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### Does Emigration Delay Political Change? Evidence from Italy during the Great Recession

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# Does Emigration Delay Political Change?

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### Abstract

International mobility of people brings great opportunities and large overall benefits. Economically stagnant areas, however, may be deprived of talent through emigration, which may harm dynamism and delay political and economic change. A significant episode of emigration took place between 2010 and 2014 from Italy following the deep economic recession beginning in 2008 that hit most acutely countries in southern Europe. This period coincided with significant political change in Italy. Combining administrative data on Italians abroad and data on characteristics of municipal councils and mayors and on local elections, we analyze whether emigration reduced political change. Economic pull factors from foreign countries, interacted with the pre-existing networks of emigration from Italian municipalities allow us to construct a proxy for emigration that is municipality-specific and independent of pre-existing political and economic trends. Using this proxy as an instrument, we find that municipalities with larger emigration rates had slower growth in the share of young, college educated and women among local elected officials. They were also more likely to have their municipal council dismissed and experienced a lower share of votes to anti-status quo parties and a decrease in political participation.

**Key Words:** Emigration, EU Integration, Political Change, Entrepreneurship.

**JEL Codes:** J61, H7.

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# 1 Introduction

A large part of international migrations are economically driven. Within the European Union, where no formal barriers to labor mobility exist since 1992, people can move freely for economic reasons. In this environment, regions experiencing economic growth attract people, while regions in decline depopulate. Emigration is often a symptom of diminished local economic opportunities and an escape valve in stagnant local economies for individuals with marketable skills. These individuals are more likely to emigrate in response to negative economic circumstances. In particular, highly educated individuals expect the largest economic returns and are more likely to move internationally (Grogger and Hanson, 2015). Hence, emigration may have the direct effect of decreasing the average human capital in regions of origin acting as “brain drain”. This could result in reduced skill levels (Docquier and Rapoport, 2010) and possibly diminished economic opportunities, at least in the short-run.

Economists have mainly analyzed the economic effects of brain drain (e.g. Dustmann et al. 2015, Elsner 2013, Mishra 2007). The area of origin of emigrants, however, may experience other effects. In particular the loss of human and social capital may have consequences for political outcomes over time. In places where institutions are inefficient, less than transparent and corrupt, it may be the case that emigration draws abroad frustrated people who would have voiced discontent and pressed for change. Recently, some economists have analyzed the potential impact of emigration – especially of highly skilled – on the quality and strength of democratic institutions in the sending country (Docquier et al, 2011). Political scientists also analyzed this phenomenon in the past. Hirschman (1993) studied the impact of emigration from Eastern European countries during the Soviet era. He argued the self-selection into emigration of liberal-minded voters and leaders weakened the more progressive voices, especially in Eastern Germany, strengthening the repressive regime. He analyzed the decision of emigrating or staying in terms of a trade-off between “exit” and “voice”. Several other studies have argued that emigration from countries with autocratic regimes and failed or flawed democracies acted to reduce domestic pressure for reforms, delaying social and political change (e.g. Colomer (2000) for Cuba, Hansen (1988) for Mexico). On the other hand, the movement of people towards prosperous economies and democratic societies can create networks that are the channel for modernization and political action. Expatriates may put pressure on the government of origin to increase accountability and improve governance (Batista and Vicente, 2011, Karadja and Prawitz, 2016) or they may channel back home better information, fostering a preference for more efficient and democratic institutions

(Mahmoud et al 2014).

Our study analyzes the interaction of emigration and political change during the recent period, 2008-14, in Italy when a large and sudden wave of emigration, mainly towards EU countries such as Germany, the UK and Switzerland, took place because of a deep economic recession. The impact of emigration on local political indicators is particularly relevant because it happened during a process of political change that produced a generational change in leadership, brought more accountability and possibly less corruption in the political class.

Figure 1 shows the entity and suddenness of the emigration wave. The figure shows the number of Italian people relocating abroad each year between 1992 and 2014, who still live abroad as of 2015. The data source is the Administrative Registry of Italians Residing Abroad (AIRE) that collects information about all Italian citizens moving their residence abroad. Following a relatively steady flow of emigrants (about 50,000 individuals annually between 1992 and 2009), emigration sharply increased, starting in 2010, reaching almost 100,000 people per year in 2014. We also plot the Italian unemployment rate (right axis), showing two significant increases in 2008-09 and 2012-14 due to two subsequent recessions. This generated the largest increase in the Italian unemployment rate since the creation of the Euro. The emigration response was likely triggered by this economic crisis<sup>1</sup>. Figure 2 shows the emigration boom was fueled almost exclusively by young individuals (below 45 years of age), while older individuals maintained their pre-2010 mobility rate and Figure 3 shows that most of the emigration was towards EU destinations. Both facts are consistent with a wave of economically driven emigrants.

Did emigration delay political change in those municipalities that lost a large share of their people? Did such a brain drain slow the renewal of local government officials in 2008-14? During that period the Italian political landscape went through a significant transformation. Following a cabinet led by Silvio Berlusconi in 2008 Italy experienced a technical government and a short-lived “great-coalition government” between 2011 and 2013. In the 2013 elections a large “protest” party, the Five Star Movement achieved a great electoral success. Then, beginning in February 2014, this transition led to a new cabinet with Matteo Renzi, a younger and innovative leader of the Democratic Party as prime minister. This produced a generational change by lowering the average age of ministers and politicians

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<sup>1</sup>Other studies have noticed the strong within-EU migration response to the economic recessions of 2008-09 and 2011-14. Bertoli et al (2016) for instance, show that EU immigrants to Germany increased by a factor of 4 between 2008 and 2014.

and increasing among them the presence of women. Alongside the change in the central government, transformation took place at the local level. However, the relative power of established older elites might have slowed the change while the presence of young, innovative and highly educated people in a municipality may have significantly accelerated the transformation. Some of the people who could have contributed to the change at the local level may have found an easier escape from stagnation by emigrating to more economically successful European countries. In the trade-off between “voice” and “exit” described above, municipalities in which emigration to an economically growing European country was easier, experienced larger emigration rates. To the contrary, in municipalities where such opportunities were less easily available, young and dynamic leaders may have voiced the need for change and contributed to changing the local political class.

A key issue we face in establishing a causal link from emigration to political change is that omitted economic and political variables may affect both and may bias the least squares estimate of this effect. To address this issue we leverage the theoretical difference between “push” and “pull” factors of emigration. While push factors, are specific to the municipality of emigration and are likely correlated with local economic and political conditions, pull factors attract emigrants and depend on receiving countries. They are likely not correlated with municipality of origin conditions. Hence, we isolate a component of emigration that depends on pull factors only. Specifically we consider the growth of gross domestic product in receiving countries, interacted with the presence of pre-existing networks of emigrants in those countries. As the economic growth was much slower in the Mediterranean economies (Greece, Spain, Italy, France) than in northern Europe, the pull to emigrate was much stronger for municipalities that had large pre-existing networks with northern EU countries such as Germany, Switzerland and the UK than to southern ones. The presence of links to specific booming countries in the form of networks of pre-2000 emigrants allows us to construct the municipality-specific emigration pull that we use as instrument. This is a first innovative contribution of this paper.

A second innovative contribution is the use of individual administrative data obtained from the Italian Ministry for Foreign Affairs on the totality of Italian citizens residing abroad as of May 2015. The data include the municipality of last residence in Italy, the country of residence when abroad, the year of migration, and a few demographic characteristics including age.<sup>2</sup> The data allow us to

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<sup>2</sup>Importantly, we can use the information about the reason for enrollment in the AIRE registry and birth place to focus exclusively on emigrants born in Italy and moving abroad in the 2010-14 period. This allows us to exclude second-generation Italians born abroad and acquiring citizenship through their parents’ nationality.

construct stock of emigrants by municipality of origin and country of residence and, once merged with data on population, we can calculate emigration rates.

Using the instrument described, we find that larger emigration rates caused lower average education levels and lower female shares in the municipal councils, while they had a positive effect on average age of local politicians. Municipalities with higher emigration rates also had higher probability of being dismissed for inefficiencies or corruption and they had a larger share of votes for the “status quo” party and smaller electoral turnout in the 2014 elections. Moreover, emigration had a negative effect on the net number of firms created during the 2006-2014 period. Taken together, these results suggest that emigration reduced the speed of local political change possibly by depriving Italian municipalities of young, educated and dynamic voters and leaders.

The rest of the paper is organized as follows: Section 2 frames this paper in the context of the existing literature. Section 3 describes the data and illustrate important facts about the emigration wave and the measures of change in local politicians that we use in the paper. Section 4 describes the empirical model and the identification strategy, discussing the construction of the instrument and the threats to identification. Section 5 shows the main empirical results. Section 6 shows some extensions and performs validity checks for the identification assumptions. Section 7 discusses policy implications and concludes the paper.

## 2 Literature Review

This paper relates to three branches of the literature in Economics and in Political Science. The first is known as the effects of “brain drain” on sending countries. Economists have analyzed how the emigration of highly educated people – more likely to move internationally – affects the average education, income level, fiscal pressure and, potentially, economic growth in the country of origin. Initially emphasizing the negative effects of brain drain (Bhagwati, 1977), this literature has found, more recently, that incentives to schooling (Docquier and Rapoport 2010), brain circulation (Mayr and Peri, 2009) and remittances (Di Giovanni et al 2015) can improve income per capita in the sending country. A more limited version of this literature has looked simply at the labor market effects of emigrants, either analyzing the effects of reduced skill and labor supply at origin (Elsner 2013, Dustmann et al 2015, Mishra 2007) or considering the loss of human capital externality at origin (Docquier, Ozden and Peri, 2014).

A second branch of the literature – more directly related to the key question of this paper – analyzes the effects of emigration on the quality of institutions and political outcomes in the country of origin. Docquier et al. (2011) emphasizes that emigration may reduce average human capital with a negative effect on the quality of government and on the probability of democratic institutions. Related to this line of analysis are the studies by Hirschman (1993) and Pfaff and Kim (2003). They emphasized the effect of emigrant selection on the maintenance of the status quo in Eastern Europe during the Communist regime. As dissenters left by migrating abroad, the political system became dominated by anti-democratic elites, and the quality of institutions continued to evolve in a totalitarian direction. This mechanism was also hypothesized, albeit in a less extreme form, for dysfunctional democracies. Mexico and Haiti (Hansen (1988)) have been considered as cases in which the large emigration rates (mainly to the US) provided an escape valve to the voice of dissent and reduced the potential for political change. While Italy is a better functioning democracy than the previously-mentioned countries it still suffered from corruption problems, accountability and government efficiency and, hence, it could benefit from political renewal. Another set of studies emphasizes, instead, that emigrants channel information from the country of emigration back to the country of origin. In this case, emigration to well-functioning liberal democracies can be a channel for democratization back home. Pérez-Armendáriz and Crow (2010) find that the presence of a migrant to US or Canada in a family increases participation in elections in Mexico. Chauvet and Mercier (2013) also report a similar increase in turnout for families with an emigrant for Mali. Pfütze (2012) studies Mexico's local elections and shows that municipalities with large number of migrants in the US are more likely to vote for opposition parties.

Two recent papers have found important connections between emigration and political outcomes using very detailed microdata and reasonable identifying assumptions. Karadja and Prawitz (2016) use weather shocks in the early years of the mass migration from Sweden to the US (the early 20th century). They find that larger emigration rates are associated with stronger political activism and faster change in the sending regions. As opportunity to migrate increased, local authorities responded more to this threat by enacting change. The authors emphasize how emigration positively affected the demand for political change. Mahmoud et al (2014) is another recent paper with a reliable identification strategy and is focussed on a recent case of emigration and political change. The study shows that the share of migrants to Western Europe decreased the municipality vote to the communist

party in the 2009 elections in Moldova, relative to previous votes, while the share of migrants to Russia increased it. The authors argue that the experience of relatives and friends in democratic countries of Europe, tilted the voting behavior away from the Communist party, while the experience of friends and relatives in Russia, an authoritarian country, pushed those who remained towards a communist regime.

The third branch of the literature relevant to this study is related to the idea that innovation in the technological and institutional field comes with generational change. Only companies with young managers seem inclined to adopt radical innovation (Acemoglu, Akcigit and Celik, 2014). And political and institutional change is more likely to come when a new generation becomes prevalent and displaces an old one. In this perspective the power balance between young and old may be crucial in determining the prevalence of the status quo versus the introduction of new institutions in a country.

Our paper improves significantly on the literature described above on several dimensions. First, this is the very first paper to estimate the causal effect of emigration on political change using an identification strategy that only relies on the variation of “migration-pull” factors that are independent of municipality-specific unobservable shocks. Second, it uses outcomes that better capture the change in the local political class. We not only look at the political participation and voting for parties, but we also try to capture characteristics of the local politicians, such as their age, education and gender. Third, it is the first paper to look at this phenomenon within a developed democracy, Italy. Moreover as large part of emigration is towards the free mobility EU zone, the selection of emigrants and the direction of emigration is purely determined by individual choice and not by barriers to mobility. Finally, ours is one of the few papers using individual data from administrative records of emigrants rather than official emigration statistics.

### **3 The Emigration Wave and the Political Changes of 2008-14**

The European Union introduced full labor mobility of its citizens since 1992 (Maastricht Treaty). Since 1999, the introduction of a common currency allowed easy comparison of wages across countries. Another milestone in the integration of European labor markets was the so-called “Bolkestein Directive” of 2006 (The Services in the Internal Market Directive 2006/123/EC) implemented as of December, 28th, 2009. It established a single market for services and professionals within the European Union, eliminating some remaining “de-facto” barriers. These policies have certainly encouraged

significant cross-country mobility from lower-wage to higher-wage countries. However, linguistic barriers and difficulties in portability of academic degrees and social security history across countries still constitute significant costs to full labor mobility. Two deep recessions hit the countries of Southern Europe between 2008 and 2013. Officially, the recessions date 2008-09 and 2011-14. The first was triggered by the US great recession and the second by the Greek debt crisis. While Italy, Greece, Spain, Portugal and France experienced a severe and strong contraction of income and employment during both periods, countries such as Germany, Luxembourg, Sweden and Switzerland experienced much milder or no recession, especially in 2011-14. This asymmetric shock triggered large flows of people moving from Mediterranean countries towards central and northern Europe.

Our analysis focuses on Italy. We use a dataset obtained from the Italian Ministry of Foreign Affairs on Italians who have reside abroad (AIRE data) to construct the number of permanent migrants from each municipality in Italy, who left between 1992 and 2014. For these people we can also observe the country where they reside, their age, gender and few other characteristics. In this section, we use these data to document the entity and the features of the emigration wave from Italy in the period 2010-2014<sup>3</sup>. While there is a lot of anecdotal evidence of brain drain, especially from Northern Italy to the rest of Europe and these stories have multiplied since 2010<sup>4</sup>, only sparse data have been collected on this<sup>5</sup>. Our study fills this gap.

We also collect data on characteristics of municipal councils, mayors and local elections to document the political and institutional change that took place in Italy during the period 2008-14. Anecdotal evidence and case-studies have described a political renewal that started in the country at the end of the last Berlusconi government in 2011, produced several social movements expressing discontent and protest (mainly the “Five Star” movement) and eventually led to the first Renzi Government in 2014. This government was perceived as a political renovation bringing a younger, more diverse and better educated political class to power. No data on this renewal have been collected and analyzed, however. Focusing on city councils, we document the changes in age, education and female participation in the leadership of local governments. We will illustrate these data in the following subsections.

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<sup>3</sup>The data and the construction of variables are described in greater detail in the Data Appendix.

<sup>4</sup>For instance an online page of “La Repubblica”, one of the leading Italian newspapers, is fully devoted to stories of Italian Brain Drain. See [http://www.repubblica.it/argomenti/cervelli\\_in\\_fuga](http://www.repubblica.it/argomenti/cervelli_in_fuga).

<sup>5</sup>Bertoli et al. (2016) document very clearly the increase in immigrants from EU in Germany beginning in 2008, and accelerating in 2010-2014.

### 3.1 The Emigration Wave

Figure 1 shows the simple count of expatriates by year of emigration and is the best measure one can construct of the annual flow of Italian emigrants between 1992 and 2014. The figure shows very clearly that beginning in 2009-10 the number of emigrants increased suddenly and substantially, doubling by 2014. The figure also shows a rather flat trend in the pre-2010 period all the way back to 1992. Increased emigration was not a slow trend, but a sudden episode that took place in correspondence with the beginning of the great recession. Figures 2 and 3 show two more features of the sudden flow that are consistent with the idea that the bulk of it was due to economic reasons. Figure 2 shows that the whole increase of emigrant flow since 2009 was due to young individuals (younger than 45) whose yearly emigration more than doubled. As young emigrants are those who can gain the most from a new job in terms of present discounted value, it makes sense they responded the most to economic differentials. Figure 3 shows most of the growth in the emigrant flow was to EU countries (plus Switzerland and Norway) as those allowed free access to Italian migrants for economic reasons. Migration outside the EU was rather flat after 2010.

