



Logistic hubs and support for radical-right populism: Evidence from Italy[☆]

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ABSTRACT

Increasing discontent and the associated growing support for populist parties have been attributed to several drivers, including globalization, technological change, and migration waves. We analyse a phenomenon that encompasses a mix of economic and cultural grievances — the logistic revolution. The Italian logistics industry is characterized by a heavy reliance on low-paying and precarious contracts, it employs a large number of foreign workers, and is dominated by multinational corporations. The construction of large logistic hubs can increase the feeling of economic insecurity and trigger cultural backlash against foreign workers and large corporations. This, in turn, can create a favourable environment for populist radical right-wing parties that portray themselves as protectors of traditional values and national identity, and as defenders of the working class against the perceived threats posed by globalization, immigration, and large corporations. Through an IV and a DiD approach, we provide evidence that the support for Lega, a populist radical-right party, grew in Italian municipalities where new logistic hubs have been built.

1. Introduction

Europe is experiencing an unprecedented surge in support for populist parties. In 2019 elections for the European Parliament, populist authoritarian and Eurosceptic parties obtained about a quarter of all seats (European Parliament, 2019; Mudde, 2019). Most notably, populist parties achieved more than 10% of votes in 22 out of 26 countries and more than 30% of votes in 9 of them, with Italy registering the highest share, 66.6% (Zulianello and Larsen, 2021). This ascent is not at all limited to European Parliament elections. In fact, the number of countries with a 20% or higher share of votes for populist parties in national elections more than doubled between 2008 and 2018, rising from 9 to 19, with three countries (Hungary, Greece, and Italy) breaking the 50% threshold (Timbro, 2019).

Growing support for populist and radical-right parties has been attributed to factors generating economic hardship, such as trade-competition (Rodrik, 2021; Milner, 2021; Autor et al., 2020) and technological progress (Milner, 2021; Caselli et al., 2020b; Anelli et al., 2021), but also to cultural drivers, including status-threat perceptions (Kurer, 2020; Gidron and Hall, 2017) and xenophobic

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attitudes (Pellegrini et al., 2022; Hochschild, 2018; Diehl et al., 2021; Abbondanza and Bailo, 2018). Socio-economic insecurity boosts consensus to populist factions by dismantling trust in traditional parties and institution (Ziller and Schübel, 2015; Guiso et al., 2017; Boeri et al., 2021; Akkerman et al., 2017). Populist parties were particularly able at gaining support by capitalizing on social anxiety and channelling people's frustration against traditional parties, which were accused of not doing enough to protect the "ordinary working people" from the many threats of the modern world (Norris and Inglehart, 2019; Hochschild, 2018; Hertz, 2021; Gidron and Hall, 2017; Gaffney, 2020; Frank, 2007).

We contribute to the literature on political discontent by investigating the relationship between socio-economic changes and political discontent. In particular, we exploit the logistics revolution as a source of strong economic and cultural shock. Over the past two decades, the Italian logistics sector has experienced significant growth due to the effects of globalization and the escalating trend of outsourcing transport and logistics activities in manufacturing (Mariotti, 2015). The construction of large logistic hubs has a strong economic and social impact on local communities, especially when it comes to small towns and villages. In this sense, the rapid and sizeable expansion of logistics provides a good setting to investigate the relationship between socio-economic grievances and support for the populist radical right, as the construction of new hubs works as a sort of exogenous shock. Using an instrumental variable (IV) and a difference-in-differences (DiD) approach, we provide evidence of a causal relationship between the establishment of new logistics hubs and the rise in support for an Italian populist radical-right party, *Lega*. Our findings remain robust across a variety of different specifications. As discussed in detail in Section 2.3, we believe there are at least three channels through which large logistic hubs might foster support for populist radical-right parties, and *Lega* in particular. First, with the rise in the number of workers employed in logistics, which is characterized by a wide use of low-paid and precarious work arrangements, there might be an increase in the feeling of economic insecurity. Second, the sector employs a large number of foreign workers. A large inflow of foreign workers into rural areas, that are usually not a migration destination, might lead to a surge in anti-immigration sentiment. Third, logistic revolution resulted in the externalization of logistic tasks to specialized firms, often large multinational corporations. This might generate dissatisfaction among those who want to protect Italian small and medium enterprises from the threat of (foreign) multinational companies. *Lega*, as a conservative, regionalist, and anti-immigration right-wing party, might have capitalized on the discontent stemming from the combination of these factors and gathered support among those who just want to keep things "as they were before". Given the limitations of our data, we were only able to conduct preliminary testing on the first two mechanisms, finding no evidence in favour of the first channel and some indications in support of the second one. Nonetheless, further investigation is required to gain a comprehensive understanding of the overall effect of logistics hubs on local communities.

The rest of this paper is organized as follows. Sections 2 and 3 present a short review of literature on the evolution of the logistics sector and on political discontent, respectively. Section 4 describes the data, Section 5 presents the instrumental variable approach, while Section 6 contains the Difference-in-Differences analysis. Section 7 concludes.

2. Growth and transformation of logistics

In the last decades the logistics sector experienced a period of extraordinary growth and structural reorganization. Starting from the 1990s, logistics evolved from being just an auxiliary function to emerging as an independent factor of production and a key source of competitive advantage for firms (Vahrenkamp, 2010). The "logistic revolution" (Bonacich and Wilson, 2008) was the result of several interrelated global trends, including: (1) the reduction in trade barriers and fall in transportation costs; (2) the emergence of a mass consumption society; (3) the evolution of internet-based systems.¹

The reduction in trade barriers and the fall in transportation costs fostered an unprecedented globalization of the economy, resulting in enormous volumes of goods needing to be transported. Due to the international fragmentation of production (Arndt and Kierzkowski, 2001), the increase in flows was not at all limited to finished products, but also included intermediate and unfinished goods. This is because the manufacturing paradigm shifted from having the whole production process being executed in one place, to fabricating distinct parts in various areas of the world – mostly those with cheap labour, scarcely enforced workers' rights, and feeble environmental regulations – and then assembling them somewhere else (Helg and Tajoli, 2005).

The logistics revolution was not circumscribed to a steep increment in goods' flows. The emergence of a mass consumption society, with the associated growing request for customized products and extremely fast deliveries, dramatically heightened the complexity of logistics processes. The ability to transport goods quickly and efficiently became a central part of firms' competitive advantage. As a consequence, manufacturing firms started outsourcing transport and other logistic functions to specialized operators (Lieb and Bentz, 2005; Elia et al., 2011), which can guarantee the management of such complexity thanks to a heavy reliance on sophisticated internet-based information systems and technological innovations in freight moving and handling (McCann, 2008).

All these phenomena radically altered the geography of logistics and freight distribution (Holl and Mariotti, 2018a; Hesse and Rodrigue, 2004). As the standard moved from large but infrequent shipments to frequent and rapid deliveries, being close to main transport arteries (harbours, airports, highways) became of crucial importance (Bowen, 2008). One of the consequences of this re-organization is the so-called logistics sprawl, which refers to the "trend towards spatial deconcentration of logistics terminals in metropolitan areas" (Dablanc and Rakotonarivo, 2010, p. 6087) and more in general to the tendency of logistics facilities (e.g. warehouses, cross-dock facilities, intermodal terminals) to move away from congested urban areas and be closer to highways (Woudsma et al., 2008; Bowen, 2008).

¹ An exhaustive description and discussion of all the factors behind the logistics revolution is beyond the scope of this work. We redirect interested readers to dedicated studies (Bonacich and Wilson, 2008; Vahrenkamp, 2010, 2012).

2.1. Logistics in Italy

The logistics revolution was quite vigorous in Italy too. Between the 1991 and the 2001 industry censuses, workers in the ATECO 1991 sector “631 - Freight handling and warehousing” more than doubled, growing from 60,221 to 131,980 workers.² The largest growth was registered in the North-West (158%) and the Centre (112%). Despite a marked slow-down due to the 2008 Great recession, the sector kept growing at fast rates. Based on ISTAT data, in 2017 the ATECO 2007 sector “52 - Warehousing and support activities for transportation” counted 367,860 workers (2.2% of total workforce), while the sector “4941 - Freight transport by road” had 331,828 workers (1.94% of total workforce). The expansion in the last years was so substantial that logistics is indicated in the 2022 National Environmental Protection System’s report on soil consumption as one of the main causes of the increase in the amount of soil consumed in Italy (Munafò, 2022). In the period analysed in the report (2006–2021), the soil consumption due to logistic (warehouses, parking lots, link roads) amounted to 2,290 hectares (22,900,000 m²), mostly concentrated in the North-West, the North-East, and the Centre.

The indiscriminate proliferation of new logistic buildings and infrastructures is seldom hindered by public institutions. The competence on building permits belongs to municipalities. However, there is a dramatic disparity of means between multinational logistics corporations, which can rely on countless professionals and abundant monetary resources, and small municipalities, which do not have the competences to analyse the dozens of folders with all the technical project documentation that arrive in their offices (Invernizzi and Lovato, 2022). Furthermore, the companies promise to create many new jobs and to pay for new schools, cycle paths, parks, and protected natural areas (Pozzi, 2018; Prato, 2021; Rasero, 2020; Stroppa, 2021). Such investments can be much larger than many small rural municipalities’ yearly budgets. For instance, the municipality of Trivulzio, in the province of Pavia, Lombardy, which has 2,300 inhabitants and in 2021 counted on about 1.6 million Euro of yearly tax revenues, was promised investments for 2.5 million Euro in compensation measures, 6 million Euro for road redevelopment works (including a link road to connect the hub with the closest highway), and the creation of 900 new jobs in exchange for the permission to build a new 18-meters tall 60 thousand squared meters large logistic hub (Prato, 2021).³ Similarly, the municipality of Ferno (6,752 inhabitants in the province of Varese, Lombardy), was promised the creation of 700 jobs, two bike lanes, and a series of investments in the local road infrastructure in exchange for the permission to build a 70 thousand squared meters large logistic hub (Morandi, 2022).

Most of the hubs are built from scratch, rather than by reconvertng pre-existing industrial buildings. This is due to two reasons. First, as discussed above, geographic position is crucial when it comes to logistics and even a few kilometres of distance to main roads make a difference. Most of the existing available industrial buildings are not located close enough to highways, as manufacturing plants tend to be less concentrated around transportation infrastructure than (modern) logistic hubs (Holl and Mariotti, 2018b). Second, it is often cheaper to build a new warehouse than to adapt or restructure an existing (old) one (Invernizzi, 2022; De Vidi, 2022). Therefore, the expansion of the logistics industry has often occurred at the expense of agricultural and green natural areas. For example, in the municipality of Medesano (10,860, inhabitants in the province of Parma, Emilia-Romagna) plans have been approved for the construction of a new hub of 33,000 m² in former agricultural areas (La Repubblica, 2023). A separate project has been developed for 600,000 m² of land, encompassing the construction of warehouses for storage, assembly, and shipping of goods, as well as roads for truck access within the “Parco Agricolo Sud Milano”, a large protected rural area located south and south-east of Milan (Zanardi, 2023). In a separate development, permissions have been sought to establish a 47,000 m² logistics platform in Lonato del Garda (16,957 inhabitants in the province of Brescia, Lombardy), in close proximity to the Site of Community Importance known as the Morenic Complex of Castiglione delle Stiviere, its wetland, and the Antiquarium of the Roman Furnaces (Brescia Today, 2022). This substantial consumption of natural and agricultural land has prompted reflections on land use policies. The 2019 urban and territorial regeneration law in the Lombardy region has halved charges for projects involving regeneration efforts and has introduced a surcharge ranging between 20% and 50% for interventions that consume agricultural land (Regione Lombardia, 2019). In Piedmont, the municipality of Castelnovo (4,873 inhabitants in the province of Alessandria) set stricter rules for soil consumption and for logistics sheds. The mayor justified these measures by highlighting that the Po Valley, one of the regions with the world’s most polluted air, has evolved into a vast logistics platform catering to the European market. Across Piedmont, Lombardy, Emilia-Romagna, and Veneto, hundreds of hectares of agricultural land have been transformed into logistics hubs. While logistics indeed generates employment, the jobs it creates are often precarious and low-skilled, leading to growing conflicts due to inadequate labour protections (Marchese, 2022). In Emilia-Romagna, the municipality of Fontevivo (5,447 inhabitants in the province of Parma) has halted the expansion of a logistics hub that would have consumed 55,000 m² of agricultural soil, citing incompatibility with the natural environment (La Repubblica, 2022).

2.2. Territorial implications of Italian logistics

Large logistic centres can affect the well-being of people living nearby through increased air pollution, traffic congestion, noise, and whopping soil consumption (Aljohani and Thompson, 2016). In the Italian case, compensation funds were often dedicated to

² The ATECO (ATTività ECONomiche) classification of economic activities is a type of classification adopted by the Italian National Statistical Institute (ISTAT) for national statistical surveys. It is the Italian translation of the Nomenclature of Economic Activities (NACE) created by Eurostat, adapted to the Italian context by the Italian Statistical Institute (ISTAT).

³ We retrieved Trivulzio’s yearly tax and contribution revenues for 2021 from the municipality’s balance sheet document for 2021. All official documents from the municipality can be downloaded from <http://www.tecuting.it/c018163/zf/index.php/trasparenza/index/index/categoria/119> (last accessed on 25/11/2022).

the municipality in which the hub was created, but negative externalities also affect the surrounding areas. This sparked social discontent in the neighbouring municipalities (Trespidi, 2022).

The promise of the creation of hundreds of open-ended high-qualified jobs was also often unmet: most of the new jobs are low-skilled and fixed-term or delegated to cooperatives. About 93.7% of the 208,595 workers employed in transports and warehousing in Lombardy in 2017 did not have a university degree, and 45.4% not even a high-school degree (Polis-Lombardia, 2019). In the period 2016–2018, 57% of new contracts in the sector were fixed-term and 14% were agency work contracts (Polis-Lombardia, 2019). Over the same period, 75% of all new contracts in logistics were fixed-term in Veneto (Veneto Lavoro, 2022). Large logistics companies can work in Italy with very few direct employees. This is because they rely on a chain of contracts and subcontracts made up of cooperatives, mini-contractors, and micro-companies that apply contracts with much lower labour costs than the national collective agreement (Invernizzi and Lovato, 2021). Table 1 reports the number of workers and the share employed through cooperatives by sector in 2017 based on ISTAT's Business Register ASIA. Among the sectors covered by the register, sector "H. Transportation and storage" has by far the highest percentage of workers employed through cooperatives: 18% against an average of 4%. The sector-level average masks large disparities. While the share of workers employed through cooperatives is modest in sectors "50. Water transport" (1.2%), "51. Air transport" (0%), and "53. Postal and courier activities" (0.8%), it raises to 10.2% in sector "49. Land transport" and reaches 42.2% in sector "52. Warehousing and support activities for transportation", with a peak of 80.7% in the sub-sector "5224. Cargo handling". Widespread employment through cooperatives covers the real share of unstable work relationships in at least two ways. First, although workers are often hired through open-ended contracts, at the end of an agreement between the client and the cooperative the rehiring of workers is not assured (Sacchetto et al., 2016). Second, cooperatives often close suddenly, in order to not pay part of the promised wages and social security contributions (Massarelli, 2014; Sacchetto et al., 2016). When a cooperative closes, it is very difficult to find a responsible entity that can be sued. Labour-related issues in the sector are not limited to unstable contracts but also involve irregularities with regard to payrolls, forced overtime, long and irregular working hours (Benvegnù, 2015). Following the 2018 annual report of the national labour inspectorate, 70.5% of inspected firms in sector "H. Transportation and storage" had irregularities in the analysed year (Ispettorato Nazionale del Lavoro, 2018). The frequent violations of labour laws in the logistics sector have also been documented by several police operations. For example, a recent investigation by the prosecutor's office in Milan ascertained a systematic exploitation of several thousand workers employed by logistics multinationals (Morino, 2023). In their quest for market competitiveness, the principals subjected the workers to exhausting working hours and rhythms while also underpaying them. Furthermore, they often shuffled these workers from one company to another, effectively denying them the expected benefits of social welfare and security protection. The challenges and mistreatment experienced by workers at logistics hubs have also been extensively documented in two recent books: Bloodworth (2018) for the UK and Gazzola (2023) for the area of Piacenza, Italy. These books paint a grim picture, illustrating the extensive exploitation of workers, a significant number of whom are foreigners, who endure back-breaking work rhythms, underpayment, forced part-time and short-term contracts, frequent fictitious changes of employers, and a complete disregard for fundamental labour rights, including sick leave entitlements.

