How do immigrants affect local public finances? Evidence from Italian municipalities

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Abstract

We estimate the causal impact of immigration to Italy on local public finances, at the municipality level (*Comuni*), between 2008 and 2015. We find that, with the arrival of immigrants, total (current plus capital) revenues go up, while total expenditures do not change, giving rise to an increase in the surplus of the municipality (all outcome variables in the paper are defined in per capita terms). We show that, in Italy, immigrants contribute to the emersion of the property tax base. They cause an increase in property tax revenues from "secondary residences", which are often rented out and are subject to property taxation unlike owner-occupied units. On the expenditure side, immigrant inflows lead to greater current spending in total and on: garbage collection, local police, cultural programs, and public transportation. Capital expenditures decrease instead, when immigrants arrive.

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1 Introduction[1]

Immigration remains a major policy issue in many destination countries, as evidenced by the central role it plays during elections. Voters and politicians are especially interested, from an economic point of view, in the labor-market and fiscal effects of immigrants. Evidence-based findings from the academic literature are crucial in properly evaluating such effects and identifying channels of impact that are not obvious. The large literature on the labor-market effects of immigration has provided ample evidence that can contribute to the public debate. This is not the case for the fiscal impact of immigration, which has not been analyzed as extensively. Broadly speaking, by "fiscal effects" we mean the impact of immigration on tax revenues, intergovernmental transfers and public expenditures. The goal of this paper is to contribute to the literature by analyzing the consequences, from a fiscal point of view, of the arrival of immigrants in the case of Italy.[2]

The fiscal effects of immigration are likely to differ depending on the level of government considered, because the types of revenues and expenditures are different at each level. Income tax revenues, indirect taxation, and social security contributions tend to be more important for central governments while other types of revenues, such as property tax revenues, matter more at the local level. In addition, local and central governments spend on different programs. In particular, social security contributions and payments usually take place at the central government level.[3] In this paper we analyze the fiscal impact of regular immigration to Italy at the *local* level, which corresponds to Italian municipalities (*Comuni*), the smallest political units in Italy.[4]

We estimate the *causal* effect of immigration on local public revenues and expenditures,

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[2]As will become clear below, we analyze the effects of *regular* immigration.
[3]Immigrants play a crucial role in sustaining pension systems, because their young age and higher fertility can offset the structural decline in native birth rates of European countries (Basso et al., 2025).
[4]*Comuni* belong to *provinces*, which are grouped into twenty *regions*.

tax bases, and tax rates in Italy in the period 2008-2015. We show that the fiscal impact of immigration depends on the tax structure and general fiscal policy rules of the country of destination. In the case of Italy, our results are driven by the characteristics of property taxes (based on fixed cadastral values and a large no-tax area) and the rules of the Domestic Stability Pact, which imposes balanced budgets and expenditure ceilings.[5] The effects we identify for Italy differ, for example, from those observed in the United States, where fiscal structures and rules are different (Mayda et al., 2023).

We make use of administrative data from SIOPE (*Sistema informativo sulle operazioni degli enti pubblici*) and MEF (*Ministero dell'Economia e delle Finanze*). For nearly 7,000 *Comuni*, we observe per capita (p.c.) local public revenues and expenditures in total and disaggregated by type. On the revenue side, we have information by municipality on income tax revenues, property tax revenues, fees, other revenues, intergovernmental transfers; we can break down per capita tax revenues into current vs. capital and into p.c. tax bases vs. tax rates, which allows us to shed light on the mechanisms of impact. On the expenditure side, we can track capital and current spending on education, local police, cultural programs, etc.

Immigrants are likely to alter the tax base of income, property, and sales taxes. To a first approximation, the tax base of income taxes is related to the municipality's average per capita income, which could be affected by the arrival of immigrants through compositional effects – due to the fact that immigrants likely differ from natives in terms of income – as well as labor-market effects, if any. Immigrants can also cause changes in the tax base of property taxes. In Italy, unlike other countries such as the United States, the property tax base is not linked to *current* house prices. However, immigration can alter the property tax base through other channels, as we discuss later. Changes in the per capita local tax base can be offset by shifts in tax rates. Still on the revenue side, it is likely that transfers to the municipality from the central government adjust when immigration takes place. Given the balanced budget requirement, changes in per capita total public expenditures are capped by changes in per capita total revenues (inclusive of transfers). That is, total expenditures can increase only if total revenues increase (subject to expenditure ceilings). When immigrants arrive, there can also be adjustments in the expenditure shares in different spending categories. This might depend on whether intergovernmental transfers target specific items.

The fiscal effects of immigration are likely related to the demand side as well, in addition to the tax base. The arrival of immigrants may affect the demand for public services provided by local governments. Some articles point out that preferences for redistribution will decrease with the arrival of immigrants (Facchini et al., 2016; Alesina et al., 2021). Alternatively, there may be an increase in the demand for public goods and services, for example, those aimed at facilitating the integration of the newcomers. In addition, many of the social services provided by municipalities are, in different ways,

[5]More precisely, municipalities with population above 5,000 residents have a balanced budget rule since 2001. In 2012, the rule was extended to municipalities with a population between 1,000 and 5,000 residents. In our period of analysis, municipalities were also encouraged to run a surplus and to satisfy a total expenditures cap.

means tested, and an inflow of relatively low-earning immigrants can increase their demand. To the extent these changes occur, local authorities will reduce other expenditures or adjust tax rates, given the tax base, with the goal of satisfying the balanced budget requirement.

We find that immigration to Italy, between 2008 and 2015, leads to an increase in the surplus of the municipality: total (current plus capital) revenues increase while total expenditures are not affected (all outcome variables in the paper are defined in per capita terms). The arrival of immigrants results in higher current revenues driven by the increase in property tax revenues, as well as fees, other revenues, and transfers from other levels of government. Income tax revenues, which represent only 5% of total current revenues at the local level, do not change, even though the tax base (average per capita income) decreases as a consequence of the arrival of immigrants. Transfers follow rather complex rules and often target specific activities; therefore, their increase can be difficult to interpret. However, when we exclude intergovernmental transfers, current revenues still increase. Finally, we observe a reduction in capital expenditures and an increase in current ones, which leaves total expenditures unchanged.

The increase in property tax revenues, which represent around one quarter of total current revenues at the local level, is likely driven by specific features of the Italian tax system. In Italy, for the most part, house price movements do not affect the property tax base, since the latter is based on cadastral values that generally have not changed in our period of analysis.[6] Moreover, since 2008 property taxes are characterized by an extensive no-tax area: if the owner or family members live (or declare to live) in the house, the latter is not subject to property taxes (with very few exceptions).[7] A smaller percentage of immigrants are home owners compared to natives, hence, when they arrive, more houses are likely to be rented out and become subject to property taxes. In line with this, we find that property tax revenues from secondary housing units increase – even controlling for the tax rate – suggesting that some housing units move from the no-tax category of primary residences to the taxed category of secondary residences.[8] Using more recent data, we also show that the arrival of immigrants leads to an increase in the share of registered long-term rentals, which are not tax exempt. Finally, in a falsification exercise, we find that the positive impact of immigration on property tax revenues disappears in the years before our period of analysis, when both primary and secondary residences were taxed.

Overall, given the increase in property tax revenues and intergovernmental transfers, with no corresponding decrease in income tax revenues, total current revenues go up. Capital revenues are not affected by the arrival of immigrants, which implies that total

[6] In Italy, cadastral values of real-estate units are set *at the time of construction* (Bianchi et al., 2023) and do not change over time, except when there are adjustments at the *national level*. For example, in 2011 cadastral values increased by the same proportion in all Italian municipalities. This effect is captured by year fixed effects.

[7] Housing units occupied by owners or family members are denoted as "primary" residences, while housing units which are rented out and are subject to property taxes are denoted as "secondary" residences.

