of policy makers: the 2030 United Nations Agenda for Sustainable Development includes halving the global number of road accidents among its targets. Different levels of government can play crucial roles in promoting this ambitious plan, which requires both effective traffic safety regulation and enforcement. National governments are often responsible for regulating the consumption of alcohol, the use of seat belts and child restraints, and helmet obligations. Local governments and authorities play a tremendous role in road maintenance and direct law enforcement. However, while there is a rich literature on the impact of general safety measures on traffic accidents and fatalities (*e.g.*, Cohen and Leinav, 2003; Bourgeon and Picard, 2007; Adams and Cotti, 2008; Abouk and Adams, 2013), evidence on the role of local governments is scant and based primarily on the channel of corruption in developing countries (Bertrand *et al.*, 2007; Anbarci *et al.*, 2006; Law *et al.*, 2009; Albalate and Yarygina, 2017).

We focus on the role of local governments in a developed country, not to assess a specific safety measure, but to investigate if and how the municipal political cycle affects traffic accidents and their consequences, namely injuries and deaths. In many countries, residents elect local authorities, sometimes local police chiefs, such as in the US. Hence, distortions associated with the political cycle might affect trends in traffic accidents through their influence on law enforcement patterns at the local level. For instance, as elections approach, local politicians might want to show strong commitment to fighting traffic accidents, and increasing traffic safety. However, the incentives for strict law enforcement might be low, since strict law enforcement might displease myopic voters reducing political support.

By exploiting staggered municipal mayoral elections from 1995 to 2016 in two Italian regions – Lombardy and Veneto (representing 26.10% of all Italian municipalities and 15,000,000 inhabitants) – we show, that in municipal election years, the number of traffic accidents per 1,000 residents increases by 2.2% at the mean of traffic accidents. According

to a back-of-the-envelope calculation based on a benchmark case, the estimated total loss per resident is approximately 3 (2018) euros per election. The main channel of this effect is a reduction in traffic tickets levied in election years.[1] We provide evidence, that while the pressure of tickets decreases, the expenditures on local police responsible for traffic control increase. This explains our finding that while the injury rate (*i.e.*, the number of injured per 1,000 residents) increases by 2.5%, the municipal political cycle has no impact on the fatality rate (*i.e.*, the number of deaths per 1,000 residents). There is a substitution between more and less salient forms of deterrence, since pleasing voters is good, but deaths on the roads are bad. We support this finding by showing that the types of accidents that increase the most are daytime and rush hour accidents, and those occurring under good weather conditions. By contrast, there is no effect of the political cycle on the most severe types of accidents, which are those at night or on weekends.

Our baseline results are robust to different specifications of the municipal political cycle and to different sets of controls at the municipal level to exclude the possibility that the election year effect is due to a change in the likelihood of driving more (as in Parry, 2004; Miller *et al.* 2009; Bertoli *et al.* 2018; Giulietti *et al.*, 2018) rather than changes in law enforcement, as we argue. Our findings are also robust to controlling for spatial dependence in the error term due to unmeasured factors correlated across space and able to affect the frequency and severity of road crashes (*e.g.*, land use and road characteristics). Additionally, we show that alternative ways to improve road safety without targeting drivers, such as increasing the number of lights and the public electricity consumption (measured in kilowatts per hour), do not follow the cycle of ticket rates and traffic police expenditures.

By exploiting quarter-level data to provide insight into developments during an election year (Akhmedov and Zhuraskaya, 2004), we show that increases in accident and injury rates are stronger during the two quarters preceding the electoral quarter, when the electoral stakes are higher, and in the second quarter following the election, when an elected mayor operationally begins serving her term.

We investigate whether part of the estimated effect could be explained as a function of other political cycles, such as those linked to national elections or to the political cycles of neighboring municipalities. The national political cycle coincides with the mayoral cycle for only 11% of our observed elections, and it does not produce robust effects on accident and injury rates, although the direction of the effect is always negative. There is a negative and statistically significant impact of national election years on fatality rates, which can be

[1]The municipal political cycle affecting traffic tickets has also been confirmed by Bracco (2018) using data from all Italian regions. However, we are the first to connect the cycle on budget items to traffic accidents.

explained by the role played by the national police force. We do not find significant spillover effects from elections in neighboring municipalities.

Finally, we analyze how a set of political and non-political municipal characteristics channel the election year effect. We find that the positive impact of the political cycle on the injury rate increases as the political environment becomes more competitive, as proxied by a small margin of victory in previous elections. A similar effect is associated with greater party fragmentation, and when politicians are not elected through a runoff system. Conversely, there is no difference in the estimated effect with a constituency with higher trust in local governments, as measured by the results of a referendum on more autonomy, or facing term limits. The result on term limit can be explained by the fact that incumbent term-limited mayors might want to support their own political party or candidate, or seek to be supported in other electoral offices, among other things. Regarding the non-political municipal characteristics, we estimate a stronger positive effect of the cycle when the distance to the nearest national police station is greater. There are no differential effects due to participation in a municipal consortium to provide local services or when the municipality has a tourist vocation, as proxied by more vacation homes or fewer registered vehicles.

Our paper also relates to the strand of literature on the strategic behaviors of politicians throughout an electoral cycle. Even though evidence on the link between the political cycle and fiscal policy is vast (Persson and Tabellini, 2002; Shi and Svensson, 2002; Brender and Drazen, 2005), scant attention has been devoted to whether an incumbent's strategic behaviors spill over to other domains of public policy, especially at the local level.[2] Among the few exceptions are Englmaier and Stowasser (2017), who find that lending policies strategically respond to the local elections at the county level in Germany, and Baskaran *et al.* (2015), who provide evidence of an electoral cycle in electricity service provision in Indian states. Closely related to the analysis of the public policy cycle at the local level is the work of Takako and Bessho (2018) on the employment of physicians in Japanese public hospitals, which increases in municipal election years, in line with findings for France by Clark and Milcent (2011) and for the US by Bee and Moultun (2015).

The paper is organized as follows. Section 2 provides some background information on the electoral system and the dataset employed. Section 3 defines the empirical strategy and robustness checks and discusses the results. Section 4 concludes.

[2]There is widespread evidence on political cycles within countries, including Akhmedov and Zhuravskaya (2004) - Russia; Gonzalez (2000) Mexico; Cole (2009)- India; Drazen and Eslava (2010) Colombia; Foremny and Riedel (2014)- Germany; and Alesina and Paradisi (2017) - Italy.

2 Institutions and Data

Our sample is based on the municipalities of two northern Italian regions: Lombardy and Veneto. There are at least two reasons to restrict our focus to these regions: the type and representativeness of their data on traffic accidents and their homogeneity in terms of social capital. First, Veneto and Lombardy count a remarkable number of municipalities, jointly 2,110, accounting for a quarter of all Italian municipalities, and which include almost 15,000,000 inhabitants. Second, they provide information at the municipal level not only on the number and severity of traffic accidents, but also on the conditions under which accidents occur (*e.g.*, the number and severity of accidents per weather condition or per time of the day). This information is otherwise not available, but it is valuable since certain types of accidents, such as those at night and on weekends, are regarded as more severe than others. Even more relevant for our goals is the fact that these two regions provide accident data (*i.e.*, only the number of accidents, injured, and deaths) at the quarterly level, which allows us to offer a better understanding of what happens during an election year.

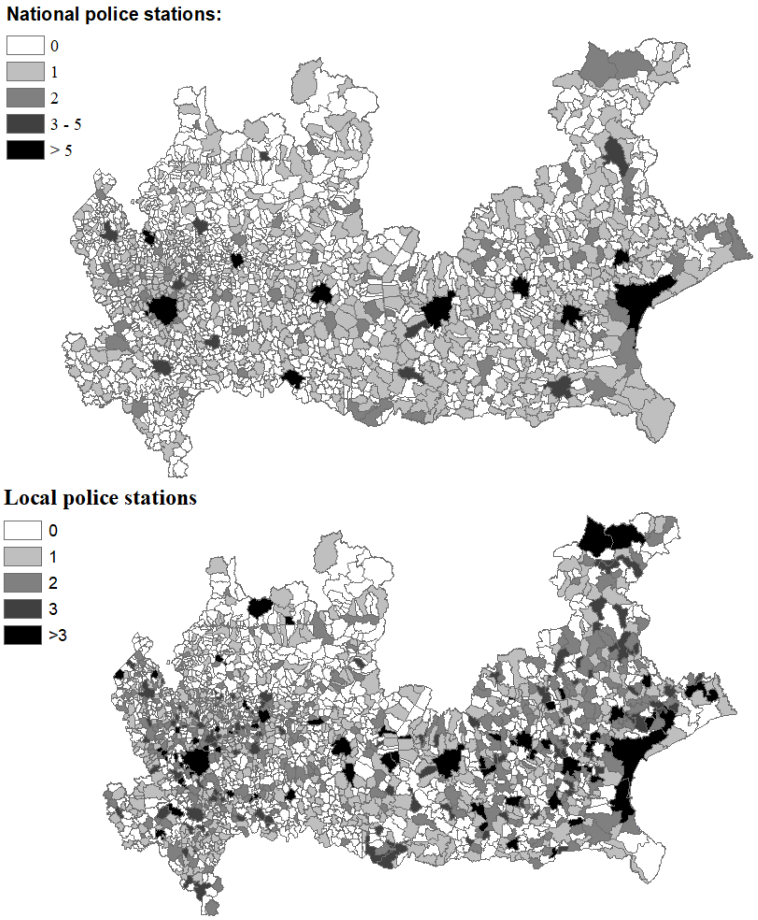
Belonging to the northern part of the country (Figure A.1), both Lombardy and Veneto have high levels of social capital (Stella *et al.*, 2013). General compliance with the law and specifically with road safety laws is strong in both regions and higher than in other parts of Italy. For instance, the incidence of the use of seat belt is 93% in Lombardy and 92% in Veneto. Similarly, they both report among the lowest tax evasion rates in the country (below 13%). Their high standards of law enforcement allow us to generalize the findings from this institutional setting without serious concerns that corruption or weak institutional design, as addressed by the literature on developing countries, might play a significant role.