To characterize the emigration wave further, it is helpful to stratify the data by area of origin. Figure 4 shows the flows separately from North, Center and Southern Italian municipalities. Figure 5 separates the origin between urban (>10,000 inhabitants) and rural types of municipalities. Two interesting features of the recent wave stand out. First, while up to the mid-2000's northern and southern municipalities contributed roughly equally to emigration abroad, after 2005 northern emigrants became more numerous; the steep increase after 2009 was a phenomenon confined to emigrants from Northern Italian municipalities. Second, a similar trend is visible for emigrants from rural versus urban municipalities. The second group of emigrants became larger after 2005, and the sudden increase post 2009 was quantitatively much larger for the urban ones. Finally, Figure 6 shows that municipalities with a greater share of college-educated had a larger emigration flow throughout the considered period, and the increase post-2009 was fueled by emigrants from high-human-capital areas. The features illustrated in Figures 2-3, are summarized more compactly in Table 1. The table shows the composition of emigrants and the emigration rates (number of emigrants divided by population as of 2000) before the "great emigration wave" in 1992-2009 and during the wave in 2010-2014. The significant increase in the share of young emigrants and the decrease in their average age is quite apparent. The table also shows clearly that the emigration rate almost doubled in northern Italy,

while it actually declined in Southern Italy and remained unchanged in the Central Italy.

In summary, the sudden increase in emigrants from Italy after 2009-10 was mainly a phenomenon involving young people who moved to other EU countries. It was essentially limited to Northern Italy and much stronger from urban areas and areas with high human capital. These features are consistent with a phenomenon concentrated among young, highly educated people, leaving because of economic motivation. The stylized facts also show that some characteristics of the municipality, such as average education and population density, affect the intensity of emigration. Hence, controlling for pre-existing economic conditions, and for area dummies, will be important in reducing omitted variable bias and to isolate the effect of emigration on political outcomes.

### **3.2 Characteristics of Mayors and City Councils**

Corruption, lack of accountability and vast inefficiencies are still present in the Italian democracy; they may also be important reasons for slow economic growth, large income inequality and low investment in innovation. While it is hard to measure the quality of institutions at the municipal level, we gather data that allow us to identify changes in the characteristics of the local leadership. From public information available online we organized data on the composition of Italian municipal councils, mayors and commissioners. In particular, age, degree and gender data were collected so as to characterize the Italian political leadership at the local level. Moreover, we are also able to identify the city councils that were dismissed due to grave inefficiency and corruption – a very negative outcome. Differently from several papers in this literature, we consider indicators of political change that go beyond voting behavior. Instead we use data on the characteristics of local politicians. Institutional and political renewal in Italy implied a younger, better educated political class with more gender diversity following decades of male dominance. We consider these characteristics at the local level as indicators of renewal. While one may doubt these new politicians are, per se, better or less corrupt, the change in composition reveals a propensity toward change and exposure to new ideas. The Italian political class was certainly prevalently male, older and not very highly educated during the 1992-2008 period, hence changes in those indicators are revealing.

Table 2 shows the evolution of these characteristics between 2001, 2008 and 2014 for mayors, city council members and city commissioners. In general, the share of women increased significantly among mayors, local council members and commissioners and so did the share with a college degree. Overall,

the general trends support the idea that local politicians became younger, more likely to be female and better educated between 2008 and 2014, while not much change (or in the opposite direction) occurred between 2001 and 2008. In particular, the share of women and of college educated in city council had a very strong increase in the period between 2008 and 2014, while it changed very little before that. Table 3 shows the more common measures used to illustrate the political landscape in Italy, namely the average municipal share of votes to main parties in the national elections of 2001, 2006, 2008, 2013 and their change over the periods 2001-2006 and 2008-2013. During the period 2008-2013 the traditional parties, particularly the PDL (People of Freedom), a center-right party led by Berlusconi and in power till 2011 but also the democratic Party, PD, and the Northern League, lost votes. To the contrary, the big winner was a newly founded movement, the Five Star Movement, collecting discontent mainly from young and left-leaning voters. Table 3 shows this party’s support grew from 0 to 25% of total votes.

In our empirical analysis we also consider another local outcome that reveals the extent of entrepreneurial dynamism, the number of firms per capita in a province. Entrepreneurs, typically a dynamic group, positively contribute to the economy and drive economic change. They are those who take risks, translate ideas into productive possibilities, and drive the growth of jobs and the economy. Measuring the net change in firms per capita (created minus destroyed) between the 2006-08 period (pre-migration) and the 2012-14 period provides a measure of economic dynamism and entrepreneurship in a location. We will relate these measures to the emigration rates in provinces during the large emigration episode of 2010-2014<sup>6</sup>.

## 4 Empirical Specification

### 4.1 The Basic Regression

Let  $y_{t,i}$  be an outcome variable for municipality  $i$  in year  $t$ . In the empirical analysis this variable would capture, alternatively, characteristics of the local government such as the share of women, of college-educated and average age of city council members, or outcomes of local elections (such as

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<sup>6</sup>We use data on the stock and net creation of firms across Italian provinces from the database “Movimprese” managed by InfoCamere. The Movimprese database collects quarterly data on the stock of active firms and the flows of created and destroyed firms registered in all Italian Chamber’s of Commerce in each year from 1995 to 2014. Breakdowns by province, main sector of activities (according to the “Ateco” classification) and type of firm are also available. More details on this source can be found in the Data Appendix

turnout and share of votes to a party). These outcomes depend, through the democratic process, on characteristics of the local population and especially on their human and social capital. They also depend on other persistent and time-varying economic and demographic characteristics across municipalities. Approximating with a linear function this dependence we can write it as:

$$y_{i,t} = a + b(\text{Pop\_Char}_{i,t}) + c\Lambda_{i,t} + u_{i,t} \quad (1)$$

In equation (1) the variable  $\text{Pop\_Char}_{i,t}$  captures population characteristics, such as human and political capital, that may have important consequences on local political outcomes of municipality  $i$  and year  $t$ .  $\Lambda_{i,t}$  is a vector of economic and other local characteristics, some of which are constant or common to provinces, other are time-variant and potentially persistent and they all may affect local political outcomes. Let us define  $t = \text{post}$  the year 2014, which is the most recent year with available data, after the large emigration wave took place. And let us also define  $t = \text{pre}$  a year about 2008, which precedes the large emigration surge. This notation also aligns our cross-sectional difference approach with the literature on treatment-control, as in our case the treatment is a larger or smaller emigration rate in the municipality occurring between 2008 and 2014. If emigration during the 2010-2014 wave changed the local population characteristics then we can re-write (1) in differences. Let  $\Delta x_i = (x_{\text{post},i} - x_{\text{pre},i})$  be the change for any variable  $x$  in municipality  $i$  between the two years that bracket the large emigration wave. We then define  $\Delta m_i$  as the cumulated number of emigrants from municipality  $i$  between 2010 and 2014 as share of the population in the year 2000. This is called the “emigration rate” of that municipality. With this notation  $\Delta \text{Pop\_Char}_i$  is a function of  $\Delta m_i$ , as emigration changes the population characteristics such as human and political capital. On the other hand,  $\Delta \Lambda_{i,t}$  includes a group of province-level effects, capturing time-varying factors common to provinces, and it also include a part depending on past economic outcomes (if there is persistence) as well as a part of municipality-specific changes. Approximating these relations with a linear function, one obtains the following equation in differences:

$$\Delta y_i = \alpha + \beta \Delta m_i + \phi_P + \gamma X_{i,\text{pre}} + \varepsilon_i \quad (2)$$

The term  $X_{i,\text{pre}}$  in (2) captures a set of pre-determined economic and demographic variables in municipality  $i$  which could affect, via persistence, the changes of those variables  $\Delta \Lambda_{i,t}$ . In the empirical

analysis we include the unemployment rate and GDP per capita of municipality  $i$  measured at the commuting zone level<sup>7</sup> in 2004 (well before the emigration wave). In further checks we also control for measures of human capital at the beginning of the period. The term  $\phi_P$  captures a set of province-level fixed effects that control for time-changing characteristics that may have affected the evolution of emigration and political institutions during the period 2008-14 across provinces. The term  $\varepsilon_i$  is a residual term that captures other time-varying factors affecting political change across municipalities. As it could be correlated with  $\Delta m_i$  the OLS estimate of equation (2) may not produce the estimate of the causal effect of migration on political change.

While equation (2) is a reduced-form relation it has two desirable characteristics. First, all variables on the right hand side, except for  $\Delta m_i$ , are either dummies or pre-determined variables. Hence, we can focus on the simultaneity issues between  $\Delta y_i$  and  $\Delta m_i$  which will be dealt with using an instrumental variable approach, and not worry about the endogenous change of other variables. Second, while the regression can be derived from a relation in levels between population characteristics and political outcomes, it is also compatible with a “difference-in-difference” representation in a treatment-control framework. The pre-post treatment differences in outcomes (first difference) are compared across units that received larger or smaller amounts of the treatment  $\Delta m_i$  (second difference). Hence the coefficient of interest, which captures the impact of emigration rates differences on differences in the changes of political outcomes, is  $\beta$ . Because of the presence of omitted variables in the term  $\varepsilon_i$ , which is likely correlated with emigration rates, it would be unwise to interpret the OLS estimates as causal. Alternatively, changes in the political sentiment in a municipality may lead to both political change and higher emigration rates and could generate reverse causality. Hence we adopt an instrumental variable approach in estimating the causal impact of  $\Delta m_i$  on  $\Delta y_i$ .

## 4.2 Identification: The IV Approach

The main threat to identification of the causal effect of emigration rates on political change derives from possible economic, political and demographic changes between 2008 and 2014, affecting the outcome change  $\Delta y_i$  and correlated to the emigration rates  $\Delta m_i$ . For instance, sudden economic success in a municipality may reduce emigration and promote political change. Similarly, the election of an able local official/mayor may promote local change and improve local perspectives, keeping emigration

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<sup>7</sup>Each of around 8000 municipalities is mapped by the National Statistical Office - ISTAT - to one of 683 commuting zones (“Sistemi Locali del Lavoro”)

low. Both factors, if not controlled for, would induce a spurious correlation between emigration rate and political outcomes. In order to address this problem we use an instrumental variable strategy and we build on a very useful distinction, developed in the emigration literature, between “push” and “pull” factors affecting migrations<sup>8</sup>. Economic or political events at the municipality level in the period 2008-14 may affect emigration rates as “push” factors, i.e. by “pushing” people to migrate. They may also be correlated with local political change. Hence we should not include migration flows driven by these factors in the construction of the instrument. Differently, economic conditions in foreign countries between 2008 and 2014 affect emigration as “pull” factors, by attracting people. They are unlikely to be correlated with any municipality-specific change in that period. Hence we can use them to construct the instrument. The economic performance of a foreign country is one of the “pull” factor, affecting emigration and unlikely to be correlated with municipality-specific factors. However, in order to have predictive power the “pull” factors need to affect emigration differently across municipalities. To construct a proxy for “pull-driven” emigration we interact pre-2000 emigration rates from a municipality  $i$  to each country  $c$ , which measures its historical network of migrants, with a measure of the receiving country’s economic performance in 2008-14, relative to the Italy’s economic performance in the same period. Hence, our instrument captures “pull-driven” emigration from a municipality and excludes “push-driven” emigration factors correlated with municipal conditions in 2008-14, which are at the root of the potential omitted variable bias.

The key identifying assumption is that unobserved factors affecting the pre-2000 migration network size (and hence the distribution of the “pull” factors across municipalities) do not affect political change in 2008-14, except through the effect on emigration rates in 2008-14. While it is possible to think of such changes, three features of our identification strategy reduce the risk of violating the exclusion restriction. First, we control for economic conditions in 2004, before the start of the recession and the emigration wave. Second, past emigration to foreign countries only matter in proportion to their economic success in 2008-14. Third, we test that the constructed instrument is not correlated to pre-2008 economic and political outcomes, ruling out pre-existing and persistent trends affecting the IV. The instrument  $\widehat{\Delta m}_i$  isolating only a “pull-driven” part of the emigration rate  $\Delta m_i$  is constructed as follows:

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<sup>8</sup>This approach, first conceptualized by Lee (1966), has had great use in the economic analysis of migration.

$$\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})} \quad (3)$$

In expression (3), the variable  $sh_{i,c,2000}$  is the number of Italians from municipality  $i$  residing in country  $c$  in the year 2000<sup>9</sup> as a share of that municipality’s population in the year 2000. This variable captures the relative size of the historic networks between one municipality  $i$  and a specific country  $c$ . The term  $\frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$  is the cumulative real GDP growth factor in country  $c$  relative to Italy over the whole recession period (2009-2013). It captures the relative economic incentives for moving to that country and therefore the country-specific “pull factor”. The expression in (3) weights the strength of a country-specific pull factor, using the size of the historical network between the country and that municipality. We end up with “municipality-specific” pull factors that vary across municipalities, based on their imputed exposure to the receiving country’s economic pull. A municipality with a large community of emigrants (as of 2000) in countries experiencing better economic conditions than Italy between 2009 and 2013 is predicted by this instrument to have a higher emigration rate. Notice that the pull-driven IV in (3) is also consistent with the change in migration flows predicted by a “gravity” equation of bilateral migration (as used for instance in Ortega and Peri, 2014) considering that past networks affect bilateral costs of migration and current GDP of the receiving country affects the number of immigrants. A gravity equation would also include GDP and population at origin as “push-factors” of migration. As those may be correlated with outcomes at origin, we do not include them in the IV.

This instrument has some similarity with the so-called “enclave” instrument, broadly used in the literature on the Impact of immigrants (see for instance Altonji and Card 1991). In this case, however, as we instrument emigration (rather than immigration) rates, we isolate the “pull factors” (rather than the “push factors”) to predict the number of new emigrants. This instrument does not simply build on the presence of past migrant networks by country, but it also relies on the contemporary economic performance (“pull”) of these countries in creating a different propensity for emigration from Italian municipalities.

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<sup>9</sup>We include in the pre-2000 stock of emigrants all those who moved abroad between 1992 and 2000.

### 4.3 First Stage Results

Table 4 shows the predictive power of the “pull-driven” emigration IV in the first stage regressions. In the first column of the Table we consider the municipality as unit of analysis and we include around 7,000 observations. The regression controls for initial GDP and unemployment rate, as well as 110 province fixed effects and standard errors are clustered at the provincial level. Column (2) uses the province level data instead, and it includes 110 observations and 20 regional fixed effects plus the initial controls. In the municipal-level analysis, which is the relevant one for all political outcomes, the F-stat of the instrument is around 86, revealing its strong predictive power. At the provincial level the F-stat is equal to 19, which, while smaller, does not raise issues of weak instrument bias. The regressions also show that initial income per capita is a significant determinant of emigration rates between 2010 and 2014. Richer municipalities had higher emigration rates when the recession hit. This could be due to the fact that people in those cities had better skills and learned of better job opportunities abroad. Figure 7 shows in a scatterplot the partial correlation between the pull-driven emigration rate (instrument) and the emigration rate across provinces when controlling for initial economic conditions and region fixed effects. The figure shows graphically what Table 4 already made clear, namely that there is a strong predictive power of the instrument without any specific outliers.<sup>10</sup>

Figures 8 and 9 show emigration rates and the predicted emigration rate, respectively, by province on the Italian map<sup>11</sup>. While one notices the strong correlation between darker and lighter areas across the two maps, one can also see that the instrument seems to over-predict the propensity to emigrate in some southern provinces (especially in Calabria and Abuzzi), while it under-predicts the emigration rate in some provinces of the northern regions of Lombardy and Veneto. This may be due to the fact that a large part of the older emigration flows to some European countries from southern Italian regions was associated with low-skilled types of jobs (such as mining or heavy manufacturing during the 50’s and 60’s) and did not generate networks of connections that were particularly useful to young professionals in the most recent emigration wave. Nevertheless, when controlling for regional differences (via fixed effects), the instrument captures the within-region variation in network intensity fairly well as we saw in table 4. Using within region or within province variation in emigration rates, as we do in all regressions by including the corresponding fixed effects, is more likely to capture the

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<sup>10</sup>Similar scatterplots can be drawn for the data at the municipal level. They also show significant positive correlation without particular outliers. Those figures are available upon request.