[8] Revenues from non-exempt primary units represent a small fraction of total property tax revenues. They decrease in non-touristic municipalities and increase in touristic ones, when immigrants arrive. We find some evidence that property tax rates increase when immigrants arrive, but these changes are not the main driver of the increase in property tax revenues.

(current plus capital) revenues increase. On the expenditure side, immigrant inflows lead to higher current spending in total and, in particular, on specific items of expenditure, such as garbage collection, local police, cultural programs and public transportation. At the same time, capital expenditures decrease by roughly a similar amount. These results suggest that the arrival of (low-skilled) immigrants increases the per capita demand for local public services paid by current expenditures. Greater demand leads to higher current spending, which is compensated by lower capital expenditures. This is likely due to the expenditures cap faced by Italian municipalities. Hence, in the Italian case, the increase in total revenues did not translate into an increase in total expenditures.

The literature on the fiscal effects of immigration is described in more detail in the next section and includes seminal contributions such as NASEM (2016) for the United States and Dustmann and Frattini (2014) for the UK. Our paper is most closely related to Mayda et al. (2023), which focuses on the local level in the United States and, unlike most of the literature, empirically estimates the fiscal impact of immigration. Our results contribute to this literature mainly by showing that country-specific features of the fiscal system matter and can shape the magnitude and *even the direction* of immigrants' effect on local public finances.[9] In the Italian case, this is due to the set of fiscal rules in place at the time and to the peculiarities of property taxation. Our contribution is also to show that, in Italy, immigrants contribute to the emersion of the property tax base.[10]

An important challenge in the estimation of the impact of immigration on fiscal outcomes is endogeneity, which is driven by sorting of immigrants into non-random localities, potentially as a function of local public revenues, tax rates and public goods and services. We address this issue by employing a shift-share IV estimation strategy which passes stringent robustness tests. We use the Card instrument (first introduced by Altonji and Card (1991) and Card (2001)), which leverages the different timing and size of the *national* inflows of immigrants by region of origin and apportions them to the local level using the 1991 shares of immigrants, from each region of origin, across Italian municipalities. We find no evidence of reverse causality when we estimate the impact of past fiscal-policy variables on current instrument-predicted immigrant shares. In a falsification exercise, we show that the instrument-predicted changes in immigrant shares over the period of analysis (between 2008 and 2015) do not predict changes in our main outcome variables in a previous period (between 2001 and 2007). We confirm the robustness of our results when we control for lagged changes in outcome variables (between 2001 and 2007) as in Dix-Carneiro et al. (2018): this specification is another way to address concerns about pre-existing trends in local public revenues and spending that could be correlated with (future) migration shocks. We also find that the initial (1991) shares, in particular those with the highest Rotemberg weights, are not correlated with pre-treatment trends (following Goldsmith-Pinkham et al. (2020)).

The remainder of the paper is organized as follows. In Section 2 we review the literature on the impact of immigration from a public finance point of view. Next, in Section 3, we

[9]In a recent paper, Edo and Özgüzel (2023) argue that the effect of immigration in the labor market is also shaped by the specific institutions of the hosting countries.

[10]We thank an anonymous reviewer for the wording of this point.

present a framework to think about the direction and channels of impact (in the Appendix, we develop a simple theoretical model that takes into account the specifics of the Italian local fiscal system). Section 4 describes the Italian context and the data on immigration and local public finances. The next Section 5 presents, respectively, the OLS results, the identification strategy, and the 2SLS results. We discuss various robustness checks in Section 6. Section 7 concludes.

2 Related literature

Our paper is directly related to the literature on the fiscal impact of immigration, and, to a lesser extent, to papers that analyze the political-economy link between immigration and the welfare state. Dustmann et al. (2017) divide the first literature into two broad groups of articles, depending on whether they follow a "static" or a "dynamic" approach. Static analyses of the fiscal effects of immigration compare the current impact of immigrants and natives taking into account their use of public services and contribution in terms of tax revenues. These papers adopt an accounting methodology based on public accounts information, for each item of expenditures and revenues, as well as group-specific weights for immigrants vs. natives.[11] On the other hand, dynamic analyses of the fiscal effects of immigration are forward looking as they take into account both the current and future impact of immigration. This type of papers calculate the net present value of the stream of future taxes and expenditures over the entire life-cycle of a given cohort or flow of immigrants. This is done either through calibration of a general equilibrium overlapping generations model (as in Storesletten (2000) for the United States, and Storesletten (2003) for Sweden) or by using generational accounting techniques.[12] In our paper, as in Mayda et al. (2023), we use a different methodological approach as we *estimate* the fiscal impact of immigration by using variation at the local level in Italy.

Our paper is also related to articles in the political economy literature that analyze the link between immigration and the welfare state. Razin et al. (2002) develop a theoretical model of the long-run impact of immigration on the redistribution carried out by the welfare state. Their main prediction is that, in the presence of a fiscal leakage from the native to the foreign-born population, low-skilled immigration may lead to lower redistribution, although migrants naturally support greater transfers. While this literature looks mainly at political-economy changes triggered by immigration in the fiscal space, in this paper we focus on adjustments driven by changes in the tax base and in tax rates.

Our analysis is also inspired by the literature on welfare-state drivers of attitudes towards immigrants, for example Dustmann and Preston (2007), Hanson et al. (2007), Facchini and Mayda (2009). Focusing on the United States, Hanson et al. (2007) find that

[11] Analyses of this type have focused on Norway (Bratsberg et al., 2010; Bratsberg et al., 2014), Sweden (Hansen and Lofstrom, 2003; Ruist, 2014), Germany (Riphahn, 2004), the United States (Borjas, 1994; NASEM, 2016), and the United Kingdom (Dustmann et al., 2010; Dustmann and Frattini, 2014).

[12] See, for example, Auerbach and Oreopoulos (1999) and Auerbach and Oreopoulos (2000) for the U.S., Chojnicki (2013) for France, Collado et al. (2004) for Spain, Mayr (2005) for Austria, and Javdani and Pendakur (2014) for Canada)

public finance concerns negatively affect attitudes of American voters towards (low-skilled) migration, in particular high-income voters, who fear they will end up paying higher taxes. Facchini and Mayda (2009) find support for this prediction in a cross-country setting. On the other hand, Hainmueller and Hiscox (2010) find evidence that, in states with high fiscal exposure, poor respondents are more averse to low-skilled immigration than rich respondents, which is consistent with fears that per capita public benefits might decrease. Our paper shows that, in the case of Italy, these perceptions of voters are unfounded, since we find that tax rates do not change and per capita public expenditures do not decrease, when (low-skilled) immigrants arrive to Italian municipalities.

Since our paper investigates the impact of immigration on the property tax base, it is also related to the literature that analyzes the effect on housing prices and rental services. Focusing on U.S. metropolitan areas, Saiz (2007) shows that immigration drives up housing demand, leading to higher rents in the short run and increased house prices in the long run. Using district-level data for a sample of 20 large Italian cities, Accetturo et al. (2014) find that immigration increases average house prices at the city level, while it slows price growth in the districts most affected by migration inflows, providing evidence of native flight from immigrant-dense districts to other areas within the same city. Piyapromdee (2021) analyzes the impact of immigration on earnings, internal migration, and welfare at the U.S. city level, showing among other findings that immigration increases landlords' rental income.[13] Monras (2020) investigates how the U.S. labor market absorbs low-skilled immigration, leveraging the inflow triggered by the Mexican peso crisis over the 1990s. He finds that immigration inflows have an impact on local housing markets, increasing rental prices in the short run, and reducing housing prices in the long run, when immigrant workers disproportionately enter the construction sector.