2.1 Accidents

Italian municipalities manage approximately 10% of total public expenditures and are responsible for a wide range of services, including water supply, waste management, municipal police, infrastructure, welfare, and housing (Grembi *et al.* 2017). Specifically, they supervise the maintenance of over 62% of the national transport network (SITEB 2012). Mayors directly oversee the activities of the local police force, which is primarily responsible for the enforcement of traffic laws at the local level together with the national police, the so-called *Carabinieri*.[3] Figure 1 shows the geographical distribution of national and local police stations at the municipal level for our sample.

[3]Other police forces (*i.e.*, *Polizia di Stato*) operate only in larger municipalities.

Figure 1: **Distribution of national and local police**



Notes: The top map shows the distribution of national police stations among municipalities in Lombardy and Veneto, while the lower map shows the distribution of local police stations. In both cases, the darker an area, the higher the number of stations.

We recover municipal data on the number of accidents and on the number of injured persons and deaths per accident for the period 1995-2016 for Veneto and 2000-2016 for Lombardy. Based on these data, we create three main outcomes of interest: *Accident rate*, *Injury rate*, and *Fatality rate*. They are calculated as the number of accidents, injured persons, and deaths per 1,000 residents.[4] We also calculate the rate of accidents, injured persons, and fatalities per type of accident, defined as accidents during rush hours (7-9 am and 5-8 pm), during the day, at night, on weekends, and under good weather conditions. These outcomes allow us to check whether there are any changes in the composition of accidents due to the election year.

[4]According to international standards, a traffic death is registered up to 30 days after the accident.

2.2 Elections

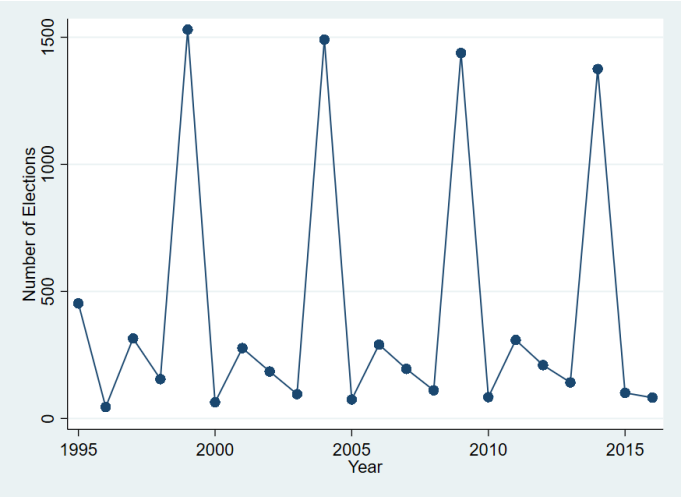
Since 1993, Italian mayors have been directly elected through a runoff system in cities with more than 15,000 inhabitants and through a single-round plurality rule in those with fewer than 15,000 inhabitants. Mayoral elections are held jointly with elections of municipal councils (*i.e.*, Consigli Municipali), and by Law n. 182, 7 June 1991, they must be held on a Sunday between April 15 and June 15 if the mayor's mandate ends in the first half of the year (January-June) or in the same period of the following year if the mandate ends in the second semester. Hence, elections are held in a staggered way across municipalities. Mayors formerly served a 4-year term, which was extended to 5 years in 2001, and face a two-term limit. However, several exceptions to this two-term limit have been implemented over time for municipalities with less than 3,000 inhabitants.[5] The most recent change was introduced in 2014 (Law 56/2014) when the term limit was extended to 3 consecutive terms.

From the Italian Ministry of the Interior, we collected national and municipal electoral data for a total of 7,837 municipal elections distributed as shown in Figure 2. From the same source, we also recovered information on municipal budget items, such as revenues from traffic tickets, expenditures on police and on traffic police, the yearly number of lights used and the annual kilowatt-hour public electricity consumption. Using the budget items, we construct *Ticket rate*, which is equal to the number of traffic fines issued by the local police per 1,000 resident population, and *Ticket revenues*, which is the log of per capita traffic ticket revenues. In addition, *Police expenditures* and *Traffic police expenditures* represent the log of per capita expenditures on local police and on local traffic police. A more comprehensive explanation of the variables is available in Table 1. Since for most of these budget items, the values for very small municipalities are systematically zero, we provide the baseline results on the entire sample, but then we focus on the sample of municipalities with more than 1,000 inhabitants (82% of the full sample) to make the analysis more meaningful.[6] This means that our final sample exploits 6,592 elections. Finally, basic municipal characteristics such as surface, altitude and population were taken from the Italian Institute of Statistics.

[5]Exceptions were allowed because for very small municipalities, it is not always simple to find suitable candidates.

[6]Figure A.2 in the appendix shows the distribution of municipalities with more than 1,000 residents, while Figure A.3 shows the population density at the municipal level. The municipalities that we drop in our preferred sample are also those with a lower population density.

Figure 2: **Distribution of mayoral elections from 1995 to 2016**



Notes: The graph shows the number of municipalities per year holding a mayoral election in Lombardy and Veneto during our observation period (1995-2016).

3 Empirical Analysis

3.1 Baseline

Several approaches are applied in the literature to assess the political cycle: the use of an election year dummy (Shi and Svensson, 2000; Cole, 2009; Baskaran *et al.* 2015 ; Bee and Moulton, 2015; Alesina and Paradisi, 2017), or dummies for the year before the election and the election year (Bracco, 2018). Consistently, we provide several specifications of the same model, moving from the baseline at the municipal (m) year (t) level described by equation 1:

$$Outcome_{mt} = \beta Election\ year + \rho_p + \gamma_t + TI_m^{'}\sigma + TV_{mt}^{'}\pi + \epsilon_p \tag{1}$$

where ρ_p are provincial fixed effects and γ_t are the year fixed effects. The provincial fixed effects allow us to capture the labor market dynamics and commuting patterns of residents, while the year fixed effects capture common shocks (*e.g.*, fluctuations in the price of gasoline). $TI_m^{'}$ groups the municipal time-invariant characteristics (*e.g.*, altitude and whether the municipality is coastal), that might affect the probability of having an accident and its severity. $TV_{mt}^{'}$ controls for time-varying characteristics at the municipal level such as population density, which is correlated with both the rate and severity of accidents; the presence

Table 1: **Variable definitions**

Variable Name	Variable Description	Source
Main Outcomes		
Accident Rate	Number of accidents over the resident population per 1000	Eupolis & Statistical office of Veneto region
Fatality Rate	Number of deaths over the resident population per 1000	Eupolis & Statistical office of Veneto region
Injury Rate	Number of injured over the resident population per 1000	Eupolis & Statistical office of Veneto region
Controls		
Altitude	Altitude of the municipal territory	ISTAT
Coastal	Dummy equal to 1 if the municipality is coastal, 0 otherwise	ISTAT
Population Density	Resident population over the municipal area in squared kilometers	ISTAT
Yearly Budget Outcomes		
Ticket Rate	Number of fines over the resident population per 100	MoI
Ticket Revenues	Money collected through fines over the resident population per 100 (log)	MoI
Police Expenditures	Expenditures on local police activities over the resident population per 100	MoI
Traffic Police Expenditures	Expenditures on road maintenance over the resident population per 100	MoI
Type of accidents, injured, and deaths		
Rush hours	Accidents taking place between 7-9am and 5-8pm	Eupolis & Statistical office of Veneto region
Good Weather	Accidents taking place under good weather conditions	Eupolis & Statistical office of Veneto region
Day	Accidents taking place during the day	Eupolis & Statistical office of Veneto region
Night	Accidents taking place at the night	Eupolis & Statistical office of Veneto region
Weekend	Accidents taking place on Sunday and Saturday	Eupolis & Statistical office of Veneto region
Urban	Accidents taking place on urban roads	Eupolis & Statistical office of Veneto region
Rural	Accidents taking place on rural roads	Eupolis & Statistical office of Veneto region

Notes: *Eupolis*=Institute for research, statistics and training of Lombardy. MoI= Italian Ministry of the Interior. $ISTAT$= Italian Institute of Statistics.

of a local police station; and the presence of a national police station. The standard errors are clustered at the provincial level to cope with serial correlation problems.[7] *Election year* is a dummy equal to 1 for a municipal election year. The outcomes include both the rates generated using the accident data and the measures based on budget items.