2.3. Potential channels connecting logistic hubs to support for Lega

We identify three potential channels which might connect the opening of a new logistic hub to an increase in votes for Lega:

i. *(Perceived) economic insecurity.* With the rise in the number of workers employed in logistics, which is characterized by low-paid unstable jobs, there might be an increase in the feeling of socio-economic insecurity. Kurer and Palier (2019) argue that the recent wave of (far-right) populism is a consequence of profound labour market transformations as, differently from mainstream parties, populists were able to recognize the anxiety caused in the middle-class by workplace automation and digitalization. Several studies provided empirical evidence of the connection between (perceived) economic insecurity and support for populist parties. Anelli et al. (2021) demonstrated a link between the increase in insecurity triggered by automation and the support for radical right parties in 13 western European countries, including Italy, between 1999 and 2015. Similarly, Im et al. (2019) showed that workers who are both threatened by automation and are still "just about managing" economically are those more inclined to vote for the radical right in 11 European countries between 2012 and 2016. Frey et al. (2018) documented that the support for Donald Trump in 2016 US presidential elections was significantly higher in local labour markets more exposed to the adoption of robots. Moving from automation to trade, Autor et al. (2020) provided evidence of a relationship between adverse economic conditions due to greater exposure to Chinese import competition and support for nativist or extreme politicians in US congressional and presidential elections between 2000 and 2016.

ii. *Anti-immigration sentiment.* Besides the role of actual economic hardship and the grievances of the "losers of globalization", several studies highlighted the importance of social identity, cultural backlash, and individual perceptions in explaining the success of populist parties (Spruyt et al., 2016; Norris and Inglehart, 2019; Mutz, 2016; Margalit, 2019; Guriev, 2018; Ferrari, 2021). Populist parties have been particularly able at exploiting people's social and economic anxiety, channelling their frustration against traditional parties, accused of promoting policies that favour people unlike them in terms of nationality, skin colour, sexual orientation, gender, or religion (Norris and Inglehart, 2019; Hochschild, 2018; Hertz, 2021; Gidron and Hall, 2017; Gaffney, 2020; Frank, 2007). Italian logistic hubs employ a large number of foreign workers (Sacchetto et al., 2016; Massarelli, 2014). In Veneto, for example, 36% of new hires in the logistic sector between 2016 and 2018 were foreigners (Veneto Lavoro, 2022), while foreign population in the region is around 11% (ISTAT, 2022a). A substantial inflow of migrants into mostly rural areas (due to the logistic sprawl) might increase the support for Lega, which has been always characterized by a strong anti-immigration attitude. Several studies showed a (causal) relationship between immigration and votes for the far-right, which is due not only to economic factors but also to social and cultural ones (Dustmann et al., 2019; Edo et al., 2019; Halla et al., 2017). In the context of Italian logistics, hostility

Table 1

Number of workers and share of workers employed through cooperatives by sector.

Source: Authors' own calculations.

NACE	Sector name	N. workers	% Coop.
	<i>All 1-digit sectors (except agriculture)</i>		
B	Mining and quarrying	30,226	2.2
C	Manufacturing	3,684,581	1.9
D	Electricity, gas and steam	88,222	0.9
E	Water, sewage, and waste	196,969	3.5
F	Construction	1,309,650	2.2
G	Wholesale and retail trade	3,414,645	2.6
H	Transportation and storage	1,142,144	18.3
I	Accommodation and food	1,497,423	2.6
J	Information and communication	569,093	1.9
K	Financial and insurance	567,106	9.1
L	Real estate	299,881	0.4
M	Professional, scientific, and technical	1,280,024	1.4
N	Administrative and support services	1,302,186	13.6
P	Education	110,196	4.9
Q	Health and social work	904,214	0.5
R	Arts, entertainment, and recreation	186,315	6.0
S	Other services	476,606	2.8
	Total	17,059,480	4.3
	<i>Sub-sectors in "H. Transportation and storage"</i>		
49	Land transport	548,227	10.2
50	Water transport	51,194	1.2
51	Air transport	19,959	0.0
52	Warehousing and support activities for transp.	367,860	41.3
521	Warehousing and storage	24,212	42.2
522	Support activities for transp.	343,648	41.2
5221	Service activities to land transp.	75,775	9.4
5222	Service activities incidental to water transp.	14,407	11.2
5223	Service activities incidental to air transp.	25,910	0.0
5224	Cargo handling	105,844	80.7
5229	Other transportation support activities	121,712	38.9
53	Postal and courier activities	154,904	0.8

Notes: the register does not include workers in NACE Rev.2 sections: A, O, T, and U. The Register is updated yearly through a process of integration of administrative and statistical sources. Employment is measured in terms of yearly average of job positions, calculated on the base of the weekly presence of workers. Employment is formed by internal workers (employees or self-employed) and so-called external workers, i.e., all those workers who are not classified as employees or self-employed workers within the enterprise but participate to its productive process on the base of a contract. The group of external workers includes also temporary workers from temporary employment agencies. Data refer to the year 2017.

towards migrants might be also driven by a cultural backlash and people's willingness to "defend" their culture and way of life more than by concerns about labour-market competition, as foreign workers in logistics are mostly employed in very low skilled occupations (Hainmueller and Hiscox, 2007). Indeed, the hostility of Lega towards migrants was documented by Bracco et al. (2018) who found that the election of a Lega Nord mayor discourages immigrants from moving into the municipality and that the effect is driven primarily by the anti-immigration politics of Lega Nord.

iii. *Hostility towards foreign multinationals.* The logistic revolution resulted in the externalization of logistic tasks to specialized firms, often large multinationals (Carbone and Stone, 2005; Elia et al., 2011; Lieb and Bentz, 2005; Maggi and Mariotti, 2011). Lega might gather support among those who want to protect Italian small and medium enterprises against large foreign logistic multinationals. In Lega's program for the 2018 electoral campaign, it is explicitly reported that "The Euro is the main cause of our economic decline, a currency tailor-made for Germany and multinationals and contrary to the needs of Italy and small business" (Lega, 2018: p.9).⁴ Thus, Lega's sovranism does not only result in harsh critique of the EU but also in strong hostility towards the activity of large foreign firms in Italy. This is not surprising since the party emerged (and is still stronger) in areas of the North characterized by the predominance of small, family-owned businesses (Huyseune, 2006). One example of this attitude was the reaction to the EU "Bolkestein Directive", adopted at the end of 2006 and implemented in 2009, which aimed at reallocating beach concessions in Italy through tender procedures. Lega has strongly opposed the directive alleging to protect the interests of small and medium Italian enterprises, which felt threatened by free competition and the potential integration of foreign interests and large multinationals into the local markets (Il Sole 24 Ore, 2022). The Party's hostility towards multinationals clearly emerged also from their communication in the social media (Zattin, 2020).

⁴ According to Beirich and Woods (2000), Sorens (2004), and Woods (2009), Lega promoted "new" issues on the defence of the local community, the local economy, and local identities in opposition to globalization, having a deep impact on Italian society. As shown by Passarelli and Tuorto (2012), this narrative helped Lega gaining consensus in a traditionally left-wing region like Emilia-Romagna already in 2008 elections.

3. Political discontent in Italy

Italy's fascination for populist leaders is not a new phenomenon: Silvio Berlusconi started dominating the political scene with his party "*Forza Italia*" back in 1994. The current populist wave has three new protagonists: "*Lega*" (the League), "*Movimento 5 Stelle*" (Five Star Movement, M5S), and "*Fratelli d'Italia*" (Brothers of Italy, FdI).⁵

Starting in the late 90s, *Lega* gradually evolved from being a regionalist protest party, strongly advocating for the independence of the Northern regions, to becoming a national movement more similar to other European extreme-right parties, especially in its authoritarian and anti-immigrant rhetoric (Ignazi, 2005). The main political approach of the party did not change, as it is still based on a "us vs. them" type of rhetoric. What has changed is the content of the "us vs. them" slogan. While before the fight was between "us (Northern Italians) vs. them (Southern Italians)", now "us" comprehends all Italians, while "them" refers to a series of external enemies, including migrants, EU bureaucrats, and foreign multinationals (Albertazzi et al., 2018; Chari et al., 2004; Brunazzo and Gilbert, 2017). In this process, the party aggressively focused its communication strategy on portraying itself as the defender of "the people" against these external threats which want to destroy the Italian identity (Zattin, 2020; Newth, 2019).

The M5S gained a striking 30.2% of votes in 2018 elections. It was born as the anti-party, being deliberately focused on the "protest", and having no clear positions on economic policies and immigration issues (Corbetta and Gualmini, 2013; Passarelli and Tuorto, 2018). Differently from *Lega*, it did not find external enemies, but it rather focused on fighting the corrupted and privileged Italian political caste (Bordignon and Ceccarini, 2013). In this study we do not focus on the M5S as it did not exist in 2006 (it was founded in 2009) and it gained most of its support in the South (Chaykina et al., 2022), while the logistics revolution mostly took place in the North. We also exclude FdI from our analysis as, it did not exist in 2006 (it was founded in 2012) and it only obtained 4.1% of votes in 2018 elections.

As a consequence of the raising support for populist parties in Italy, a growing literature empirically investigated the factors behind this growth in the last decades. Caselli et al. (2020b) analysed the effect of three global factors, i.e., flows of migrants, foreign competition in international trade, and diffusion of robots, on the support for *Lega* and M5S at the local labour market level in the 2001, 2008, and 2013 general elections. They found that all three factors were associated with an increase in votes for *Lega* in the period 2001–2008, but only robotization remained significant in the following period. The results for automation were confirmed by Anelli et al. (2021), who investigated the impact of industrial robot adoption on individual voting behaviour in 13 western European countries, including Italy, between 1999 and 2015, and found that individuals more exposed to automation were more likely to display higher support for the radical right (represented by *Lega* for Italy). Di Matteo and Mariotti (2021) focused on the 2014 and 2019 European elections and showed that unemployment, long-term cultural change, and immigration were the main drivers of the right-wing populism intensity growth at the municipal level. Similarly, Albertazzi and Zulianello (2021) showed that, while *Lega* has thrived in areas characterized by "cultural backlash", Euroscepticism and societal malaise, the success of the M5S is associated to poor economic and institutional performances. Finally, Albanese et al. (2022) provided causal evidence of the importance of fiscal redistribution in reducing the feeling of economic insecurity exploited by populist parties. By comparing municipalities on the two opposite sides of the geographical border that determines eligibility to the EU structural funds, they showed that larger EU financing caused a substantial drop in votes for populist parties in the 2013 general election.

4. Data

We collected municipal level information from several administrative and statistical sources. Italian municipalities correspond to LAU2 level in Eurostat nomenclature of territorial units (Eurostat, 2022). The next two subsections describe our dependent variable and main explanatory variable, respectively. Table 3 reports the data sources of all our control variables.

4.1. Support for populist radical-right parties

To build our measures of political discontent we rely on official voting results from the Italian Ministry of the interior. For each election, the data report a series of key information at the municipal level: the number of registered voters, the number of actual voters, the number of white or invalid votes, and the number of votes obtained by each candidate. Data are available for all electoral levels (City Council, Province, Region, Chamber of Deputies, Senate, and European Parliament) but we focus on elections for the Italian Chamber of Deputies. This is because we consider the Chamber of Deputies to be more representative of the situation given that all citizens above 18 can vote.

Our measure of populist radical-right parties relies on the 2019 Chapel Hill Expert Survey (Jolly et al., 2022). As shown in Table 2, *Lega* consistently figures among the parties with the highest scores in terms of extreme-right, traditional-authoritarian, anti-EU, against immigration, pro "law & order", nationalist, and populist attitudes in all four elections between 2006 and 2018. There also other parties with a clear radical-right attitude, such as *Fratelli d'Italia*, but we chose to focus on *Lega* because it is the only party present in the whole period we observe.

We then measure the variation in support for populist radical-right parties as the difference in the share of votes *Lega* received in the 2018 compared to 2006 elections for the Chamber of Deputies. As shown in Fig. 1, *Lega*'s support grew substantially between

⁵ Our definition of populist and radical-right populist parties relies on the 2019 Chapel Hill Expert Survey (Jolly et al., 2022). As shown in Table 2, these three parties obtain the highest scores in the "Anti-elite" item, which is commonly used as a measure of populism in the literature on political discontent. *Lega* and FdI are also assigned the highest values in the ideological stance item, where higher scores indicate more extreme-right ideologies.

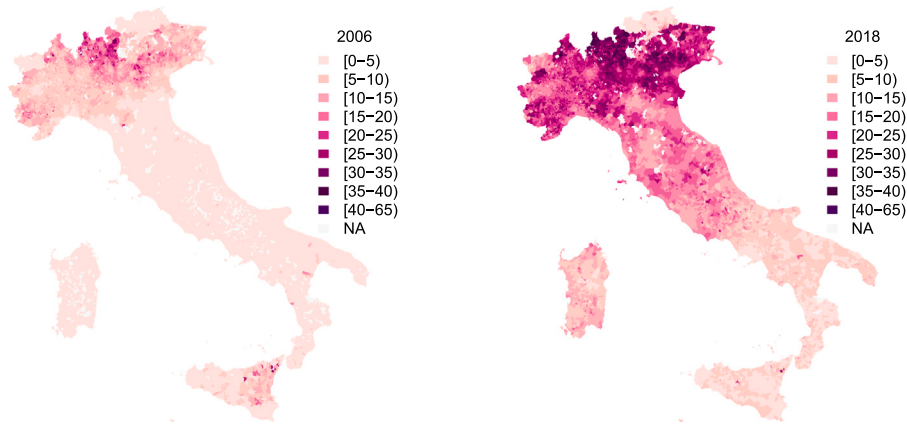


Fig. 1. Lega's vote share at municipal level in 2006 and 2018 elections.

Notes: electoral results for the Chamber of Deputies.

Source: Authors' own calculations.

Table 2

Vote share and ideological stance of Italian political parties.

Source: Vote shares are computed by the authors on official voting results from the Italian Ministry of the interior. Ideological stance measures are from the 2019 Chapel Hill Expert Survey (Jolly et al., 2022).

Year	Party	Vot.	Vot. CN	LR	Gal.	EU	Imm.	LO	Nat.	AE
2006	Rifondazione Comunista	5.7	5.8	1.3	0.8	3.0	2.0	1.0		
	L'Ulivo (DL)	30.3	31.7	4.0	5.1	7.0	3.2	4.0		
	Unione di Centro	6.6	6.2	5.9	7.6	6.3	5.8	7.1		
	Forza Italia	23.0	21.9	7.1	7.0	4.1	6.7	6.9		
	Alleanza Nazionale	12.0	12.0	8.0	8.9	4.8	7.0	9.1		
	Lega	4.4	6.0	8.7	8.8	1.5	8.2	9.7		
2008	Partito Democratico	31.9	33.6	3.2	3.1	6.6	3.0	4.1		
	Di Pietro Italia dei Valori	4.2	4.0	4.0	3.5	6.1	3.8	6.1		
	Unione di Centro	5.4	4.6	5.3	7.4	6.3	4.9	5.9		
	Il Popolo della Libertà	35.9	32.4	7.6	8.4	4.7	8.3	7.6		
	Lega	8.0	11.9	8.6	8.4	2.7	9.9	8.9		
2013	Sinistra Ecologia Libertà	3.1	2.8	1.3	0.3	3.1	1.3	1.2	2.0	
	Partito Democratico	24.5	26.6	3.6	2.4	6.6	3.3	3.6	3.4	
	Movimento 5 Stelle	24.6	24.0	4.7	2.6	1.4	4.3	4.2	3.8	
	Scelta Civica	8.0	8.9	5.4	5.4	6.9	5.0	6.0	3.8	
	Il Popolo della Libertà	20.7	18.6	6.1	8.0	5.7	7.5	8.0	6.6	
	Lega	3.9	5.7	8.9	9.1	1.1	9.5	9.0	9.6	
2018	Partito Democratico	17.3	19.8	3.2	2.3	6.8	3.1	2.8	2.0	2.1
	Movimento 5 Stelle	30.2	24.0	4.8	3.7	3.5	6.6	4.6	4.3	9.5
	Forza Italia	13.2	11.3	6.9	6.8	4.9	7.0	6.8	6.4	4.1
	Lega	16.4	21.5	8.8	9.2	1.7	9.9	9.3	9.1	6.9
	Fratelli d'Italia	4.1	4.4	9.1	9.4	1.9	9.8	9.6	9.8	6.6

Notes: the column "Vot." reports the share of votes obtained at the national level for the Chamber of deputies elections, while "Vot. CN" is the vote share in the Centre and North. "LR" is the position of the party in terms of its overall ideological stance, it goes from "0 - Extreme left" to "10 - Extreme right"; "Gal." is the party position in terms of their views on social and cultural values (Galton scale), it ranges from "0 - Libertarian/Postmaterialist" to "10 - Traditional/Authoritarian"; "EU" is the overall orientation of the party towards European integration, it goes from "1 - Strongly opposed" to "7 - Strongly in favour"; "Imm." is the position on immigration policy, it varies between "0 - Strongly favours a liberal policy on immigration" to "10 - Strongly favours a restrictive policy on immigration"; "LO" is the position on civil liberties vs. law and order, it goes from "0 - Strongly promotes civil liberties" to "10 - Strongly supports tough measures to fight crime"; "Nat." is the position on cosmopolitanism vs. nationalism, it goes from "0 - Strongly promotes cosmopolitan conceptions of society" to "10 - Strongly promotes nationalist conceptions of society"; "AE" is the position on the "anti-elite" item which ranges from "0 - Elected office holders should make the most important decisions" to "10 = 'The people', not politicians, should make the most important decisions". The table only reports parties which obtained at least 3% of votes in the election (this is also the electoral threshold to access the parliament).

2006 and 2018 both in intensity and in geographic extension. The extension from the North to the Centre of the country, and even some areas of the South, demonstrates that the party managed to change its identity from localist to national movement. We chose not to analyse the 2022 elections because these elections were heavily influenced by the Covid-19 pandemic and the energy crisis caused by Russia's war in Ukraine.