This body of literature focuses on changes in housing prices and rental services, when immigrants arrive. However, the Italian case is special in this respect. As extensively described by Bianchi et al. (2023), in Italy the tax base of property taxes is computed based on the cadastral value of real-estate units *at the time of construction*. Based on this feature of the Italian system, Bianchi et al. (2023) leverage exogenous variation in the average age of buildings, caused by bombings during World War II, to show that Italian municipalities more reliant on locally raised tax revenues experienced an increase in the provision of (some) public services, when fiscal decentralisation took place. The years analyzed in the paper, from 1990 to 2010, are characterized by a different institutional framework compared to our period of analysis, given that the fiscal rules of the Domestic Stability Pact were first introduced in 2000, and the exemption for primary residences took effect in 2008.

Finally, a paper which is closely related to ours is Mayda et al. (2023), who analyze the case of the United States. They find that low-skilled immigrants to the U.S. decrease per capita local revenues – mainly due to a decline in average income and housing prices – and that this leads to a decrease in per capita public expenditures on local public services.

[13]Therefore, Piyapromdee (2021) suggests that policymakers aiming for a more even redistribution of gains and losses of immigration should consider appropriate tax schemes on rental income and housing regulations.

In the United States a non-trivial share of immigrants are high-skilled. When the authors look at this group of immigrants, they find opposite results on all outcome variables. Our findings on low-skilled immigrants arriving to Italy are unlike those in Mayda et al. (2023). We find that the arrival of (low-skilled) immigrants to Italy leads to *an increase* in per capita revenues and (current) expenditures. The difference in results is likely driven by differences in fiscal rules, specifically those related to property taxes. Hence our paper is a cautionary tale about extrapolating evidence from one country to another in contexts, such as public finance, where the details of the rules are very important.

3 Framework

In this section, we review the mechanics of the impact of immigration on public revenues and expenditures at the local level, where balanced budget requirements are usually in place. To develop the intuition, consider first a (redistributive) welfare state where income tax revenues are the main source of entries of the fiscal authority (we will relax this assumption later in the section). If immigrants are on average low-skilled or are employed in low-skilled occupations, their income is lower than that of the local population. This potentially leads to a fiscal deficit since average income is likely to decrease with the arrival of immigrants and average income represents the per capita income tax base. Compositional effects, due to the difference in skill (income) composition of the immigrant vs. native population, are enough to generate the change in average income, even in the absence of adjustments to immigration in the labor market. If a fiscal deficit arises, the local government can increase tax rates and/or decrease per capita spending, with the goal of bringing the budget back to balance. In addition, other levels of government can partially offset the impact of immigration on locally-raised revenues by increasing intergovernmental transfers to the locality.

Exactly the opposite is predicted if immigrants are high-skilled and employed in high-skilled occupations that allow them to earn an income which is higher than that of the local population. In this case, a fiscal surplus is likely to arise, thanks to the increase in the local per capita tax base (average income). The local government can either decrease tax rates or increase per capita spending[14] – or the central government can decrease intergovernmental transfers – until the surplus goes down to zero. The case of high-skilled immigrants is less relevant for this paper since immigrants to Italy are either low-educated or work in blue-collar occupations (even though they are educated).

The tax base of other types of tax revenues, such as sales and property tax revenues, is likely to be a function of average income. Higher-income consumers can spend more, in which case they contribute more in terms of sales tax revenues. In addition, house prices are likely to depend on the average income of potential buyers. To the extent cadastral values change to reflect increases in house prices, the tax base of property tax revenues will be higher as well, if average income increases. This is not the case in Italy, where

[14] In the case of Italy, in the period we analyze, a spending cap was in place, which limited increases in expenditures, even though revenues increased.

cadastral values are seldom adjusted. In the Italian case, the tax base of property tax revenues can change if some housing units move from one tax rate bracket to another. In the Appendix, we develop a simple theoretical model which incorporates the specifics of the Italian fiscal system. We will refer to the predictions of this model when we present the empirical results in Section 5.

As pointed out by Mayda et al. (2023), immigration can affect local public expenditures through other channels besides the budget (revenues) of local jurisdictions. When immigrants arrive, they can affect prices of local services. Indeed there is evidence in the literature that immigrants employed in low-skilled occupations decrease the price of low-skill-intensive services (Cortes, 2008; Barone and Mocetti, 2011). Through this channel, public services may become cheaper to provide, when immigrants arrive. On the demand side, the arrival of foreign citizens can lead to a reduction in natives' preferences for redistribution if they are poorer than average or given that they likely increase racial/ethnic heterogeneity (see, for example, Alesina et al. (2001), Luttmer (2001), Facchini et al. (2016), Alesina et al. (2021)). Alternatively, the arrival of immigrants can lead to an increase in the total demand for public services, especially those aimed at facilitating the integration of newcomers or used more by immigrants relative to Italians – such as public transportation, day-care centers and programs for disadvantaged groups. When immigrants come in, municipal authorities may change the distribution of funding across different expenditure items. This channel can work in different directions depending on the weight assigned to immigrants in local governments' social welfare function.

In this paper we focus on the fiscal impact of immigration at the local level in Italy, in particular we run the analysis at the level of *Comuni*. At other levels of government, such as *Regioni* and the central government, the main sources of revenue, the types of benefits provided and the budget requirements are different. For example, at the regional level, public coffers mostly depend on regional taxes on productive activities (*IRAP – Regional Tax on Productive Activity*), a share of personal income taxes (*addizionale IRPEF*) and taxes on autos, and health and education are among the most important items of expenditure.[15] At the level of the central government, income tax revenues, Social Security contributions and VAT are the main sources of revenues, while Social Security payments are the main type of spending. These differences, relative to local governments, imply that we would expect different types of fiscal effects of immigration at these other levels of government. Moreover other characteristics of immigrants, besides skill and income, become more relevant at the regional and central government level, for example immigrants' age structure. Immigrants tend to be younger than the local population, hence they can potentially offset the increasing burden of welfare programs such as Social Security, due to population aging. Since pension systems work at the level of the central government, the fiscal impact of immigration is likely to be more positive at the national than at the local level. This is what the National Academy of Science Report (NASEM, 2016) finds in the

[15] "The main responsibilities of regional governments are in the following sectors: healthcare; public transportation; complementary social welfare; higher education; and vocational training" (Marattin et al. (2022), page 8).

case of the United States.[16]

4 Local public finances and immigration in Italy

In this section, we provide a broad overview of immigration and local public finance in Italy in our period of analysis. We describe the data we use and present summary statistics of the main variables of interest. Our analysis focuses on 8 years between 2008 and 2015 and considers a balanced panel of 6,936 municipalities, for a total of 55,488 observations.[17]

4.1 Data sources

Data for the empirical analysis come from various sources. Sistema Informativo delle Operazioni degli Enti Pubblici (SIOPE), housed at the Bank of Italy, and Banca Dati Amministrazioni Pubbliche (BDAP), housed at the Ministero of Economia and Finanza (MEF), provide information on public revenues of local governments, disaggregated by type (income, property-tax revenues, transfers, etc.) and on local expenditures broken down by function.[18] We also use MEF data from tax declarations on the tax base of personal-income taxes. Finally, we use administrative data on the number of foreign citizens (legally residing in Italy), as well as on the composition of the local population by gender, age and employment status, from the Italian Statistical Institute (Istat).

4.2 Local public finances in Italy

In this paper we focus on Italian municipalities, called *Comuni*, as the local political and geographical units. They represent the third level, after regions and provinces, of the Italian Sub-National Government (SNG) system. There were 7,914 municipalities in Italy in our period of analysis, grouped into 110 provinces and 20 regions. The sample of the empirical analysis is smaller (close to 7,000 municipalities) because we exclude municipalities that changed province over the period of analysis, many in Sardinia (which we keep out completely),[19] and municipalities that have merged.[20] Italian municipalities

[16] Since the public education system is run by the central government in Italy, and the younger age structure of immigrants make them more costly relative to natives in terms of education expenditures, the more positive fiscal impact at the federal/central government level is likely less pronounced in Italy compared to the United States.