<sup>11</sup>Figures B1 and B2 in the Appendix show the corresponding maps for municipalities.

idiosyncratic, historically-determined differences in emigration. This should reduce substantially the issue of correlation with local economic and political factors, which are much more homogenous within a province. In the rest of the paper we use specifications that control for province fixed effects (or for region fixed effects in province-level specifications) and we focus on IV estimates that isolate the causal impact of emigration rates on political change.

#### 4.4 Outcomes and Interpretation

Did governing bodies in municipalities with a high rate of emigration change more slowly? Through what channels did emigration affect change? On one hand, selective emigration may reduce the number of young, educated and dynamic individuals directly affecting the group who may win political leadership. On the other hand, emigrants may affect political outcomes indirectly through changing the voting preferences of the local electorate. The direction of this second change is uncertain as they could deprive municipalities of votes that would go towards political change. Or they could transfer innovative ideas from their country of emigration and contribute to greater political change.

In order to analyze these possible channels, we consider several outcomes in our regressions, whose change may be consistent with some, but not all, explanations. After having analyzed how emigration affects the share of young, highly educated, and women in local governing bodies, we also analyze whether it affects the probability of extremely negative outcomes in the municipal council. We focus on its dismissal. A city council is dismissed if some form of extremely severe malfunctioning happened or if its members are put under investigation for corruption or crime.<sup>12</sup> Given the prevalence of political corruption in Italy and of occasional involvement of local governments in some forms of organized crime (such as the Mafia), a decrease in the probability that a city council is dismissed can be considered as a sign of improvement in local institutions. It likely reveals a decrease in corruption levels.

In order to gain some insight on the more indirect channels, operating through the change in local voting behavior, we also analyze whether the emigration rate affects turnout and share of votes to some parties. If young people who are engaged in civic life emigrate, the political participation in a

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<sup>12</sup>We randomly sampled 10 municipalities among the 146 ones that had a dismissed municipal council in 2014 and tracked the reason for the dismissal. Out of 10 municipalities, 5 had a dismissed council due to organized crime infiltration, 1 for resignation of the mayor, 1 for resignation of half of the council members, 1 for a no-confidence vote for the mayor, 1 because of absence of candidates at the local election and 1 for missing the minimum turnout threshold in case of a single party election.

municipality may decrease. We also analyze how emigration rates affect the percentage of votes to the more traditional parties relative to votes going to parties that push for substantial change and renewal. During this period, Italy experienced the emergence of the anti-establishment party (the Five Star Movement) that aggregated different dissatisfied voices in a clear, although somewhat generic and unorganized, movement of protest. Young people responded strongly to this movement. Alternatively, we also analyze whether emigration affected the power of more isolationist, anti-European parties (in Italy expressed mainly by the Northern League) that could have a stronger appeal once people with a more open and tolerant mentality left.

Finally, as a way to check whether emigration is a drag not just on political leadership but on the economic and managerial leadership, we test whether emigration affected local entrepreneurship. We analyze whether net firm creation (and gross firm creation and destruction) in municipalities was affected by the emigration rate in the 2008-14 period. We will analyze all these outcomes in turn.

## 5 Main Results

### 5.1 Age, Education and Gender of Municipal Councils, Majors and City Commissioners

As first set of outcomes we consider the change in the characteristics of politicians who were occupying the role of mayor, city commissioners, and city council members between 2008 and 2014, which essentially coincides with an electoral cycle.<sup>13</sup> Table 5 shows the coefficients of Specification (2) instrumented with our IV presented in Expression 3. Each regression controls for value added per capita and unemployment in the municipality as of 2004 (which is pre-2008 and the only year for which a full set of municipality data is available). We also include 109 province fixed effects and we cluster the standard errors at the province-level (there are 109 provinces in the data).<sup>14</sup> The dependent variable is the change in the average age of the mayor (Column 1), of city commissioners (Columns 2), and of city council members (Column 3). There is a positive impact of emigration on the age of the mayor, while the effect on the average age of city commissioners and city council members (although positive) is not significant. The magnitude of the effect on the age of the mayor implies that an increase in

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<sup>13</sup>As electoral cycles are of five years, each municipality in the sample had at least one election between 2008 and 2014

<sup>14</sup>This specification is the most demanding we can run with the data available. We have run these same specifications with un-clustered robust standard errors. Significance of our estimates increase.

the emigration rate of one percentage point of the population would increase the age of the mayor by 3 years. This is a sizeable effect showing that higher emigration slowed the general trend toward younger mayors in a period of political change. Let us also notice that this is not due to a mechanical effect of emigration on the average age in the municipality. In fact when we use the average age in the municipality as dependent variable in the same specification as in Table 5 (not shown but available) we obtain a coefficient equal to -0.102 (standard error is 0.117) not statistically significant.

Columns 4-7 of Table 5 show estimates of the change in the share of politicians with a college degree as dependent variable. Column 6 shows the estimates for city commissioners and Column 7 for city council members. For the mayor, we consider as outcome in Column 4 the 2008-14 change of a dummy equal to one if he/she has a college degree, so that its change takes on zero if the mayor's degree status did not change between 2008 and 2014, +1 if the mayor "gains" a college degree, or -1 if the mayor "loses" a college degree. In Column 5 we restrict change to "gains" only by considering as outcome a dummy which is equal to 1 if the mayor had a college degree in 2014, but did not in 2008 and 0 in all other cases. While the point estimates of the effects of emigration on the change in education of mayor and city commissioners are not significant, the estimate for the share of college graduates among city council members is negative and significant. This suggests that an increase in the emigration rate by 1 percentage point of the population decreases the share of college graduates in the city council by 2.8 percentage points with respect to a baseline share of college graduates equal to 27.1% in 2008. This is a significant difference in a period in which the city council members increased on average their share of college graduates by 7 percentage points. As an attempt to go more in depth into the analysis of the human capital change of local politicians and the impact of emigration, we also tried to categorize mayors, city commissioners and city council members into two types of professions. Those whose professions are more STEM-related (including doctors, engineers, scientists and technicians) and those whose are not.<sup>15</sup> However, we found no measurable effect on the change in this composition as effect of emigration. Tables for these results are available upon request.

In a society as Italy, where the female labor participation rate was still below 50% in 2015 and positions at the top of the executive ladder are extremely hard to access for women, the evolution of the political class to include more women can be considered as a very relevant indicator of change. This is all the more relevant during the considered period, as, starting with the local elections of

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<sup>15</sup>Usually, highly educated migrants tend to be more concentrated among engineering-scientific types of professions (see Peri et al 2015). Hence, one can think that people in those professions become less available as local politicians.

2013, voters in municipalities with more than 5,000 citizens were allowed to vote for two different candidates as long as the two candidates were of different gender. By introducing the option of voting for both a male and a female candidate, this policy gave voters the opportunity to boost the presence of women in municipal councils.<sup>16</sup> The share of women as of 2008, among mayors (10% nationally), city commissioners (16%) and among city council members (18%) was low. It experienced, partly because of this law, a substantial growth between 7 and 10% nationally between 2008 and 2014. Hence, the growth of women's share among elected officials in a municipality can be a very strong indicator of political change. Table 6 shows the impact of emigration on this share, using the same specification as in Table 5. In particular, Column 1 considers the 2008-14 change of a dummy equal to one if the mayor is female, so that its change takes on zero if the mayor's gender did not change between 2009 and 2014, +1 if there is a switch from a male to a female mayor, or -1 if there was a switch from a female to a male mayor. In Column 2 we restrict change to the first type of switch only, considering as outcome a dummy which is equal to 1 if the mayor was female in 2014 and male in 2008 and equal to 0 in all other cases. Column 3 analyzes the change in the female share of city commissioners and 4 the change in share of women among city council members. The increase of emigration rate by 1 percentage point in a municipality is associated with a decrease in the probability of a switch from a male to a female mayor by 5.7 percentage points. It also leads to a decrease in the share of women among city counselors by 3 percentage points. These are large effects. As the share of women among emigrants was rather stable in the whole 1992-2014 period, it is unlikely that the decrease in women's share due to emigration is related directly to women's departure<sup>17</sup>. Consistently with the fact that the change in women's share of city council members is potentially a good indicator of political change at the local level, the average income is positively related and the unemployment rate is negatively correlated to it in column 4. Municipalities with higher income per capita and higher employment rates were more likely to increase the share of women among their politicians. In fact for municipalities whose income per capita differ by an order of 2 (100%), their share of women in the city council differ by 3.2 percentage points.

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<sup>16</sup>Using a regression discontinuity approach Baltrunaite et al. 2016 find the double-gender vote policy for municipal councils of cities above 5,000 people did not affect the share of female candidates differentially for the municipality below and above 5,000 inhabitants, but increased substantially the actual share of women elected in cities right above the 5,000 inhabitant threshold.

<sup>17</sup>The actual share of women among emigrants is slightly decreasing in this period

## 5.2 Extremely Negative Political Outcomes: Dismissal of the City Council

In many of the municipalities under consideration a clear sign of failed political leadership and grave deficiencies and corruption is the dismissal of the city council. This occurrence implies that a city council has been deprived of its political power and its administration is given to a temporary authority. This occurs mainly for grave suspicion of corruption, for being under investigation or for having reached a state of complete and utter paralysis. We randomly sampled 10 municipal councils among the 146 that were dismissed by 2014 and, by way of Google and newspaper search, we found out the reasons for their dismissal. Out of 10 municipalities, 5 had a dismissed council due to organized crime infiltration, 1 for resignation of the mayor, 1 for resignation of half of the council members, 1 for a no-confidence vote for the mayor, 1 because of absence of candidates at the local election and 1 for missing the minimum turnout threshold in case of a single party election. One illustrative example of the severity of city council dismissal is that of Casignana.

Casignana is a municipality in Southern Italy (Calabria Region) of 800 inhabitants, whose mayor and municipal council were elected on May 15 of 2011. Shortly before the election, the mayor in office was investigated for allegations of illicit interactions with a local mafia boss finalized at exchanging votes for future administrative favors. On November 24, 2011, the elected mayor was arrested on criminal charges related to disposal of illegal and hazardous waste. Following the arrest of the mayor, a full scale investigation was conducted by a so-called “Prefetto” (Judicial authority) that collected a large amount of evidence on the illegal vote exchange with the local Mafia organization. The official concluded that the infiltration of organized crime was so extensive that political freedom and independence of the municipal council were substantially undermined. As a consequence of this investigation’s report, on May 13 of 2013 the Italian President signed a decree to dismiss the municipal council of Casignana and sent a government commissioner to act as mayor. As of December 31, 2014, the municipality of Casignana had not held new elections due to the fragile local political environment; the government commissioner was still acting as mayor. A new mayor was elected on May 31 of 2015.

Hence, while it is hard to evaluate the efficiency and administrative quality of a municipal council, we can consider dismissal as a proxy for extremely bad outcomes, likely driven by incompetence or corruption. Columns 5 and 6 of Table 6 show how emigration rates affected the change of this indicator across municipalities. In Column 5 we consider the 2008-14 change of a dummy equal to 1 if the city council was dismissed and 0 if it was in place. Hence if the council was in place in 2008 and dismissed

in 2014, the value is +1. If the council was in place (or dismissed) both in 2008 and 2014 the value is 0, while it is -1 if the council was in place 2014 but dismissed in 2008. The rate of dismissal for municipal councils elected in 2008 was at 7.9%, confirming that this is a relatively rare outcome. Our estimates show that an increase in the emigration rate by one percent of the population increases the probability of a council being dismissed by about 6 percentage points.

Thanks to an extensive intervention of national authorities against infiltration of criminal organizations in local administrations, the 2008-14 period was characterized by a rapid decline in the share of municipalities affected by this highly negative outcome to a 1.8% low in 2014. In Column 6 we thus use as dependent variable a dummy taking on value 1 if the municipality was under dismissal status in 2008 and back in place by the end of 2014 and 0 in all other cases. Our estimates show that an increase in the emigration rate by one percent of the population decreased by 8.4 percentage points this positive outcome. These are important results. One potential interpretation is that the emigration of more educated, more aware and vigilant citizens increases the likelihood of a corrupt city council (or delay recovery from dysfunctional or criminal situations). Better economic conditions in the form of higher income are also associated with lower probability of dismissal of the city council, confirming that this extreme outcome is associated with economic stagnation. While we do not want to draw excessively strong conclusions, given the small probability of this event, the results of Table 6 certainly appear to suggest emigration significantly increased persistency of city council dismissal status in a period of great overall reduction of this negative outcome.

### **5.3 Effects on Electoral Outcomes and Turnout**

The indicators of political change analyzed above relate to politicians in leadership positions. Selective emigration may have substantially affected the quality of these politicians, by depriving the municipality of potential leaders for change. However, selective emigration may also have a more indirect effect on the political environment by changing voter participation and thereby the outcome of elections. Local democratic engagement for most people takes the form of voting. By selecting more engaged and vocal citizens into emigration, a larger number of departures may have decreased the “pressure” for change by reducing political participation, and among the participants, the vote for change. This is the story told by Hirschman (1993) on the alternative between “voice” and “exit” in countries of the old communist block. On the other hand, if emigrants help to diffuse democratic

values and institutional progress back to the origin, more emigration may result in more engagement and political change, possibly in the long run (Pfütze 2013, Mahmud et al 2014).

Table 7 shows estimates of emigration on electoral outcomes using the same IV specification as in previous tables, including province fixed effects and with standard errors clustered at province-level. In this case we weight our regressions by municipality's population size in 2000 to take into account the relative contribution of each municipality to national election results. In Column 1 we first analyze the impact of emigration on voter turnout in each municipality during national parliamentary elections. In particular, we estimate how the emigration rate affected the change in turnout between 2008 and 2014 controlling for previous turnout and for economic conditions across municipalities. The estimate shows a significant and large negative effect of emigration on electoral turnout. For each percentage point of the population leaving the municipality, voter turnout decreases by 4 percentage points. If this is due to a direct effect, it means that emigrants were much more likely than the average citizen to vote, thus their absence decreases participation significantly. Alternatively, this may also be a spillover effect on people who did not emigrate. In a municipality with better emigration opportunities (as proxied by the IV) several other citizens may become convinced that a more effective action against the status quo is to leave, rather than to vote for change. Hence, even while they are in the municipality the greater probability of leaving makes them less engaged in political change. This would reduce the turnout of the non-migrants too and act as a spillover effect on remaining voters. Both channels can be at work.

We then analyze the outcomes of political elections, by testing whether emigration had an impact on the percentage of votes going to different parties. We identify four major parties that, together, collected the large majority of votes. Some of them are representative of the status quo, others express more clearly the discontent with the status quo. We track their electoral outcomes in national parliamentary elections (at the municipality level) and see how emigration affected them. The largest parties of the Center-Right (PDL, People for Freedom) were in power in 2008 and clearly represented the status quo. Investigations and scandals around its leader, Silvio Berlusconi, reached a peak in these years. The other large party, the Center-Left (PD, Democratic Party) was instead undergoing an important transformation from an old-style, union-based, socialist type of party to a more dynamic, pro-market and younger party. This was embodied in the change of leadership in this party from the older Pier Luigi Bersani to the much younger Matteo Renzi. Then the third largest party in Italy, the

Northern League, certainly captured the discontent of Italians in many respects, but it also maintained a very strong anti-Europe and anti-globalization stance. The real new phenomenon of this period was the rise of the “Five Star Movement” (party), a group that gathered discontent, protest and vague anti-establishment ideas mainly from the left of the political spectrum<sup>18</sup>. While the leadership of this party was somewhat confused, its voters were certainly expressing great discontent and desire for change. The summary statistics in Table 3 show the main features of political change we described. The average share of votes for each party at the municipal-level shows, between 2008 and 2013, a large decline of the PDL (People for Freedom) by 11 percentage points, a smaller decline of the PD and Northern League (by 6 percentage points), and the boom of the anti-establishment party, the Five Star Movement, that went from 0 to 24% of the votes.

If emigration reduced the “voice” of discontent at the local level, given the selection of people who emigrated, municipalities with large emigration rates should also have a larger share of votes going to the government party (PDL) and a smaller share going to the party of discontent (Five Star Movement). At the same time, emigrants are probably much more open to Europe and to global forces than the average Italian. Without them, the Northern League may have gathered more votes. The effect on the Democratic Party is less clear, as it was still part of the established power, but was undergoing an internal change. Columns 2-5 of Tables 7 show the estimates of the effect of emigration on the share of votes going to the PD (Column 2), the PDL (Column 3), the Five Star Movement (Column 4) and the Northern League (Column 5). The dependent variable is the change in the share of votes for that party between the 2008 and the 2013 elections. We show, as usual, the IV estimates controlling for vote share in the previous election of 2006, for economic variables such as income per capita and the unemployment rate in and we include province fixed effects and cluster standard errors at the province level. Three trends are clear. First, larger emigration rates led to smaller vote shares for the Five Star Movement. For each increase in emigration as share of the population by one percent, the Five Star Movement received 9 percentage points fewer votes in the municipality. Second, the party that benefited the most from emigration was the PDL, representing the status quo. In regions with large emigration rates, the PDL had a significantly larger share of votes: 5.6 percentage points higher for each one percentage point increase in emigration. Finally, the northern League and the PD had smaller positive effects (+2.9 percentage points and +0.8 percentage points) from emigration. The fact

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<sup>18</sup>Smaller parties such as extreme right, extreme left and a centrist list also existed. They were of small size and we do not find much of an effect from emigration on those. Results for these smaller parties are available upon request

that these parties were still perceived as pro-status quo (in the case of the PD) or were anti-Europe may explain why people who are more likely to emigrate were not likely to vote for them. Overall, the indirect channels confirm that emigration reduced the engagement and pressure for change in the municipalities where more people left. Not only the potential leadership but also the voting behavior of people were affected.