[7]There are 12 provinces in Lombardy and 7 in Veneto.

3.2 Results and Robustness

Table 2 reports the main results. For each outcome, we estimate five specifications. The first column has no controls except for the year and provincial fixed effects, while time-variant and invariant controls are added in the second column. The third column includes a provincial linear time trend capturing trends in the business cycle, which can affect the local labor market.[8] There is evidence that trends in road traffic accidents are connected to both the business cycle (Miller *et al.* 2009; Bertoli *et al.* 2018; Giulietti *et al.*, 2018) and changes in tax bundles (Parry, 2004). For example, during periods of economic expansion, more individuals commute to work, people tend to take more leisure trips, and there is more commercial activity on the road (Burgard *et al.*, 2013; Rhum 2000).[9] This would suggest an alternative mechanism to the one we propose, but it would not eliminate the effect of an election year per se. As a result, the specifications in columns (3), (8), and (13) are the preferred ones. In addition, in the fourth column, we control for some characteristics of the incumbent mayor such as gender, whether the mayor holds a high school degree or a college degree, and whether she governs her municipality of birth. Finally, in the fifth column, we include the longitude and latitude of the municipality's centroid, to control for differences in daylight hours, which could affect the probability of having an accident and its consequences.

The election year has a positive and significant effect on both accident and injury rates in each specification, though there is never an effect on the fatality rate. According to our preferred specification, for election years we estimate a 2.2% increase in the accident rate and a 2.4% increase in the injury rate at the mean of each variable. These results stem from the sample with municipalities larger than 1,000 inhabitants. However, they are also confirmed in the sample containing all municipalities, as shown in Table A.1 in the appendix. They are also robust to clustering the standard errors at the municipal level, rather than the provincial level, as shown in Table A.2 in the appendix.

It is difficult to provide a monetary assessment of the increase in accident and injury rates. To perform some back-of-the-envelope calculations, we use a benchmark case provided by a 2012 Ministry of Infrastructures and Transport report (Regione Veneto 2014) that estimates the overall average cost of a traffic accident to be 53,205 euros. This amount can be broken down into personal costs due to injuries (46,759 euros) and economic/administrative costs (12,167 euros). Our baseline result estimates an increase of approximately 0.06 accidents

[8] Municipal elections are credibly exogenous to economic conditions since their timing is not at the discretion of politicians.

[9] Hence, people could be involved in more accidents simply because they drive more (Romem and Shurtz, 2016).

(per 1,000 inhabitants), which means an overall additional cost of 3,073 euros, or 3 euros per capita per election. For a municipality with 5,000 inhabitants, this translates to 15,000 euros for accidents only. Expanding this amount for 2,000 municipalities, it translates to 30 million euros per election. This is a lower bound of the actual expenditures triggered by the increase in accidents because we do not include, for instance, any associated increase in traffic congestion.

Table 2: **Road traffic accidents: baseline results**

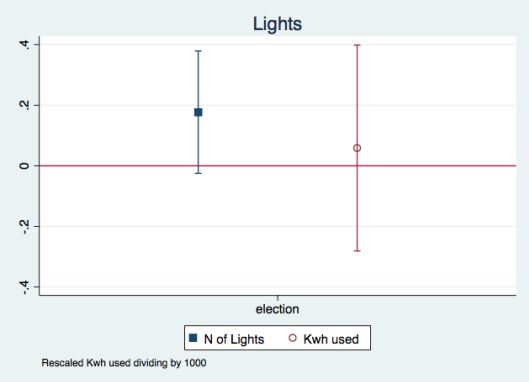
	Accident rate					**Injury rate**					**Fatality rate**				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Election Year	0.065***	0.058***	0.059***	0.057**	0.060***	0.105***	0.095***	0.095***	0.092**	0.095***	0.004	0.004	0.004	0.004	0.005
	(0.020)	(0.020)	(0.019)	(0.020)	(0.019)	(0.032)	(0.032)	(0.032)	(0.033)	(0.032)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
TV controls	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
TI controls	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Mayor controls	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial trends	No	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Coordinates controls	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes
Observations	31,916	31,870	31,865	31,865	31,610	31,916	31,870	31,865	31,865	31,610	31,916	31,870	31,865	31,865	31,610
Mean	2.625	2.623	2.623	2.623	2.625	3.808	3.806	3.806	3.806	3.808	0.111	0.111	0.111	0.111	0.111

Notes: *Mayor controls* means that we control for three dummies at the mayor level: whether the major is female, whether she has a high school or higher education, and whether she was born in the municipality of which she is the mayor. *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. *Coordinates controls*= controls for the longitude and the latitude of the municipality's centroids. For a description of the variables, see Table 1. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

When we plot the coefficients of the election year on the budget items, as in Figure 3, both the ticket rate and revenues decrease, while traffic police expenditures increase even if the expenditures on local police do not. This could result from paying for overtime, such that residents end up seeing more police patrols on the roads. This finding is consistent with what we observe using the information, available only for Lombardy, on the police force submitting the accident reports. As plotted in Figure 4, there is an increase in the number of accidents recorded by the local police. Note that both tickets and the work of the traffic police are target-oriented approaches to road safety. There might be other ways to increase road safety for which the potential beneficiaries are not targetable; for instance, increasing the number of lights on the streets. Hence, we check the impact of the election year on the number of lights and the number of public kilowatts consumed per hour (both normalized to the resident population), and we do not detect any effect of the election year.

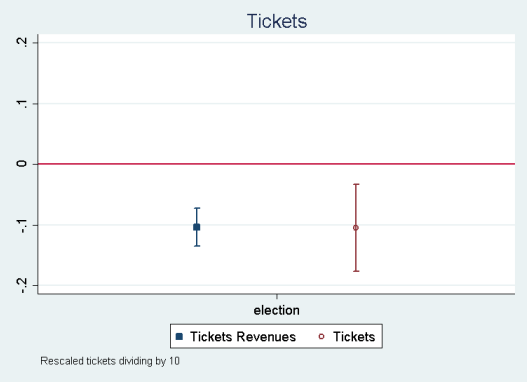
Figure 3: **Results on municipal budget items related to road safety**

(a)



(b)

(c)



Notes: The plotted coefficients refer to the election year. For a description of the variables, see Table 1. Coefficients plotted at 90 percent confidence interval.

Figure 4: **Results on accidents per local and national police reporting - Lombardy only**

Notes: The plotted coefficients refer to the election year. For a description of the variables, see Table 1. Coefficients plotted at 90 percent confidence interval.

Finally, since we are dealing with road traffic accidents, there could be concerns related to the impact of factors common to neighboring municipalities and correlated across space for which we cannot directly control in Equation 1, such as the structure and conditions of the traffic network crossing neighboring cities.[10] To account for this further dimension, we modify Equation 1 into the following spatial error model (SEM):

$$Outcome_{mt} = \beta Election\ year + \rho_p + \gamma_t + TI_m^{'}\sigma + TV_{mt}^{'}\pi + \nu_{pt} \tag{2}$$

$$\nu_{pt} = \lambda W \nu_{pt} + \epsilon_{pt} \tag{3}$$

where ν_{pt} reflects the spatially autocorrelated error term, λ identifies the spatial autocorrelation coefficient on the error term, and W denotes the spatial matrix for the idiosyncratic error component. As is apparent from Table 3, the sign and magnitude of the effect of an election year are confirmed, and λ is always positive and statistically significant for both accident and injury rates, which confirms the existence of unobserved factors correlated across space that affect the outcomes of neighboring municipalities.[11]

[10]The existence of spatial dependence is confirmed by the Moran diagnostics. All spatial diagnostics are available upon request.

[11]Since spatial models require balanced panel data, the SEM model is run on the subsample of municipalities for which we have information for every year during the period 2000-2016. Before 2000, there are no available accident data for Lombardy, and thus, it is impossible to have a balanced panel dataset for the entire observation period (1995-2016).

Table 3: **Road traffic accidents: results controlling for spatial dependence in the error term**

	Accident rate		**Injury rate**		**Fatality rate**	
Election year	0.057***	0.059***	0.087***	0.090***	0.002	0.002
	(0.017)	(0.018)	(0.032)	(0.032)	(0.003)	(0.003)
λ	2.134***	2.097***	2.068***	2.032***	0.268***	0.042
TV controls	Yes	Yes	Yes	Yes	Yes	Yes
TI controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes
Provincial trends	No	Yes	No	Yes	No	Yes
Observations	28,628	28,628	28,628	28,628	28,628	28,628
Mean	2.589	2.589	3.751	3.751	0.102	0.102

Notes: λ identifies the spatial autocorrelation coefficient on the error term. *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. For a description of the variables, see Table 1. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

3.3 Types of Accidents

According to the Italian National Institute of Statistics (ACI-ISTAT, 2013), accident severity is higher at night, largely because of greater infringement of speed limits. During weekend nights, fewer but more severe accidents occur: 43% of nighttime accidents occur on Friday and Saturday nights, when the fatality rate is approximately 42% (ACI-ISTAT, 2010). These figures are in line with the general trends at the European level, where the most severe accidents occur during weekends and on rural roads (European Road Safety Observatory, 2017). Hence, we investigate whether the composition of accidents experiences a political cycle: certain types of traffic violations might have a worse impact on the severity and frequency of accidents. We do not have information on the types of tickets and how their composition changes, but we do have data on accident types.