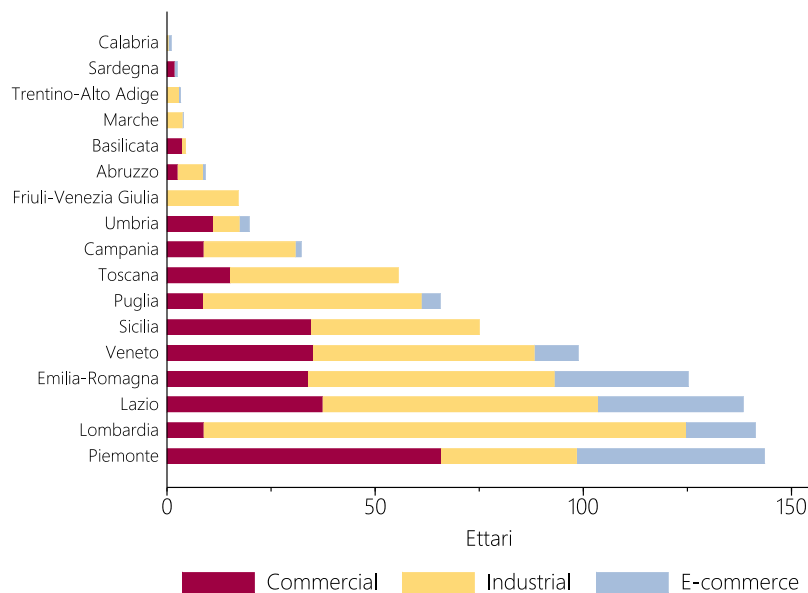


Fig. 2. Hectares of new logistic surface between 2006 and 2017.

Source: Authors' own calculations.

4.2. Logistics

Geographically disaggregated data on logistic activity are scant. We rely on land use data to identify the size of new logistic centres. The work of photo-interpretation, classification, data validation, and processing of Italian aerial and satellite images for the period between 2006 and 2017 was executed by the Italian Institute for Environmental Protection and Research (ISPRA), which kindly provided the data to us. For each municipality, the dataset provides the new surface area occupied by the logistics hubs in the examined period. The hectares count includes warehouses, yards, and offices belonging to the logistic hub. ISPRA's monitoring is carried out using satellite images available during the reference period, which is set in May, with a time variability of plus/minus two months. Therefore, for each municipality i , our indicator measures the hectares occupied by new logistic hubs between May/2006 and May/2017:

$$\Delta 06 - 17 \text{HectaresLog} = \text{SurfaceLog}_{2017} - \text{SurfaceLog}_{2006} \quad (1)$$

As discussed in Section 2.2, individuals are not affected only by what happens in their municipality but also by what takes place in the surrounding areas. In our baseline estimations, we calculate $\Delta 06 - 17 \text{HectaresLog}$ by considering the total area of all newly constructed logistics facilities in the municipality and neighbouring municipalities. However, particularly in the case of small municipalities, individuals may also be affected by developments beyond neighbouring municipalities. As there is no defined distance at which individuals “lose interest”, we considered radii of varying sizes. As discussed in Section 5.2, our results are robust to different selections of the radius around each municipality.⁶ Note that ISPRA's observation time is set approximately in May, hence we observe the construction of new hubs up until May 2017, while the 2018 elections took place in March 2018.

The largest share of new logistics surface built in the period 2006–2017 is dedicated to industrial flows (55.4%), followed by commercial sites (28.6%), and e-commerce (15.9%). As shown in Fig. 2, a great part of new structures was built in the North (56%), followed by the Centre (23%), and the South (20%). Appendix Fig. A.1 shows the cumulative increase in surface covered by logistics hubs in North and Centre Italy, while Appendix Table A.2 reports more statistics on new logistics surface by NUTS2 region and time period.

5. Instrumental variable approach

Our units of analysis are municipalities of the North and the Centre of Italy.⁷ We focus on the North and the Centre for three reasons. First, the logistic boom happened mostly in the North and the Centre (see Fig. 2). Second, this area encompasses the majority

⁶ Appendix Table A.1 reports summary statistics on all the radii we considered.

⁷ We classify North and Centre as Eurostat's NUTS1 “North-West” (ITC), “North-East” (ITH), and “Centre” (IRI). This corresponds to the following regions (NUTS2): Piemonte (ITC1), Valle d'Aosta (ITC2), Liguria (ITC3), Lombardia (ITC4), Trentino-Alto Adige (ITH10/ITH20), Veneto (ITH3), Friuli-Venezia Giulia (ITH4), Emilia-Romagna (ITH5), Toscana (ITI1), Umbria (ITI2), Marche (ITI3), and Lazio (ITI4).

Table 3
Control variables.

Name	Description	Year - level - data source
<i>Socio-demographic characteristics</i>		
% HS	% Population with high-school degree	2001 or 2011 - LAU2 - ISTAT (Census)
% Unempl.	% Unemployed workers	2001 or 2011 - LAU2 - ISTAT (Census)
% Pop. 55–100	% Population aged 55–100	2004 or 2012 - LAU2 - ISTAT
% Foreign	% Foreign inhabitants in population registers.	2004 or 2012 - LAU2 - ISTAT
Pop. (th.)	Population (thousands)	2004 or 2012 - LAU2 - ISTAT
New-borns	Number of new-born babies per 100 inhabitants	2004 or 2012 - LAU2 ISTAT
No FUA	Binary indicator equal to one if municipality is not part of a functional urban area	LAU2 - OECD
% Fem. city council	% Female city counsellors (proxy for social capital)	2002 or 2012 - LAU2 - Ministry of the Interior
Income p.c. (10th.)	Imposable yearly income per taxpayer (10 thousand Euro) - computed from tax returns (IRPEF)	2004 or 2012 - LAU2 - Ministry of Economy and Finance
% Manuf. (rad.)	% Workers employed manufacturing	2004 or 2012 - Radius - ISTAT
IQI prov.	Institutional quality index. The index assumes values in the range [0, 1] with higher values indicating higher institutional quality	2004 or 2012 - NUTS3 - Nifo and Vecchione (2014)
VA p.w. (th. EUR) prov.	Value added per worker (thousands of Euro)	2004 or 2012 - NUTS3 - ISTAT
NUTS2	NUTS2 dummies	NUTS2 - Eurostat
<i>Macro-trends</i>		
Δ04-17 Workers manuf. (rad)	Change in number of workers in manufacturing (per 100 workers)	2004–2017 - Radius - ISTAT
Δ96-17 IPW China (rad.)	Change in imports from China (thousands of constant 2015 US dollars per worker). Detailed description of the measure in Appendix B	1996–2017 - Radius - Comtrade and ISTAT's Census of Industry and Services 1991

Notes: controls from the early 2000s (2001–2004) are used for estimations comparing the elections 2006–2018, while controls from the early 2010s (2011–2012) are used when comparing electoral results of the 20136–2018 elections. There are two exceptions: we chose to use “Δ04-17 Workers manuf. (rad)” and “Δ96-17 IPW China (rad.)” in both groups of estimations to control for areas most affected by macro-trends. The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU and the UK. NUTS0 refers to country, NUTS1 to macro-regions within countries, NUTS2 generally to regions, and NUTS3 to provinces. Local Administrative Units (LAUs) are the building blocks of the NUTS and includes the municipalities and communes of the European Union. In the Italian context, after the NUTS3 level there is the LAU level 2, or LAU2, corresponding to municipalities.

of Italian population (64.7%) and GDP (76.2%).⁸ Third, discontent in the South was mostly expressed with votes for M5S ([Chaykina et al., 2022](#)). Furthermore, since we expect large urban centres to be differently affected by logistics and to follow different dynamics than the other areas, we exclude urban cores as defined by the OECD ([OECD, 2022](#)).⁹

For each of the remaining municipalities i , we estimate the following equation:

$$\Delta 06 - 18Lega_i = \alpha + \beta \Delta 06 - 17HectaresLog_i + \rho SocioDem_i + \theta Trends_i + \epsilon_i \quad (2)$$

The dependent variable $\Delta 06 - 18Lega_i$ is the change in the share of votes for *Lega* between 2018 and 2006. $\Delta 06 - 17HectaresLog_i$ is our measure of logistic activity. We expect its coefficient, β , to be positive and significant, meaning that an increase in logistics activity in the municipality's area leads to an increase in votes for *Lega*. $SocioDem_i$ is a vector containing NUTS2 dummies and a series of municipality's demographic, social, and economic characteristics, all measured at the beginning of the observation period, which might affect citizens' propensity to support the League. $Trends_i$ includes two controls for other long-term trends which might affect people's attitudes, i.e., the decline in manufacturing employment and the variation in imports from China. The change in foreign population in the municipality can also affect people's attitude towards populist right-wing parties. Indeed, [Barone et al. \(2016\)](#) found that immigration generates a sizeable causal increase in support for the centre-right coalition (the one with a political platform less favourable to immigrants) in Italian municipalities between 2001 and 2008. We decided not to include this variable in the baseline regression as the variation in the foreign population is potentially one of the effects of logistic activity. However, we included the variation in the number of foreign inhabitants between 2004 and 2017 (“Δ04–17 Foreign pop. (x 100 inhab.)”) as an additional control in one of our robustness checks. The results are reported in [Table 5](#). The estimates relative to logistics activity are slightly smaller than in the baseline regression, but they remain positive and significant. [Table 3](#) reports the description and data source of each variable, [Appendix Table A.3](#) contains the main descriptive statistics on the variables used in Eq. (2), and [Appendix Fig. A.2](#) plots the correlation level across control variables. Finally, α is the coefficient of the intercept and ϵ_i is an error term.

⁸ Shares based on ISTAT's official statistics for 2006. The values for 2017 are similar: 65.7% of population and 77.7% of GDP.

⁹ Note that we keep core urban areas when computing measures at the radius level but we drop them from the sample when running the regressions. To make sure that this sample restriction is not the main driver of our results, we run two robustness checks, one in which we keep urban cores and one in which we drop all municipalities included in functional urban areas. The results of these tests are reported in [Section 5.2](#).

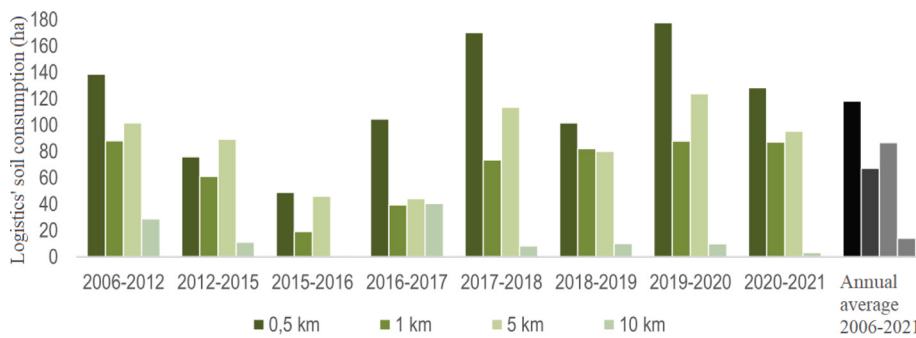


Fig. 3. Distance of logistics hubs from main roads in Italy.
Source: Munafò (2022).

5.1. Instrumental variable

The geographic location of new logistic hubs is not random. The decision concerning a hub's location is likely to be driven by actual development or growth potential of the area, so that our estimation might suffer from both reverse causality and omitted variables bias. Since logistics firms show a special attraction to highways (Verhetsel et al., 2015; Sakai et al., 2020; Bowen, 2008; Holl and Mariotti, 2018b) and the great majority of Italian freight flows are moved by road (Confetra, 2022), a possible instrument could be the distance to highways. Indeed, as shown in Fig. 3, the majority of new logistics centres built in Italy between 2006 and 2021 is concentrated in the distance between 0 and 500 meters from major roads, with only a negligible share being built beyond 10 kilometres.

However, highways' location is also not exogenous. Hence, following Combes et al. (2010), we rely on a historical instrument, precisely on the Roman road network. For each municipality i , our instrument measures the density of Roman roads (in meters over hectares) within the municipality's radius.¹⁰ We believe the Roman road density to respect the exclusion restriction as it is reasonable to assume it to be correlated with the dependent variable only through its correlation with the treatment variable, i.e., the total area of all newly constructed logistics facilities. Roman roads, indeed, are correlated with past trade and urbanization dynamics, which are directly correlated with actual levels of urbanization and economic characteristics. The validity of Roman road density is corroborated by Dalgaard et al. (2022), who stressed the key role that they had in today economic activity and urban expansion of Europe, and by De Benedictis et al. (2023) on modern road and road network, despite being constructed for military reasons, thereby excluding a direct economic reason for their location (Licio, 2021). Several other studies used Roman roads (or other ancient roads) as an instrument for current economic activity and development, which they affect through their relationship with highways and other forms of modern transport infrastructure (Percoco, 2016; Möller and Zierer, 2018; Holl and Mariotti, 2018b; Garcia-López, 2019; Bottasso et al., 2022). As reflected in Fig. 4, logistic hubs tend to be located along the Roman network, which is a good predictor of current Italian infrastructures (Maggi, 2009).

5.2. Results - 2SLS

Table 4 reports the regression results for the ordinary least-squares (OLS) estimator with robust standard errors and the two-stage least-squares (2SLS) estimator with robust standard errors. The relatively high values for the first stage F-statistic imply that the instrument used is informative for our endogenous variables.¹¹ The 2SLS results tend to be larger than the ones based on the OLS estimator, suggesting that unobservable characteristics can reduce in absolute terms the estimated effect of logistics activity. $\Delta 0617 HectaresLog$ shows a positive and significant relation with the increase in support for *Lega* at the municipal level. In terms of magnitude, one additional hectare of logistic surface increases *Lega*'s vote share in the municipality by 0.16 percentage points.

The signs of our control variables' estimates are mostly in line with expectations based on papers from the related literature. Starting from basic socio-economic controls, larger population size, a higher share of inhabitants with tertiary education, a higher income, and higher value added per worker are associated with lower *Lega*'s support. Less dynamic municipalities, i.e., those with a higher unemployment rate and more elderly people, are characterized by a higher growth of political discontent. *Lega*'s support is positively correlated with the share of foreign inhabitants at the beginning of the period. Our proxy of social capital, i.e., the share of female city councillors, is negatively correlated with *Lega*'s vote share. The two controls for long-term trends are not significant, but this might be due to their correlation with other controls.

Table 5 reports the results of the battery of robustness checks we performed. The tests can be divided in four groups:

i. Alternative radii. In our main specification we define a radius around each municipality which only includes neighbouring municipalities. To make sure our results do not depend on the radius we picked, we re-estimated our models using: (a) ISTAT's 2001

¹⁰ We extracted the municipal-level meters of Roman roads from the shapefiles provided by McCormick et al. (2008).

¹¹ A commonly followed rule-of-thumb is that the F-statistic should be greater than 10 (Stock et al., 2002).

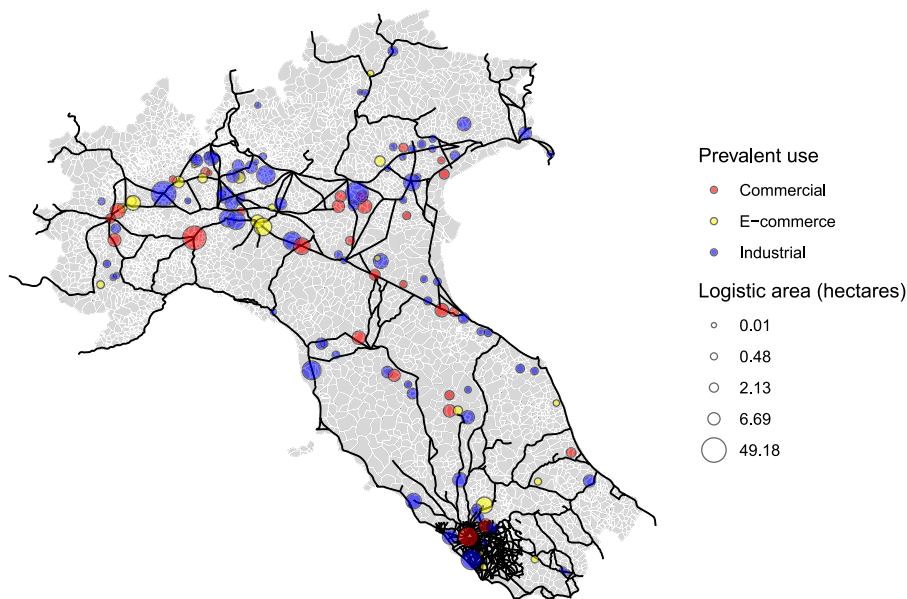


Fig. 4. Roman roads and logistic hubs in North and Centre Italy.
Source: Plot created by the authors.

local labour markets; (b) fixed cut-off points for all municipalities (between 10 and 30 kilometres); (c) municipality-specific radii based on commuting-levels: to account for different levels of mobility across municipalities, we use ISTAT's 2001 census commuting matrix (ISTAT, 2022b) to estimate the minimum distance at which each municipality reaches (c1) 80%, 85%, 90%, and 95% of its workers, or (c2) 80%, 85%, 90%, and 95% of its workers and students (these radii are generally larger than the ones based on workers only). Appendix Table A.1 reports several statistics on the number of municipalities included in each type of radius, while Appendix Fig. A.3 reports some statistics on commuting distances.

ii. *Sample restriction.* To exclude the possibility that our results are driven by a specific group of “special” municipalities, we tried varying our sample restriction: (a) excluding municipalities in Lazio region (as shown in Fig. 4, the region has a very high density of Roman roads as Rome is located there. Another reason to test the exclusion of this region is that it is not included in the DiD analysis as *Lega* did not run there in the 2008 elections); (b) excluding municipalities belonging to OECD functional urban areas; (c) including OECD urban cores; (d) including municipalities from Southern regions.

iii. *Additional controls.* We test whether results are sensitive to the inclusion of the following additional controls: (a) a binary indicator for municipalities hit by the 2012 earthquake (Cerqua et al., 2021); (b) the variation in electoral turnout between 2006 and 2018 (“406-18 Turnout”); (c) the turnout level in 2006 (“Turnout 06”); (d) both “406-18 Turnout” and “Turnout 06”; (e) *Lega*'s vote share in 2006 (“% LN 06”); (f) as *Lega*'s vote share in 2006 is used to compute our dependent variable, we tried controlling for *Lega*'s vote share in the previous elections, i.e. 2001 elections (“% LN 01”); (g) to better control for the municipality's electoral behaviour in the past, we tried adding both *Lega*'s vote share in 2001 and the electoral turnout in 2001 (“% LN 01” and “Turnout 01”); (h) the variation in the number of foreign inhabitants between 2004 and 2017. Appendix Table A.4 reports the results of regressions which only include exogenous controls such as not belonging to functional urban areas (FUA), altitude, ruggedness, and a dummy denoting if the municipality is located within 5 km from the sea.

iv. *Other checks.* Finally, we performed the following tests: (a) our dependent variable (406-18 *Lega*) measures the change in *Lega*'s vote share as votes for *Lega* over total votes, in this section we tried an alternative dependent variable (“406-18 Potential votes *Lega*”) measured as votes for *Lega* over total eligible voters; (b) since our units of analysis may not be Independent and Identically Distributed (i.i.d.) due to spatial dependence, we check whether results are robust to estimating Spatial HAC standard errors following Conley (1999); (c) as in the DiD analysis we compare the elections in 2018 with those in 2013, we tried repeating the estimation in Eq. (2) using “413 – 18 *Lega*” as our dependent variable and “412 – 17 *HectaresLog*” or “415 – 17 *HectaresLog*” as our measure of logistics activity shock; (d) to exploit the panel dimension of the data, we estimated a fixed effects model including municipality and time fixed effects (the results of this test are reported in Appendix Table A.5). While the magnitude of our estimates varies depending on the specification, the positive and significant relationship between logistics activities and the increase in support for *Lega* between 2006 and 2018 is confirmed in all estimations.