## 5.4 Entrepreneurship

To dig further into the role of emigration in reducing local leadership for innovation and change, we look at one economic outcome. Entrepreneurs are often among the strongest agents of change. In the words of Schumpeter they bring the “creative destruction” needed to innovate and break with the status quo. In many Italian cities the entrepreneurial class, especially the entrepreneurs in small firms, constitute an active engine of economic growth. Industrial districts created in the 1980’s and 1990’s around small firms and local entrepreneurs who became leaders in specific sectors, constituted the basis of Italian economic growth during the 1980’s and 1990’s. Driven by economic dynamism, creative ideas and possibly enriched by the local social capital (e.g. Brusco 1982, Leonardi and Nanetti 1990; Putnam 1993) small entrepreneurs thrived, especially in the center and in the north of the country (Becattini 1987). The younger generation, during the 2008-14 period faced a much more difficult economic environment. Challenges from the recession and from growing global competition in traditional sectors tested entrepreneurial success in Italy. The question is whether emigration also weakened entrepreneurial activity in municipalities that experienced large outflows. This would be another sign that emigration hurt local potential for change.

In this section we consider as an outcome the number of firms per capita in a province and how this value changed between 2008 and 2014, as a function of emigration rates across Italian provinces. From the Italian registry of firms<sup>19</sup> we count firms in each province (data at the municipal level are not available), and we observe their creation and destruction. We consider three different types of firms, depending on their legal status. The first group is constituted of corporations that have a separate legal identity from their founders (Societa’ di capitali - “Corporations” in tables). The second group of those firms founded by a group of people who retain joint ownership of the company (Societa’ di persone - “Multi-individual Firms” in tables). The third group of firms created and owned by one

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<sup>19</sup>The “Movimprese” registry is managed by InfoCamere and collects quarterly data on the stock of active firms and the flows of created and destroyed firms registered in all Italian Chambers of Commerce at the provincial level.

person only (Societa' Individuale - "Individual Firms" in tables). The small size and local identity of the last two types of firms make them more likely to be created by local entrepreneurs. Consequently, the drain of talent through emigration may be particularly damaging to these groups of firms. In Table 8 we show the impact of emigration (2010-2014) on the net change in firms per capita by province over the 2008-14 period. Column 1 shows the impact including all firms. Column 2 shows the impact on the net creation of incorporated firms ("Corporations"). Column 3 considers net creation of multi-person-owned firms ("Multi-individual firms" - the second group) and Column 4 looks at individual-owner firms ("Individual firms" - the third group). The period considered spans a deep recession and, hence, several provinces experience a slowdown in net firm creation. Table 8 shows a negative effect of emigration on net firm creation. This effect is significant when looking at all firms (Column 1) and is particularly strong when considering individual-owner firms (Column 4). An increase of emigration rates by one percent of the population reduced the stock of firms per capita by 0.013 firms per capita with respect to an average number of firms per capita in 2000 of 0.093 (a 14% decrease). The following table looks at whether the net decrease in firm due to emigration is driven by reduced firm creation or by larger firm destruction. As emigrants tend to be young, it is reasonable to think that their loss would mainly affect the creation margin, with fewer young entrepreneurs starting firms. Confirming this hypothesis we see that the impact on firm creation (Columns 1,3,5,7 of Table 9) is significant, negative and large, while the impact on firm destruction (Columns 2,4,6,8 of Table 9) is smaller and never significant. In Columns 5-8 of Table 8 we check if emigration affected firm creation in particular sectors. We analyze whether the effect of emigration on net firm creation is larger in high value-added sectors (such as high tech manufacturing and human capital intensive services). While the point estimates are still negative and significant, the effects are smaller. Emigration hurt entrepreneurship, but not high value-added sectors in particular.

## 6 Extensions and Checks

### 6.1 Focus on the North

As shown in Figure 4, the emigration wave that occurred beginning in 2009 was mostly concentrated in Northern Italy. While emigration from Southern and Central Italy remained stable, the outflow from the north increased from 22,000 people per year in 2008 to more than 60,000 per year in 2014.

Northern Italy is the economic engine of the country and many young people there, dissatisfied with local economic conditions, moved to more enticing options in Northern Europe. This part of the country could lead the political change as a larger share of highly educated people and entrepreneurs reside there. Hence, we look whether the impact of emigration on political change was particularly strong in the North. Table 10 shows the effects of emigration on average age, the share of college educated and the share of women among politicians limiting our sample to only municipalities in Northern Italy. We use the usual IV specification with economic controls, province fixed effects and standard errors clustered at the province-level. All the estimated coefficients are of the same sign, but more significant and larger than for the national sample. For instance, the effect on women’s share in city councils shown in Column 9 of Table 10 implies that an increase of emigration rate by 1 percentage point decreases the female share among city council members by 7 percentage points in Northern Italy. The corresponding figure for the whole country was only 3 percentage points. Similarly, the effect on age of the mayor and of city commissioners (Columns 1,2 of Table 10 ) is respectively 0.6 and 2.2 years larger for each percentage increase in the emigration rate in Northern Italy relative to the average effect for the country. Finally, the coefficients of Columns 4-6 imply that emigration reduced the share of politicians with a college degree by 50% more in the North than in the rest of Italy. The effect of emigration on the city council share of college educated is -0.038 percentage points in Northern Italy and only -0.027 on average. So Northern Italy, not only experienced the larger decrease in population due to emigration, but given the stronger impact found in these regressions, it likely also experienced the strongest “positive” selection of people into emigration. One important qualification is needed for these results. While southern regions did not experience much emigration abroad, it is possible, and in fact likely, that the recession may have encouraged young and highly-educated people in the south to migrate to Northern Italy. This is an interesting possibility, as part of the young talent from the south may have replaced the lost talent in the North and contributed to renewal in northern local government. The analysis of recent internal migration flows from the south to the north of Italy, and how this may affect the sending southern municipalities, is a subject to develop in further research.

## 6.2 Human Capital: Controls and Interactions

Figure 6 shows that high human capital areas have always been those losing more people to emigration, but this difference became much more dramatic beginning in 2009. The fact that emigration rates

were much larger in those municipalities is consistent with our hypothesis that emigrants are more highly educated than non-emigrants. On the other hand, it implies that the level of human capital in a municipality before the great migration wave could be an omitted variable affecting some of our results. In this section we test whether the estimates of the effect of emigration rates on political change are altered when controlling for human capital levels in the province as of 2011.<sup>20</sup> Table 11 shows the impact of emigration on politicians' age, on the share of politicians with college education and on the share of women among politicians adding average human capital in the municipality as a control.

First of all, notice that the level of human capital (share of college educated) in the population usually had a significant impact on political change in the expected direction of facilitating more political change. Provinces with a higher share of college educated had a significantly larger decrease in the age of the mayor (in 2008-14), they had a significantly larger increase in the share of college educated mayors, and a significantly larger increase in the share of women as city commissioners and in the city council. The inclusion of this control does not significantly change the estimated effect of emigration on political change, which remains strong and negative.

In Table 12 we present an alternative specification that explores whether emigration rates affected differently high and low human capital areas. We replicate our analysis only on those municipalities that had a share of college graduates below the national median (around 7%). Sign and significance of the estimates are consistent with those obtained on the whole national sample (Tables 5 and 6), but the magnitude of the effects is larger for this sub-sample. This is evidence that emigration was more harmful for those municipality with particularly low levels of human capital, possibly because the selection of immigrants pushed local human capital at particularly low levels.

While the loss of human capital due to emigration can certainly be a channel for many of the observed effects, emigration rates are not simply a proxy for initial human capital in a province. Increased education, however, seems an effective force bringing political renovation and change. It also increases emigration and, just as pointed out in the debate about brain drain and brain gain (see Docquier and Rapoport 2012), increased education and international mobility may result in more

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<sup>20</sup>Data on the share of college educated at the municipal level are obtained from the Italian Census of 2011. Unfortunately, data on the share of college educated are not available for any other year for geographies more disaggregated than the 20 regions. While using data for 2011 as a control is not ideal – we would rather use pre-2010 measures – we believe the share of college educated for 2011 on the entire municipal population was not yet significantly affected by the strong increase in emigration started in 2011 itself.

people leaving, but also in the long run, more human capital available in the region of origin.

### 6.3 Controlling for Immigration Rates

A possible omitted variable concern for our results is that our instrumental variable  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$  may be also correlated to immigration rates. If networks of emigration are correlated with network of immigration then the instrument may also be correlated with changes in immigration rates. This is not very likely as immigrants come from different countries than those of emigration of Italian citizens. Nevertheless, if that was the case the estimated effects could be a combination of immigration and emigration.

In this section we test whether the estimates of the effect of emigration rates change if we control for immigration rates in each municipality. Table 13 replicates the main specification including cumulated immigration flows between 2010 and 2014 as a share of municipality population in 2000 (i.e. immigration rates). The estimated coefficients on the emigration rate are nearly identical to those in the main specifications in Tables 5 and 6 and confirm that immigration is not the driver of those. Interestingly, immigration rates do not appear to be correlated with local political outcomes at all in any of our specifications. This evidence is consistent with two facts. First immigration and emigration rates across municipalities are not highly correlated. Italians emigrate to richer European countries while Eastern Europeans and North Africans are the largest groups of immigrants. There is not much overlap in these networks. Second as most immigrants to Italy are from North Africa and non-EU Eastern Europe they do not vote in local elections and hence do not affect much political outcomes. Most importantly the main effects of emigration rates survive this check.

### 6.4 Checks of Instrument Validity

A final check of our empirical analysis involves testing the validity of our instruments. We have constructed a pull-driven emigration rate, related to economic options abroad, which predicts emigration between 2010 and 2014, and is robust to the inclusion of several controls and to province fixed effects. In Tables 14 and 15 we perform several tests to see if this instrument is correlated with pre-2008 trends of relevant variables. This would cast doubt on its validity revealing correlation to pre-determined trends that may persist and generate spurious correlation. We are assuming, instead, that the only channel through which the IV affects political and economic outcomes is through the

impact on post-2009 emigration.

In Table 14 we first test whether our instrumental variable is correlated with pre-2008 trends in the characteristics of politicians. In Columns 1-3 the dependent variable is the 2001-2006 change in average age of local politicians, in Columns 4-6 the 2001-2006 change in the share of local politicians with a college degree and in Columns 7-9 the 2001-2006 change in the share of women among local politicians. The nine correlations tested are all not significant. Table 15 then replicates the same exact validity check on pre-2008 trends of several other variables. In Columns 1-3 we test that the instrument is uncorrelated with the 2001-2006 change in the vote shares to the three main parties, in Column 4 we focus on the 2001-2006 change in the probability of having the municipal council dismissed, in Column 5 on the 2004-2007 change in the unemployment rate<sup>21</sup> and in Columns 6 and 7 on the net 2000-2006 creation of individually-owned firms and individually-owned firms in high-value-added sectors. All estimated coefficients are very small in value and none of them are significant at the standard confidence level. These test are strongly consistent with the validity of our instrument and make us significantly more confident in our identification strategy.

## 7 Conclusions and Implications for Policy

Following the Greek debt crisis and the deep recession that ensued, Mediterranean European countries have experienced poor economic opportunities. Many anecdotes and stories suggest that young, dynamic and productive people are moving to other countries such as the UK, Germany and Denmark. Our study is the first to quantify this emigration wave in Italy. Using a credible identification strategy, we also analyze the impact of emigration rates on indicators of political and economic change in the location of origin.

We first document, and then take advantage of, a large wave of emigration from Italy corresponding to the deep economic recessions between the 2008 and 2014. Economic-driven pull factors, interacted with the presence of established emigrant networks from different municipalities to EU countries, allow us to construct a proxy for emigration-pull that varies by municipality. This proxy turns out to be a good instrument that should capture variation in migration opportunities unrelated to local political and economic factors. Using it as an instrumental variable for emigration rates, we find

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<sup>21</sup>Due to data availability we cannot use pre-2004 data and we estimate this specification at the commuting zone level (630 commuting zones) with 20 region-fixed effects.

three interesting results. First, larger emigration rates had a negative impact on indicators of political change such as the average age of local politicians, the share of highly educated and the share of women among them. Second, larger emigration rates also increase the probability of very negative local political outcomes, such as the dismissal of a city council. Finally, larger emigration rates reduced election turnout and also the vote share going to anti-establishment parties, and increased the vote share going to status quo parties. Interestingly, higher emigration rates also reduced firm creation and hence the intensity and dynamism of the local entrepreneurial class.

Taken together, these results suggest that by losing motivated, creative young talent to emigration may significantly reduce the potential for political change, civic engagement and economic dynamism in the sending country. While certainly emigration is just a symptom of economic problems, three interesting policy corollaries follow our analysis. First, the emigration rate from a municipality is an important indicator that may predict subsequent change and economic success. Local authorities should be aware of who the emigrants are and their characteristics, and encourage connections with them so as to channel back some of their dynamic potential. Some municipalities keep a line of communication with their citizens abroad, or local associations keep a census of who decides to emigrate and where the emigrants go. Facilitating communication and interactions may be one way of channelling back some of the human and political capital of the expatriates. Second, the possibility of attracting recent emigrants (who are more likely to return), by creating opportunities for their return, may not only bring back their brains, but also facilitate the political and institutional change needed to modernize their municipality of origin. The challenge would be to bring back these people in the local institutions making them part of the group pushing for renewal and not leaving them as outsiders in their local environment. There have been some initiatives to facilitate the “return of brains” (*ritorno dei cervelli*) in academia. Possibly a similar incentives to bring back brains in the local public administration and government would also serve the purpose of sparking political change. Finally, an interesting option to be considered is that of allowing emigrants to vote in the local elections of the sending municipality. This would allow people who are in favor of change to keep the “voice” option even when they elect to “exit” the system, thus counterbalancing status-quo forces in the presence of emigration. This policy would be feasible to implement since the AIRE registry of Italians resident abroad are maintained by each municipality and each emigrant is required to record his/her departure at the Italian municipality of last residency in Italy. Moreover Italian citizens abroad are already

allowed to vote in national and European elections, so they may (very easily) be also allowed to vote in the municipal elections. This change would have a very low cost and would be easily implemented. Local politicians may oppose such an idea on the grounds that local governments should represent local people, but the vote of people from abroad will subject local administration to stronger scrutiny and, likely, keep them more transparent. While this policy would be effective only if the main channel for emigration to influence local political change is through voting (and not through a direct impact on the local leadership) we think that the cost of implementing it is low enough that it is worth trying.

A final consideration is suggested by the interpretation of our results with an eye for history. Italy has been a country of very large emigration in the early decades of the 20th century. Emigrants, back then mainly came from the southern regions of Campania, Calabria and Sicilia, where as much as 20-30% of the population migrated. If the effect of limiting political change and slowing institutional improvements was also an outcome of the early emigration waves, this can contribute to explain why those regions are currently plagued by the most serious problems of government corruption, public inefficiency, public dishonesty and backwardness. The loss of human, political and social capital in the age of mass migration may have had long-run political consequences in the local institutions. Analyzing historical emigration data (possibly from the Ellis Island record) from southern Italy and the current quality of municipal institutions could be an interesting extension to this research project.