We estimate Equation 1 using the accident, injury, and fatality rates differentiated by 5 categories as outcomes: rush hour accidents, daytime and nighttime accidents, accidents on weekends, and accidents that occurred under good weather conditions. Additionally, we compare accidents on urban and rural roads. These checks are possible only at the yearly level, as the information on the type of accidents is not provided at a more disaggregated

level. The estimated coefficients, plotted in Figure 5, confirm our intuition, as there is no statistically significant effect of the election year on the accident rate during nights and weekends, indicating that the most severe accidents do not actually increase as a result of the political cycle. The slight increase in the rural accident rate does not correspond to an equivalent increase in the injury or fatality rate on rural roads. However, less severe types of accidents are positively affected as shown by the accident rate for urban roads, daytime, and rush hours.

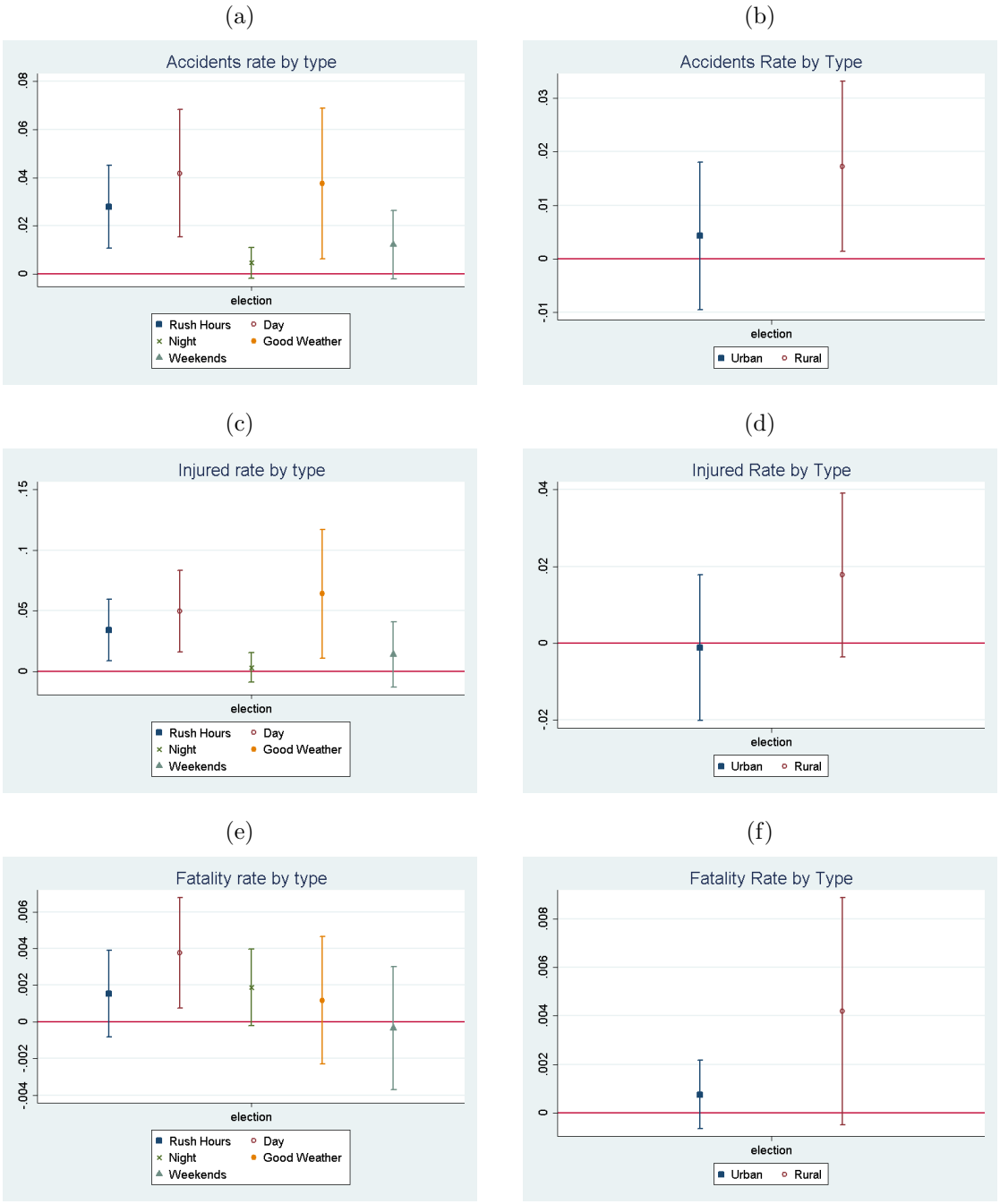
3.4 Alternative Measures of the Political Cycle

We demonstrate the robustness of our findings using additional alternative specifications of the election year. First, following Foremny and Riedel (2014), rather than considering only the election year, we add a dummy for the year before and one for the year after an election.[12] The significance and direction of the effect due to the election year is confirmed, as shown in Table 4, and its magnitude is slightly stronger. The effect of the election year is a 2.4% increase in the accident rate (Column 3) and a 2.6% increase in the injury rate (Column 6). No effect is detected on the fatality rate.

Next, we consider a leads and lags transformation of Equation 1, in which we control for the yearly distance from the election year (*i.e.*, election year=distance zero) to estimate the impact of the political cycle. We plot the estimated coefficients of this model in Figures 6, 7, and 8. We complement the plots by also presenting the results for the estimated coefficients on *Ticket revenues* to provide a better idea of the trend. The baseline results are confirmed independently from the selection of the reference year.

[12]The reference years are the second year after the election before the 5-year term was instituted, and years+2 and +3 from the election after the introduction of the 5-year term.

Figure 5: **Results per type of accident**



Notes: The plotted coefficients refer to the election year. For a description of the variables, see Table 1. Coefficients plotted at 90 percent confidence interval.

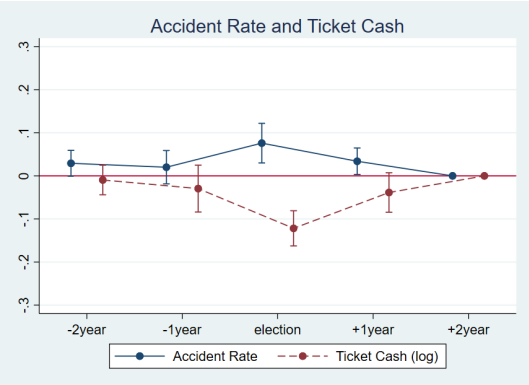
Table 4: **Road traffic accidents: results around the election year**

	Accident rate			**Injury rate**			**Fatality rate**		
Before	0.006	0.008	0.010	-0.001	0.002	0.007	-0.006	-0.006	-0.006
	(0.020)	(0.019)	(0.020)	(0.035)	(0.034)	(0.035)	(0.004)	(0.004)	(0.004)
Election year	0.068***	0.062***	0.062***	0.105***	0.098**	0.097**	0.002	0.002	0.002
	(0.021)	(0.019)	(0.021)	(0.034)	(0.032)	(0.035)	(0.003)	(0.003)	(0.003)
After	0.016	0.018	0.021	0.016	0.017	0.021	-0.005	-0.006	-0.006
	(0.016)	(0.018)	(0.015)	(0.026)	(0.017)	(0.026)	(0.004)	(0.004)	(0.004)
TV controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
TI controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial trends	No	No	Yes	No	No	Yes	No	No	Yes
Observations	31,865	31,865	31,865	31,865	31,865	31,865	31,865	31,865	31,865
Mean	2.623	2.625	2.625	3.806	3.808	3.808	0.111	0.111	0.111

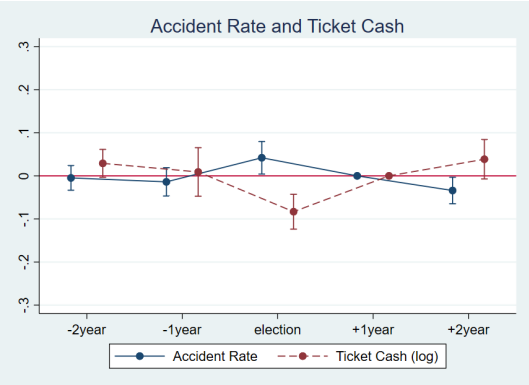
Notes: $Before$ is equal to 1 for the year before election, while $After$ is a dummy for the year after election. The terms are 4 years until 2001 and 5 years after 2001. Only municipalities with or above 1,000 inhabitants are included. *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. For a description of the variables, see Table 1. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