To further assess the robustness of our empirical approach, we tested the validity of our exclusion restriction assumption following the approach adopted in Steinmayr (2021). In particular, we checked whether our instrument began correlating with the dependent variable only since the logistic expansion by conducting a reduced form regression with the change in *Lega*'s vote shares between different elections as the dependent variable and the Roman roads density as the main independent variable of interest. The results of this test are reported in Appendix Fig. A.4 and seem to confirm the credibility of the exclusion restriction as there is no correlation

Table 4
Regression results 2SLS — Base model.
Source: Authors' own calculations.

	OLS (1)	OLS (2)	2SLS (1)	2SLS (2)
Δ06-17 HectaresLog	0.066*** (0.010)	0.065*** (0.010)	0.155*** (0.044)	0.159*** (0.044)
% High-School dipl. 01	−0.081*** (0.020)	−0.079*** (0.020)	−0.085*** (0.020)	−0.083*** (0.020)
% Unempl. 01	0.126*** (0.042)	0.126*** (0.042)	0.130*** (0.042)	0.130*** (0.042)
% Pop. 55-100 04	0.073*** (0.018)	0.073*** (0.018)	0.079*** (0.018)	0.079*** (0.018)
Pop. (th.) 04	−0.046*** (0.007)	−0.046*** (0.007)	−0.053*** (0.008)	−0.054*** (0.008)
% Foreign pop. 04	0.082*** (0.028)	0.080*** (0.028)	0.075*** (0.028)	0.073** (0.028)
Newborns (x100 inhab.) 04	−0.329 (0.312)	−0.321 (0.312)	−0.309 (0.312)	−0.301 (0.312)
% Manuf. (rad.) 04	0.001 (0.006)	0.005 (0.007)	0.006 (0.007)	0.010 (0.007)
% Soil used 06	0.004 (0.008)	0.005 (0.008)	0.004 (0.008)	0.004 (0.008)
Income p.c. (10th. EUR) 04	−1.435*** (0.384)	−1.434*** (0.384)	−1.393*** (0.385)	−1.390*** (0.385)
No FUA	0.178 (0.164)	0.182 (0.164)	0.273 (0.171)	0.280 (0.171)
% Fem. city council 02	−0.025*** (0.006)	−0.025*** (0.006)	−0.027*** (0.006)	−0.027*** (0.006)
VA p.w. (th. EUR) prov. 04	−0.022*** (0.004)	−0.021*** (0.004)	−0.021*** (0.004)	−0.020*** (0.004)
IQI prov 04	0.450 (1.298)	0.275 (1.288)	0.385 (1.299)	0.225 (1.289)
Δ04-17 Manuf work. (x100 inhab.) (rad.)		0.002 (0.013)		0.002 (0.013)
Δ96-17 IPW China (th. USD) (rad.)		−0.064 (0.043)		−0.057 (0.043)
Constant	19.664*** (1.541)	19.668*** (1.540)	19.085*** (1.569)	19.059*** (1.572)
NUTS2 FE	✓	✓	✓	✓
Adjusted R^2	0.18	0.18	0.18	0.17
N	5,169	5,169	5,169	5,169
First stage F-stat.			64.98	65.65
Endogeneity test (p -value)			0.032	0.023

Notes: 2SLS columns report two-stage least squares regressions where logistics activity in the radius around each municipality is instrumented with the density of Roman roads. Robust standard errors in parentheses. [Olea and Pflueger \(2013\)](#) first-stage F-Statistic and [Wooldridge \(1995\)](#) robust score test of endogenous regressors are reported at the bottom of the table for 2SLS regressions. All regressions include NUTS2 dummies. A description of each control variable is reported in [Table 3](#). Significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

between Roman roads density and vote shares in the period before the logistic expansion, i.e. the early 2000s, while a correlation emerges later on. The plot shows a sort of gradual trend, with a non-significant negative estimate for “2006 vs 2001”, a slightly positive but still non-significant effect for “2013 vs 2006”, and a clearly positive and significant effect for “2018 vs 2013”, which is similar to the estimate we obtain for the whole “2018 vs 2006”. This trend might be explained by an initial “honey moon” phase, in which new logistic hubs were welcomed with optimism due to the promise of good jobs and economic growth for the hosting municipalities. However, as reality failed to align with these optimistic projections, this enthusiasm gradually transformed into discontent.

An alternative approach to capture logistics activity could have been using employment data at the municipal level from ISTAT “Statistical Register of Local Units” dataset (ASIA UL). For each municipality, the register provides the number of local units and the number of workers by three-digits NACE Rev.2 codes for the period 2004–2018. As discussed more in detail in [Appendix C](#), we analysed these data and we found them to be too unreliable to be used in our main analysis. However, for a matter of transparency, we still tested our instrumental variable approach using a variable based on these data. The results are reported in [Appendix Table C.1](#).¹²

¹² We also performed a heterogeneity analysis in which we split the sample in two based on the median for the share of foreign population in 2012, unemployment share in 2011, and the percentage of workers in small firms (0-10 employees) in 2012, population in 2012, and vote share of Lega in 2006. The results, which should be taken with caution given the small sample of municipalities treated (N=103) are reported in [Appendix Fig. A.5](#). The plots show that the impact of logistical hubs is greatest in municipalities where the share of the foreign population is lowest. When the sample is broken down by unemployment

Table 5

Regression results 2SLS — Robustness checks.

Source: Authors' own calculations.

	β_{OLS}	SE_{OLS}	R^2_{OLS}	β_{2SLS}	SE_{2SLS}	F-stat.	N
Baseline	0.065***	0.010	0.19	0.159***	0.044	65.6	5,169
i. <i>Alternative radii</i>							
Shocks at LLM level	0.015***	0.004	0.19	0.042***	0.011	186.6	5,169
10 km	0.043***	0.009	0.19	0.345**	0.137	17.4	5,169
15 km	0.034***	0.006	0.19	0.186***	0.062	32.4	5,169
20 km	0.031***	0.005	0.19	0.093***	0.026	88.1	5,169
25 km	0.030***	0.004	0.20	0.060***	0.015	175.1	5,169
30 km	0.028***	0.003	0.20	0.043***	0.010	318.0	5,169
80% workers	0.018***	0.004	0.19	0.057***	0.018	151.7	5,169
85% workers	0.021***	0.003	0.19	0.053***	0.014	165.9	5,169
90% workers	0.019***	0.003	0.19	0.053***	0.011	147.7	5,169
95% workers	0.018***	0.002	0.20	0.053***	0.009	102.2	5,169
80% workers and students	0.019***	0.004	0.19	0.068***	0.021	114.1	5,169
85% workers and students	0.018***	0.004	0.19	0.056***	0.016	159.1	5,169
90% workers and students	0.017***	0.003	0.19	0.049***	0.012	157.3	5,169
95% workers and students	0.018***	0.002	0.20	0.043***	0.009	94.1	5,169
ii. <i>Sample restriction</i>							
Exclude Lazio	0.070***	0.012	0.19	0.429***	0.111	35.7	4,796
Exclude FUA	0.067***	0.015	0.17	0.274**	0.120	26.9	3,893
Keep FUA cores	0.063***	0.010	0.19	0.149***	0.043	65.5	5,223
Add South	0.035***	0.009	0.64	0.142***	0.043	72.6	7,570
iii. <i>Additional controls</i>							
Earthquake 2012	0.065***	0.010	0.19	0.160***	0.044	65.8	5,169
$\Delta 06-18$ Turnout	0.070***	0.010	0.20	0.181***	0.046	65.5	5,169
Turnout 06	0.065***	0.010	0.19	0.157***	0.044	65.2	5,169
$\Delta 06-18$ Turnout and Turnout 06	0.070***	0.010	0.21	0.177***	0.045	65.3	5,169
%Lega 06	0.065***	0.009	0.20	0.126***	0.042	65.6	5,169
%Lega 01	0.063***	0.010	0.19	0.141***	0.043	64.5	5,169
%Lega 01 and Turnout 01	0.061***	0.010	0.20	0.134***	0.043	63.1	5,169
$\Delta 04-17$ Foreign pop. (x 100 inhab.)	0.059***	0.010	0.19	0.148***	0.045	62.9	5,169
iv. <i>Other checks</i>							
$\Delta 06-18$ Potential votes Lega	0.046***	0.008	0.14	0.138***	0.038	65.6	5,169
Conley SE (Bartlett 20 km)				0.159**	0.072		5,169
$\Delta 13-18$ Lega - ($\Delta 12-17$ Log)	0.070***	0.013	0.26	0.269***	0.071	52.4	5,169
$\Delta 13-18$ Lega - ($\Delta 15-17$ Log)	0.066***	0.018	0.26	0.904***	0.276	21.4	5,169

Notes: all regressions include the battery of controls described in Table 3 measured in the early 2000s (2001–2004), except for regressions with $\Delta 13-18$ Lega as dependent variable, whose controls are recorded in the early 2010s (2011–2012). 2SLS columns refer to two-stage least squares regressions where logistics activity in the radius around each municipality is instrumented with the density of Roman roads. Olea and Pflueger (2013) first-stage F-Statistic for the 2SLS regressions is reported in column “F-stat.”. Robust standard errors. Significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

6. Difference-in-differences

Besides the instrumental variable approach, we adopt an alternative estimation method: a Difference-in-Differences (DiD) analysis. The setup of our DiD analysis is complicated by the fact that we do not have the information on hectares of logistics surface on a yearly basis. In fact, we only have data for the following spells: (1) 2006–2012; (2) 2012–2015; (3) 2015–2016; (4) 2016–2017; (5) 2017–2018; (6) 2018–2019. Note that ISPRA's monitoring is carried out using satellite images available during the reference period, which is set in May, with a time variability of plus/minus two months. For example, the spell 2012–2015, indicates the new surface covered between May 2012 and May 2015.

Keeping these limitations in mind, we built our DiD comparing results of the elections in 2018 versus the ones in 2013. This approach allows us to: (1) have three elections before the “shock” to check the pre-trends assumption; (2) have information on the construction of new logistics sites before our main shock to correctly select our control group. The DiD is estimated as follows:

$$y_{m,t} = \alpha + \gamma \cdot Treated_m + \delta \cdot T_{2018} + \beta \cdot (Treated_m \times T_{2018}) + \epsilon_{m,t} \quad (3)$$

where $y_{m,t}$ is the electoral outcome in municipality m in election year t , $Treated_m$ is a binary indicator for treated municipalities, T_{2018} is an indicator for the 2018 election, and $t \in \{2013, 2018\}$. We select the treated units based on the new surface built in the two years between May/2015 and May/2017. We do not include municipalities treated between May/2017 and May/2018 as the 2018 elections took place in March. In our main specification we do not consider the municipalities treated in the period May/2012–May/2015 as it starts before the 2013 elections. However, we still consider this period in one of our robustness checks.

rate, an impact is found only for municipalities that are above the median. Finally, the impact of logistics hubs is slightly higher in municipalities with a higher share of small firms.

Table 6

Hectares cut-off and size of treated and control groups.

Source: Authors' own calculations.

	Treated		Control	
	Cut-off (Ha)	N	Cut-off (Ha)	N
Treated 80th – Control 10th	8.2	103	0.2	3,955
Treated 80th – Control 50th	8.2	103	2.8	4,338
Treated 85th – Control 10th	9.4	77	0.2	3,955
Treated 85th – Control 50th	9.4	77	2.8	4,338
Treated 90th – Control 10th	10.3	51	0.2	3,955
Treated 90th – Control 50th	10.3	51	2.8	4,338

Notes: statistics on Centre and North only. Thresholds for the treated groups refer to the two years between May/2015 and May/2017, while for control groups we consider the whole period between May/2006 and May/2018.

To avoid introducing the complication of a continuous treatment, we turned continuous variable, i.e., the new hectares of logistics surface built in a given period, into a binary indicator for “treated” versus “control” municipalities. Given that we do not have any theory-based indication on the number of hectares necessary for a municipality to be considered as treated, we tested several cut-off points (some more “stringent” and others more “loose”) based on the observed distribution of our variables, as, strictly speaking, there is no policy intervention implemented during the period.¹³ To be more specific, we categorized as “Control group” those municipalities that, in the whole period between May-2006 and May-2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 10th or the 50th percentile. We do not set the limit for the control group to zero to ensure we are not only selecting very remote municipalities in our control group. “Treated” municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017.¹⁴ Table 6 reports the number of hectares for each cut-off and the size of the relative treated and control groups. We chose the 80th percentile for treatment and the 50th for control (“t80-c50”) as our main specification, because we think it provides a good trade-off between selecting municipalities that experienced a large shock and providing a sample large enough for our estimations. As described in the following paragraphs, we use a series of matching and weighting techniques to select the most suitable control for each treated municipality. All 103 treated units are concentrated in five regions only: Piemonte (31), Veneto (23), Lombardia (23), Emilia-Romagna (17), and Friuli-Venezia Giulia (9). Note that Lazio had to be excluded from this analysis because *Lega* did not run in this region for the 2008 elections.

The identification assumption in our DiD approach is that electoral outcomes would have evolved similarly in municipalities with higher and lower logistics activity in 2015–2017 in the absence of the treatment. As shown in Table 7, treated and control units differ in the distribution of several characteristics. Hence, using an approach that helps us comparing municipalities as similar as possible is fundamental for the solidity of our analysis. We use the Sant’Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares (DRIMP). By using both matching and weighting, DRIMP can achieve better balance between the treatment and control groups on confounding covariates than either method alone. Moreover, by using a doubly robust approach, DRIMP can produce consistent estimates of the treatment effect even if the propensity score model is misspecified or if there is unobserved confounding, as long as either the matching or the weighting model is correctly specified. This method is particularly suitable in our setting as, being the location of logistics hubs not exogenous, the parallel trends assumption might hold potentially only after conditioning on observed pre-treatment characteristics. Therefore, we control for all variables in Table 3 measured before the treatment, i.e. in 2011–2012. Standard errors are clustered at the municipality level.

The existence of a common trend is the key identifying assumption for DiD estimates to be unbiased. In our analysis, the assumption implies that, in the absence logistics centres, the affected areas would have had the same trends in their support for *Lega* as in not exposed municipalities. Since we observe three elections before the shock, i.e. the elections in 2006, 2008, and 2013, we are able to test this assumption. Specifically, we estimated Eq. (3) for 2008 vs. 2006 and 2013 vs. 2008.

6.1. Results - DiD

Fig. 5 reports the estimates of the Difference-in-Differences models and their 95% confidence intervals. Both in the more “stringent” and in the more “loose” specifications, the point estimates of treated municipalities showed a larger increase in support for *Lega*, with the estimated effect ranging between 1.95 and 2.88 percentage points. The pre-trends assumption appears to be satisfied as all effects for the 2006–2008 and 2008–2013 elections, i.e., those before the “shock”, are not statistically significant.

¹³ For both the control and the treatment group the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. If we used all municipalities, looking at percentiles would not help as they would be all equal to zero.