[17] The decision to stop the analysis in 2015 is twofold. On the one hand, data from SIOPE are available only until 2015. After that, a new classification of revenues and expenditures was introduced, making a crosswalk nearly impossible. On the other hand, the Domestic Stability Pact (DSP) ended in 2015. From 2016 onwards, the DSP was replaced by the Fiscal Compact, which imposes different fiscal rules that could confound the results.

[18] SIOPE gives timely and detailed information on transactions daily carried out by Italian public offices. The advantage of the BDAP dataset is that it breaks down expenditures by function, while the SIOPE data are only recorded in capital vs. current terms.

[19] The decision to change provinces is made at the request of the municipality, and the reason for changing provinces is usually related to transfers from the provincial government, as the latter can vary from province to province. Therefore, these changes may be endogenous to our analysis.

[20] In the regressions which use data from 2001 to 2007 (like the pre-trend analysis), the sample of municipalities is smaller because there are 69 municipalities for which we do not have data in that

are run by the mayor (*sindaco*) and the city board (*consiglio comunale*), both directly elected by voters, as well as by the municipal government (*giunta comunale*), chosen by the mayor.[21]

Comuni have always played an important role in implementing social programs aimed at ensuring the welfare of the local community. Local public services complement the main social protection instruments, such as pensions and unemployment benefits, which are instead provided by the national government. An advantage of public expenditures at the municipality level is that local governments can tailor spending and service provision according to local priorities. At the same time, since local governments must partly rely on their own revenues, inequality might arise in the provision of public services, stemming from differences in both income and wealth – namely the tax base – across municipalities. It is precisely to reduce this inequality that a policy reform was carried out in 1971. It produced a centralized system of public revenues where transfers from the national government became the main source of revenues of municipalities; at the same time, no constraints were imposed on municipalities' expenditures. This resulted in a dramatic increase in local public debt, in subsequent years, covered in part by bank financing and in part by additional transfers – decided on the basis of financial needs rather than more objective criteria. To offset this trend, various adjustments were implemented in the following years.

In particular, two main forces have shaped Italian local governments' fiscal framework in the last three decades: a push towards decentralization, particularly strong since the 1990's; and a need to control and reduce public expenditures, driven by both internal and external factors. As European economic integration strengthened, EU members were asked to increase control over their public finances, which in turn required stronger coordination within countries between central and local authorities. To comply with the newly imposed fiscal rules, in particular those set by the 1997 European Stability Pact (ESP), the Italian government introduced the 1999 Domestic Stability Pact (DSP), the *Patto Interno di Stabilita*, which remained in force until 2015, when the Fiscal Compact was signed. The DSP has been modified over time, with various changes in rules from less to more effective at ensuring fiscal sustainability.

A significant tightening of the rules took place in 2007, when authorities introduced a Budget Balance Rule (BBR), that included all expenditure components within the target of the newly introduced fiscal rules and applied the constraints to the budget plan, not only the fiscal balance. These rules applied to municipalities with more than 5,000 inhabitants, but in 2012 the cutoff was changed from 5,000 to 1,000 residents (Gamalerio, 2020; Venturini, 2020). In practice, in the period we analyze, the fiscal rules were more stringent than a balanced budget requirement. Municipalities were encouraged to run a surplus and to satisfy a total expenditures cap.[22] The expenditure cap tends to make

period. As a robustness test, we estimate the main regressions by excluding also these 69 municipalities from the period 2008-2015. Results are presented in Tables A26 and A27.

[21] For more details on the structure of Italian city boards, see Bordignon et al. (2016)

[22] See Ufficio Parlamentare di Bilancio, "Gli avanzi spendibili degli Enti territoriali a seguito delle nuove regole sul pareggio", Focus Tematico N. 3, 8^{th} April 2019 (www.upbilancio.it).

the movement of revenues and expenditures disconnected, as it pushes municipalities to compensate increases in spending for one item with decreases for others within the overall expenditure envelope, independently of the evolution of revenues.

On average, per capita total revenues of Italian municipalities were equal to around eur 1,438 per year between 2008 and 2015 and have remained stable over this period (see Panel A of Table 1).[23] Local governments in Italy raise most of their current revenues from own sources. Transfers from the central government account, on average, for 30 percent of total current revenues between 2008 and 2015 – on average eur 371 per capita per year to each municipality, although the variance is high with values ranging between zero and eur 18,000 per capita in a year. Local jurisdictions rely heavily on taxes levied on real-estate assets (around 23.8% of total current revenues) and, to a much smaller extent, taxes applied on personal income (around 5%). Fees are another important source of municipal revenues, accounting for 15.9% of total current revenues. Loans have become a smaller fraction of the budget, decreasing from 6.5% in 2008 to 0.5% in 2015.

Since 2008, real-estate units owned by individuals are grouped into "main" (or "primary residence" or "owner-occupied") and "secondary" dwellings. The *Imposta Comunale sugli Immobili* (ICI), turned into the *Imposta Municipale Unica* (IMU) after 2012, is a property tax paid by the owner on the base of the cadastral value of the real-estate unit. The cadastral values are determined at the year of construction of the units and have been updated rarely in the last thirty years – the last update was in 1997. With the exception of 2012, the owner-occupied units were exempt from the ICI/IMU tax. Municipalities can set their own ICI/IMU tax rate choosing within a range determined by the central government. Besides ICI/IMU, there are other two taxes levied on real-estate units: the Tax on Indivisible Services (TASI) and the Garbage Collection Tax (TARI).[24] These taxes were introduced in 2014 and replaced previous similar taxes.[25] TASI is computed based on the same tax base as IMU and is charged, in different proportions, to both the owner of the real estate unit and the resident (where the two do not coincide). TARI, instead, is computed based on both the dimensions of the unit and on the number of people living there and is paid by the resident.[26]

The rest of tax revenues mostly come from the *Addizionale Comunale IRPEF*, a surcharge on personal incomes – which are already subject to national taxation based on the *Imposta sul Reddito delle Persone Fisiche* (IRPEF) – within the limits set by the central government. Compared to real estate taxes, *Addizionale Comunale IRPEF* has a more dynamic base. It also represents a much smaller fraction of municipal current revenues (around 5%).

Expenditures of municipalities are divided into current and capital expenditures (see

[23]The public finance variables are expressed in constant 2015 euros using the Consumer Price Index from the national Italian Statistical Office Istat (www.istat.it).

[24]TASI stands for *Tassa per i Servizi Indivisibili* and TARI for *Tassa sui Rifiuti*.

[25]The previous taxes were *Tassa Comunale sui Rifiuti e sui Servizi* (TARES) and the *Tassa sui Rifiuti Solidi Urbani* (TARSU).

[26]Note that property tax revenues for year t are based on the tax base for the same year, not the previous one. This is not the case for income tax revenues, which are instead computed as a function of the previous year's income.

Panels B and C of Table 1). Current expenditures are those whose benefits accrue to residents in the current calendar year, while capital expenditures pay for goods and services that last beyond the current year. Total (current plus capital) expenditures of municipalities represent 9% of total Italian public expenditures (Istat (2023)). They are lower than municipal total revenues (around eur 1,200 per capita per year on average in 2008-2015), which is consistent with the budget constraint. The main public services provided by municipalities are, in decreasing order: administrative services such as population registries ("general public services"), which represent around 29% of total expenditures; "garbage collection," around 22%; "public transportation," around 14%; "social protection" (such as public day-care centers called *asili nido*, programs for disadvantaged groups and support to local non-profit organizations), around 13%; pre-k and k programs (*scuola materna o dell'infanzia*) and infrastructure expenditures for schools ("education"), equal to around 9%; "local police", around 4.5%; and "culture", around 3%.[27] Jurisdictions can tailor spending and service provision according to local priorities. We will investigate how the arrival of immigrants to a municipality affects the total per capita expenditures as well as their composition, between current and capital and across different spending items.