Figure 6: **Political cycle over the accident rates**

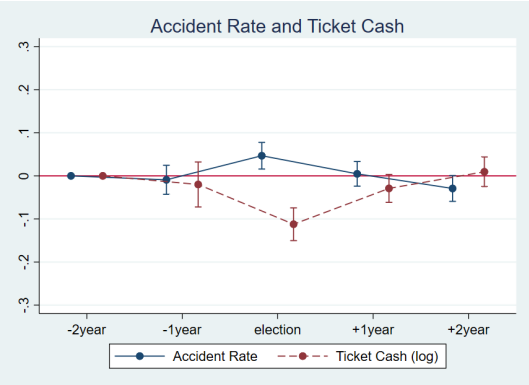
(a) Reference year: +2



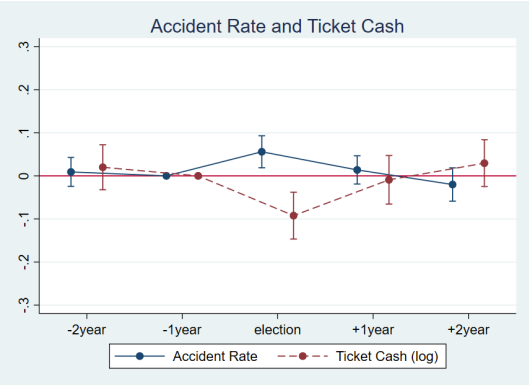
(b) Reference year: +1



(c) Reference year: -2



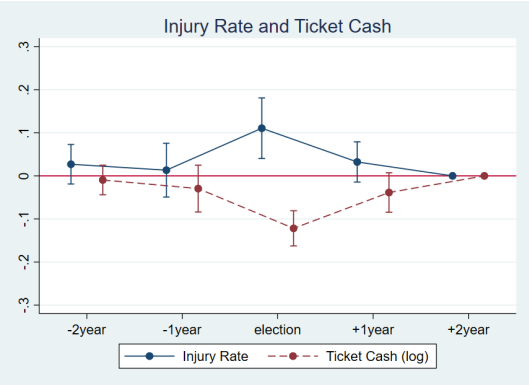
(d) Reference year: -1



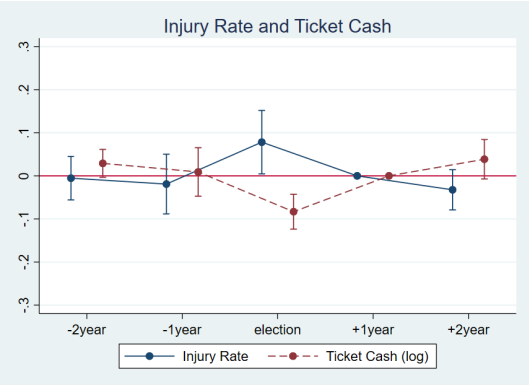
Notes: The reference years are calculated as the distance from the mayoral election year. For a description of the variables, see Table 1. Coefficients plotted at 90 percent confidence interval.

Figure 7: **Political cycle over the injury rates**

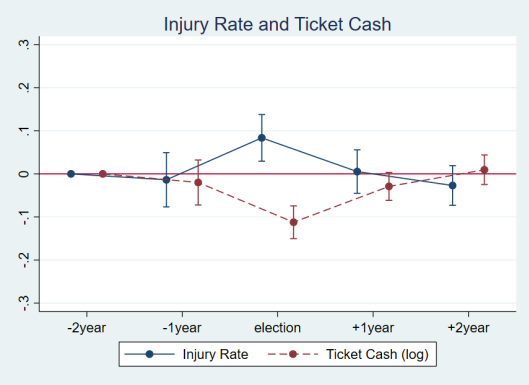
(a) Reference year: +2



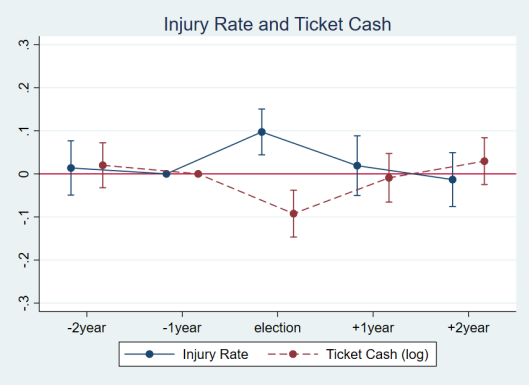
(b) Reference year: +1



(c) Reference year: -2



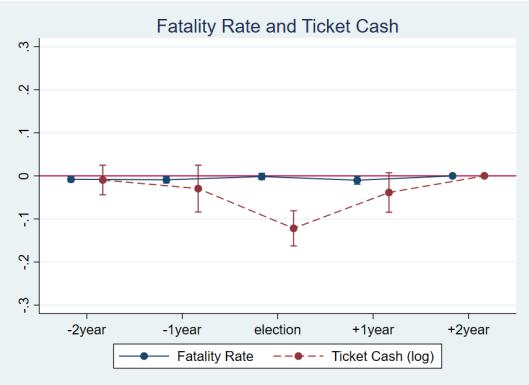
(d) Reference year: -1



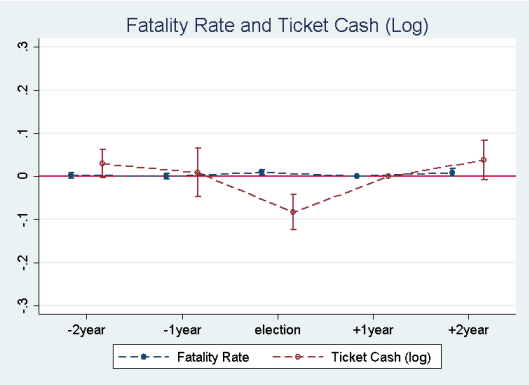
Notes: The reference years are calculated as the distance from the mayoral election year. For a description of the variables, see Table 1. Coefficients plotted at 90 percent confidence interval.

Figure 8: **Political cycle over the fatality rate**

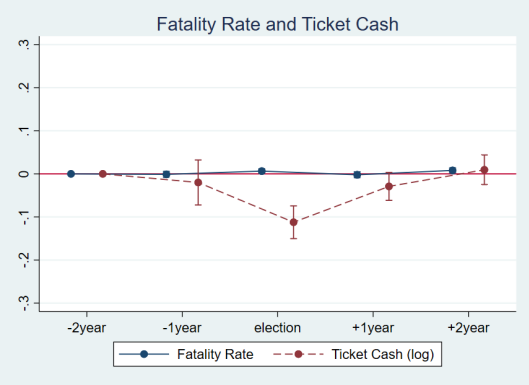
(a) Reference year: +2



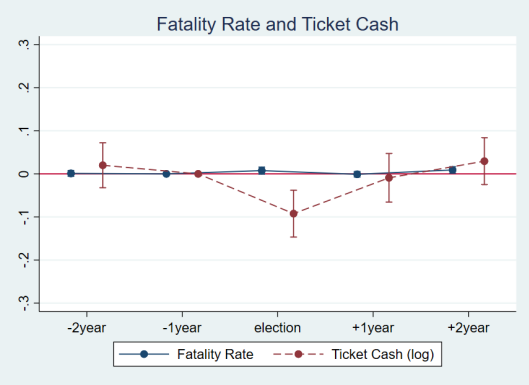
(b) Reference year: +1



(c) Reference year: -2



(d) Reference year: -1



Notes: The reference years are calculated as the distance from the mayoral election year. For a description of the variables, see Table 1. Coefficients plotted at 90 percent confidence interval.

3.5 During the Election Year

Voters' memory is commonly expected to be short-term, and thus the need to secure political consensus should be stronger in the proximity of the election date. We test this expectation by applying the model in Equation 4 to quarterly rates of accidents, injuries, and fatalities.[13] We define quarter 0 as the election quarter, and we retain all the observations from three quarters before the election quarter (9/11 months before the election date) to two quarters after (end of the election year). Considering more than 1 year before the election date would water down the effect of the political cycle. Considering six months after the election allows us to check what happens when the elected mayor is taking office, since a couple of months generally pass before the new government becomes fully operative. Suppose, as is often the case, that the election date is in June of year t (*i.e.*, the end of the second quarter of the election year). This means that in this specification, we use observations from July of year $t-1$ (11 months before) until December of year t.[14]

$$Outcome_{mq} = \sum_{q=-3}^{+2} \gamma_q Distance_q + \lambda_q + \rho_p + \gamma_t + TI_m^{'}\sigma + TV_{mt}^{'}\pi + \epsilon_p \tag{4}$$

The results for the quarters specification are shown in Table 5, where we also include quarter fixed effects (λ_q) in addition to the usual controls and fixed effects. The results show that the increases in both accident and injury rates are entirely driven by the two quarters before the electoral one and, interestingly, also by the second quarter of the mayoral term. During the election quarter, we observe a negative effect on both accident and injury rates, although the effect is significant only on the accident rate. These findings shed new light on the timing of the political cycle. The need to please the constituency strikes twice during the cycle: just before the election and at the very beginning of the mayoral term. During the weeks surrounding the election date, the fewer accidents there are, the better.