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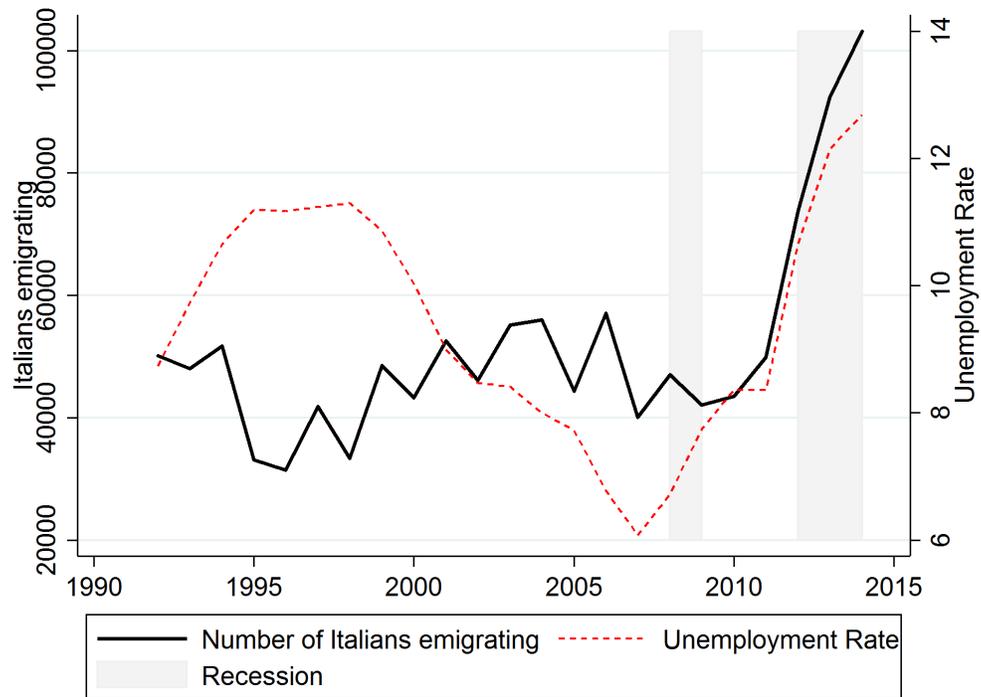
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# Figures

Figure 1: Number of Italian emigrants per year



**Sources:** Italian Ministry of Interior - AIRE for number of Italians emigrating and ISTAT for unemployment rate and economic recession timespan

Figure 2: Number of Italian emigrants per year by age category

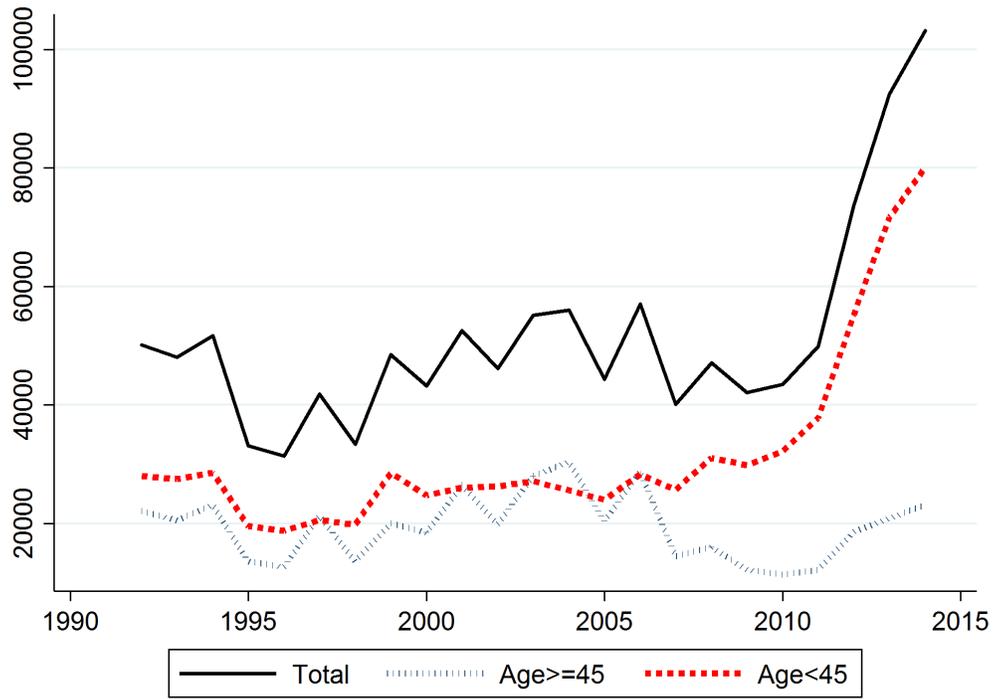


Figure 3: Number of Italian emigrants per year by destination

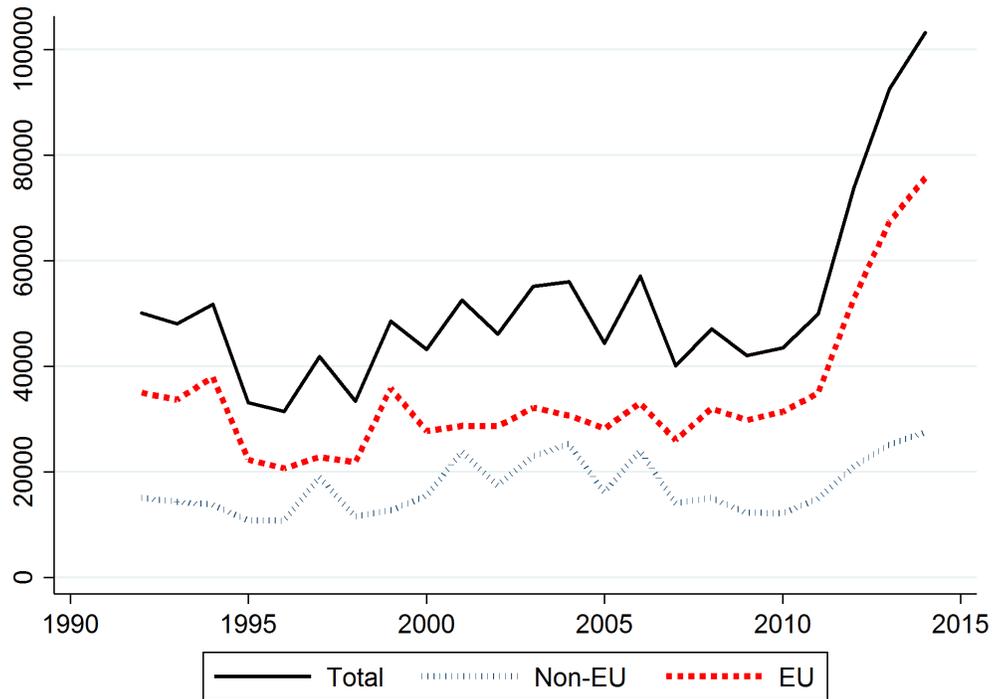


Figure 4: Number of Italian emigrants per year by origin

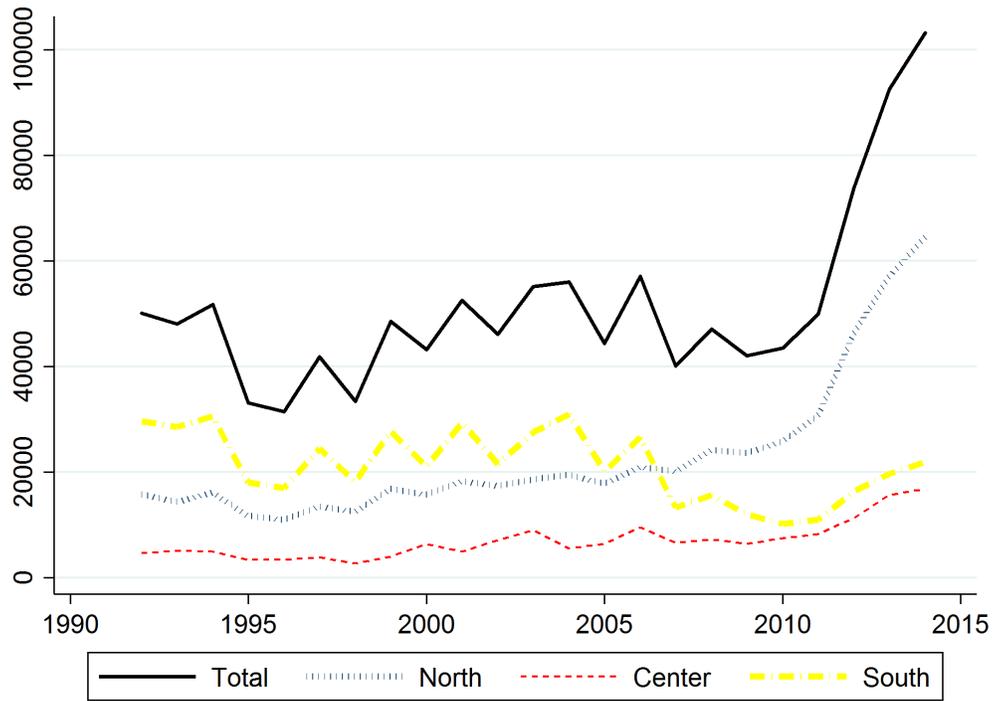
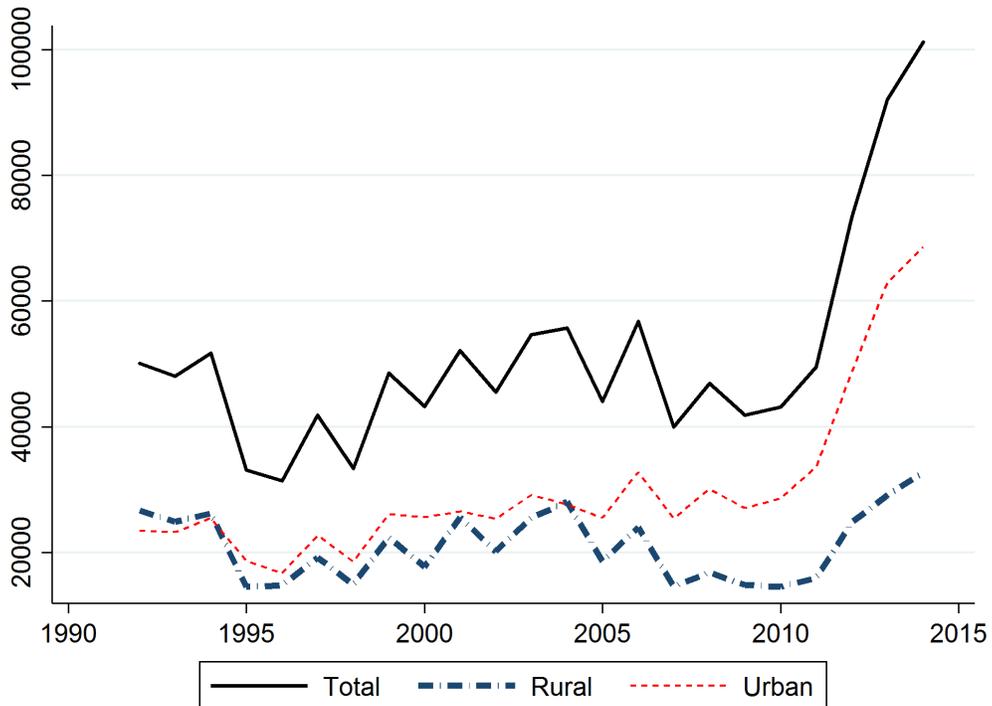
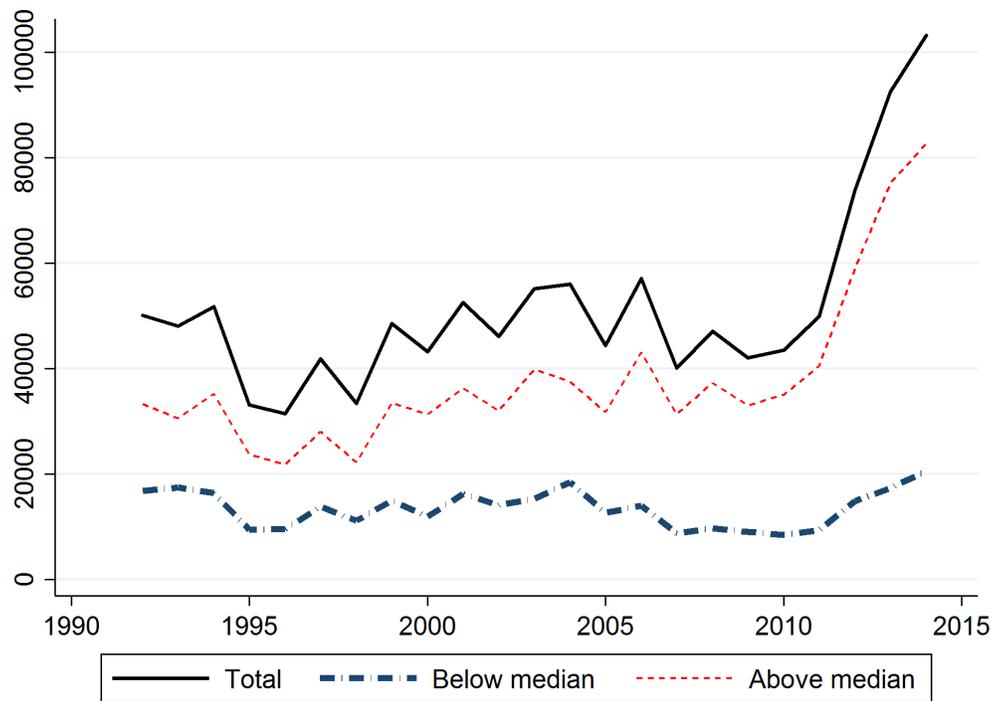


Figure 5: Number of Italian emigrants per year by urbanization



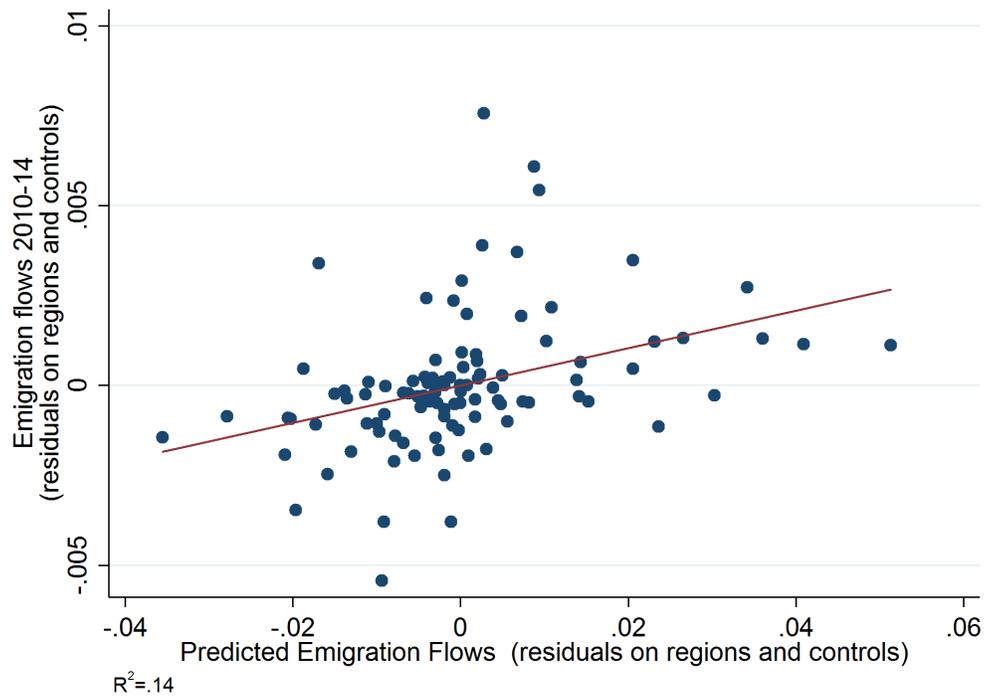
**Note:** We define municipalities with less than 10,000 inhabitants as “Rural” and those with more than 10,000 inhabitants as “Urban”

Figure 6: Number of Italian emigrants per year by intensity of human capital in municipality



**Note:** We use the population share of college graduates in each municipality as measure of human capital intensity. The median municipality share is 7%. The share was calculated by the authors on ISTAT - Census 2011 data

Figure 7: Correlation of observed emigration rates and rates predicted by instrumental variable