¹⁴ Recent techniques developed in the DiD analysis, such as the stacked estimator (Cengiz et al., 2019) and the LP-DiD estimator (Dube et al., 2023) would allow to enrich the analysis exploiting the staggered nature of the expansion of Italian logistics. We decided not to take this approach for our study for two reasons. First, if we divide the treated municipalities into smaller groups, we end up with very few observations in each “wave”. Second, since our observation period ends in 2018 and the yearly data start from mid-2015, we would only have two waves anyway.

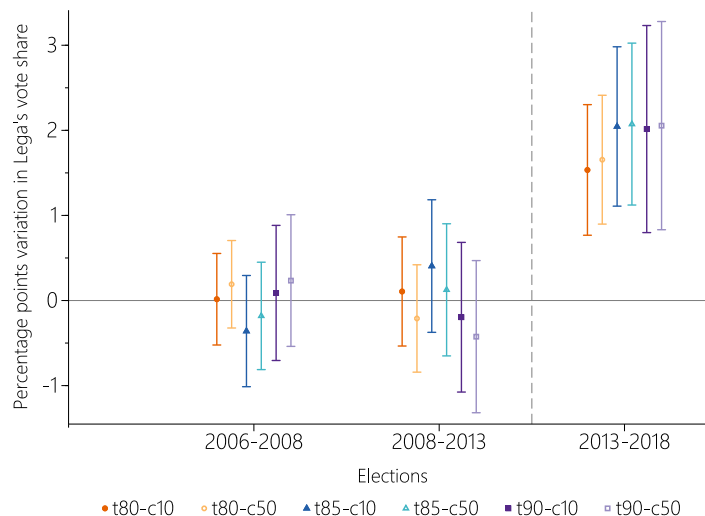
Table 7

Comparison between treated and control group in DiD (unmatched).

Source: Authors' own calculations.

	T(avg.)	C(avg.)	Diff.	p-val.	T(SD)	C(SD)	T(N)	C(N)
% High-School dipl. 11	35.40	32.84	2.56	0.000	6.22	6.69	103	4,338
% Unempl. 11	6.73	6.37	0.35	0.041	1.72	2.28	103	4,338
% Pop. 55-100 12	33.13	36.15	-3.02	0.000	5.73	6.75	103	4,338
Pop. (th.) 12	9.00	4.49	4.51	0.000	11.76	7.07	103	4,338
% Foreign pop. 12	10.04	7.92	2.12	0.000	4.22	4.33	103	4,338
Newborns (x100 inhab.) 12	0.82	0.75	0.07	0.005	0.26	0.33	103	4,338
% Manuf. (rad.) 12	23.36	30.08	-6.72	0.000	10.11	13.39	103	4,338
% Soil used 12	15.45	10.20	5.25	0.000	9.62	9.70	103	4,338
Income p.c. (10th. EUR) 12	1.99	1.89	0.10	0.000	0.24	0.29	103	4,338
No FUA	0.56	0.80	-0.23	0.000	0.50	0.40	103	4,338
% Fem. city council 12	22.62	24.09	-1.47	0.216	11.93	11.97	103	4,338
VA p.w. (th. EUR) prov. 12	62.81	63.00	-0.18	0.920	18.18	16.58	103	4,338
IQI prov 12	0.81	0.80	0.01	0.197	0.08	0.10	103	4,338
Δ04-17 Manuf work. (x100 inhab.) (rad.)	-6.29	-6.68	0.39	0.304	3.68	6.84	103	4,338
Δ96-17 IPW China (th. USD) (rad.)	1.66	2.00	-0.34	0.000	0.85	2.05	103	4,338
Emilia-Romagna	0.17	0.05	0.12	0.002	0.37	0.22	103	4,338
Friuli-Venezia Giulia	0.09	0.04	0.04	0.123	0.28	0.21	103	4,338
Liguria	0.00	0.05			0.00	0.22	103	4,338
Lombardia	0.22	0.31	-0.09	0.035	0.42	0.46	103	4,338
Marche	0.00	0.05			0.00	0.21	103	4,338
Piemonte	0.30	0.25	0.05	0.297	0.46	0.43	103	4,338
Toscana	0.00	0.05			0.00	0.21	103	4,338
Trentino-Alto Adige	0.00	0.06			0.00	0.23	103	4,338
Umbria	0.00	0.02			0.00	0.13	103	4,338
Valle d'Aosta	0.00	0.02			0.00	0.13	103	4,338
Veneto	0.22	0.10	0.12	0.004	0.42	0.30	103	4,338

Notes: statistics on Centre and North only, using 80th percentile for treatment and 50th percentile for control. We chose these two groups as they offer the largest samples. We then apply matching techniques to select the most suitable control(s) for each of our treated municipalities. The column "Diff." reports the difference in the two groups' means ("T(avg.)" minus "C(avg.)") and column "p-value" the relative *p*-value. Column "T(SD)" ("C(SD)") reports the standard deviation for the treated (control) group, while column "T(N)" ("C(N)") reports the number of municipalities included in the treated (control) group. Table 6 reports the hectares cut-off and size of each group.

**Fig. 5.** Results of the Difference-in-Differences analysis (DRIMP).

Notes: Sant'Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares (DRIMP). We use all controls reported in Table 3 measured in 2011–2012. Standard errors are clustered at the municipal level. We categorized as "Control group" those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 10th percentile or the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Table 6 reports the cut-offs and size of each group. Note that Lazio had to be excluded from this analysis because Lega did not run in this region for the 2008 elections. Bars represent the 95% level confidence intervals.

Source: Authors' own calculations.

Table 8DRIMP - *Lega*, PD, and M5S.

Source: Authors' own calculations.

Spec.	Party	2006–2008	2008–2013	2013–2018	T(N)	C(N)
t80-c10	<i>Lega</i>	0.015 (0.275)	0.106 (0.327)	1.534*** (0.392)	103	3,955
t80-c10	PD		−0.029 (0.234)	−0.855** (0.350)	103	3,955
t80-c10	M5S			0.302 (0.342)	103	3,955
t80-c50	<i>Lega</i>	0.191 (0.262)	−0.211 (0.322)	1.655*** (0.386)	103	4,338
t80-c50	PD		0.171 (0.227)	−0.694** (0.353)	103	4,338
t80-c50	M5S			0.115 (0.340)	103	4,338
t85-c10	<i>Lega</i>	−0.360 (0.333)	0.405 (0.397)	2.045*** (0.478)	77	3,955
t85-c10	PD		0.120 (0.296)	−1.800*** (0.401)	77	3,955
t85-c10	M5S			0.288 (0.430)	77	3,955
t85-c50	<i>Lega</i>	−0.181 (0.322)	0.126 (0.396)	2.073*** (0.486)	77	4,338
t85-c50	PD		0.326 (0.294)	−1.639*** (0.403)	77	4,338
t85-c50	M5S			0.190 (0.431)	77	4,338
t90-c10	<i>Lega</i>	0.089 (0.405)	−0.196 (0.449)	2.015*** (0.621)	51	3,955
t90-c10	PD		0.182 (0.293)	−1.022*** (0.383)	51	3,955
t90-c10	M5S			−0.127 (0.552)	51	3,955
t90-c50	<i>Lega</i>	0.234 (0.395)	−0.425 (0.456)	2.055*** (0.624)	51	4,338
t90-c50	PD		0.366 (0.302)	−0.911** (0.386)	51	4,338
t90-c50	M5S			−0.221 (0.554)	51	4,338

Notes: Sant'Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares (DRIMP). We use all controls reported in Table 3 measured in 2012. Standard errors clustered at the municipal level are reported between parentheses. We categorized as “Control group” those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 10th percentile or the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Table 6 reports the hectares cut-off and size of each group. Note that Lazio had to be excluded from this analysis because *Lega* did not run in this region for the 2008 elections. Significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

Table 8 compares the results for *Lega*, with the ones for the Democratic party (PD) and the Five Stars Movement (M5S). The latter two did not exist in all four elections. Hence we can only compare 2008, 2013, and 2018 for PD, and 2013 and 2018 for M5S. While we find no effect at all for the M5S, we estimate a negative impact for the PD, signalling that the party lost appeal among the working class (Diamond and Guidi, 2019).

The first robustness check we perform consists in repeating the main estimations with a classic two-way fixed effects specification (TWFE):

$$y_{m,t} = \alpha + \sum_{t=2006}^{2018} \beta \cdot (Treated_m \times T_t) + \zeta_t + \xi_m + \epsilon_{m,t} \quad (4)$$

where $y_{m,t}$ are the electoral outcomes in municipality m in election year t . We interact our treatment dummy ($Treated_m$) with indicators for the election years 2006, 2008, and 2018 (T_t). The 2013 election serves as the base year. By including municipality (ξ_m) and year (ζ_t) fixed effects, we control for time-invariant municipality characteristic and time-varying shocks affecting all municipalities. We used our baseline specification for control and treated groups: the 80th percentile for treatment and the 50th percentile for control (“t80-c50”). In order to compare municipalities as similar as possible, we adopt two strategies: (1) using nearest

Table 9TWFE - *Lega*, PD, and M5S.

Source: Authors' own calculations.

	Unweighted	PSM - Kernel	PSM - NN
<i>Lega</i> 2006–2018			
Treated x 2006	0.069 (0.193)	0.027 (0.224)	0.293 (0.418)
Treated x 2008	1.265** (0.572)	0.367 (0.596)	−0.336 (0.804)
Treated x 2018	1.684*** (0.377)	1.712*** (0.408)	2.017*** (0.650)
Municipality FE	✓	✓	✓
Year FE	✓	✓	✓
Adj. R^2	0.89	0.90	0.90
Mun contr.	4,338	3,299	90
Mun tr.	103	103	103
N	17,764	13,608	772
<i>PD</i> 2008–2018			
Treated x 2008	0.054 (0.305)	0.009 (0.329)	0.250 (0.433)
Treated x 2018	−1.019*** (0.340)	−0.638* (0.377)	−1.568*** (0.548)
Municipality FE	✓	✓	✓
Year FE	✓	✓	✓
Adj. R^2	0.86	0.87	0.89
Mun contr.	4,338	3,299	90
Mun tr.	103	103	103
N	13,323	10,206	579
<i>M5S</i> 2013–2018			
Treated x 2018	−0.174 (0.340)	0.129 (0.385)	−0.176 (0.591)
Municipality FE	✓	✓	✓
Year FE	✓	✓	✓
Adj. R^2	0.78	0.75	0.72
Mun contr.	4,338	3,299	90
Mun tr.	103	103	103
N	8,882	6,804	386

Notes: TWFE with year and municipality fixed effects. Standard errors clustered at the municipality level are reported between parentheses. “PSM - Kernel” is kernel propensity score matching, while “PSM - NN” is nearest neighbour propensity score matching. Matching is done using all controls reported in Table 3 measured in 2011–2012. In both matching approaches we exclude observations outside the common support. We categorized as “Control group” those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th percentile in the two years between May/2015 and May/2017. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Table 6 reports the hectares cut-off and size of each group. Note that Lazio had to be excluded from this analysis because *Lega* did not run in this region for the 2008 elections. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

neighbour propensity score matching (PSM - NN); (2) using kernel propensity score matching (PSM - Kernel).¹⁵ We match each treated unit to its control(s) using all variables in Table 3 measured in 2011–2012. Standard errors are clustered at the municipality level. Appendix Table A.6 shows that both approaches are successful in significantly reducing the differences between the control and the treated group. Table 9 reports the results of the TWFE. The unweighted model shows some pre-trends, confirming that using matching and weighting techniques is necessary to obtain reliable results. The results of both weighted estimators are in line with the ones of Table 8.

Fig. 6 compares the estimates of our DRIMP with other three estimators: (1) DRIPW is the Sant’Anna and Zhao (2020) doubly robust DiD estimator based on stabilized inverse probability weighting and ordinary least squares; (2) OLS is the outcome regression DiD estimator based on ordinary least squares; (3) STDIPW is the inverse probability weighting DiD estimator with stabilized weights.

¹⁵ While with “PSM - NN” each treated unit is matched with the closest control, in “PSM - Kernel” every treated unit is matched with the weighted average of the control municipalities, with the weights being inversely proportional to the distance between the treated and control group’s propensity scores. In both cases we excluded observations outside the common support.

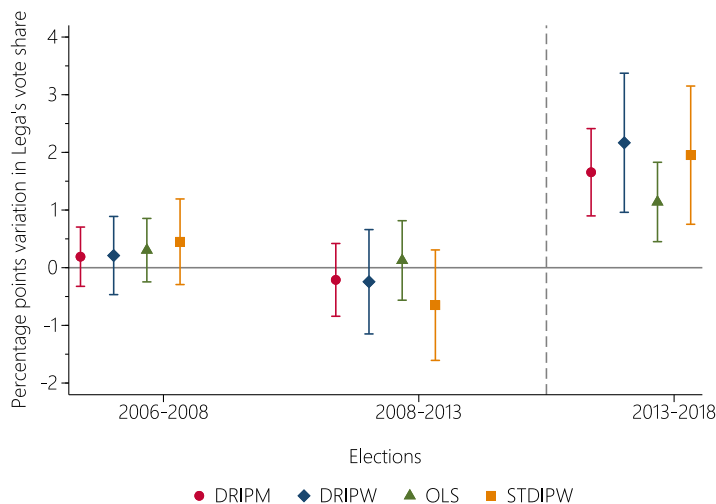


Fig. 6. Robustness checks — Different Difference-in-Differences estimators.

Notes: DRIMP is the Sant'Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares; DRIPW is the Sant'Anna and Zhao (2020) doubly robust DiD estimator based on stabilized inverse probability weighting and ordinary least squares; OLS is the outcome regression DiD estimator based on ordinary least squares; STDIPW is the inverse probability weighting DiD estimator with stabilized weights. We use all controls reported in Table 3 measured in 2011–2012. Standard errors are clustered at the municipal level. We categorized as “Control group” those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 10th percentile or the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Table 6 reports the cut-offs and size of each group. Note that Lazio had to be excluded from this analysis because *Lega* did not run in this region for the 2008 elections. Bars represent the 95% level confidence intervals. Appendix Table A.7 reports the exact estimates and their standard errors.

Source: Authors' own calculations.

As for the DRIMP, we use all controls reported in Table 3 measured in 2011–2012 and standard errors are clustered at the municipal level. The results of all three methods are comparable with the ones based on the DRIMP.

The next two tests we perform concern the definition of control and treatment groups: (1) treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017 and a consumed surface below the same cut-off in the period May/2006–May/2012; (2) treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the years between May/2012 and May/2017. The results are in line with those of our baseline specification and are reported in Table 10.¹⁶

6.2. Potential channels

In an attempt to investigate the mechanisms connecting the opening of a logistic hub with the increase in the local support for *Lega*, we conduct an event study. We adopt a DiD approach similar to the one described above but with two differences. First, we observe all years between 2012 and 2019, and not just the election years. We stop at 2019 to avoid any overlap with the Covid-19 pandemic, which started in early 2020. Second, we consider a series of outcomes that can help us understanding what happens to treated municipalities after the shock. We look at seven outcomes: (1) “% Employed”, (2) “Income p.c.”, (3) “Labour Income p.w.”, (4) “Pop.”, (5) “Pop. Ita.”, (6) “Pop. For.”, and (7) “% Pop. For.”. The first three measures are computed on tax returns data (IRPEF) from the Ministry of Economy and Finance. “% Employed” is calculated by dividing the number of individuals paying labour income tax at the municipal level by the number of inhabitants of the municipality.¹⁷ We had to build this proxy of the employment share using income tax data because we only have unemployment share at the municipal level for 2001 and 2011, as these variables come from ISTAT's Census. In 2011, the only year for which we have both measures, “% Employed” has a correlation of 0.76 with Census' employment rate, and -0.48 with Census' unemployment rate. “Income p.c.” is the imposable yearly income per taxpayer (measured in Euro). “Labour Income p.w.” is a proxy of local wages, computed by dividing the total yearly labour income at the municipal level (measured in Euro) by the number of individuals paying labour income tax.¹⁸ Finally, “Pop.”, “Pop. Ita.”, “Pop. For.”, and “% Pop. For.” are ISTAT's measures of the municipality's total resident population, resident population with

¹⁶ We also performed a heterogeneity analysis in which we split the sample in two based on the median for the share of foreign population in 2012, unemployment share in 2011, the percentage of workers in small firms (0-10 employees) in 2012, population in 2012, and *Lega*'s vote share in 2006. The results, which should be taken with caution given the small sample of municipalities treated ($N = 103$) are reported in Appendix Fig. A.5.

¹⁷ Note that workers whose yearly labour income is below a certain threshold (around 8,000 Euro per year) are exempt from filing tax returns.

¹⁸ Both “Income p.c.” and “Labour Income p.w.” are corrected for inflation using ISTAT's deflator with base 2015.

Table 10
DRIMP — Robustness checks.
Source: Authors' own calculations.