4.3 Immigration to Italy

We measure the share of immigrants as $\frac{M_{it}}{Pop_{it}}$ where, for each municipality i at time t, M_{it} is the number of foreign citizens, while Pop_{it} is the total population, computed as the sum of the immigrant population and the 2008 native population ($Pop_{it} = M_{it} + N_{i2008}$). Hence we define immigrants on the basis of citizenship as opposed to country of birth.[28] The literature on immigration most often uses the latter definition, but there are exceptions, for example, the recently published World Development Report on Immigration (World Bank, 2023).

The summary statistics of the population variables (native population, immigrant share, native population respectively under 25 and above 65, female population and employment share) are presented in Panel D of Table 1. Over the period we analyze, between 2008 and 2015, the share of immigrants in Italy went up by 2.7 percentage points from 5.5 to 8.2 percent of the local population. By 2015, in some municipalities, the immigrant share reached values as high as 29%. In *Comuni* with more than 100,000 residents, the immigrant share was on average 11% in 2015. Immigrant shares are highest in the North East, North West and the Center, while they are lower in the South and Islands (see Figure B1 in the Appendix). However, there is not such a divide, between the North and Center vs. South and Islands, in terms of *the change* in the immigrant share between 2008 and 2015 (see Figure 1), which is what we exploit to estimate the effects.[29]

[27]The shares are calculated as the sum of current plus capital expenditures of each category, relative to total expenditures.

[28]As an alternative, we could use the share of *adult* immigrants – who have completed formal schooling and are potentially working and paying taxes. However, by focusing on the entire immigrant population, we can capture the impact of immigrant children as well, who play an important role in the demand for public services.

[29]This is an important point as it suggests that the results in this paper are not driven by the North-South

Besides their numbers, other characteristics of immigrants are relevant as well. The main countries of origin of the immigrant population in Italy are, in decreasing order of importance, in the period analyzed, Romania, Albania, Morocco, China and Ukraine. In terms of skill composition, compared to Italians, immigrants are more likely to be employed in blue-collar occupations although they are less likely to be low-educated. In 2008, 79% of immigrants were low-educated while the percentage was 89% among Italians. However, in the same year, 68% of immigrants were employed in blue-collar jobs, while only 44% among Italians (see Table A1 based on the Italian Labor Force Survey, Istat).

5 Empirical analysis

5.1 OLS results

We model the effect of immigrants on the log per capita revenues and expenditures ($ln(y_{it})$) in municipality i and year t as follows:[30]

$$ln(y_{it}) = \delta_i + \delta_t + \beta \frac{M_{it}}{Pop_{it}} + \beta_x X_{i,2008} * t + \varepsilon_{it}, \tag{1}$$

where M_{it}/Pop_{it} is the population share of immigrants in municipality i and year t. We include municipality fixed effects (δ_i) to capture time-invariant local factors driving the fiscal variables, and account for aggregate changes over time with year fixed effects (δ_t). We add interactions of linear time trends with economic and demographic variables at the municipality and province levels, measured in 2008 ($X_{i,2008} * t$). These control variables are less likely to be endogenous compared to contemporaneous ones. The controls at the municipality level include: the share of the native population under 25, the share of the native population over 65 and the share of native women. We also control for the employment rate at the province level. Each regression is weighted by the total population of the municipality. The errors are clustered at the municipality level to account for potential correlation of errors over time.

In the Appendix, we present the OLS estimates of the impact of the immigrant share on, respectively, (log) per capita revenues and and (log) per capita expenditures, both in total and broken down by type. Table B1 provides evidence on the impact of immigration on municipalities' main balance sheet items. We find that the arrival of immigrants to a municipality increases total *current* revenues and decreases total *capital* revenues, with a net positive effect on total revenues. The coefficient on total *current* expenditures is

divide that characterizes Italy.

[30] We estimate our model using the inverse hyperbolic sine (IHS) function applied to the revenues and expenditures variables. This is because, for some categories of entries and spending, we have zeros in correspondence of some municipalities. Note that " ..., when y is large, the marginal effects for the IHS and log transformations will be nearly the same" (Norton (2022), page 3). Therefore we will denote all outcome variables as if they were log transformed. As a robustness test, we run our main regressions with outcome variables transformed with natural logarithms. The results are presented in tables A20 and A21. The estimated coefficients are identical, but those estimated on dependent variables with many zeros for which we lose observations.

not significant, while the impact on total *capital* expenditures is negative, with a net insignificant effect on total expenditures. In municipalities where the immigrant share increases, the surplus increases.[31] On the current revenues side, we find that immigrants increase total current revenues (with and without transfers), other taxes and other revenues (see Table B2). On the expenditures side, the OLS estimates show evidence of some negative effects. For example, according to the OLS estimates, there is a negative link between the population share of immigrants and per capita current expenditures on general public services, sport and recreation and housing and community amenities (see Table B5). However, in general, the OLS results only show correlations with no causal interpretation. We next turn to discussing what drives endogeneity and our strategy to identify a causal effect.

5.2 Identification

The main reason why the OLS estimates may be biased is that immigrants choose certain locations on the basis of economic and non-economic drivers which might be correlated with local public finance variables. For example, if the number of immigrants increases in municipalities with decreasing cost of living, say rents, because these are the only ones they can afford to live in, we might estimate a negative coefficient for the impact of immigration on revenues. The reason is that in more expensive areas, residents tend to be richer and pay more taxes while in cheaper areas it is the opposite. There might also be a problem of reverse causality, that is immigrants might be attracted to municipalities that present certain characteristics in terms of local public accounts, for example lower tax rates or greater provision of public goods. This again will create a bias in the OLS estimates. Therefore, to pin down a causal relationship between public finances and immigration, we need to use an IV strategy with plausibly exogenous variation in immigration across municipalities.

An additional source of bias in OLS estimates is potential measurement error. As emphasized by Klepper and Leamer (1984), when a classic *errors-in-variables problem* occurs – i.e., when a variable is measured with an additional error that is uncorrelated with its true value – the estimated coefficient is biased toward zero. In this case, an instrument that is correlated with the true value of the variable, but uncorrelated with the error, will lead to a consistent (larger) estimate of the regression coefficient. Since we are using population data from the municipal registry, there is likely measurement error in our migration data, due to omissions and/or delays in the registration of residences. Therefore, an instrumental variable strategy will help to mitigate the attenuation bias. We expect the IV coefficients to be larger and more significant than the OLS coefficients, in line with the literature on measurement error.

Our instrument is based on the shift-share methodology (Altonji and Card, 1991; Card, 2001) and on evidence in the immigration literature that networks of existing

[31] Following the official accounting rules – available at https://openbdap.rgs.mef.gov.it/, and last accessed on February 22^{nd}, 2024 – the municipal surplus is computed as the total revenues, net of loans, minus the total expenditures.

immigrants attract new immigrants from the same country (Munshi, 2003; Munshi, 2020). We leverage variation in the aggregate stocks of immigrants from each region of origin across years (the "shift") and in the distribution of immigrants from each region of origin across municipalities, before the period of analysis (the "share"). Specifically, for each region of origin, we use the pre-sample distribution of immigrants across municipalities to apportion the total number of immigrants from that region observed each year. Let us define the term $sh_{c,i}^{1991}$ as the number of foreign citizens of region c, living in municipality i in 1991, as a share of their total population in Italy in 1991:[32]

$$sh_{c,i}^{1991} = \frac{M_{c,i}^{1991}}{\sum_i M_c^{1991}}. \tag{2}$$

The predicted number of immigrants in municipality i and year t from region c can be constructed as the product of their 1991 share in municipality i ($sh_{c,i}^{1991}$) and the aggregate number of immigrants from country c in year t (M_{ct}). After summing over regions of origin, we obtain:

$$\widehat{M_{it}} = \sum_c sh_{c,i}^{1991} M_{ct} \tag{3}$$

We define the predicted population of municipality i in year t as the sum of the number of Italians in 2008, which is the initial year of our period of analysis, and the predicted number of immigrants in year t ($\widehat{Pop}_{it} = N_{i,08} + \widehat{M}_{it}$). We use the number of Italians in 2008 to construct the denominator to avoid picking up the effect of natives' inflows and outflows that occur as a consequence of the arrival of immigrants.