**Sample:** 109 Italian provinces

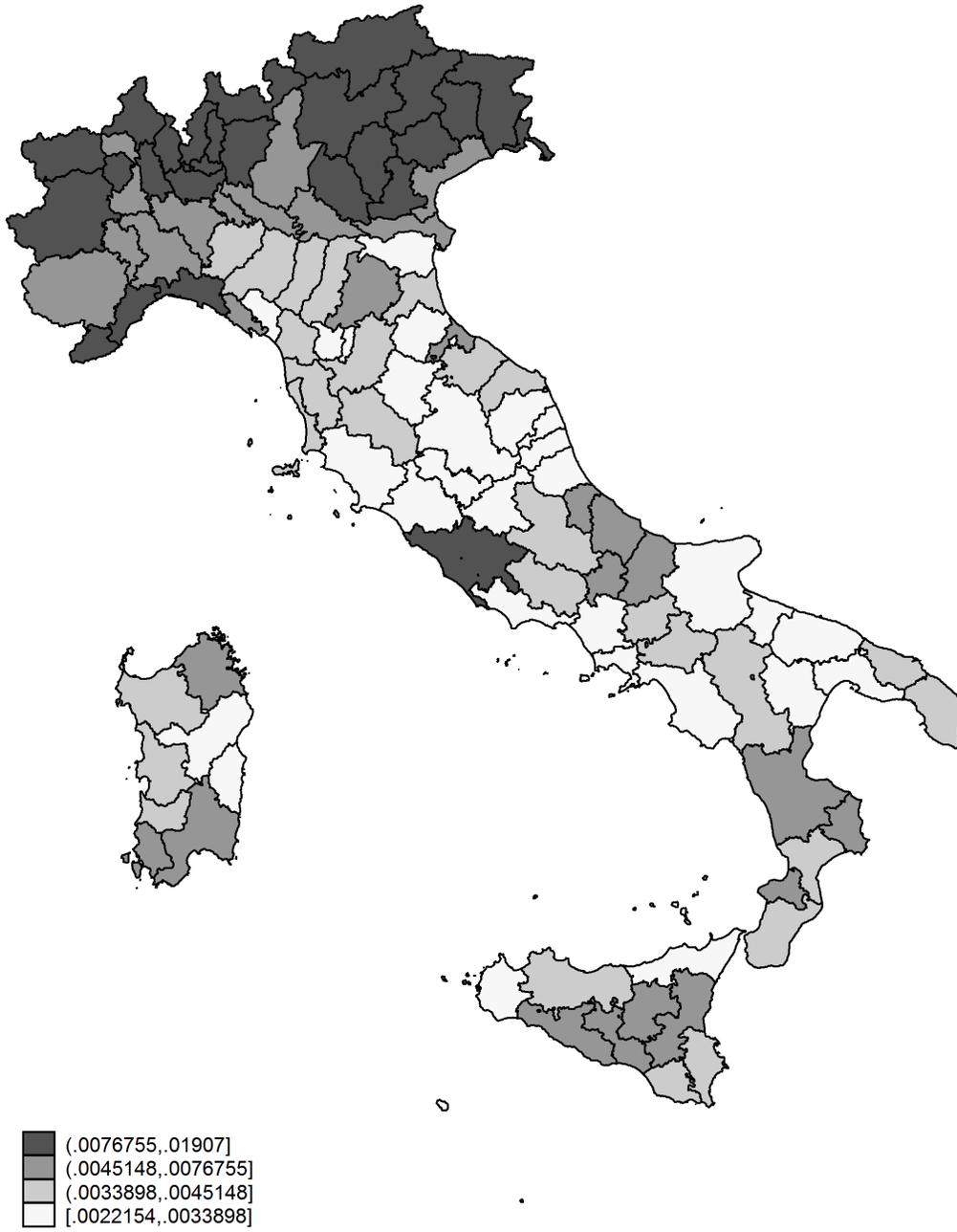
**Vertical axis:** observed emigration rates (cumulated number of emigrants from each municipality between 2010 and 2014 as share of the population in the year 2000) as residuals after regressing them on 20 region fixed effects and controls

**Horizontal axis:** emigration rates predicted by the instrumental variable in residuals after regressing them on 20 region fixed effects and controls

**Instrumental Variable:** Predicted emigration flows based on pre shock-network intensity of emigrants to country  $c$  in municipality  $i$  interacted with relative growth index for 2009-2013:  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** per capita added value in 100,000 euros and unemployment rate in 2004 at provincial level

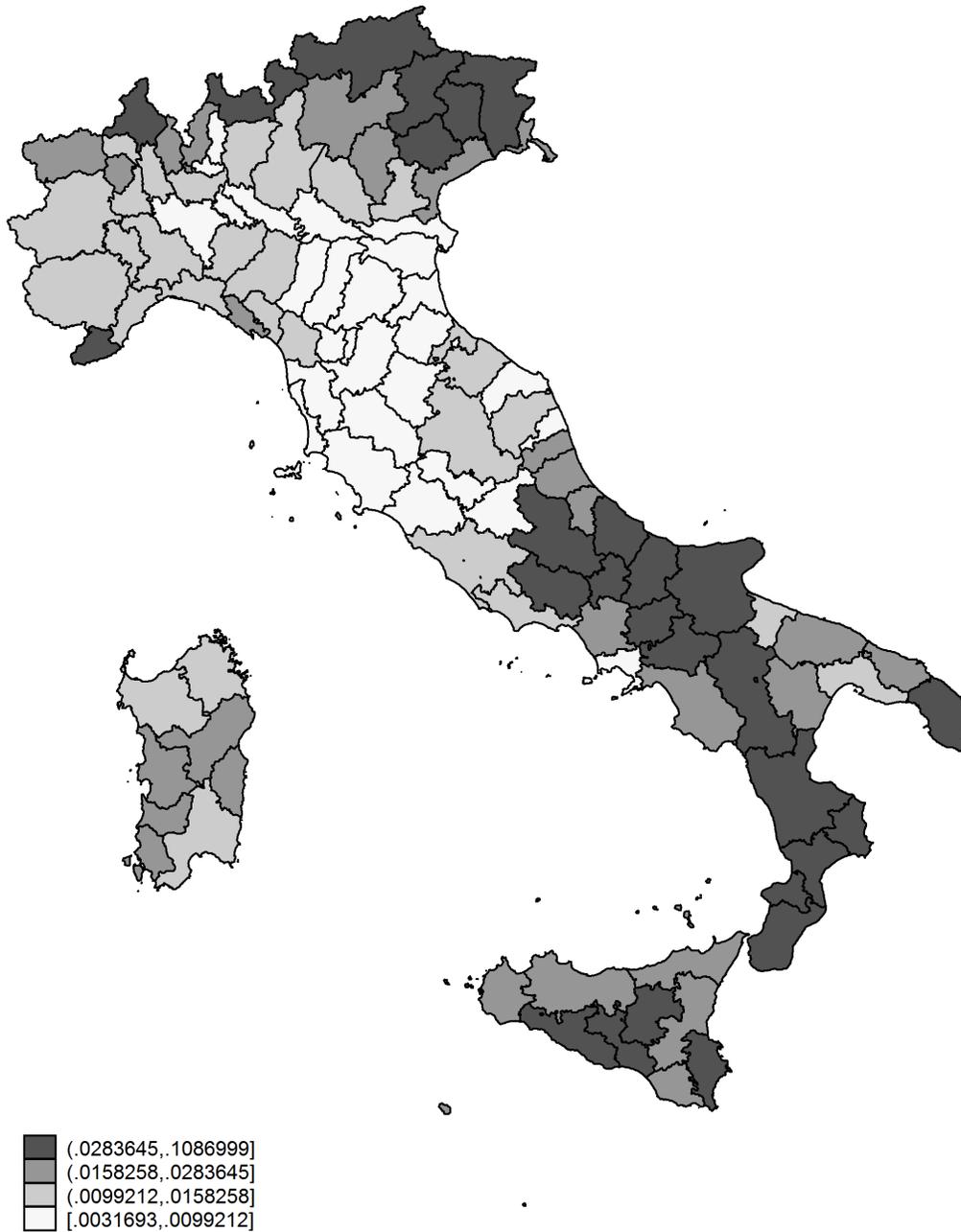
Figure 8: Emigration rates by province



**Sample:** 109 Italian provinces

**Emigration Rates:** cumulated number of emigrants from each municipality between 2010 and 2014 as share of the population in the year 2000

Figure 9: Emigration rates as predicted by the instrumental variable



**Sample:** 109 Italian provinces

**Instrumental Variable:** Predicted emigration flows based on pre shock-network intensity of emigrants to country  $c$  in municipality  $i$  in 2000 interacted with a relative growth index for 2009-2013:  $\Delta \widehat{m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

# Tables

Table 1: Summary statistics of emigrants

	Pre-Migration Wave 1992-2009	Migration Wave 2010-2014	Diff. (t-stat)
Female	0.435 (0.496)	0.409 (0.492)	-0.0259*** (-26.41)
Age at Emigration	43.17 (18.50)	34.74 (18.17)	-8.426*** (-231.37)
Share of 25-45 years old emigrants	0.437 (0.496)	0.547 (0.498)	0.109*** (110.42)
Annual emigration rate, northern Italy	0.374 (0.484)	0.618 (0.486)	0.243*** (251.64)
Annual emigration rate, central Italy	0.124 (0.329)	0.164 (0.370)	0.0405*** (56.69)
Annual emigration rate, southern Italy	0.502 (0.500)	0.218 (0.413)	-0.284*** (-322.68)
European Destination	0.642 (0.480)	0.722 (0.448)	0.0809*** (88.70)
Observations	821,820	362,866	

Table 2: Summary statistics of local politicians

	Averages by year			
	Pre-Migration		Post-Migration	
	2001	2006	2008	2014
Mayor's age	49.42 (9.365)	50.45 (9.598)	51.72 (9.567)	51.46 (10.60)
Mayor has college degree	0.408 (0.491)	0.428 (0.495)	0.429 (0.495)	0.467 (0.499)
Mayor is female	0.0691 (0.254)	0.0975 (0.297)	0.0992 (0.299)	0.135 (0.341)
Avg. Age in City Council	44.08 (4.010)	45.89 (4.069)	47.04 (4.179)	45.99 (4.748)
Share of college educated in City Council	0.222 (0.159)	0.254 (0.161)	0.258 (0.159)	0.321 (0.194)
Share of female in City Council	0.164 (0.106)	0.176 (0.110)	0.180 (0.109)	0.257 (0.138)
Avg. Age of City Commissioners	46.30 (6.389)	47.42 (5.988)	48.59 (6.078)	47.99 (7.211)
Share of college educated City Commissioners	0.290 (0.269)	0.296 (0.250)	0.300 (0.251)	0.384 (0.308)
Share of female City Commissioners	0.140 (0.186)	0.164 (0.179)	0.168 (0.178)	0.264 (0.221)
City Council is Dismissed	0.0800 (0.271)	0.0830 (0.276)	0.0729 (0.260)	0.0182 (0.134)
Observations	7948	7948	8011	8011

Table 3: Summary statistics of national electoral outcomes at municipal level

	2001	2006	2008	2013	Change 2001-2006	Change 2008-2013
Avg Turnout	0.730 (0.236)	0.810 (0.0632)	0.777 (0.0668)	0.714 (0.0801)	0.0800 (0.221)	-0.0630 (0.0459)
Avg Share for Democratic Party	0.280 (0.0977)	0.287 (0.102)	0.302 (0.102)	0.240 (0.0803)	0.0107 (0.0544)	-0.0627 (0.0591)
Avg Share for Freedom People	0.400 (0.100)	0.347 (0.0973)	0.356 (0.102)	0.242 (0.0805)	-0.0486 (0.0567)	-0.115 (0.0666)
Avg Share for 5 Stars Movement - M5S	0 (0)	0 (0)	0.00205 (0.00427)	0.238 (0.0709)	0 (0)	0.236 (0.0706)
Avg Share for Northern League	0.0623 (0.0782)	0.0669 (0.0720)	0.117 (0.129)	0.0601 (0.0740)	0.00458 (0.0312)	-0.0568 (0.0663)
Observations	7773	7782	7773	7773	7773	7773

Table 4: First stage regression of observed emigration rates on emigration rates as predicted by the instrumental variable

VARIABLES	(1) Municipality Variation	(2) Province Variation
Predicted Emigration shock	0.026*** (0.004)	0.052*** (0.012)
CZ-Add.V.P.Cap2004	0.002* (0.001)	
CZ-Unemp.Rate2004	0.013 (0.010)	
V.Add P.Cap*100K 2004		0.024** (0.010)
Unemp.Rate 2004		0.004 (0.011)
Constant	0.007*** (0.001)	0.002 (0.002)
Observations	7,095	103
R-squared	0.304	0.748
Province FEs	X	
F-excluded Instrument	45.230	19.384
Avg Emigration2010-14/pop2000	0.007	0.006
Region FEs		X

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Sample:** For columns 1-2 Italian municipalities, for columns 3-4 Italian provinces.

**Specification:** OLS, in Column 1 standard errors clustered at the provincial level (109 clusters), in Column 2 standard errors are robust, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Observed emigration flows (cumulated number of emigrants from each municipality between 2010 and 2014) computed using AIRE registry enrollment as share of population in 2000.

**Indipendent Variables:** Emigration shock as predicted by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** For specification 1 per capita added value in 100,000 euros and unemployment rate in 2004 at commuting zone level. For specifications 2 per capita added value in 100,000 euros and unemployment rate in 2004 at provincial level

**Fixed Effects:** For spec. 1 we include 105 province fixed effects, for specifications 2 we include 20 region fixed effects

Table 5: Effect of emigration rates on the age and on the college-share of local politicians

VARIABLES	(1) Mayor Age Change 08-14	(2) City Commis- sioners Avg. Age Change 08-14	(3) City Council Avg Age Change 08-14	(4) Mayor's Degree Change 08-14	(5) Mayor's College Upgrade 2014	(6) City Commis- sioners %College Degree Change 08-14	(7) City Council %College Degree Change 08-14
Emigration 2014-2010	3.021*** (1.077)	1.108 (0.988)	0.514 (0.489)	0.023 (0.057)	0.022 (0.045)	0.012 (0.041)	-0.028* (0.016)
CZ-Add.V.P.Cap2004	-1.328 (1.108)	-0.586 (0.758)	-0.663 (0.459)	-0.022 (0.029)	-0.014 (0.028)	0.015 (0.020)	0.036 (0.022)
CZ-Unemp.Rate 2004	6.681 (13.878)	-10.024 (8.331)	-3.218 (3.928)	-0.969* (0.543)	-0.403 (0.447)	-0.296 (0.343)	-0.057 (0.145)
Constant	-2.833** (1.248)	-0.917 (0.922)	-2.076*** (0.434)	0.118** (0.054)	0.259*** (0.043)	0.096** (0.039)	0.084*** (0.015)
Observations	6,683	6,809	6,816	6,287	6,287	6,758	6,810
Province FEs	X	X	X	X	X	X	X
Avg Age in 2008	51.759	51.750	51.745				
Avg College in 2008				0.450	0.450	0.315	0.271

**Sample:** Italian municipalities.

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (109 clusters), \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Column 1 the change between 2008 and 2014 in the age of mayor. Column 2 the change in the average age of city commissioners and Column 3 the change in the average age of city council members. Column 4 the change between 2008 and 2014 in the college education of the mayor, Column 5 a dummy equal 1 if mayor had college degree in 2014 but had no college degree in 2008, Column 6 the change in the average share of city commissioners with college degree and Column 7 the change in the average share of city council members with college degree.

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 and multiplied by 100, instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Per capita added value in 100,000 euros and unemployment rate in 2004 at commuting zone level

**Fixed Effects:** 109 province fixed effects

Table 6: Effect of emigration rates on gender of local politicians and municipal council dismissal

VARIABLES	(1) Mayor Female Change 08-14	(2) Mayor Female Upgrade 2014	(3) City Commis- sioners %Female Change 08-14	(4) City Council %Female Change 08-14	(5) Municipal Council Dismissal Status Change 08-14	(6) Municipal Council Dismissal Status Ended in 2014
Emigration 2014-2010	-0.018 (0.024)	-0.057** (0.023)	-0.047 (0.033)	-0.029* (0.017)	0.060** (0.027)	-0.084*** (0.026)
CZ-Add.V.P.Cap2004	-0.001 (0.050)	0.033 (0.035)	0.055** (0.023)	0.035* (0.020)	-0.060*** (0.019)	0.063*** (0.021)
CZ-Unemp.Rate 2004	-0.002 (0.324)	0.018 (0.224)	0.268 (0.283)	-0.321* (0.190)	-0.712* (0.375)	0.944*** (0.339)
Constant	0.094*** (0.029)	0.217*** (0.024)	0.151*** (0.033)	0.112*** (0.017)	-0.049* (0.029)	0.060** (0.029)
Observations	6,738	6,738	6,818	6,825	7,041	7,041
Province FEs	X	X	X	X	X	X
Avg Female in 2008	0.097	0.097	0.168	0.177		
Share Dismissed=1 in 2008					0.079	0.079

**Sample:** Italian municipalities

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (109 clusters), \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Column 1 the change between 2008 and 2014 in the dummy female of the mayor (+1 if mayor was male in 2008 and is female in 2014, -1 if mayor was female in 2008 and is male in 2014, 0 if the gender of mayor did not change in this time span), Column 2 a dummy equal 1 if mayor if mayor was female in 2014 but was male in 2008, Column 3 the change in the average share of female city commissioners and Column 4 the change in the average share of female city council members. Columns 5, change between 2008 and 2014 in the dummy for city council dismissed (+1 if council is in dismissal status in 2014 and was not in dismissal status in 2008, -1 if council was in dismissal status in 2008 and is not in dismissal status in 2014, 0 if the dismissal status of the city council did not change in this time span). In Column 6 a dummy equal to 1 if council was in dismissal status in 2008, but it is no more dismissed in 2014.