Test	Spec.	2006–2008	2008–2013	2013–2018	T(N)	C(N)
Baseline	t80-c10	0.015 (0.275)	0.106 (0.327)	1.534*** (0.392)	103	3,955
Baseline	t80-c50	0.191 (0.262)	−0.211 (0.322)	1.655*** (0.386)	103	4,338
Baseline	t85-c10	−0.360 (0.333)	0.405 (0.397)	2.045*** (0.478)	77	3,955
Baseline	t85-c50	−0.181 (0.322)	0.126 (0.396)	2.073*** (0.486)	77	4,338
Baseline	t90-c10	0.089 (0.405)	−0.196 (0.449)	2.015*** (0.621)	51	3,955
Baseline	t90-c50	0.234 (0.395)	−0.425 (0.456)	2.055*** (0.624)	51	4,338
Δ 15–17 (limit 06–12)	t80-c10	−0.034 (0.275)	0.329 (0.296)	1.576*** (0.445)	80	3,955
Δ 15–17 (limit 06–12)	t80-c50	0.170 (0.255)	−0.021 (0.288)	1.745*** (0.427)	80	4,338
Δ 15–17 (limit 06–12)	t85-c10	0.051 (0.346)	0.071 (0.391)	1.743*** (0.524)	63	3,955
Δ 15–17 (limit 06–12)	t85-c50	0.252 (0.331)	−0.234 (0.391)	1.791*** (0.526)	63	4,338
Δ 15–17 (limit 06–12)	t90-c10	0.089 (0.405)	−0.196 (0.449)	2.015*** (0.621)	51	3,955
Δ 15–17 (limit 06–12)	t90-c50	0.234 (0.395)	−0.425 (0.456)	2.055*** (0.624)	51	4,338
Δ 12–17	t80-c10	0.225 (0.236)	−0.143 (0.293)	1.409*** (0.336)	145	3,955
Δ 12–17	t80-c50	0.374* (0.226)	−0.461 (0.285)	1.545*** (0.320)	145	4,338
Δ 12–17	t85-c10	−0.097 (0.269)	0.125 (0.338)	1.558*** (0.434)	99	3,955
Δ 12–17	t85-c50	0.014 (0.260)	−0.125 (0.335)	1.699*** (0.422)	99	4,338
Δ 12–17	t90-c10	−0.033 (0.356)	−0.080 (0.424)	1.863*** (0.502)	72	3,955
Δ 12–17	t90-c50	0.050 (0.348)	−0.248 (0.425)	1.916*** (0.494)	72	4,338

Notes: Sant'Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares (DRIMP). We use all controls reported in Table 3 measured in 2012. Standard errors clustered at the municipal level are reported between parentheses. We categorized as “Control group” those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 10th percentile or the 50th percentile. In this table we report the estimation results of three distinct strategies for selecting the treatment group: (1) treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017 (Baseline); (2) treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017 and consumed surface below the same cut-off in the period May/2006–May/2012; (3) treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the years between May/2012 and May/2017. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Table 6 reports the hectares cut-off and size of each group. Note that Lazio had to be excluded from this analysis because Lega did not run in this region for the 2008 elections. Significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

Italian citizenship, resident population without the Italian citizenship, and share of resident population without Italian citizenship, respectively. Appendix Table A.8 reports basic descriptive statistics on each of the outcomes analysed in this section.

Compared to the previous section, there are some slight differences in the way we select our treated group, while the control group is selected in the exact same way as in the “basic” DiD. We consider as treated in 2016 those municipalities with a newly consumed surface above the 80th percentile in the two years between May/2015 and May/2017, and a new surface below the same threshold in the years May/2012–May/2015. We add this second condition because, differently for what we did in the “basic” DiD approach, here we observe the development of the effect year after year. Hence, considering as treated in 2016 municipalities which were already treated in the 2012–2015 period would bias the results. This was less of an issue in the “basic” DiD as there we only compared outcomes in 2013 and in 2018.

The results of the event study are reported in Table 11. Significant post-treatment positive effect is observed for “% Employed” and “Pop.”, signalling that logistics centres attracted new inhabitants to the municipality but also increased the employment share. Both the estimates for “Pop. Ita.” and “Pop. For.” are positive, although only the former is statistically significant. While the estimates of both “Income p.c.” and “Labour income p.w.” have a negative sign, they are of modest size and not significantly different from zero. Overall, there is reasonable evidence that the hubs are not responsible for a large increase of economic hardship, at least in the

Table 11
DRIMP - Channels.
Source: Authors' own calculations.

	% Employed	Income p.c.	Labour Income p.w.	Pop.	Pop. Ita.	Pop. For.	% Ch. Pop. For.
Avg. Pre	0.060 (0.048)	-3.955 (17.215)	9.772 (18.910)	-1.945 (8.656)	4.453 (5.729)	-6.398 (7.612)	0.056 (0.039)
Avg. Post	0.291** (0.127)	-18.874 (31.777)	-87.030 (64.351)	29.807** (14.462)	21.800* (13.201)	8.007 (7.174)	0.003 (0.135)
-3 (2012–2013)	0.083 (0.100)	9.909 (33.349)	18.371 (40.985)	-6.640 (10.567)	8.836 (7.770)	-15.476 (9.870)	0.018 (0.054)
-2 (2013–2014)	0.000 (0.096)	-10.598 (23.989)	12.757 (48.336)	-7.198 (11.538)	0.473 (7.677)	-7.670 (8.625)	0.009 (0.057)
-1 (2014–2015)	0.095 (0.102)	-11.174 (32.894)	-1.811 (34.667)	8.003 (8.929)	4.051 (6.506)	3.952 (6.861)	0.140* (0.082)
0 (2015–2016)	0.106 (0.137)	46.804 (47.538)	-6.080 (43.526)	1.715 (8.552)	2.701 (6.768)	-0.986 (5.590)	-0.092 (0.092)
+1 (2015–2017)	0.307** (0.148)	11.803 (35.383)	-43.094 (50.363)	19.744 (12.893)	13.947 (11.477)	5.797 (5.934)	-0.039 (0.146)
+2 (2015–2018)	0.338** (0.158)	-65.142 (43.555)	-106.091 (100.593)	40.006** (19.052)	26.813 (17.297)	13.193 (8.732)	-0.006 (0.159)
+3 (2015–2019)	0.413** (0.185)	-68.963 (66.299)	-192.856 (131.961)	57.762** (23.519)	43.739** (21.009)	14.023 (12.294)	0.150 (0.177)
N treated	85	85	85	85	85	85	85
N control	4,338	4,338	4,338	4,338	4,338	4,338	4,338

Notes: Sant'Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares (DRIMP). We use all controls reported in Table 3 measured in 2011–2012. Standard errors clustered at the municipal level are reported between parentheses. We categorized as “Control group” those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th percentile in the two years between May/2015 and May/2017, and a new surface below the same threshold in the years May/2012–May/2015. We assign the treatment to calendar year 2016. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Note that Lazio had to be excluded from this analysis because *Lega* did not run in this region for the 2008 elections. Significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

short term. In fact, the employment share increases and there are no sizeable negative effects neither on total income nor on labour income. On the other hand, there is a significant increase in population, which seems not to be exclusively driven by Italian citizens, providing some support in favour of the second channel. Note that our data on local population come from the official registers. Foreign citizens might take longer than native ones to sign-up into city registers due to several factors, including language barriers, low familiarity with the system, or lack of legal permits. This might also explain why we detect no statistically significant result for “% Pop. For.”. Appendix Table A.9 repeats the estimation using the year-by-year percentage change in total, Italian, and foreign population as dependent variables. The rationale behind this analysis is to observe whether the growth rate in the three groups was differentially impacted by the logistic expansion. While none of the main estimates are statistically significant, the results seem in line with those of Table 11, suggesting that the changes in population were mostly driven by natives. However, the results of this table shall be taken with caution. When examining percentage changes, even slight variations in a few individuals can result in significant percentage shifts, particularly when the initial base is small, as it can be the case for foreign population in small Italian municipalities.

In an additional attempt to investigate the economic insecurity channel, we exploited the fact that tax return data from the Ministry of Economy and Finance allow distinguishing between different income brackets to assess whether the creation of a new logistic hub in a municipality is associated with an increase in the percentage of low-income individuals. Appendix Table A.10 reports the results of the DiD estimations with the share of taxpayers in each tax bracket as dependent variable. It is important to remark that these results are preliminary and have to be taken with caution as, for example, many of the logistics workers might just not earn enough to be requested to file the declaration or they might not have their fiscal residence in the municipality. Still, despite some coefficients not being statistically significant, Table A.10 suggests a rise in the proportion of workers in the lower brackets (i.e. those earning between 10k–15k Euro and 15k–26k Euro) and a decrease in the number of both very low-earners (0–10k Euro) and higher-income workers (26k–55k Euro). These results can be reconnected with those of Table 11 to argue that the employment growth observed there took place predominantly in low-paid jobs, as the 10k–15k Euro and 15k–26k Euro brackets are below the average incomes in Central and Northern Italy.

It should be noted that the evidence presented in this study is preliminary and further research is necessary to fully comprehend the overall impact of logistic hubs on local communities. Specifically, more research is needed to understand the effects on the medium and long term. Unfortunately, in this study we could only analyse a limited time window because we observed yearly constructions only starting from 2015 and we had to stop our analysis at 2019 to avoid any overlap with the Covid-19 pandemic. Future studies should also delve into the effects on housing prices and on how affected municipalities utilize compensation funds and extra tax revenues. Do they choose to lower local taxes or do they allocate resources towards infrastructures and services? If the latter, which types of public goods benefit the most?

7. Conclusion

Increasing discontent and the associated growing support for populist parties have been linked to several factors, such as globalization, technological change, and migration waves. We contribute to the literature on political discontent by examining the link between socio-economic changes and political discontent, exploiting the logistics revolution as a source of significant economic and cultural shock. The results of our empirical analysis indicate that there is a positive causal relationship between the increase in logistics activity and the support for the populist radical-right party *Lega* in Italian municipalities. This relationship might be driven by different mechanisms: increase in the feeling of economic insecurity, a surge in the anti-immigration sentiment, hostility towards foreign multinationals. While we found no evidence in support of the first mechanism, preliminary results suggest that anti-immigration sentiment may be a potential driver. However, given the constraints of our data, additional research is necessary to fully comprehend the specific mechanisms through which logistics hubs increase dissatisfaction within local communities. Our work calls for a more thorough evaluation of the costs and benefits from hosting a logistic hub as, for many municipalities, the expected benefits might be outweighed by negative effects. Local administrators are attracted by the promise of an increase of the overall employment, large investments, positive effects for the other firms in the area, and increase in land prices. However, once the hub is built the reality they have to face might be different, paving the way for social discontent, which, among other ways, is expressed through an increase in support for populist radical-right parties.

CRedit authorship contribution statement

Liliana Cuccu: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Nicola Pontarollo:** Conceptualization, Data curation, Methodology, Supervision, Validation, Visualization, Writing – review & editing.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Liliana Cuccu reports financial support was provided by Ministerio de Ciencia e Innovación (Spain).

Data availability

Data will be made available on request.

Appendix A. Additional tables and figures

See [Figs. A.1–A.5](#) and [Tables A.1–A.10](#).

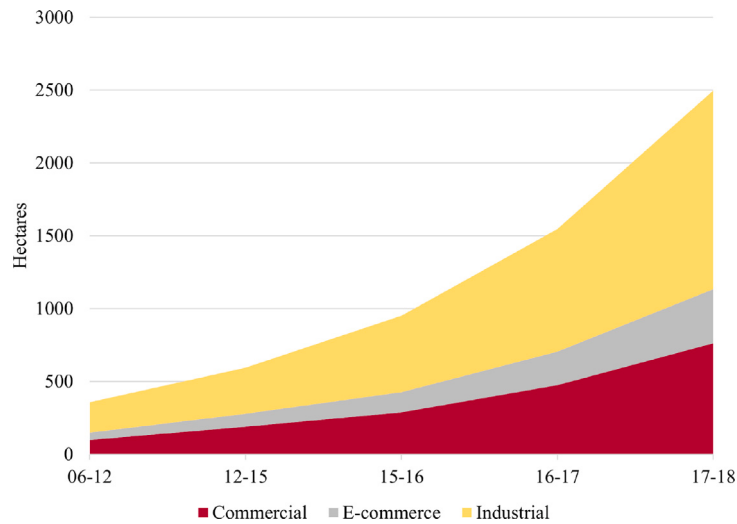


Fig. A.1. Cumulative land use for logistics hubs in North and Centre Italy.
Source: Own elaboration on data from ISPRA.

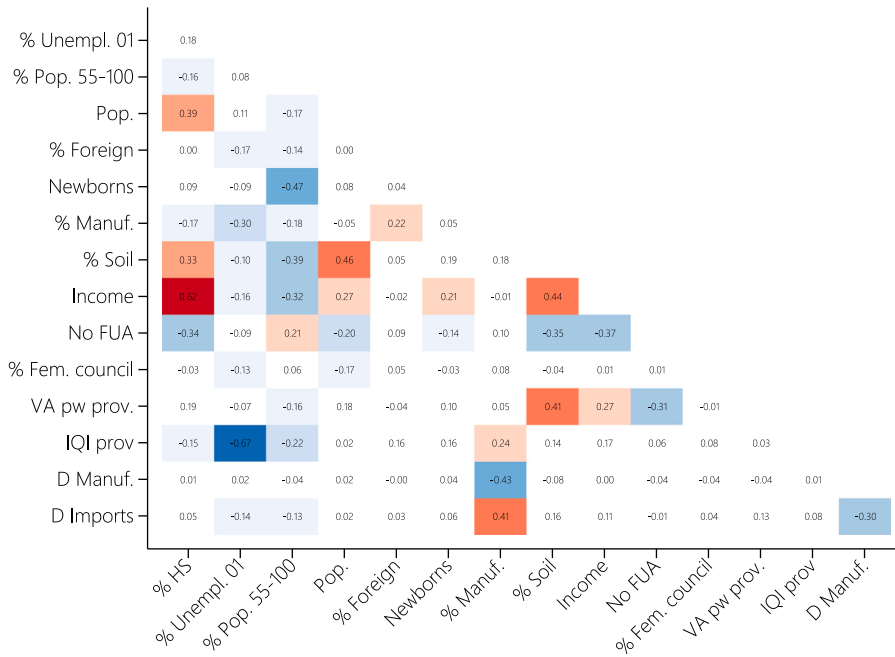


Fig. A.2. Control variables' correlation.

Notes: all variables are described in Table 3. Variables measured in 2001–2004.

Source: Authors' own calculations.

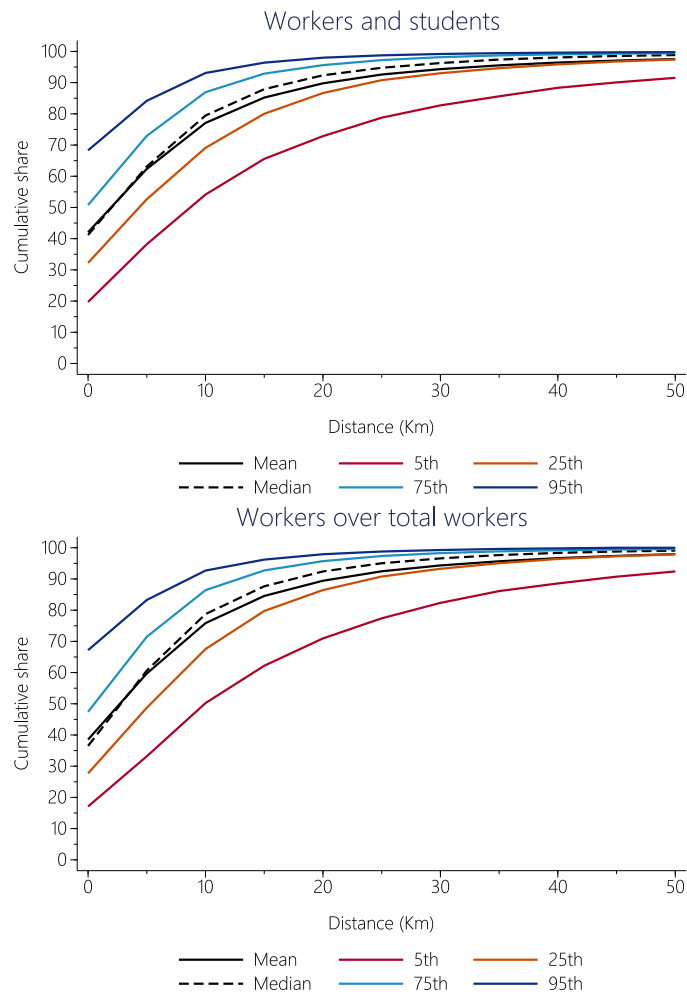


Fig. A.3. Municipalities' commuting habits.

Notes: commuting patters for 2001. Statistics on Centre and North only. ISTAT's commuting matrix includes workers and students.

Source: Authors' own calculations.

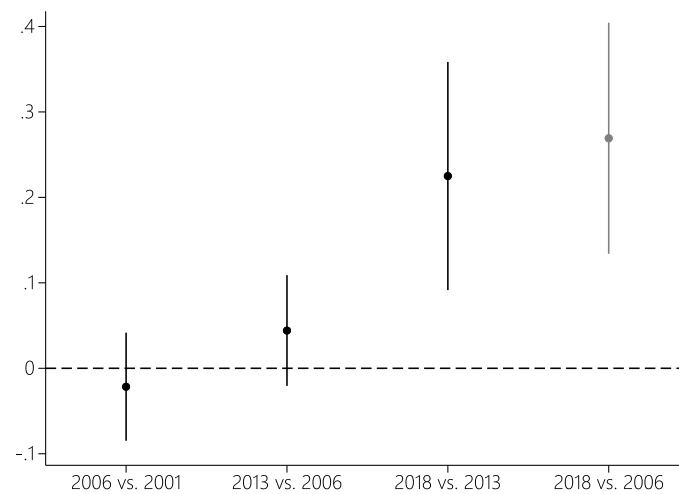


Fig. A.4. Test the 2SLS exclusion restriction — Reduced form regressions.