The instrument for the *share* of immigrants is then $\widehat{M}_{it}/\widehat{Pop}_{it}$. For this instrument to work, there needs to be sufficient variation in the number of immigrants from different regions of origin. That is, municipalities with a similar total share of immigrants as of 1991, but from different regions of origin, will experience differential variation in predicted immigrants, as long as the aggregate number of immigrants differs by nationality.

The first stage of the IV strategy works well, as shown in Table 2. The first-stage coefficient of the instrument is positive and significant and the IV test (the Kleibergen-Paap rk Wald F statistics) is high at 94.33 (shown at the bottom of all 2SLS results tables). The exclusion restriction of the instrument is based on the assumption that the 1991 distribution of immigrants across municipalities, by region of origin, is not correlated with local economic and fiscal variable *changes*, between 2008 and 2015, other than via their impact on current immigration. We carry out some tests that provide supporting evidence for this assumption. First, we explore whether the instrument-predicted changes in the immigrant shares in our period of analysis (2008-2015) explain changes in the main outcome variables in the pre-sample period (2001-2007). This is a falsification exercise which is similar, in spirit, to a pre-treatment trend test (see for example Autor et al., 2013). We find no evidence of a significant impact in regressions (1)-(2) in Table 3.[33] The results

[32] We consider eight country-groups of origin: Europe, East Europe, North America, South America, Oceania, Asia, North Africa, Other Africa.

[33] These specifications exploit variation in the immigrant shares in the long difference between 2008 and

are similar when we estimate the impact of changes in the public finance variables in the pre-sample period (2001-2007) on the instrument-predicted changes in the immigrant shares in our period of analysis (2008-2015), suggesting that reverse causality is not an issue once we use the instrument (see columns (3)-(4) in Table 3). Another way to account for pre-treatment trends is to control for them in the main specification. This is what we will do in Section 6, where we find results which are very similar to our main findings.

An emerging literature has highlighted some of the weaknesses of the shift-share instrument approach and recommended a set of stringent tests. In particular, one important concern is that the initial shares of the country-of-origin groups are endogenous. To address this issue, we measure how relevant each country of origin is in generating the identifying variation in the instrument by calculating the Rotemberg weights, as in Goldsmith-Pinkham et al. (2020). Table A2 in the Appendix shows that East-European immigrants carry the largest weight. Next, we follow again Goldsmith-Pinkham et al. (2020) and regress the initial shares of each immigrant group on the pre-period change in the fiscal variables of interest. The results in Table A3 show no significant correlation between the initial shares and the 2001-2007 change in per capita total revenues and expenditures for any region of origin, including the groups with the highest importance (i.e. Rotemberg weights).

5.3 2SLS results

In this section, we present the 2SLS estimates of the impact of immigration. First, we explore the effect of immigration on municipalities' balance sheet items (Table 5). The results are not substantially dissimilar from the OLS estimates.[34] We find that the arrival of immigrants increases total revenues (column (1)) but not total expenditures (column (4)), which is consistent with the fact that the surplus of the municipality increases (column (7)). The reason why total expenditures are not significantly affected is that there seems to be a substitution away from capital expenditures towards current ones (columns (5)-(6)). This allows local governments to satisfy the fiscal rules,[35] while at the same time reaping the political benefit of increasing current public expenditures.

Our estimates imply that the change in the immigrant share that took place on average in an Italian municipality between 2008 and 2015, by 2.7 percentage points, led to an increase in per capita total revenues in 2015, relative to 2008, by 42 percent, equal to approximately eur 600. The estimates based on the regression specifications in levels, rather than in logs, are qualitatively similar.[36] When we run the regressions in long differences, between 2008 and 2015, the results in terms of signs and significance are

2015. They should be compared to the results of the main analysis in the long difference as well. See Table 4, where we regress the 2008-2015 change in, respectively, total revenues and expenditures on the change in predicted immigrant shares over the same period, using both OLS and 2SLS. The effects are similar to what we get when we exploit the yearly variation in the data.

[34] The main differences are that, in the IV results: both current revenues and expenditures have a positive and significant coefficient; and capital revenues are not significantly affected. In addition, the IV coefficients are an order of magnitude larger than the OLS coefficients. This is consistent with the presence of a measurement error *attenuating* the OLS coefficients, as discussed in section 5.2.

[35] That is, the balanced budget requirement and the total expenditures cap.

[36] See Appendix 14.

broadly confirmed (see Table 4).[37] Importantly, the long difference specifications allow us to control for pre-treatment trends (see Table 4) and to confirm that our results are robust.

Next, we analyze the impact on the revenues and expenditures data broken down by type. We focus on current revenues in Table 6. When immigrants arrive, there is no significant change in income tax revenues, which anyways represent a very small fraction of total entries (around 5%, see column (1)). What drives the increase in current revenues is mainly property tax revenues (regression (2)), transfers from the central government (regression (6)) and other revenues (regression (7)). They all go up when immigrants arrive and they account for, respectively, 24%, 30% and 19% of total current revenues. The inflow of immigrants also increases other taxes and fees, which represent 1% and 16% of total current revenues (columns (3) and (4)). In what follows, we further investigate these results with the goal of shedding light on the channels of impact.

5.3.1 Income tax revenues

The estimated impact of immigration on income tax revenues at the local level (*addizionale IRPEF*) is not significant (column (1)). Additional regressions provide important insights on this result (see Table 7). First we find that, just like income tax revenues, the income tax rate is not significantly affected by the arrival of immigrants (column (3)). On the other hand, we observe a decrease in the income tax base at the municipality level – which is approximately equal to average income (column (2)). From a labor-market point of view, we would expect an increase in average income of *current residents* when immigrants arrive (the so called "migration surplus") – although this effect should take place at the local labor market level, which is more aggregate than a municipality.[38] At the same time, through compositional effects average income of *current plus new residents* should decrease, given that immigrants to Italy are low-skilled in terms of the occupations they are employed in (see Table A1).

Additional results are consistent with both compositional and labor-market effects. In Table 7, regressions (4) to (11), we use data from income tax forms at the central government level (Form 730) on average income in eight income categories. We estimate that the arrival of immigrants to a municipality decreases average income in the bottom four income categories and increases it in the top four. We interpret these effects as consistent with both labor-market and compositional effects.[39] Overall, the negative impact on average income suggests that compositional effects, on net, more than offset labor-market impacts.

[37] The magnitudes become larger.

[38] In 2011, according to Istat, there were 611 local labor markets in Italy, which are equivalent to U.S. commuting zones.

[39] The decrease in average income in the bottom four income categories is in line with both compositional effects and labor-market effects that work through substitution. The increase in average income in the top four income categories is in line with labor-market effects driven by complementarity between immigrants and high-skilled workers and capital. This is in line with the findings of Colas and Sachs (2024) and Clemens (2021).

5.3.2 Property tax revenues

The 2SLS estimates also indicate that immigration leads to a statistically significant and large positive impact on property tax revenues (ICI/IMU plus TASI/TARI), as shown in regression (2), Table 6. The estimates imply that the change in the immigrant share that took place on average in an Italian municipality between 2008 and 2015, by 2.7 percentage points, doubled per capita property tax revenues in 2015, relative to 2008. In what follows, we attempt to understand what drives this result. As already mentioned, in the Italian setting, taxable property values (the property tax base) are not linked to current conditions in the housing market, since cadastral values are seldom updated. The increase in property tax revenues might be driven, instead, by higher tax rates. While we find evidence that property tax rates go up in some specifications, when immigrants arrive, this is not the main reason why property tax revenues increase, as we will explain in detail below.