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 and multiplied by 100, instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Per capita added value in 100,000 euros and unemployment rate in 2004 at commuting zone level

**Fixed Effects:** 109 province fixed effects

Table 7: Effect of emigration rates on national electoral outcomes

VARIABLES	(1) Turnout Rate Change 08-13	(2) Democratic Party Share Change 08-13	(3) Freedom People Share Change 08-13	(4) 5 Stars Movement Share Change 08-13	(5) Northern League Share Change 08-13
Emigration 2014-2010	-0.040*** (0.008)	0.029*** (0.008)	0.056*** (0.012)	-0.090*** (0.012)	0.008*** (0.003)
CZ-Add.V.P.Cap2004	0.039*** (0.006)	-0.029*** (0.006)	-0.059*** (0.013)	0.041*** (0.010)	0.003 (0.003)
CZ-Unemp.Rate 2004	-0.031 (0.068)	-0.089 (0.060)	-0.168 (0.105)	0.453*** (0.089)	0.011 (0.018)
Dep.Var. Level in 2006	0.001 (0.039)	-0.161*** (0.022)	-0.200*** (0.043)		-0.459*** (0.061)
Constant	0.010 (0.034)	-0.052*** (0.009)	-0.082*** (0.016)	0.325*** (0.011)	-0.043*** (0.003)
Observations	6,865	6,885	6,885	6,885	6,885
R-squared	0.280	0.648	0.461	0.493	0.938
Province FEs	X	X	X	X	X
Dependent Variable Level in 2006	0.810	0.292	0.351	0.000	0.064

**Sample:** Italian municipalities.

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (109 clusters), regression is weighted by population size of each municipality, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variables:** In Column 1 change in turnout rates for national parliamentary elections at municipal level between 2008 and 2013, in Col. 2 change in vote shares of Democratic Party (Partito Democratico), in Col. 3 change in vote shares of Freedom Party (Popolo Delle Libertá), in Col. 4 change in vote shares of the 5 Stars Movement (Movimento 5 Stelle) and in Col. 5 change in vote shares of Northern League (Lega Nord),

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 and multiplied by 100, instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Per capita added value in 100,000 euros, unemployment rate in 2004 at commuting zone level and the level of each dependent variable in the pre-shock election of 2006

**Fixed Effects:** 109 province fixed effects

Table 8: Effect of emigration rates on stock of firms

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All Firms	Corporations	Multi-Individual Firms	Individual Firms	High Value Added All Firms	High Value Added Corporations	High Value Added Multi-Individual Firms	High Value Added Individual Firms
Emigration 2014-2010	-1.676** (0.682)	-0.086 (0.126)	-0.061 (0.118)	-1.513** (0.594)	-0.306* (0.167)	-0.093 (0.073)	-0.041 (0.040)	-0.144* (0.076)
V.Add P.Cap*100K 2004	0.051 (0.038)	0.021* (0.011)	-0.011 (0.007)	0.042* (0.025)	0.038*** (0.013)	0.029*** (0.007)	-0.001 (0.003)	0.010** (0.004)
Unemp.Rate 2004	0.010 (0.024)	-0.008 (0.005)	-0.005 (0.004)	0.026 (0.023)	0.002 (0.006)	0.004 (0.003)	-0.002 (0.002)	0.001 (0.003)
Constant	-0.003 (0.012)	-0.002 (0.003)	0.002 (0.002)	-0.004 (0.008)	-0.005 (0.003)	-0.005*** (0.002)	0.000 (0.001)	-0.000 (0.001)
Observations	103	103	103	103	103	103	103	103
R-squared	0.142	0.431	0.333	0.087	0.235	0.522	0.235	0.058
Region FEs	X	X	X	X	X	X	X	X
Avg.Stock/Pop. in 2000	0.093	0.008	0.016	0.067	4.8e+04	4.8e+04	4.8e+04	4.8e+04

**Sample:** All Italian Provinces.

**Specification:** 2-stage-least-squares IV, robust standard errors, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** In all columns the dependent variable is the change in the stock of a specific type of firm measured as average stock in the province in 2012-2014 minus average stock in 2006-2008, divided by the provincial population size in 2000. In Columns 1,5 we look at all types of firms, in Columns 2,6 we focus on corporations (“Società di Capitali”), Columns 3,7 multi-person owned firms (“Società di Persone”) and Columns 4,8 individual-owned firms (“Imprese Individuali”). Columns 5-8 replicate 1-4 for high value added firms only

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 multiplied by 100 and instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m_i} = \sum_c sh_{i,c,2000} * \frac{(GDP_{i,c}^{2013}/GDP_{i,c}^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Per capita added value in 100,000 euros and unemployment rate in 2004 at provincial level, 20 region fixed effects

Table 9: Effect of emigration rates on newly-created and shut-down firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All Firms	All Firms	Corporations	Corporations	Multi-Individual Firms	Multi-Individual Firms	Individual Firms	Individual Firms
VARIABLES	Created	Shut Down	Created	Shut Down	Created	Shut Down	Created	Shut Down
Emigration 2014-2010	-1.248** (0.577)	0.191 (0.729)	-0.210 (0.188)	0.020 (0.139)	-0.152** (0.069)	-0.156 (0.110)	-0.821** (0.362)	0.375 (0.584)
V.Add P.Cap*100K 2004	0.093*** (0.031)	0.013 (0.034)	0.057*** (0.010)	0.037*** (0.008)	0.005 (0.003)	0.013** (0.007)	0.027 (0.021)	-0.041 (0.026)
Unemp.Rate 2004	0.010 (0.035)	-0.004 (0.039)	0.007 (0.009)	0.011 (0.007)	-0.000 (0.004)	0.009 (0.007)	0.002 (0.024)	-0.027 (0.031)
Constant	0.022*** (0.007)	0.034*** (0.008)	-0.008*** (0.002)	-0.006*** (0.002)	0.004*** (0.001)	0.004*** (0.002)	0.024*** (0.005)	0.036*** (0.006)
Observations	103	103	103	103	103	103	103	103
R-squared	0.350	0.331	0.610	0.678	0.541	0.561	0.300	0.290
Region FEs	X	X	X	X	X	X	X	X
Avg.Stock/Pop. in 2000	0.093	0.093	0.008	0.008	0.016	0.016	0.067	0.067

**Sample:** All Italian Provinces.

**Specification:** 2-stage-least-squares IV, robust standard errors, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Cumulated flow of newly-registered firms (Columns 1,3,5,7) in the province between 2010-2014 and of shut down firms (Columns 2,4,6,8), divided by the provincial population size in 2000. In Columns 1,2 we look at all types of firms, in Columns 3,4 we focus on corporations (“Società di Capitali”), in Columns 5,6 on multi-person owned firms (“Società di Persone”) and in Columns 7,8 on individual-owned firms (“Imprese Individuali”).

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 multiplied by 100 and instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Per capita added value in 100,000 euros and unemployment rate in 2004 at provincial level, 20 region fixed effects

Table 10: Effect of emigration rates on characteristics of local politicians - Only municipalities in Northern Italy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	Mayor Age Change 08-14	City Commis- sioners Avg. Age Change 08-14	City Council Avg Age Change 08-14	Mayor College Degree Change 08-14	City Commis- sioners %College Degree Change 08-14	Council %Coll Change 08-14	Mayor Female Change 08-14	City Commis- sioners %Female Change 08-14	City Council %Female Change 08-14
Emigration 2014-2010	3.660** (1.543)	3.307* (1.805)	1.292 (0.926)	-0.072 (0.094)	-0.078 (0.057)	-0.038* (0.020)	-0.030 (0.045)	-0.028 (0.033)	-0.071*** (0.025)
CZ-Add.V.P.Cap2004	-1.146 (1.501)	-0.657 (1.251)	-1.288*** (0.426)	0.024 (0.042)	0.048** (0.023)	0.067*** (0.017)	-0.021 (0.055)	0.051* (0.026)	0.056** (0.022)
CZ-Unemp.Rate 2004	13.891 (54.064)	-6.760 (36.512)	6.867 (18.775)	-1.697 (2.234)	-0.537 (0.845)	-0.653** (0.316)	-1.163 (1.404)	0.998 (0.700)	0.333 (0.435)
Constant	-3.810 (3.088)	-3.011 (2.269)	-3.204*** (1.096)	0.234* (0.121)	0.183*** (0.057)	0.120*** (0.023)	0.170** (0.080)	0.096** (0.038)	0.110*** (0.027)
Observations	3,682	3,722	3,720	3,457	3,694	3,718	3,680	3,723	3,721
Province FEs	X	X	X	X	X	X	X	X	X
Avg Age in 2008	52.538	52.519	52.518						
Avg College in 2008				0.370	0.285	0.242			
Avg Female in 2008							0.123	0.193	0.203

**Sample:** Italian municipalities in Northern Italy.

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (47 clusters), \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Column 1 the change between 2008 and 2014 in the age of mayor, Column 2 the change in the average age of city commissioners and Column 3 the change in the average age of city council members, Column 4 the change in the college education of the mayor, Column 5 the change in the average share of city commissioners with college degree, Column 6 the change in the average share of city council members with college degree, Column 7 the change in the dummy female of the mayor (+1 if mayor was male in 2008 and is female in 2014, -1 if mayor was female in 2008 and is male in 2014, 0 if the gender of mayor did not change in this time span), Column 8 the change in the average share of female city commissioners and Column 9 the change in the average share of female city council members

**Indipendent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 and multiplied by 100, instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Per capita added value in 100,000 euros and unemployment rate in 2004 at commuting zone level

**Fixed Effects:** 47 province fixed effects

Table 11: Effect of emigration rates on characteristics of local politicians - Including human capital controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		City	City	Mayor	City	City		City	City
	Mayor	Commis-	City	Mayor	Commis-	City	Mayor	Commis-	City
	Age	sioners	Council	College	sioners	Council	Female	sioners	Council
	Change	Avg. Age	Avg Age	Degree	%College	%College	Change	%Female	%Female
VARIABLES	Change	Change	Change	Change	Change	Change	Change	Change	Change
	08-14	08-14	08-14	08-14	08-14	08-14	08-14	08-14	08-14
Emigration 2014-2010	2.439** (0.971)	0.913 (0.892)	0.463 (0.455)	0.022 (0.052)	0.013 (0.037)	-0.026* (0.015)	-0.024 (0.021)	-0.037 (0.029)	-0.023 (0.014)
Pop.Sh. w/ Coll.Deg.	-18.130*** (6.939)	-5.960 (4.406)	-1.538 (2.981)	-0.037 (0.337)	0.017 (0.171)	0.071 (0.081)	-0.182 (0.193)	0.293** (0.124)	0.173** (0.084)
CZ-Add.V.P.Cap2004	-0.706 (1.060)	-0.380 (0.732)	-0.610 (0.476)	-0.021 (0.028)	0.014 (0.018)	0.033 (0.023)	0.005 (0.051)	0.045** (0.022)	0.029 (0.020)
CZ-Unemp.Rate 2004	6.279 (13.895)	-10.175 (8.359)	-3.252 (3.947)	-0.970* (0.543)	-0.295 (0.344)	-0.055 (0.146)	-0.006 (0.323)	0.275 (0.278)	-0.318* (0.188)
Constant	-0.953 (1.152)	-0.296 (0.779)	-1.916*** (0.441)	0.122** (0.048)	0.094*** (0.032)	0.077*** (0.013)	0.113*** (0.027)	0.121*** (0.027)	0.094*** (0.013)
Observations	6,683	6,809	6,816	6,287	6,758	6,810	6,738	6,818	6,825
Province FEs	X	X	X	X	X	X	X	X	X
Avg Age in 2008	51.759	51.750	51.745						
Avg College in 2008				0.450	0.315	0.271			
Avg Female in 2008							0.097	0.168	0.177

**Sample:** Italian municipalities.

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (109 clusters), \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Column 1 the change between 2008 and 2014 in the age of mayor, Column 2 the change in the average age of city commissioners and Column 3 the change in the average age of city council members, Column 4 the change in the college education of the mayor, Column 5 the change in the average share of city commissioners with college degree, Column 6 the change in the average share of city council members with college degree, Column 7 the change in the dummy female of the mayor (+1 if mayor was male in 2008 and is female in 2014, -1 if mayor was female in 2008 and is male in 2014, 0 if the gender of mayor did not change in this time span), Column 8 the change in the average share of female city commissioners and Column 9 the change in the average share of female city council members

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 and multiplied by 100, instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Share of municipal population with college education from the 2011 census. Per capita added value in 100,000 euros and unemployment rate in 2004 at commuting zone level

**Fixed Effects:** 109 province fixed effects

Table 12: Effect of emigration rates on characteristics of local politicians - Only municipalities with low human capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Mayor	City	City	Mayor	City	City	Mayor	City	City
	Age	Commissioners	Council	College	Commissioners	Council	Female	Commissioners	Council
	Change	Avg. Age	Avg Age	Degree	%College	%College	Change	%Female	%Female
VARIABLES	08-14	08-14	08-14	08-14	08-14	08-14	08-14	08-14	08-14
Emigration 2014-2010	4.061** (1.848)	1.775 (1.307)	0.803 (0.817)	0.002 (0.077)	0.018 (0.050)	-0.050** (0.023)	-0.052 (0.039)	-0.079** (0.037)	-0.056*** (0.020)
Pop.Sh. w/ Coll.Deg.	-21.645 (22.197)	-12.337 (14.059)	-10.535 (9.145)	-0.529 (1.030)	0.396 (0.555)	0.653* (0.347)	-0.088 (0.663)	-0.035 (0.475)	0.337 (0.240)
CZ-Add.V.P.Cap2004	-5.337*** (1.676)	-3.867*** (1.184)	-1.084 (0.896)	0.234*** (0.083)	0.089*** (0.029)	0.007 (0.033)	-0.029 (0.079)	0.102** (0.041)	0.025 (0.033)
CZ-Unemp.Rate 2004	13.568 (23.279)	-10.005 (14.442)	-10.968** (5.465)	0.573 (0.808)	0.381 (0.433)	-0.135 (0.172)	0.495 (0.339)	0.406 (0.306)	-0.145 (0.230)
Constant	-2.997 (2.231)	-0.693 (1.537)	-1.457 (0.988)	0.071 (0.088)	0.040 (0.057)	0.057* (0.031)	0.101* (0.057)	0.152*** (0.049)	0.093*** (0.024)
Observations	3,198	3,260	3,265	3,022	3,238	3,264	3,232	3,267	3,272
Province FEs	X	X	X	X	X	X	X	X	X
Avg Age in 2008	51.316	51.306	51.303						
Avg College in 2008				0.399	0.261	0.220			
Avg Female in 2008							0.091	0.165	0.181

**Sample:** Italian municipalities with population share of college graduates below the national median.

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (109 clusters), \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Column 1 the change between 2008 and 2014 in the age of mayor, Column 2 the change in the average age of city commissioners and Column 3 the change in the average age of city council members, Column 4 the change in the college education of the mayor, Column 5 the change in the average share of city commissioners with college degree, Column 6 the change in the average share of city council members with college degree, Column 7 the change in the dummy female of the mayor (+1 if mayor was male in 2008 and is female in 2014, -1 if mayor was female in 2008 and is male in 2014, 0 if the gender of mayor did not change in this time span), Column 8 the change in the average share of female city commissioners and Column 9 the change in the average share of female city council members

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 and multiplied by 100, instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Share of municipal population with college education from the 2011 census. Per capita added value in 100,000 euros and unemployment rate in 2004 at commuting zone level