[13] We cannot repeat this analysis at the quarter level for the budget items because data on the budget items are available only at the yearly level.

[14] For a distribution of the electoral quarters in our dataset, see Table A.3.

Table 5: **Road traffic accidents: results at the quarter level**

	Accident rate		**Injury rate**		**Fatality rate**	
Quarter -2	0.054**	0.044*	0.097**	0.094**	-0.002	-0.002
	(0.022)	(0.023)	(0.043)	(0.042)	(0.004)	(0.004)
Quarter -1	0.091***	0.077**	0.164***	0.163***	0.001	0.002
	(0.029)	(0.035)	(0.048)	(0.051)	(0.004)	(0.004)
Quarter 0	-0.040**	-0.040*	-0.005	-0.001	0.002	0.002
	(0.018)	(0.023)	(0.037)	(0.037)	(0.003)	(0.003)
Quarter 1	0.01713	-0.001	0.032	0.025	0.001	0.001
	(0.011)	(0.014)	(0.021)	(0.022)	(0.003)	(0.003)
Quarter 2	0.092***	0.063**	0.162***	0.151***	0.0016	0.001
	(0.022)	(0.025)	(0.044)	(0.044)	(0.004)	(0.004)
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	No	Yes	No	Yes	No	Yes
Provincial trends	No	Yes	No	Yes	No	Yes
TV controls	No	Yes	No	Yes	No	Yes
TI controls	No	Yes	No	Yes	No	Yes
Observations	38,701	38,657	38,701	38,657	38,701	38,657

Notes: The reference quarter is *Quarter* -3, which means 9 months before the election quarter. *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. For a description of the variables, see Table 1. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

3.6 Spillover Effects

Even though the effects of the municipal election year are robust, there might be concerns that they are in part the result of spillover effects due to other political cycles, as those due to national elections or elections taking place in neighboring municipalities.

We first assess the impact, if any, of national elections. National elections overlap municipal elections for 11% of the elections in our sample. The importance of the national level is twofold: Italian municipalities often rely on the financial support of the central state, and there is a national police force, which is well spread locally and can intervene in matters of road safety. Based on the 5 national election years in our sample (1996, 2001, 2006, 2008, and 2013), we use Equation 1 to estimate the election year effect and we report the results in Table 6. The direction of a national election year is negative: a lower accident rate, lower injury rate, and lower fatality rate. However, the results are not robust to the introduction

of the linear provincial trends for accident and injury rates, while they are robust and significant for fatality rates, with a decrease of 7.2% at the mean of the variable (Column 6). This effect is likely driven by the presence and activity of the national police force, and it moves in the opposite direction of that detected with the municipal election cycle. Therefore, whenever municipal and national elections occur in the same year, the observed effects of local elections represent a lower bound of the true ones.

Since elections are staggered, there are two types of possible spillovers from elections in neighboring municipalities: (1) spillovers in municipality X when there are no elections in municipality X but there are elections in the neighboring municipality Z and (2) spillovers in municipality X when there are elections in both municipality X and the neighboring municipality Z. We test these scenarios by estimating the following model:

$$Outcome_{mt} = \beta Election\ year + \alpha Neighboring\ election\ year + \lambda Interaction + \rho_p + \gamma_t + TI_m^{'}\sigma + TV_{mt}^{'}\pi + \epsilon_p \quad (5)$$

β captures the effect of an election in municipality m when there are no elections in neighboring municipalities, while $\beta+\lambda$ captures the effect of an election in municipality m when there are elections in neighboring municipalities. As shown in Table 7, the main effect of the electoral year does not change whenever neighboring municipalities hold elections.

Table 6: **Road traffic accidents over the national election cycle**

	Accident rate		**Injury rate**		**Fatality rate**	
	(1)	(2)	(3)	(4)	(5)	(6)
Election Year	-0.043***	-0.026	-0.061***	-0.027	-0.009***	-0.008***
	(0.008)	(0.019)	(0.010)	(0.027)	(0.001)	(0.002)
TV controls	Yes	Yes	Yes	Yes	Yes	Yes
TI controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes
Provincial trends	No	Yes	No	Yes	No	Yes
Observations	31,863	31,863	31,863	31,863	31,863	31,863
Mean	2.262	2.262	3.808	3.808	0.111	0.111

Notes: *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. For a description of the variables, see Table 1. The national elections considered took place in 1996, 2001, 2006, 2008, and 2013. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: **Road traffic accidents: results controlling for elections in neighboring municipalities**

	Accident rate				**Injury rate**				**Fatality rate**			
Election year	0.059***	0.089***	0.057**	0.090***	0.096***	0.109**	0.093**	0.110*	0.004	0.001	0.004	0.001
	(0.019)	(0.042)	(0.020)	(0.030)	(0.032)	(0.051)	(0.033)	(0.052)	(0.003)	(0.004)	(0.003)	(0.001)
Neighbors election year	0.006	0.038	0.000	0.034	0.028	0.042	0.019	0.037	0.000	-0.003	0.001	0.003
	(0.018)	(0.042)	(0.018)	(0.042)	(0.030)	(0.068)	(0.030)	(0.069)	(0.003)	(0.004)	(0.004)	(0.004)
Election year*		-0-091		-0.099		-0.041		-0.051		0.009		0.010
Neighbors election year		(0.086)		(0.087)		(0.144)		(0.146)		(0.009)		(0.008)
TV controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TI controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial trends	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Observations	31,857	31,857	31,857	31,857	31,857	31,857	31,857	31,857	31,857	31,857	31,857	31,857
Mean	2.625	2.625	2.625	2.625	3.808	3.808	3.808	3.808	0.111	0.111	0.111	0.111

Notes: *Neighbors election year* is a dummy equal 1 if there are elections in a neighboring municipality and 0 otherwise. *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. For a description of the variables, see Table 1. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

3.7 Types of Municipalities

As the final step in our analysis, we focus only on the injury rate. Given the lack of an impact on fatality rates, injuries represent the stronger economic cost caused by the political cycle of road traffic accidents. Retaining the injury rate as the main outcome and Equation 1 as the baseline, we test the relevance of the interaction of the election year with 9 variables: 5 capturing the characteristics of the municipal political environment and 4 capturing municipal characteristics that might be relevant in the context of traffic accidents.

The 5 characteristics of the political environment are 1) the presence of a runoff system, which in Italy holds for municipalities with more than 15,000 inhabitants, since it helps selecting better quality politicians (Bordignon *et al.* 2017); 2) the number of parties involved in the municipal government, since political fragmentation might help to explain more opportunistic behaviors; 3) the margin of victory in the previous election, proxying for high political competition; and 4) the term limit status of the incumbent mayor. The lack of a term limit should reflect higher engagement in the political cycle. However, this last measure has two drawbacks. First, over time, there have been several exceptions to the term limit rule (two terms since 1993), the last of which entered into force in 2014 for small municipalities (those with fewer than 3,000 inhabitants). Second, local politicians care about voters' support even when facing a term limit for reasons other than their immediate re-election as mayor. They might have their own candidate to support or they might want to run for higher office, support their own political coalition, leave a positive legacy, or run again in mayoral elections in the future (Gagliarducci and Nannicini, 2013). As a fifth characteristic of the political environment, we consider the level of trust that local residents have in the effectiveness of the local government versus the national government. We proxy for this trust level with the electoral results of a referendum for more decentralization launched by a center-right party (*i.e.*, Lega Nord) in 2018. This referendum was run only in Lombardy and Veneto. We consider the municipal turnout levels to be an index of trust in local institutions: turnout levels were directly related to a favorable vote for more independence from the central government. Columns from (1) to (5) of Table 8 show the results for the interactions (*Difference*) of these first 5 characteristics. While a more competitive political environment seems to exacerbate the impact on the injury rate, facing a term limit does not produce any significant effect in our institutional framework. Having a more fragmented political scene and not having a runoff system drive the effect of the election year on the injury rate.

The other 4 characteristics proxy for municipal dimensions for which we do not control in the main specification, but which could matter in principle. We use two measures that

capture the tourist vocation of a municipality as the percentage of holiday homes by municipality (as recorded by the 1991 and 2001 Censuses) and the number of registered vehicles per resident per municipality (from 2002). These channels do not not produce any significant difference. Then, we check whether any impact is due to the adherence of municipality m to a consortium of municipalities to provide public services. It appears that municipalities outside of a consortium have a stronger political cycle, but the difference with municipalities that belong to a consortium is not statistically different from zero. Finally, we calculate the distance of each municipality to the nearest national police station (with 0 being a municipality which has at least one national police station). This measure is more sophisticated than using a dummy to control for the presence of a national police station. We define far equal to 1 when the nearest national police station is at a distance above the average distance (*i.e.*, 4.85 km). The results in Column (9) show that the effect of the election year is stronger when there is no national police station in the proximity of the municipality.