Another possibility is that some housing units move from being exempt to non-exempt, as a consequence of immigration. Since 2008 (with the exception of 2012),[40] Italian residents have been exempt from property taxes on owner-occupied houses, while this exemption does not apply to secondary houses which include (long-term registered) rentals. This was one of the main policy changes carried out by the newly elected Berlusconi government in 2008. Immigrants are less likely than natives to be home owners. According to the Survey on Households Income and Wealth (SHIW) at the Bank of Italy, approximately 80% of Italian citizens are home owners while only 20% of foreign citizens are. Hence we hypothesize that, when immigrants arrive, they increase the number of long-term registered rentals. The latter by definition cannot be designated as owner-occupied, rather they must be reported as secondary residences and are therefore non-exempt.

Our hypotheses are confirmed by the data. One of the most robust findings of our analysis is that the arrival of immigrants increases property tax revenues specifically from *secondary residences*, as shown in column (3), Table 8. This result holds in all the specifications we run, as explained in detail in the Robustness checks section. In particular, it continues to hold when: we run the regressions focusing on the sample of non-touristic municipalities, which are less affected by other changes in the real estate market, such as Airbnb; we exclude big municipalities, i.e. those with more than 250,000 inhabitants in 2008; we estimate the regressions in levels. In the main set of regressions, we also find that the secondary-residence property tax rate increases when immigrants arrive (regression (7), Table 8). However, when we control for it, the immigrant share continues to have a positive, significant and almost unchanged impact on revenues from secondary sources (regression (9), Table 8). This implies that the revenue effect is not driven by the tax-rate change. In the main table, we also find that the impact on property tax revenues from non-exempt primary residences and on other property tax revenues is positive and significant (Table 8). However, these findings, as well as the results on property tax rates, are not robust (see robustness checks in Section 6). For example, when we run the regressions focusing on the sample of non-touristic municipalities or when we exclude big municipalities, property tax

[40] In 2012, the property tax rate on main dwellings was still lower than on secondary dwellings, which is what is relevant for the mechanism we have in mind.

revenues from non-exempt primary residences decrease and tax rates are not affected (see Table A5).

While our results so far suggest that some houses switch from tax-exempt primary use to non-exempt secondary use, other explanations for the increase in property tax revenues are also plausible. In Appendix (see Section 11) we develop a theoretical model of the impact of immigration on local public finances taking into account the specifics of the Italian system. In equation (10), we show that besides the scale channel[41] and the possible changes in the tax rate, three effects are at work when we focus on property tax revenues. The first is related to the impact of immigrants on new constructions; the second effect is the increase in the average cadastral value of the housing stock, if new constructions take place; and the third effect is the one we have hypothesized, which is related to the increase in the share of taxable real estate units (mainly rentals) due to the arrival of immigrants. All these effects, if present, are positive and might counterbalance the scale effect leading to an increase in per capita revenues from property taxes. Of course, changes in the tax rate, if present, can reinforce or counteract these effects.

Regarding the first and second effects, construction of new housing units might increase when immigrants arrive, given that they are heavily employed in the building sector. However, it seems like our results are driven by the tax-rate exemption, since we find different results for years when the exemption was not in place. We look at the impact of immigration on property tax revenues before 2008, that is before Berlusconi changed the rules for property tax rates on primary vs. secondary residences. We find no evidence of a positive impact of immigration on property tax revenues in 2003-2007 (see Table 9).[42] The falsification exercise suggests that new constructions are not the driver of our results. If they were, property tax revenues should increase before 2008 as well, when immigrants arrive.[43] At the end of this section, we will provide additional evidence on the impact of immigrants on new buildings, for a different period of time.

An important question is why houses which are newly rented out to immigrants were not already producing tax revenues. It must be the case that these houses were declared as primary residences, hence exempt, but it is unlikely that they were owner-occupied, i.e. that owners would rent the house where they are living. One possibility is that these houses were used (or declared to be) by a family member. One consequence of the 2008 property tax exemption on primary houses is that Italian households, who own more than one house, have an incentive to register each of them as a first residence, in order to pay a lower tax rate. This is possible if a family member, like an adult child, spouse or partner, lives (or declares to live) there. So, for example, under certain conditions, a husband and

[41] By scale channel, we mean the impact of the increase in the total population.

[42] Note that the falsification exercise is run on *total* property tax revenues because, before 2008, residences were not designated as primary vs. secondary.

[43] Our results do not rule out the possibility that immigrants increase the number of buildings with a lag of a few years, which would affect property tax revenues in the medium to long run, but not in the same year. In addition, while the unit of our analysis is municipalities, the impact of immigrants on constructions is likely to take place at the commuting zone level, since immigrants might live in a Comune and work in another one.

wife can each register a house as primary residence.[44] It is also possible that the houses (which immigrants rent) were previously rented out to Italians without a formal contract (and declared as owner occupied). This is less likely when the tenant is an immigrant since, in Italy, to get *permesso di soggiorno* (residence permit), immigrants need an official rental contract, which means that these rental transactions must be registered with authorities. Another plausible hypothesis is that the house, where immigrants move in, was previously inhabited by an elderly person/relative who owned it and then passed away. Finally, it might be that the houses rented out to immigrants were previously empty[45] but not recorded as secondary houses. In all these situations, these residences were not producing property tax revenues before immigrants moved in.

Directly related to our hypotheses, we were able to obtain data on the use of housing at the municipality level. The only caveat is that these data are for a more recent period of time, between 2015 and 2021. For these years, we can observe whether a given house is recorded as (1) "owner-occupied", (2) "other", that is occupied by relatives or not formally registered, (3) "rented out" or (4) "empty". The first two categories ((1) and (2)) are exempt from property taxes, while the latter two ((3) and (4)) are subject to the secondary property tax rate. The regressions based on these data are consistent with our hypotheses. We find that the share of long-term registered rentals goes up in municipalities where immigrants arrive (see column (5), Table 10). This is true for owner-occupied houses as well. At the same time, the share of houses occupied by relatives or not formally registered, as well as the share of empty houses, decrease. Overall we estimate that, when immigration takes place, the total share of exempt residences decreases significantly (at the 10% level), while the number of tax-producing residences (non-exempted) increases significantly. Finally, we also confirm that the stock of housing does not significantly increase with the arrival of immigrants (see column (7), Table 10).[46]

5.3.3 Other revenues

Our estimates show that, besides property tax revenues, other sources of current revenues go up when immigrants arrive. First, we find that the arrival of immigrants produces a significant increase in the per capita transfers from the central government to the municipality, which represent 30% of total current revenues (see column (6) in Table 6). Importantly, the increase in total current revenues is not all driven by transfers (see regression (8) where we consider total current revenues excluding transfers). One explanation for the increase in transfers is that it is mechanically driven by formulas that take into account the poverty rate and the share of low-income individuals in the

[44] The fact that this practice has become widespread is evidenced by a recent decision of the Italian Supreme Court that spouses can have their fiscal residence in different locations (Corte Costituzionale, 2022).

[45] Low interest rates on mortgages in the period of analysis created an incentive for Italians to invest in the real estate market.

[46] As already mentioned, this result may arise from the fact that we are running the regression at the municipality level, as opposed to the local-labor-market level. In other words, immigrants who live in a municipality may contribute to an increase in the number of houses in nearby municipalities.

population. That is, the arrival of immigrants likely leads to greater demand for public services that target low-income populations and are partially funded by transfers.[47]

Other revenues and fees, which represent respectively 19% and 16% of total current revenues, also go up significantly. Other revenues represent an accounting category (clearing entries) that have a budget counterpart in the current expenditures side in the loan repayment category. The increase of other revenues with the arrival of immigrants is roughly proportional to the increase in current expenditures and does not affect the overall budget balance. Fees pay for excludable public services such as access to sports facilities, school buses, etc. The increase in revenues raised as fees, with the arrival of immigrants, is likely explained by the greater use of these public services by immigrants, compared to Italians.