Reduced form regressions with the change in *Lega's* vote shares between different elections (“2006 vs 2001”, “2013 vs 2006”, “2018 vs 2013”, and “2018 vs 2006”) as dependent variable and Roman roads density as the main independent variable (estimates reported in the plot). The regressions also include NUTS2 FE and all other control variables reported in [Table 4](#).

Source: Authors' own calculations.

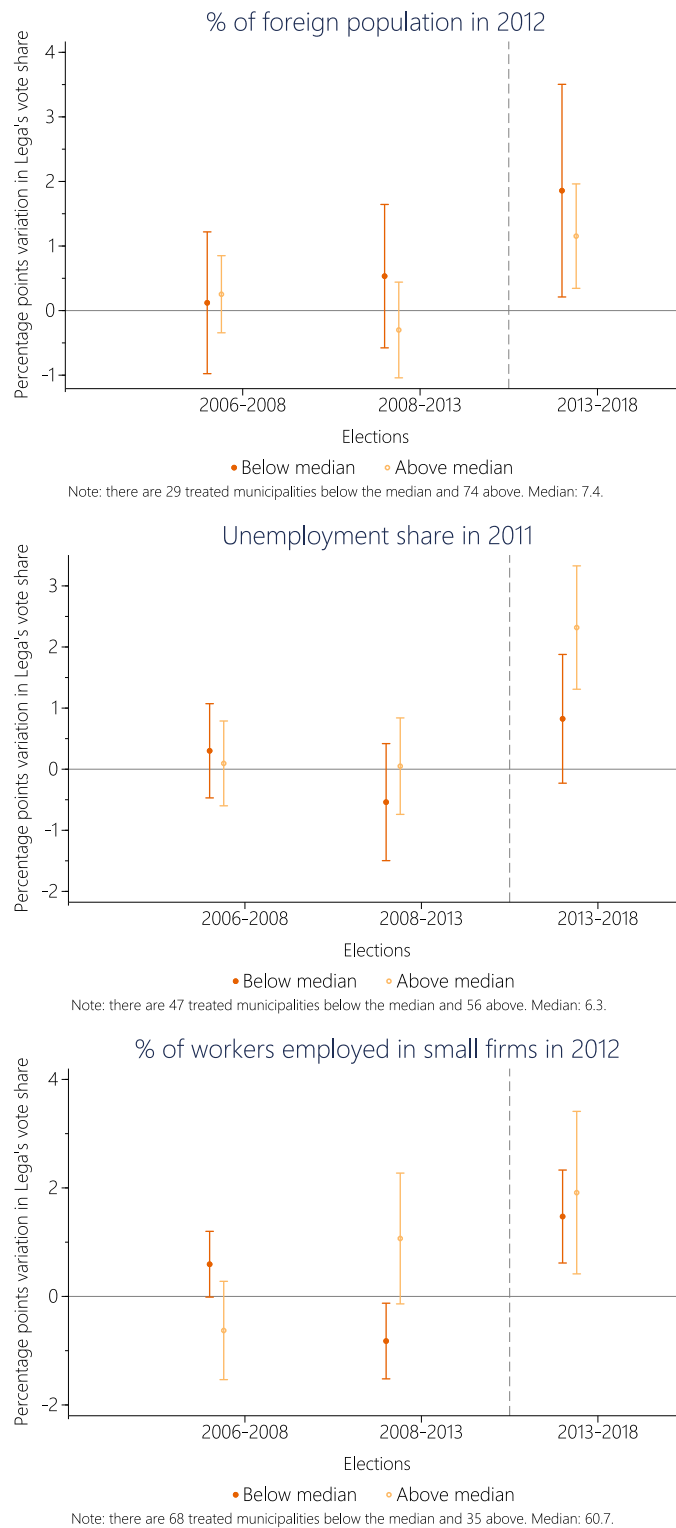


Fig. A.5. Heterogeneity DiD.
Source: Authors' own calculations.

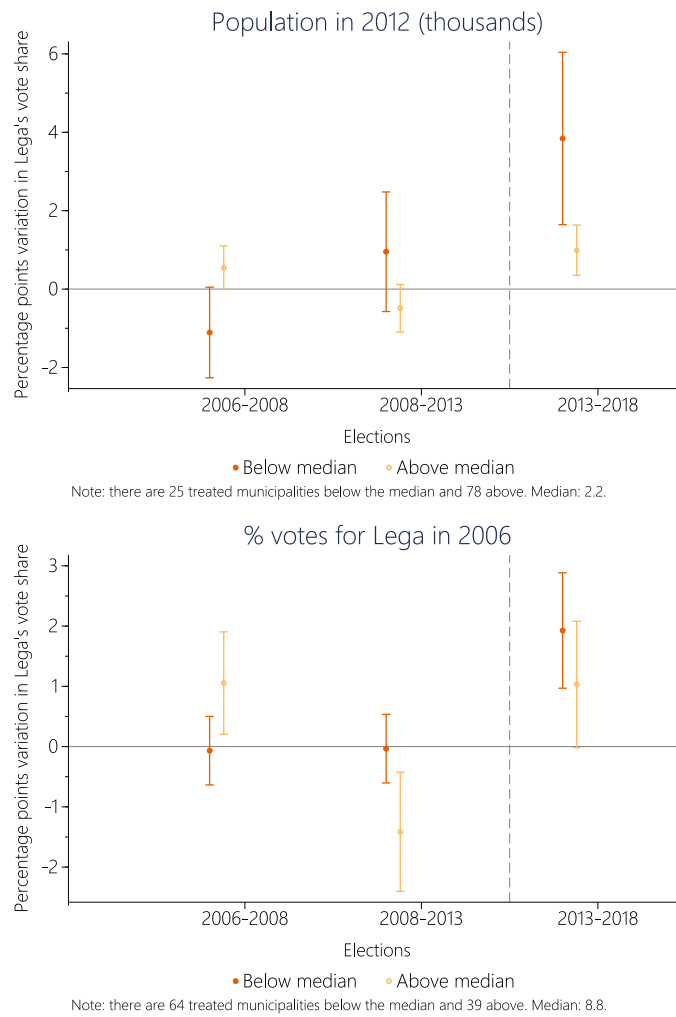


Fig. A.5. (continued).

Table A.1

Number of municipalities by type of radius.

Source: Authors' own calculations.

	Mean	Min	10th	25th	50th	75th	95th	Max	N
80% Work Comm.	35.5	0	3	10	21	44	123	771	5,159
85% Work Comm.	49.9	0	5	14	28	61	174	771	5,159
90% Work Comm.	75.1	0	8	21	44	95	249	810	5,159
95% Work Comm.	133.1	1	15	41	82	181	418	889	5,159
80% All Comm.	33.3	0	3	9	20	42	110	790	5,159
85% All Comm.	47.9	0	5	13	28	59	165	928	5,159
90% All Comm.	72.7	0	8	21	44	92	238	1,762	5,159
95% All Comm.	139.1	1	15	41	83	183	456	1,287	5,159
5 Km	3.4	0	0	1	3	5	10	21	5,159
10 Km	15.3	0	2	7	13	21	40	61	5,159
15 Km	33.7	0	7	16	28	45	86	122	5,159
20 Km	58.3	1	13	28	48	80	149	193	5,159
25 Km	88.6	3	20	43	72	122	223	276	5,159
30 Km	124.3	4	30	60	100	173	310	352	5,159
35 Km	165.0	5	41	81	133	229	402	443	5,159
40 Km	210.5	7	54	104	170	293	497	553	5,159
45 Km	260.3	10	69	128	214	367	597	661	5,159
50 Km	314.2	13	85	153	263	447	700	779	5,159
Neighbours	5.9	1	3	5	6	7	9	21	5,159
SLL 2001	14.4	1	2	4	9	19	44	121	358

Notes: statistics on Centre and North only.

Table A.2

Logistics hubs' soil consumption at municipality level.

Source: Authors' own calculations.

	Sum	Mean	SD	25th	50th	75th	Max	N
<i>By time period</i>								
2006–2012	247.6	9.2	6.1	5.3	6.5	12.8	21.7	27
2012–2015	186.7	2.9	3.8	0.4	1.1	3.8	19.7	65
2015–2016	102.3	2.1	4.2	0.2	0.7	2.1	22.0	48
2016–2017	211.3	4.2	7.3	0.4	2.2	5.3	40.1	50
2017–2018	319.8	4.8	9.1	0.6	1.3	4.8	52.4	67
Total	1,067.8	4.2	6.8	0.4	1.7	5.2	52.4	257
<i>Aggregated time periods</i>								
2012–2016	289.1	2.6	4.0	0.3	0.9	3.2	22.0	113
2012–2017	500.4	3.1	5.2	0.3	1.0	3.8	40.1	163
2015–2017	313.7	3.2	6.0	0.3	1.0	3.8	40.1	98
<i>By NUTS2 (2015–2017)</i>								
Emilia-Romagna	51.2	3.2	4.7	0.5	1.8	3.0	18.8	16
Friuli-Venezia Giulia	17.3	4.3	4.8	0.2	4.0	8.4	9.1	4
Lazio	27.6	2.1	3.2	0.3	0.7	2.4	11.4	13
Liguria	0.2	.16		0.2	0.2	0.2	0.2	1
Lombardia	64.7	3.1	5.0	0.2	1.3	4.6	22.0	21
Marche	1.6	.82	0.0	0.8	0.8	0.8	0.8	2
Piemonte	68.8	5.3	10.7	0.5	2.3	4.4	40.1	13
Toscana	11.8	1.7	2.4	0.3	0.5	3.5	6.4	7
Trentino-Alto Adige	2.7	1.4	1.8	0.1	1.4	2.6	2.6	2
Umbria	2.1	2.1		2.1	2.1	2.1	2.1	1
Veneto	65.8	3.7	7.5	0.4	0.8	3.8	32.1	18

Notes: statistics on Centre and North only.

Table A.3

Descriptive statistics of variables used in 2SLS.

Source: Authors' own calculations.

	Mean	SD	Min	25th	50th	75th	Max
Δ Lega 06–18	17.34	5.20	−4.93	14.31	17.11	20.33	58.32
Δ06-17 HectaresLog	1.32	5.65	0.00	0.00	0.00	0.00	62.63
Roman roads (m/ha) (rad.)	0.64	0.95	0.00	0.00	0.39	0.94	8.80
% High-School dipl. 01	25.20	6.43	3.85	21.10	24.76	28.92	70.69
% Unempl. 01	5.33	3.39	0.00	3.39	4.49	6.13	31.45
% Pop. 55-100 04	34.09	7.06	12.60	29.17	33.30	37.90	74.70
Pop. (th.) 04	4.93	7.73	0.04	0.95	2.32	5.62	93.35
% Foreign pop. 04	4.83	2.86	0.00	2.82	4.31	6.25	24.61
Newborns (x100 inhab.) 04	0.84	0.33	0.00	0.66	0.84	1.02	4.40
% Manuf. (rad.) 04	33.86	14.55	0.00	22.35	34.06	44.84	81.43
% Soil used 06	10.16	9.50	0.24	3.82	7.21	13.05	69.71
Income p.c. (10th. EUR) 04	1.72	0.32	0.79	1.52	1.69	1.89	5.40
No FUA	0.75	0.43	0.00	1.00	1.00	1.00	1.00
% Fem. city council 02	19.21	10.81	0.00	12.50	16.67	25.00	66.67
VA p.w. (th. EUR) prov. 04	58.64	13.87	45.82	53.35	56.17	58.58	122.76
IQI prov 04	0.66	0.11	0.35	0.62	0.67	0.75	1.00
Δ04-17 Manuf work. (x100 inhab.) (rad.)	−6.57	6.55	−41.09	−9.80	−5.98	−2.67	61.23
Δ96-17 IPW China (th. USD) (rad.)	1.92	1.94	−0.49	1.00	1.65	2.38	45.41
Emilia-Romagna	0.06	0.24	0.00	0.00	0.00	0.00	1.00
Friuli-Venezia Giulia	0.04	0.20	0.00	0.00	0.00	0.00	1.00
Lazio	0.07	0.26	0.00	0.00	0.00	0.00	1.00
Liguria	0.04	0.21	0.00	0.00	0.00	0.00	1.00
Lombardia	0.28	0.45	0.00	0.00	0.00	1.00	1.00
Marche	0.04	0.20	0.00	0.00	0.00	0.00	1.00
Piemonte	0.22	0.42	0.00	0.00	0.00	0.00	1.00
Toscana	0.05	0.21	0.00	0.00	0.00	0.00	1.00
Trentino-Alto Adige	0.05	0.22	0.00	0.00	0.00	0.00	1.00
Umbria	0.02	0.13	0.00	0.00	0.00	0.00	1.00
Valle d'Aosta	0.01	0.12	0.00	0.00	0.00	0.00	1.00
Veneto	0.11	0.31	0.00	0.00	0.00	0.00	1.00

Notes: statistics on estimation sample.

Table A.4

2SLS with exogenous controls.

Source: Authors' own calculations.

	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)	OLS (6)	2SLS (1)	2SLS (2)	2SLS (3)	2SLS (4)	2SLS (5)	2SLS (6)
Δ06-17 HectaresLog	0.060*** (0.010)	0.054*** (0.010)	0.056*** (0.010)	0.060*** (0.010)	0.054*** (0.010)	0.055*** (0.010)	0.111*** (0.042)	0.073* (0.041)	0.084** (0.042)	0.111*** (0.041)	0.076* (0.041)	0.085** (0.041)
% Pop. 55-100 04	0.103*** (0.015)	0.113*** (0.016)	0.111*** (0.016)	0.102*** (0.015)	0.113*** (0.016)	0.111*** (0.016)	0.105*** (0.016)	0.114*** (0.016)	0.112*** (0.016)	0.105*** (0.016)	0.113*** (0.016)	0.112*** (0.016)
Pop. (th.) 04	−0.075*** (0.006)	−0.084*** (0.006)	−0.076*** (0.006)	−0.074*** (0.006)	−0.082*** (0.006)	−0.075*** (0.006)	−0.079*** (0.007)	−0.085*** (0.007)	−0.078*** (0.007)	−0.079*** (0.007)	−0.084*** (0.007)	−0.077*** (0.007)
% Foreign pop. 04	0.071** (0.028)	0.039 (0.028)	0.049* (0.028)	0.071** (0.028)	0.036 (0.029)	0.047* (0.028)	0.068** (0.028)	0.039 (0.028)	0.048* (0.028)	0.068** (0.028)	0.036 (0.029)	0.046* (0.028)
No FUA	1.002*** (0.153)	1.199*** (0.154)	1.172*** (0.153)	1.004*** (0.153)	1.213*** (0.154)	1.181*** (0.153)	1.067*** (0.162)	1.219*** (0.161)	1.203*** (0.160)	1.070*** (0.162)	1.236*** (0.161)	1.214*** (0.160)
Altitude		−0.001*** (0.000)			−0.001*** (0.000)			−0.001*** (0.000)			−0.001*** (0.000)	
Ruggedness			−0.146*** (0.036)			−0.148*** (0.037)			−0.141*** (0.037)			−0.143*** (0.037)
City is 5 km from the sea				−0.068 (0.325)	−0.331 (0.328)	−0.224 (0.326)				−0.057 (0.328)	−0.320 (0.329)	−0.212 (0.328)
Constant	12.670*** (0.608)	12.700*** (0.611)	12.668*** (0.611)	12.679*** (0.608)	12.746*** (0.612)	12.699*** (0.611)	12.450*** (0.633)	12.619*** (0.635)	12.546*** (0.633)	12.455*** (0.633)	12.651*** (0.637)	12.567*** (0.634)
NUTS2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Adjusted R ²	0.15	0.16	0.16	0.15	0.16	0.16	0.15	0.16	0.16	0.15	0.16	0.16
N	5,169	5,169	5,169	5,169	5,169	5,169	5,169	5,169	5,169	5,169	5,169	5,169
First stage F-stat.							67.37	62.69	63.86	68.04	63.42	64.59
Endogeneity test (p-value)							0.208	0.646	0.492	0.199	0.594	0.458

Table A.5

Fixed effects model.

Source: Authors' own calculations.

	FE (1)
LogHectares	0.023** (0.011)
Constant	17.579*** (0.007)
N	10,338

The fixed effects model includes municipality and year fixed effects.

Table A.6

Compare balance - Treated group vs. control group.

Source: Authors' own calculations.