Table 8: **Channels for injury rates**

	Runoff	**N parties**	**MV**	**Term limit**	**Autonomy**	**In Association**	**Vacation homes**	**Vehicles**	**Dist national police**
	No	**Less**	**High**	**No**	**Low**	**No**	**Less**	**Less**	**Close**
Election Year	0.087**	0.018	0.050	0.089	0.073**	0.092**	0.038	0.107*	0.061*
	(0.036)	(0.033)	(0.035)	(0.062)	(0.033)	(0.033)	(0.032)	(0.054)	(0.030)
	Yes	**More**	**Low**	**Yes**	**High**	**Yes**	**More**	**More**	**Far**
Election Year	-0.025	0.115**	0.187**	0.069	0.093**	0.042	0.114**	0.072*	0.356**
p value	0.609	0.013	0.011	0.234	0.047	0.419	0.026	0.083	0.017
Difference	-0.112*	0.098*	0.137*	-0.020	0.020	-0.050	0.075	-0.034	0.295**
	(0.062)	(0.055)	(0.077)	(0.082)	(0.043)	(0.056)	(0.054)	(0.073)	(0.132)
TV controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TI controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. For a description of the variables, see Table 1. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

4 Conclusion

We assess the existence of a political cycle in road traffic accidents using data from two Italian regions, Lombardy and Veneto, which account for a quarter of Italian municipalities and population, over the period 1995-2016. During municipal election years, we estimate a 2.2% increase in the accident rate and a 2.4% increase in the injury rate, but find no effect on the fatality rate. Our robust effects are driven by a change in the type of enforcement of road traffic laws as captured by a decrease in the ticket rate and an increase in expenditures for local traffic police. Our analysis also sheds light on the fact that during the election year, what really matters is not only the pre-election months but also the first months of the mayoral term. These results of the mayoral political cycle, where the mayor is the head of the local police force, are generalizable to other contexts where the main officers responsible for enforcing road traffic safety measures are subject to direct elections. From the analysis of the channels, it is clear that closer proximity to national police stations decreases the impact of the election years on adverse events, suggesting that a strong presence of higher levels of government could mitigate the costs of the political cycle for road traffic accidents.

References

[1] ACI-ISTAT, 2010. Rapporto sugli stradali 2009. Available at `http://www.aci.it/laci/studi-e-ricerche/dati-e-statistiche/incidentalita.html`.

[2] ACI-ISTAT, 2013. Incidenti Stradali in Italia. Available at `http://www.aci.it/laci/studi-e-ricerche/dati-e-statistiche/incidentalita.html`.

[3] ACI-ISTAT, 2014. Incidenti Stradali in Italia. Available at `http://www.istat.it/it/archivio/137546`.

[4] Abouk, R. and S. Adams. 2013. "Texting bans and fatal accidents on roadways: do they work? or do drivers just react to announcements of bans?" *American Economic Journal Applied Economics.* 5 (2): 179-199.

[5] Adams, S. and C. Cotti. 2008. "Drunk driving after the passage of smoking bans in bars." *Journal of Public Economics.* 92(5): 1288-1305.

[6] Akhmedov, A. and E. Zhuravskaya. 2004. "Opportunistic political cycles: test in a young democracy setting." *The Quarterly Journal of Economics* 119(4): 1301-1338.

[7] Albalate, D. and A. Yarygina. 2017. "Road Safety Determinants: Do Political Institutions Matter?" *International Journal Of Transport Economics.* 44(2): 315-348.

[8] Albalate, D., Fernandez, L. and A. Yarygina. 2013. "The road against fatalities: Infrastructure spending vs. regulation?" *Accident Analysis and Prevention.* 59: 227-239.

[9] Albalate, D.. 2008. "Lowering Blood Alcohol Content Levels to Save Lives: The European Experience." *Journal Of Policy Analysis And Management.* 27(1): 20-39.

[10] Alesina, A. and M. Paradisi, 2017. "Political budget cycles: Evidence from Italian cities." *Economics & Politics* 29(2):57-177.

[11] Anbarci, N., Escaleras, M. and C. Register. 2006. "Traffic Fatalities and Public Sector Corruption." *Kyklos.* 59(3): 327-344.

[12] Ashenfelter, O., 2006. "Measuring The Value Of A Statistical Life: Problems And Prospects." *Economic Journal.* 116(510): C10-C23.

[13] Baskaran, T, Min, B., and Y. Uppal, 2015. "Election cycles and electricity provision: Evidence from a a quasi-experiment with Indian special elections." *Journal of Public Economics*. 126: 64-73.

[14] Bee, A. C. and S. R. Moulton. 2015. "Political budget cycles in U.S. municipalities." *Economics of Governance*. 16(4): 379-403.

[15] Benedettini, S. and A. Nicita. 2012. "The costs of avoiding accidents: Selective compliance and the Peltzman effect in Italy." *International Review Of Law & Economics*. 32(2): 256-270.

[16] Bertoli, P., Grembi, V. and J. Vall-Castello. 2018. "Not All Silver Lining? The Great Recession and Road Traffic Accidents." *Regional Science and Urban Economics*. 70: 274-288.

[17] Bertrand, M., Djankov, S., Hanna, R. and S. Mullainathan. 2007. "Obtaining a Driver's License in India: An Experimental Approach to Studying Corruption." *Quarterly Journal Of Economics*. 122(4): 1639-1676.

[18] Besley, T. and I. Preston. 2007. "Electoral Bias and Policy Choice: Theory and Evidence". *Quarterly Journal of Economics*. 122(4): 1473-1510.

[19] Blincoe,L. J., Miller,T. R.,Zaloshnja, E. and Lawrence,B. A. 2015. "The economic and societal impact of motor vehicle crashes, 2010." (Revised)(Report No. DOT HS 812 013). Washington, DC: National Highway Traffic Safety Administration.

[20] Bordignon, M., Nannicini, T. and G. Tabellini. 2017. "Single round vs. runoff elections under plurality rule: A theoretical analysis." *European Journal of Political Economy*. 49: 123-133.

[21] Bourgeon, J. and P. Picard. 2007. "Point-record driving license and road safety: An economic approach." *Journal Of Public Economics*. 91(1/2): 235-258.

[22] Bracco E. 2018. "A Fine Collection: The Political Budget Cycle of Traffic Enforcement". *Economics Letters*. 164: 117-120.

[23] Brender, A. and A. Drazen, 2005. "Political Budget Cycles In New Versus Established Democracies". *Journal of Monetary Economics*. 52: 1271-1295.

[24] Burgard, S., Ailshire, J. and L. Kalousova. 2013. "The Great Recession and Health: People, Populations, and Disparities." *The ANNALS of the American Academy of Political and Social Science*. 650(1): 194-213.

[25] Clark, A. E., and C. Milcent. 2011. "Public employment and political pressure: The case of French hospitals". *Journal of Health Economics*. 30: 1103 1112.

[26] Cohen, A. and L. Einav. 2003. "The effects of mandatory seat belt laws on driving behavior and traffic fatalities." *Review of Economics and Statistics*. 85 (4): 828-843.

[27] Cole, S. 2009. "Fixing Market Failures or Fixing Elections? Agricultural Credit in India". *American Economic Journal: Applied Economics*. 1:1, 219250.

[28] Cotti, C. and N. Tefft. 2011. "Decomposing the Relationship between Macroeconomic Conditions and Fatal Car Crashes during the Great Recession: Alcohol- and Non-alcohol-Related Accidents." *B.E. Journal Of Economic Analysis And Policy: Topics In Economic Analysis And Policy.* 11, no. 1 (2011): EconLit, EBSCOhost (accessed September 8, 2018).

[29] De Paola, M., Scoppa, V. and M. Falcone. 2013. "The deterrent effects of the penalty points system for driving offences: a regression discontinuity approach." *Empirical Economics*. 45(2): 965-985.

[30] Drazen, A., and M. Eslava. 2010. "Electoral manipulation via expenditure composition: Theory and evidence". *Journal of Development Economics*. 92: 3952.

[31] Englmaier, F. and T. Stowasser. 2017. "Electoral Cycles in Savings Bank Lending". *Journal Of The European Economic Association.* 15(2): 296-354.

[32] European Commission (EC). 2015. "Statistics on Road Safety", available at: `http://ec.europa.eu/transport/road_safety/specialist/statistics/index_en.htm`

[33] European Road Safety Observatory. 2017. "Annual Accident Report 2017", available at: `https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/statistics/dacota/asr2017.pdf`

[34] Foremny, D., and N. Riedel, 2014. "Business taxes and the electoral cycle." *Journal Of Public Economics*. 115: 48-61.

[35] Gagliarducci, S. and T. Nannicini. 2013. "Do Better Paid Politicians Perform Better? Disentangling Incentives from Selection." *Journal Of The European Economic Association*. 11(2): 369-398.