**Fixed Effects:** 109 province fixed effects

Table 13: Effect of emigration rates on characteristics of local politicians - Controlling for immigration rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Mayor	City	City	Mayor	City	Council	Mayor	City	City
	Age	Commis-	Council	College	Commis-	%Coll	Female	Commis-	Council
	Change	sioners	Avg Age	Degree	sioners	Change	Change	sioners	%Female
VARIABLES	08-14	Avg. Age	Change	Change	%College	08-14	08-14	%Female	Change
	08-14	Change	08-14	08-14	Degree	08-14	08-14	Change	08-14
Emigration 2010-2014	2.944*** (1.063)	1.076 (0.989)	0.458 (0.478)	0.027 (0.058)	0.004 (0.040)	-0.027* (0.016)	-0.015 (0.023)	-0.037 (0.031)	-0.028* (0.017)
Immigration 2010-2014	-15.127 (11.180)	-6.942 (7.708)	-0.613 (4.032)	-0.545 (0.546)	-0.185 (0.339)	0.041 (0.145)	-0.235 (0.379)	0.209 (0.281)	0.072 (0.138)
CZ-Add.V.P.Cap2004	-1.352 (1.257)	-0.601 (0.863)	-0.486 (0.492)	-0.011 (0.029)	0.011 (0.022)	0.022 (0.024)	-0.007 (0.057)	0.061*** (0.023)	0.037 (0.023)
CZ-Unemp.Rate 2004	8.641 (13.650)	-8.968 (8.272)	-3.170 (3.901)	-0.966* (0.547)	-0.329 (0.340)	-0.065 (0.142)	0.027 (0.325)	0.236 (0.278)	-0.321* (0.190)
Constant	-2.776** (1.237)	-0.901 (0.935)	-2.054*** (0.428)	0.116** (0.054)	0.107*** (0.038)	0.085*** (0.014)	0.092*** (0.030)	0.142*** (0.032)	0.110*** (0.017)
Observations	6,558	6,682	6,689	6,171	6,631	6,683	6,611	6,691	6,698
Province FEs	X	X	X	X	X	X	X	X	X
Avg Age in 2008	51.790	51.780	51.775						
Avg College in 2008				0.450	0.314	0.270			
Avg Female in 2008							0.097	0.168	0.176

**Sample:** Italian municipalities.

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (107 clusters), \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Column 1 the change between 2008 and 2014 in the age of mayor, Column 2 the change in the average age of city commissioners and Column 3 the change in the average age of city council members, Column 4 the change in the college education of the mayor, Column 5 the change in the average share of city commissioners with college degree, Column 6 the change in the average share of city council members with college degree, Column 7 the change in the dummy female of the mayor (+1 if mayor was male in 2008 and is female in 2014, -1 if mayor was female in 2008 and is male in 2014, 0 if the gender of mayor did not change in this time span), Column 8 the change in the average share of female city commissioners and Column 9 the change in the average share of female city council members

**Independent Variables:** Emigration flows computed using AIRE registry enrollment as share of population in 2000 and multiplied by 100, instrumented by our instrumental variable of pre shock-network intensity to country  $c$ :  $\widehat{\Delta m}_i = \sum_c sh_{i,c,2000} * \frac{(GDP_c^{2013}/GDP_c^{2009})}{(GDP_{Ita}^{2013}/GDP_{Ita}^{2009})}$

**Control variables:** Immigration flows between 2010 and 2014 as share of population in 2000. Per capita added value in 100,000 euros and unemployment rate in 2004 at commuting zone level

**Fixed Effects:** 107 province fixed effects

Table 14: Instrument validity test - Effect of emigration rates on pre-shock characteristics of local politicians

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	Mayor Age Change 01-06	City Commis- sioners Avg Age Change 01-06	City Council Avg Age Change 01-06	Mayor College Degree Change 01-06	City Commis- sioners %Coll Change 01-06	City Council %College Degree Change 01-06	Mayor Female Change 01-06	City Commis- sioners %Female Change 01-06	City Council %Female Change 01-06
Emigration IV	-1.700 (2.319)	-0.006 (2.013)	0.141 (0.856)	-0.098 (0.132)	-0.009 (0.059)	-0.032 (0.034)	0.046 (0.067)	0.052 (0.048)	0.005 (0.034)
Constant	0.498*** (0.028)	1.055*** (0.024)	1.908*** (0.010)	0.055*** (0.002)	0.028*** (0.001)	0.029*** (0.000)	0.069*** (0.001)	0.027*** (0.001)	0.022*** (0.000)
Observations	6,710	6,805	6,806	6,468	6,789	6,791	6,729	6,815	6,816
Province FEs	X	X	X	X	X	X	X	X	X
Avg Age in 2001	49.318	49.312	49.311						
Avg College in 2001				0.426	0.303	0.234			
Avg Female in 2001							0.068	0.141	0.161

**Sample:** Italian municipalities

**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (110 clusters), \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Dependent variable:** Column 1 the change between 2001 and 2006 in the age of mayor, Column 2 the change in the average age of city commissioners and Column 3 the change in the average age of city council members, Column 4 the change in the college education of the mayor, Column 5 the change in the average share of city commissioners with college degree, Column 6 the change in the average share of city council members with college degree, Column 7 the change in the dummy female of the mayor (+1 if mayor was male in 2001 and is female in 2006, -1 if mayor was female in 2001 and is male in 2006, 0 if the gender of mayor did not change in this time span), Column 8 the change in the average share of female city commissioners and Column 9 the change in the average share of female city council members

**Independent Variables:** Emigration Instrumental Variable.

**Fixed Effects:** 110 province fixed effects

Table 15: Instrument validity test - Effect of emigration rates on pre-shock electoral outcomes and other pre-shock variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Democratic Party Share Change 01-06	Freedom People Share Change 01-06	Northern League Share Change 01-06	City Council Dismissed Change 01-06	Unemp Rate Change 04-07	Individual Firms Change 00-06	High Value Added Individual Firms Change 00-06
Emigration IV	0.025 (0.026)	0.035 (0.021)	-0.006 (0.012)	-0.048 (0.112)	0.003 (0.022)	-0.014 (0.020)	-0.001 (0.002)
Constant	0.006*** (0.000)	-0.073*** (0.000)	-0.004*** (0.000)	0.052*** (0.001)	-0.007*** (0.001)	0.000 (0.000)	0.001*** (0.000)
Observations	6,885	6,885	6,885	7,026	630	103	103
R-squared	0.225	0.287	0.473	0.020	0.359	0.007	0.001
Province FEs	X	X	X	X			
Region FEs					X	X	X
Dependent Variable Level in 2001	0.282	0.400	0.059	0.085			
Dependent Variable Level in 2004					0.092		
Avg.Stock/Pop. in 2000						0.067	0.007

**Sample:** Italian municipalities in Columns 1-4, local labor market areas in Col. 5 and Italian provinces in Columns 6,7  
**Specification:** 2-stage-least-squares IV, standard errors clustered at the provincial level (109 clusters) in Col. 1-4 and robust standard errors in Col. 5-7, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Dependent variables:** In Column 1 change in vote shares of Democratic Party (Partito Democratico) in national parliamentary elections at municipal level between 2001 and 2006, in Col. 2 change in change in vote shares of Freedom Party (Popolo Delle Libertá), in Col. 3 change in vote shares of Northern League (Lega Nord), in Col. 4 change in the probability that the City Council is dismissed due to a negative event and in Col. 5 change in the unemployment rate at the local labor market level between 2004 and 2007, in Col 6 change in the stock of individually-owned firms (“Imprese Individuali”) between 2000 and 2006, in Col 7 change in the stock of high-value-added-individually-owned firms (“Imprese Individuali”) between 2000 and 2006

**Indipendent Variables:** Emigration Instrumental Variable.

**Fixed Effects:** in Col. 1-4 109 province fixed effects, in Col. 5-7 20 region fixed effects

## Appendix A - Data

The data used in this study come from several different sources: the complete Registry of Italians Residing Abroad (AIRE), the Registry of Local Politicians, the Historical Archive of Italian Elections, the “Movimprese” registry of firms registered in all Italian Chambers of Commerce, the International Financial Statistics (IFS) dataset by the International Monetary Fund, the “Atlante Statistico dei Comuni” and the 2011 Housing Population Census by the Italian National Institute of Statistics (ISTAT).

The first three pieces of data are maintained by the Ministry of Interior and allowed us to construct our measures of emigration, local political selection and political outcomes at municipal level (there are more than 8000 municipalities in Italy). The “Movimprese” registry of firms was used for calculating the stocks, creation and destruction rates of firms at provincial level (there are more than 100 provinces in Italy). We used also the IMF-IFS dataset to construct the “shock” component of the instrumental variable and multiple ISTAT dataset to reconstruct control variables such as local added value per capita, unemployment and share of college educated.

### A1 The Registry of Italians Residing Abroad (AIRE) data

We used an original dataset provided by the Italian Ministry of Interior containing the complete administrative information on Italian citizens resident abroad (more than 6 million records are present in the dataset we have obtained). We focus on the subset of Italian citizens who reside in a foreign country individuals enrolled in these registry as permanently migrated to a foreign country starting from 1992. We are thus excluding from the analysis the foreign-born who registered because of citizenship acquisition “Ius Sanguinis” and those who registered in the first two years of implementation of the AIRE Registry (migrated in the previous decades and registered in bulk in the first year the Registry was started up). In theory, the dataset should collect information on all emigrants, but in practice registration with AIRE can not be perfectly enforced. This problem is very residual, since the incentives that emigrants have to register with AIRE. Registration, in fact, implies exemption from paying income tax on wages earned abroad, the right to vote from abroad for national elections and access to consulate services, such as passport services, civil statistics services (marriage, births and death registrations) which are subject to enrollment in AIRE.

The AIRE registry contains several information such as the municipality of origin of migrants, the country of current residence and the year of registration, the date of registration, the reason for enrolling in the registry, place of birth as well as several demographic variables such as age. We are thus able to identify Italian born citizens who enrolled in the AIRE registry because of “expatriation” (this is our definition of Emigrant).

### A2 The Registry of Local Politicians

Data on local politicians come from the Census of all individuals elected in the political institutions of all Italian Municipalities (“Anagrafe degli Amministratori Comunali”) maintained by the Italian Ministry of Interior. These registry contains yearly records of all municipal administrators, including their function within the municipal council and several demographic indicators. The Italian municipal councils are composed by a mayor (“Sindaco”), an executive commission (“Giunta”) appointed by the mayor, and an elected council (“Consiglio comunale”) that supervises the legislative activity of the mayor and approves the annual budget under majority rule. In this work, we study the effect of migration on political selection by looking at mayor’s age, college education and gender, as well as average age, the shares of females and the shares of college educated in the council and in the commission. We construct also the share of administrators with a math-science-tech occupation, such as engineers, medical doctors and architects. Finally, we have created an indicator for municipal council

dismissal. Possible reasons for dismissals are: a negative vote of confidence on the mayor, resignation of half of the council, absence of candidates at the elections or organized crime infiltration within the council. After randomly sampling 10 municipalities among the 146 ones that had a dismissed municipal council in 2014 we have tracked the reason for the dismissal. Out of these 10 municipalities, 5 had a dismissed council due to organized crime infiltration, 1 for resignation of the mayor, 1 for resignation of half of the council members, 1 for a no-confidence vote for the mayor, 1 because of absence of candidates at the local election and 1 for missing the minimum turnout threshold in case of a single party election.

### **A3 Historical Archive of Italian Elections**

To study the effects of emigration on voting preferences in the Italian municipalities, we look at turnout and voting share of the main parties in the parliamentary elections in 2001, 2006, 2008 and 2013. Electoral data are also provided by the Italian Ministry of Interior.

Turnout and party shares data refer only to the low chamber ("Camera dei Deputati"), as the high chamber ("Senato della Repubblica") has a different electoral system (the electorate is over 25 years old rather than over 18, and the premium is assigned at regional rather than national level). The electoral system, introduced in 2005, is proportional with a majority premium to the party with the highest share. As elections in 2001 were based on a different system, to ensure comparability of turnout data and party shares with the subsequent years, we consider only the proportional part of the assigned seats, that account for the 25% of the total (since the remaining 75% was assigned on a majoritarian basis).

We aggregated the most relevant parties across different elections according to main ideology and/or political manifestos, in a way to ensure continuity across the three election years considered. The complete classification is available in the following table.

### **A4 Stock and net creation of firms**

We use data on the stock and net creation of firms across Italian provinces from the database "Movimprese" managed by InfoCamere. The Movimprese database collects quarterly data on the stock of active firms and the flows of created and destroyed firms registered in all Italian Chambers of Commerce for each year from 1995 to 2014. Breakdowns by province, main sector of activities (according to the "Ateco" classification) and type of firm are also available. We construct several outcomes to proxy for the entrepreneurship capital in the Italian provinces. First, we compute the difference between the stocks of active firms before and after the crisis in each province. In order to smooth potential idiosyncratic yearly variation in firms' stocks, we compare the average stocks during the periods 2012-2014 and 2008-2010. Second, we compute the cumulated flows of firms created and destroyed between 2010 and 2014 in each province. All outcomes are then standardized by the 2000 population of residents in each province.

We also breakdown all the outcomes by the type of firm, respectively corporations with limited personal liability ("societa' di capitali"), corporations with full personal liability ("societa' di persone") and individual firms ("ditte individuali").

We further compute the before-after differences in the stock of active firms for the subset of high value-added industries. A complete classification of each sector by high-value-added is available in the following table.

Finally, to check that our instrument is not correlated with pre-trends, we look at the change in the stock of active firms between 2000 and 2006.

Table A1: Aggregation of parties across different elections

<b>Year</b>	<b>Democratic Party</b>	<b>PdL People of Freedom</b>	<b>Northern League</b>
<b>2001</b>	Democrats of the Left (DS)	Forza Italia (Let's go Italy)	LN Northern League
	Daisy - Democracy is Freedom	AN National Alliance	
<b>2006</b>	Olive Tree (L'ulivo)	Forza Italia (Let's go Italy)	LN Northern League
		AN National Alliance	
<b>2008</b>	PD Democratic Party	PdL People of Freedom	LN Northern League
<b>2013</b>	PD Democratic Party	PdL People of Freedom	LN Northern League
		FDI-CDN Brothers of Italy - National Centre-right	
<b>Year</b>	<b>Left-wing</b>	<b>Right-wing</b>	<b>M5S Five Star Movement</b>
<b>2001</b>	PRC Communist Refoundation Party	New Force	
	PdCI Party of Italian Communists	Social Movement Tricolour Flame	
	The Girasole (Sunflower')	National Front	
<b>2006</b>	PRC Communist Refoundation Party	Italian Social Movement National Right	
	PdCI Party of Italian Communists	Social Movement Tricolour Flame	
	FdV Green Federation	Social Alternative	
<b>2008</b>	The Left The Rainbow	The Right Tricolour Flame	List of the "talking crickets"
		New Force	
<b>2013</b>	SEL Left Ecology Freedom	Tricolour Flame	M5S Five Star Movement
		New Force	
		The Right	

## A5 Data on GDP growth - International Financial Statistics (IFS)

To construct our instrument, we rely on real GDP data taken from the International Financial Statistics (IFS) dataset by the International Monetary Fund. The IFS is one of the Fund's principal statistical datasets and contains country data from most Fund members as well as for other countries, based on national accounts. To our knowledge, this is the largest dataset in terms of number of countries for which real GDP data (expenditure-based) are available.

To proxy for the relative economic performance during the crisis, we compute the real GDP growth relative to Italy between 2009 and 2013 for each foreign country where there are Italian citizens residing.

## A6 Italian demographic and economic data

We use several datasets from the Italian National Institute of Statistics (ISTAT). We use the 2011 Housing Population Census to gather data on the educational attainment of residents at municipality level. We also collect data on the population of residents at municipality level between 2000 and 2011 from the inter-censuses estimated resident population (data refer to January the 1st of each year). Data on the average age of residents as well as on immigration in the Italian municipalities are also from ISTAT.

Furthermore, we use yearly data on unemployment and value added per capita taken from the

Table A2: List of firms in high value added sectors

ATECO code	Description
C 20	Manufacture of chemicals and chemical products
C 21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
C 26	Manufacture of computer, electronic and optical products
C 27	Manufacture of electrical equipment
C 29	Manufacture of motor vehicles, trailers and semi-trailers
C 30	Manufacture of other transport equipment
J	Information and communication
J 60	Programming and broadcasting activities
J 62	Computer programming, consultancy and related activities
J 63	Information service activities
K	Financial and insurance activities
K 64	Financial service activities, except insurance and pension funding
K 65	Insurance, reinsurance and pension funding, except compulsory social security
K 66	Activities auxiliary to financial services and insurance activities
L	Real estate activities
L68	Real estate activities
M	Professional, scientific and technical activities
M 69	Legal and accounting activities
M 70	Activities of head offices; management consultancy activities
M 71	Architectural and engineering activities; technical testing and analysis
M 72	Scientific research and development
M 73	Advertising and market research
N	Administrative and support service activities
N 78	Employment activities
P	Education
P85	Education

ISTAT database “Atlante Statistico dei Comuni”. These data are at local labor-networks/commuting zones level (“Sistemi locali del lavoro”), that are between province and municipality levels. Each municipality is linked by ISTAT to one of the around 800 commuting zones.

Finally, data on immigration in Italianin one

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## Appendix B - Figures and Tables

Figure B1: Emigration rate by municipality (2010-2014)



Figure B2: Predicted emigration rate by municipality