	Unmatched		PSM - Kernel		PSM - NN	
	Diff.	p-val.	Diff.	p-val.	Diff.	p-val.
% High-School dipl. 11	2.56	0.000	0.55	0.383	-0.31	0.746
% Unempl. 11	0.35	0.041	0.02	0.918	0.00	0.988
% Pop. 55-100 12	-3.02	0.000	-0.70	0.226	0.40	0.634
Pop. (th.) 12	4.51	0.000	0.82	0.483	-0.87	0.601
% Foreign pop. 12	2.12	0.000	0.46	0.277	-0.03	0.958
Newborns (x100 inhab.) 12	0.07	0.005	0.02	0.454	-0.01	0.730
% Manuf. (rad.) 12	-6.72	0.000	-1.77	0.083	1.56	0.336
% Soil used 12	5.25	0.000	0.34	0.729	-1.44	0.403
Income p.c. (10th. EUR) 12	0.10	0.000	0.01	0.772	0.00	0.940
No FUA	-0.23	0.000	-0.03	0.552	-0.02	0.787
% Fem. city council 12	-1.47	0.216	-0.28	0.812	3.06	0.071
VA p.w. (th. EUR) prov. 12	-0.18	0.920	-1.45	0.426	-3.31	0.285
IQI prov 12	0.01	0.197	0.01	0.394	-0.00	0.865
Δ04-17 Manuf work. (x100 inhab.) (rad.)	0.39	0.304	0.14	0.712	-0.76	0.256
Δ96-17 IPW China (th. USD) (rad.)	-0.34	0.000	-0.12	0.185	0.07	0.566
Emilia-Romagna	0.12	0.002	0.02	0.600	0.05	0.332
Friuli-Venezia Giulia	0.04	0.123	-0.00	0.958	0.00	1.000
Liguria						
Lombardia	-0.09	0.035	-0.06	0.148	-0.08	0.223
Marche						
Piemonte	0.05	0.297	-0.01	0.810	0.03	0.656
Toscana						
Trentino-Alto Adige						
Umbria						
Valle d'Aosta						
Veneto	0.12	0.004	0.05	0.198	0.00	1.000
Treated	103		103		103	
Controls	4,338		3,299		90	

Notes: "PSM - Kernel" is kernel propensity score matching, while "PSM - NN" is nearest neighbour propensity score matching. Matching is done using all controls reported in Table 3 measured in 2011–2012. In both matching approaches we exclude observations outside the common support. We categorized as "Control group" those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th percentile in the two years between May/2015 and May/2017. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Table 6 reports the hectares cut-off and size of each group. Note that Lazio had to be excluded from this analysis because *Lega* did not run in this region for the 2008 elections. 80th percentile for treatment and 50th percentile for control. We chose these two groups as they offer the largest samples. The column "Diff." reports the difference in the two groups' means (treated minus control) and column "p-value" the relative p-value.

Table A.7

Robustness checks DiD.

Source: Authors' own calculations.

	DRIMP	DRIPW	OLS	STDIPW
2006–2008	0.191 (0.262)	0.211 (0.346)	0.304 (0.281)	0.450 (0.379)
2008–2013	−0.211 (0.322)	−0.244 (0.462)	0.126 (0.352)	−0.650 (0.489)
2013–2018	1.655*** (0.386)	2.167*** (0.615)	1.140*** (0.351)	1.952*** (0.612)
N. treated	103	103	103	103
N. controls	4,338	4,338	4,338	4,338

Notes: DRIMP is the Sant'Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares; DRIPW is the Sant'Anna and Zhao (2020) doubly robust DiD estimator based on stabilized inverse probability weighting and ordinary least squares; OLS is the outcome regression DiD estimator based on ordinary least squares; STDIPW is the inverse probability weighting DiD estimator with stabilized weights. We use all controls reported in Table 3 measured in 2011–2012. Standard errors clustered at the municipal level are reported between parentheses. We categorized as “Control group” those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 10th percentile or the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th, 85th, or 90th percentile in the two years between May/2015 and May/2017. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Table 6 reports the cut-offs and size of each group. Note that Lazio had to be excluded from this analysis because Lega did not run in this region for the 2008 elections. Significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

Table A.8

Descriptive statistics — Potential channels.

Source: Authors' own calculations.

	Mean	SD	Min	25th	50th	75th	Max
% Employed	35.6	6.3	5.0	32.2	35.9	38.9	90
Income p.c.	13,694.5	2,100.4	3,084.5	12,452.3	13,582.0	14,851.9	30,658
Avg. wage	20,636.6	3,080.8	7,488.7	18,762.1	20,447.6	22,151.3	53,540
Pop.	4,591.9	7,246.7	34.0	891.0	2,178.0	5,194.0	96,930
Pop. Ita	4,173.5	6,544.1	33.0	819.0	2,010.0	4,767.0	87,808
Pop. For.	418.4	763.4	0.0	54.0	157.0	448.0	11,698
% For. Pop.	8.0	4.3	0.0	4.8	7.4	10.4	30

Notes: statistics on Centre and North only.

Table A.9

DRIMP — Channels. Dependent variables: population's year-by-year percentage change.

Source: Authors' own calculations.

	Percentage change in total Population	Percentage change in population with Italian citizenship	Percentage change in foreign population
Avg. Pre	0.009 (0.074)	0.009 (0.053)	0.502 (0.392)
Avg. Post	−0.002 (0.165)	0.087 (0.114)	−1.030 (1.444)
−3 (2012–2013)	−0.092 (0.191)	0.028 (0.140)	−0.616 (1.191)
−2 (2013–2014)	−0.043 (0.230)	−0.028 (0.214)	0.113 (1.326)
−1 (2014–2015)	0.163 (0.181)	0.028 (0.154)	2.009** (1.010)
0 (2015–2016)	−0.091 (0.257)	0.146 (0.181)	−3.340** (1.470)
+1 (2015–2017)	−0.090 (0.203)	−0.025 (0.203)	2.058 (4.266)
+2 (2015–2018)	0.153 (0.218)	0.257 (0.176)	−1.919 (1.259)
+3 (2015–2019)	0.019 (0.157)	−0.030 (0.139)	−0.918 (1.082)
N treated	85	85	85
N control	4,338	4,338	4,338

Notes: Sant'Anna and Zhao (2020) improved doubly robust DiD estimator based on inverse probability of tilting and weighted least squares (DRIMP). We use all controls reported in Table 3 measured in 2011–2012. Standard errors clustered at the municipal level are reported between parentheses. We categorized as “Control group” those municipalities that, in the whole period between May/2006 and May/2018, registered a logistics soil consumption in the municipality itself and in the neighbouring ones below the 50th percentile. Treated municipalities are those with a newly consumed surface above the 80th percentile in the two years between May/2015 and May/2017, and a new surface below the same threshold in the years May/2012 - May/2015. We assign the treatment to calendar year 2016. For both the control and the treatment group, the percentiles refer to the distribution among municipalities with some new logistics surface in the surrounding areas in the observed period. Note that Lazio had to be excluded from this analysis because Lega did not run in this region for the 2008 elections. Significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

Table A.10

DRIMP – Channels. Dependent variables: share of municipal tax payers in each tax bracket.

Source: Authors' own calculations.

	(1) 0	(2) 0–10k	(3) 10k–15k	(4) 15k–26k	(5) 26k–55k	(6) 55k–75k	(7) 75k–120k	(8) Above 120k	(9) 0–15k	(10) 0–26k
Avg. Pre	−0.001 (0.006)	0.060 (0.050)	−0.078** (0.038)	0.005 (0.057)	0.042 (0.043)	−0.015 (0.016)	−0.016* (0.008)	0.004 (0.006)	−0.020 (0.046)	−0.016 (0.041)
Avg. Post	−0.027* (0.016)	−0.093 (0.127)	0.010 (0.121)	0.234** (0.098)	−0.115 (0.086)	0.009 (0.024)	0.000 (0.022)	−0.019 (0.012)	−0.136 (0.114)	0.098 (0.087)
−3 (2012–2013)	−0.037* (0.021)	−0.027 (0.124)	−0.082 (0.103)	0.142 (0.122)	0.014 (0.072)	−0.011 (0.030)	0.003 (0.021)	−0.001 (0.014)	−0.183* (0.110)	−0.041 (0.078)
−2 (2013–2014)	0.008 (0.023)	0.058 (0.100)	0.036 (0.118)	−0.077 (0.128)	0.018 (0.091)	−0.012 (0.026)	−0.031 (0.021)	−0.000 (0.011)	0.110 (0.126)	0.033 (0.095)
−1 (2014–2015)	0.025 (0.025)	0.148 (0.102)	−0.188 (0.120)	−0.050 (0.131)	0.093 (0.090)	−0.023 (0.038)	−0.018 (0.017)	0.013 (0.016)	0.011 (0.106)	−0.039 (0.098)
0 (2015–2016)	−0.024 (0.019)	0.013 (0.121)	−0.046 (0.106)	0.012 (0.080)	0.023 (0.072)	0.013 (0.025)	0.009 (0.020)	−0.001 (0.012)	−0.081 (0.091)	−0.068 (0.081)
+1 (2015–2017)	−0.020 (0.028)	0.106 (0.128)	−0.063 (0.136)	0.073 (0.124)	−0.116 (0.087)	0.028 (0.028)	0.012 (0.022)	−0.021 (0.014)	0.002 (0.131)	0.075 (0.091)
+2 (2015–2018)	−0.032* (0.019)	−0.189 (0.169)	0.107 (0.172)	0.358** (0.141)	−0.203 (0.128)	0.008 (0.032)	−0.029 (0.032)	−0.020 (0.017)	−0.146 (0.169)	0.212 (0.130)
+3 (2015–2019)	−0.032* (0.019)	−0.301 (0.183)	0.044 (0.145)	0.492*** (0.158)	−0.164 (0.130)	−0.014 (0.037)	0.009 (0.034)	−0.035** (0.015)	−0.321* (0.181)	0.172 (0.124)

Notes: “k” stands for thousand of Euro. Standard errors in parentheses, significance levels: * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$.

Appendix B. Imports from China

Following Autor et al. (2013) and Caselli et al. (2020a), we compute the variation in Chinese imports for each municipality m between 1996 and 2017 as

$$\Delta IM P_{m,96-17}^{chn} = \sum_s \frac{L_{ms,91}}{L_{s,91}} \Delta IM P_{s,96-17}^{chn}$$

where $\Delta IM P_{s,96-17}^{chn} = IM P_{s,17}^{chn} - IM P_{s,96}^{chn}$, $IM P_{s,t}^{chn}$ indicates the value (expressed in thousands of constant 2015 US dollars) of imports from China of goods belonging to the three-digit NACE Rev.1 sector s at time t (with $t \in \{1996, 2017\}$), $L_{s,91}$ is the national-level employment in the three-digit NACE Rev.1 sector s in 1991, and $L_{ms,91}$ is the employment of municipality m in sector s in 1991. We measure the employment structure in 1991 to ensure that local specialization is not due to contemporaneous trade exposure.

We then compute the variation in imports per worker (IPW) at the radius levels as

$$\Delta IPW_{r,96-17}^{chn} = \frac{1}{L_{r,91}} \sum_m \Delta IM P_{m,96-17}^{chn}$$

where $L_{r,91} = \sum_m L_{m,91}$ is the sum of the total employment across all municipalities m belonging to the radius r . Note that, for notational simplicity, we refer to $\Delta IPW_{r,96-17}^{chn}$ as 496-17 IPW China (rad.) in all Tables.

Employment information by municipality and NACE Rev.1 sector is extracted from ISTAT's 1991 Census of Industry and Services. Data on the imports from China, disaggregated at the six-digit product level of the WCO Harmonized System (HS), have been drawn from the United Nations International Trade Statistics Database (Comtrade). We matched six-digit HS product codes to three-digit NACE Rev.1 codes using Eurostat RAMON correspondence tables.

Appendix C. Alternative measure of logistics activity

An alternative approach to capture logistics activity could be using employment data at the municipal level from ISTAT's "Statistical Register of Local Units" dataset (ASIA UL). For each municipality, the register provides the number of local units and the number of workers by 3-digits NACE Rev.2 codes for the period 2004–2018.

We analysed these data and, unfortunately, we found them to be problematic for several reasons:

- Only local units that carried out a productive activity for at least six months in the reference year are included in the dataset.
- Given the widespread habit of relying on subcontracts and cooperatives that last an average of just two years before disappearing (Ganz, 2019), official statistics on the number of workers employed in logistics are likely to be geographically imprecise and sub-estimate the real size of the workforce.
- Due to confidentiality reasons, ISTAT provides the number of workers at the municipal level only up to the 3-digit sector level. As shown in Table 1, Sector 52 includes "Warehousing" but also a series of other activities related to transport. Being forced to rely on 3-digit sector data only, we faced the trade-off between representativeness (i.e., covering as many logistics workers as possible) and precision (i.e., capturing actual shocks in logistics and not in other related activities). Focusing only on workers employed in the sector "521 Warehousing and storage" would provide high precision but low representativeness. Including sector "522 Support activities for transportation" would cover many more workers but also introduce a sizeable amount of imprecision in our estimations, because this sector also includes many activities that are present in many municipalities but are not directly classifiable as logistics but. We chose to focus on workers from sector "521 Warehousing and storage" as our "baseline", but also reported the results using workers from whole NACE Sector 52 in Table C.1.

When analysing the raw data, we noticed large fluctuations in the data, which affected a considerable number of municipalities. For instance, we could see a municipality having one employee in Sector 521 in 2009, then 172.01 employees in 2010, and then 2.5 employees in 2011. We discussed this issue with ISTAT's staff, who confirmed that these inconsistencies are due to cooperatives changing their administrative headquarters. Given the unreliability of these data, we decided not to use them in our main analysis. However, for a matter of transparency, we still tested our instrumental variable approach using a variable based on these data. For each municipality i , we built an indicator measuring the variation in the number of workers employed in sector 521 per 1000 total workers between 2017 and 2004:

$$\Delta 0417WorkersLog = 1000 \times \frac{WorkersLog_{2017} - WorkersLog_{2004}}{WorkersTot_{2004}} \quad (5)$$

where $WorkersLog$ is the number of workers in sector 521 and $WorkersTot$ the total number of workers. As municipalities belong to labour markets, we count the number of workers in all municipalities within a certain radius around the centroid of each municipality i . The choice of the radius is discussed in Section 4.

As shown in Table C.1, the results of the analysis using this variable confirm the ones obtained using our main measure of logistic activity, as one additional worker in the sector "521 Warehousing and storage" per 1,000 total workers increases Lega's vote share in the municipality by 0.8 percentage points.

Table C.1

Regression results – 40417 Workers sector 521.

Source: Authors' own calculations.

	β_{OLS}	SE_{OLS}	R^2_{OLS}	β_{2SLS}	SE_{2SLS}	F-stat.	N
Baseline	0.020**	0.009	0.18	0.889*	0.469	4.8	5,169
<i>i. Alternative radii</i>							
Shocks at LLM level	0.140***	0.015	0.20	0.825***	0.240	43.7	5,169
10 km	0.048***	0.011	0.19	1.609	1.353	1.6	5,169
15 km	0.079***	0.016	0.19	1.260*	0.716	3.8	5,169
20 km	0.141***	0.017	0.20	1.181**	0.493	7.7	5,169
25 km	0.201***	0.021	0.20	1.059***	0.332	17.3	5,169
30 km	0.290***	0.025	0.20	0.958***	0.250	36.2	5,169
80% workers	0.081***	0.012	0.19	0.519***	0.180	23.4	5,169
85% workers	0.097***	0.015	0.19	0.683***	0.224	18.7	5,169
90% workers	0.166***	0.022	0.20	0.732***	0.171	37.9	5,169
95% workers	0.310***	0.030	0.21	1.312***	0.241	47.2	5,169
80% workers and students	0.074***	0.012	0.19	0.580***	0.202	21.3	5,169
85% workers and students	0.096***	0.014	0.19	0.734***	0.244	17.3	5,169
90% workers and students	0.134***	0.021	0.20	0.783***	0.228	19.7	5,169
95% workers and students	0.287***	0.025	0.21	0.909***	0.189	54.0	5,169
<i>ii. Sample restriction</i>							
Exclude Lazio	0.009	0.009	0.19	0.784**	0.361	6.3	4,796
Exclude FUA	0.021*	0.012	0.17	1.154	1.193	1.1	3,893
Keep FUA cores	0.021**	0.009	0.18	0.816*	0.417	5.3	5,223
Add South	0.021***	0.008	0.64	0.774*	0.398	5.5	7,570
<i>iii. Additional controls</i>							
Earthquake 2012	0.020**	0.009	0.19	0.897*	0.472	4.8	5,169
Δ06–18 Turnout	0.023**	0.009	0.20	1.030*	0.535	4.6	5,169
Turnout 06	0.019**	0.009	0.19	0.892*	0.479	4.6	5,169
Δ06–18 Turnout and Turnout 06	0.021**	0.009	0.20	1.022*	0.538	4.5	5,169
%Lega 06	0.021**	0.009	0.20	0.690*	0.374	5.3	5,169
%Lega 01	0.020**	0.009	0.19	0.789*	0.422	5.0	5,169
%Lega 01 and Turnout 01	0.018**	0.009	0.19	0.779*	0.438	4.6	5,169
Δ04–17 Foreign pop. (x 100 inhab.)	0.018**	0.009	0.19	0.851*	0.482	4.2	5,169
<i>iv. Other checks</i>							
NACE 52	0.006*	0.004	0.18	0.208***	0.071	20.7	5,169
Δ06–18 Potential votes Lega	0.013*	0.007	0.14	0.771*	0.402	4.8	5,169
Conley SE (Bartlett 20 km)				0.889	0.833		5,169
Δ13–18 Lega - Δ 13–17 Log	0.006	0.016	0.26	1.263**	0.567	7.2	5,169

Notes: 2SLS columns refer to two-stage least squares IV regressions where logistics activity in the radius around each municipality is instrumented with the density of Roman roads. [Olea and Pflueger \(2013\)](#) first-stage F-Statistic for the 2SLS regressions is reported in column “F-stat.”. Robust standard errors. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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