[36] Giulietti, C., Tonin, M. and M. Vlassopoulos. 2018. "When the market drives you crazy: Stock market returns and fatal car accidents." IZA Working Paper 11720.

[37] Grembi, V., Nannicini, T. and U. Troiano. 2017. "Do Fiscal Rules Matter?" *American Economic Journal Applied Economics.* 8(3):1-30.

[38] Gonzalez MdlA. 2000. "On Elections, Democracy, and Macroeconomic Policy: Evidence from Mexico." Work. Pap., Dept. Econ., Princeton Univ.

[39] Hahn, R. A., Kuzara, J. L., Elder, R., Brewer, R., Chattopadhyay,S., Fielding, J., Naimi, T. S., Toomey, T., Cook Middleton, J. and B. Lawrence. 2010. "Effectiveness of Policies Restricting Hours of Alcohol Sales in Preventing Excessive Alcohol Consumption and Related Harms." *American Journal of Preventive Medicine*. 39(6): 590.

[40] Law, T. H., Noland, R. B. and A. W. Evans. 2009. "Factors associated with the relationship between motorcycle deaths and economic growth." *Accident Analysis & Prevention*. 41(2): 234-240.

[41] Miller, D., Page E. M., Huff A. and M. Filipskiand. 2009. "Why Are Recessions Good for Your Health?" *American Economic Review: Papers & Proceedings* . 99(2): 122-127.

[42] Parry, I.W. 2004. "Comparing alternative policies to reduce traffic accidents." *Journal Urban Economics*. 56(2): 346-368.

[43] Persson, T. and G. Tabellini, 2002. "Do Electoral Cycles Differ Across Political Systems?" working paper, IIES, Stockholm University.

[44] Regione Veneto - U.O. Sistema Statistico Regionale. 2014. "Gli incidenti stradali: le politiche, i costi e la dimensione". Statistical Report, available at: `http://statistica.regione.veneto.it/Pubblicazioni/RapportoStatistico2014/pdf/Capitolo14.pdf` (accessed October 16, 2018).

[45] Romem, I. and I. Shurtz. 2016. "The accident externality of driving: Evidence from observance of the Jewish Sabbath in Israel." *Journal of Urban Economics.* 96: 36-54.

[46] Ruhm, C. J. 2000. "Are Recessions Good for Your Health?" *The Quarterly Journal of Economics*. 115(2): 617650.

[47] Shi, M., and J. Svensson. 2000. "Political business cycles in developed and developing countries." The World Bank. Working Paper.

[48] Stella, A., Nannicini, T., Tabellini, G., and U. Troiano. 2013. "Social capital and political accountability." *American Economic Journal: Economic Policy*. 5(2): 222250.

[49] Takako, R., and S. Bessho, 2018. "Political Cycles in Physician Employment: A Case of Japanese Local Public Hospitals." *Social Science and Medicine*, forthcoming.

[50] Zambon, F. ,Fedeli U., Visentin C., Marchesan, M., Avossa, F., Brocco, S. and P. Spolaore. 2007. "Evidence-based policy on road safety: the effect of the demerit points system on seat belt use and health outcomes." *Journal of Epidemiology & Community Health*. 61:877-881.

[51] Wales, J. 2017. "The Political economy of Road Safety. A policy Oriented Literature Review". *ODI Report*. 61:877-881.

[52] World Health Organization (WHO). 2015. "Global status report on road safety 2015", available at: `http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/`.

Appendix A: Additional Tables and Figures

Figure A.1: **Lombardy and Veneto**

Notes: The gray areas indicate the two regions under study: Lombardy and Veneto.

Figure A.2: **Municipalities with more than 1,000 residents**

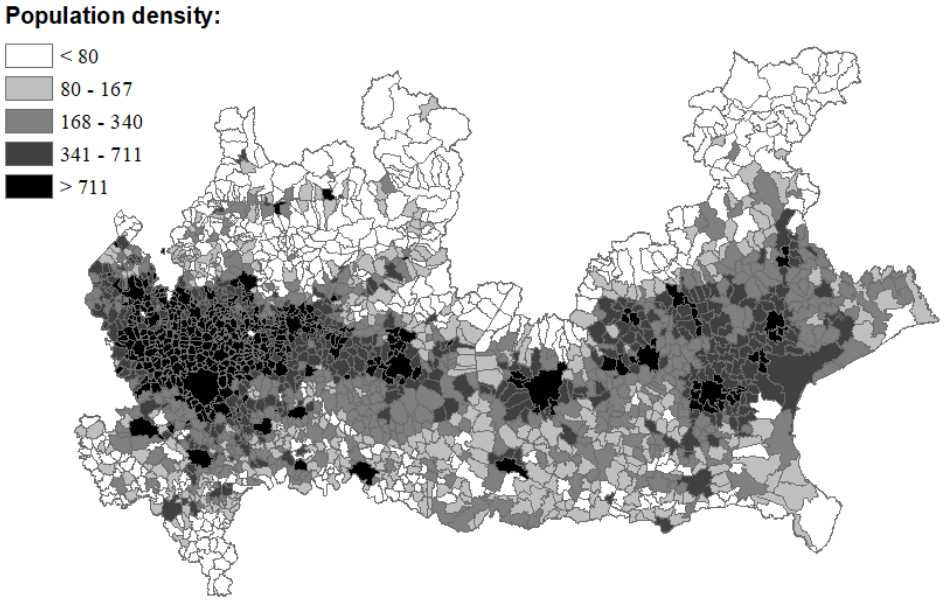
(a)

(b)

(c)

Notes: The plotted coefficients refer to the election year. For a description of the variables, see Table 1.

Figure A.3: **Population density**



Notes: The map shows the the population density at the municipal level in Lombardy and Veneto in 2008 as an example year.

Table A.1: **Road traffic accidents: results for the sample with all the municipalities**

	Accident rate				**Injury rate**				**Fatality rate**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Election Year	0.058**	0.052**	0.053**	0.057**	0.095**	0.085**	0.087**	0.092**	0.000	0.000	0.000	0.004
	(0.023)	(0.023)	(0.019)	(0.022)	(0.034)	(0.035)	(0.035)	(0.033)	(0.003)	(0.003)	(0.003)	(0.003)
TV controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
TI controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Mayor Controls	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial Trends	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	38,368	38,302	38,289	31,865	38,368	38,302	38,289	31,865	38,368	38,302	38,289	31,865
Mean	2.570	2.567	2.567	2.567	3.742	3.737	3.737	3.737	0.116	0.116	0.116	0.116

Notes: $MayorControls$ means that we control for three dummies at the mayor level: whether the major is female, whether she has a high school or higher education, and whether she was born in the municipality of which she is the mayor. $TVcontrols$= controls for population density and the presence of both a unit of local police and of the state police. $TIcontrols$= we control for both altitude and whether the municipality is coastal. For a description of the variables, see Table 1. Standard errors are clustered at the provincial level. *** p<0.01, ** p<0.05, * p<0.1.

Table A.2: **Road traffic accidents: standard errors clustered at the municipal level**

	Accident rate					**Injury rate**					**Fatality rate**				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
All municipalities															
Election Year	0.058**	0.052**	0.053**	0.052**	0.056**	0.095**	0.085**	0.087**	0.085**	0.090**	0.000	0.000	0.000	0.001	0.001
	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	-0.041)	(0.041)	(0.041)	(0.041)	(0.041)	-0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Observations	38368	38302	38289	38289	37980	38368	38302	38289	38289	37980	38368	38302	38289	38289	37980
Mean	2.57	2.57	2.57	2.57	2.57	3.742	3.742	3.742	3.742	3.742	0.116	0.116	0.116	0.116	0.116
Municipalities above 1,000 residents															
Election Year	0.065***	0.058***	0.059***	0.057***	0.060***	0.105***	0.095***	0.095***	0.092***	0.095***	0.004	0.004	0.004	0.004	0.005
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Observations	31916	31870	31865	31865	31610	31916	31870	31865	31865	31610	31916	31870	31865	31865	31610
Mean	2.625	2.625	2.625	2.625	2.625	3.808	3.808	3.808	3.808	3.808	0.111	0.111	0.111	0.111	0.111
TV controls	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
TI controls	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Mayor controls	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial trends	No	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Coordinates controls	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes

Notes: *Mayor Controls* means that we control for three dummies at the mayor level: whether the major is female, whether she has a high school or higher education, and whether she was born in the municipality of which she is the mayor. *TV controls*= controls for population density and the presence of both a unit of local police and of the state police. *TI controls*= controls for both altitude and whether the municipality is coastal. *Coordinates controls*= controls for the longitude and the latitude of the municipality's centroids. For a description of the variables, see Table 1. Standard errors are clustered at the municipal level. *** p<0.01, ** p<0.05, * p<0.1.

Table A.3: **Distribution of election quarters**

Election quarter	Entire sample (%)	Sample above 1,000 (%)
1	1.12	1.20
2	97.42	97.16
3	0.03	0.03
4	1.43	1.61

Notes: The tables shows the distribution of election quarters in the entire sample and among the municipalities with a population above 1,000 inhabitants.