5.3.4 Expenditures

Per capita current expenditures increase as well, when the share of immigrants goes up. In column (5), Table 5, we estimate a positive and significant impact of immigration on per capita total current spending. The results in Table 11 also suggest that there are changes in the composition of current expenditures. We estimate a statistically significant increase in expenditures on garbage collection, municipal police, cultural programs and public transportation. Importantly, we find that per capita current expenditures on education are not affected by the arrival of immigrants.[48] This might be explained by the fact that pre-school is not compulsory in Italy, hence although demand for this service increases with the arrival of immigrants, local authorities are not required to accommodate it. In addition, evidence from other countries suggests that immigrant families are less likely to send their kids to pre-school. Finally, the effects on per capita *capital* expenditures are presented in Table 12. They are either negative or not significant, in contrast to what we found for per capita *current* expenditures.

One potential explanation for the negative effect of immigration on per-capita *capital* expenditures lies in the institutional framework. As previously mentioned, during the period under analysis, Italian municipalities were subject to an expenditure cap. Our findings are consistent with the extant literature, which posits that when fiscal rules bind overall expenditures, *current* expenditures are favored at the expense of *capital* expenditures.[49] An alternative, and possibly concurrent, explanation of the negative effect of immigration on *capital* expenditures pertains to the rigidity of the latter in the short run, which might lead to a reduction of the per-capita *capital* expenditure when population increases unexpectedly. In any case, a reduction in capital expenditures could have medium- to long-term negative effects on municipalities' ability to provide services.

[47] A more detailed analysis with SIOPE data highlights that transfers from other levels of governments – namely, central government and *Regioni* – increase as a consequence of the arrival of new immigrants while transfers from other municipalities decrease.

[48] This result differs from Speciale (2012) who finds that immigration has reduced public spending on education in European countries *at the central government level*.

[49] see Venturini (2020) for a review of the related literature.

For current expenditures, there are two possible mechanisms, respectively on the demand and supply side, that might explain the observed positive impact of immigration. On the demand side, available evidence indicates that immigrants are more likely to use social services provided by municipalities, as such services are mainly offered on a means-tested base and immigrants are, on average, more likely to be poor. For example, 23 percent of individuals born in Italy were poor – as opposed to 47 per cent of foreign born individuals (source: Bank of Italy). Similarly, in 2016, 20 percent of natives were at risk of poverty, while for foreigners the percentage was 55 per cent (source: Bank of Italy).[50] One example of means-tested social services might be cultural programs, for which current expenditures increase when immigrants arrive.

The other spending categories which experience an increase in expenditures, following the arrival of immigrants, are garbage collection, municipal police, and public transportation. In municipalities that receive immigrants, there may be an increase in demand for garbage collection which is driven by the increase in the amount of garbage. The reason is that, to the extent some of the residences newly rented out to immigrants were previously empty or only occasionally occupied, the amount of garbage of those residences was smaller. The increase in spending on municipal police, when immigrants arrive, may be due to the fact that immigrants are more likely to experience homelessness than the Italian population. One alternative explanation relies on the fact that the arrival of immigrants may increase concerns about public security. Finally, the increase in spending for public transportation is likely driven by the greater use of buses, metro, etc. by immigrants, relative to the native population, since they are less likely to own a car. The counterpart on the revenue side might be the increase in fees, since public transportation is fee-based.

Drivers on the supply side might also explain the observed positive impact of immigration on current expenditures. One of our results on the revenue side was that municipalities with a higher share of immigrants experience an increase in *own* current revenues (specifically from property taxes) in the municipal budget. This likely leads to greater accountability of local politicians towards their polity and generates pressures for a more efficient use of resources and for types of expenditures that are closer to voter preferences (Fisman and Gatti, 2002; Hatfield and Kosec, 2013; Bianchi et al., 2023) and more visible in the short run as opposed to the long run (current vs. capital expenditures). In particular, Bianchi et al. (2023) show that, during the process of fiscal decentralization in Italy, in municipalities that experienced a larger increase in the reliance on own resource, general expenditures decreased and provision of social services increased.[51]

[50] There are also expenditures that are specifically targeted to immigrants, but these represent only 5 percent of the social expenditures of the municipalities and some are targeted to asylum seekers that are not considered in our study.

[51] In the case of Bianchi et al. (2023), the increase in the share of own revenues is mainly due to the way in which the property tax base is defined in Italy: Municipalities with relatively newer housing stock benefited more from fiscal decentralization because of the higher cadastral values of more recent buildings. In our case, municipalities with a higher share of migrants benefit from the higher propensity of immigrants to rent rather than own houses, thus increasing the number of units that fall into the tax area. For example, in 2016, 73 per cent of households whose head was born in Italy owned the house where they lived, while this percentage is much lower at 21 per cent for foreign-born heads of household (Bank of Italy).

6 Robustness checks

In this section we estimate several additional specifications aimed at assessing the robustness of our results.

6.1 Excluding touristic municipalities

In recent years, Italian art cities and other holiday destinations, such as beach and mountain resorts, have experienced a large increase in the number of tourists. In particular, the beginning of the period we analyze coincides with the launch of AirBnb in Italy (in 2008). AirBnb allows home owners to rent their apartments to tourists using an online platform. It has substantially affected the conditions of the rental market of Italian touristic cities, for example by changing the number of units available for long-term rentals. At the same time, these touristic municipalities also attract immigrants who are heavily employed in the hospitality and restaurant industries. To the extent real estate dynamics linked to tourism and AirBnb affect property tax revenues, this may create an omitted variable bias in the estimation of the impact of immigration.

To address this point, we exclude touristic municipalities from the sample and analyze the impact of the arrival of immigrants on property tax revenues divided by type (primary vs. secondary) and on property tax rates (see Table A5). We use a measure of touristic vocation that ranges between 0 and 5 and focus on municipalities with values up to 3. We find that, in the sample of non-touristic municipalities, it is still the case that property tax revenues increase when immigrants arrive, but this result is definitely driven by revenues on secondary residences (which increase) and not revenues on main residences (which decrease) nor tax rates (which are not significantly affected).

6.2 Aggregating municipalities into unions

Some Italian *Comuni*, especially small ones, are part of a larger consortium (union) of municipalities that jointly provide public goods and services. This may affect the dynamics of public expenditures. However, when we aggregate data to the unions' level, we find no difference in terms of the effect of the arrival of immigrants on balance sheet items, specifically on spending categories (see Table A6). Total expenditures do not change, current expenditures increase and capital ones decrease.

6.3 Analyzing municipalities according to size

Next, we run the analysis focusing on specific groups of municipalities by size. In Tables A8 and A9, we exclude big municipalities, that is municipalities with more than 250,000 inhabitants in 2008 (Roma, Milano, Napoli, Torino, Palermo, Genova, Bologna, Firenze, Bari, Catania, Venezia, Verona). Our goal is to investigate whether our results are driven by these very large municipalities or, rather, they are robust when we exclude them. Overall we find that our findings are robust. In particular, the results on balance sheet items are robust – total and current revenues increase, current expenditures increase while

total expenditures do not – except that capital expenditures do not decrease and the surplus does not increase. We also find that, when we exclude big municipalities, the increase in property tax revenues that occurs with the arrival of immigrants is driven by the fact that property tax revenues on secondary residences and garbage revenues go up, while property tax revenues on primary residences decrease.[52]

Another important check is to focus the analysis on municipalities with more than 5,000 residents, which were subject to the same fiscal rules over the whole period of analysis. By focusing on a sample of *Comuni* that is homogeneous in terms of fiscal treatment, we rule out the possibility that the estimates are driven by more stringent fiscal rules, rather than an increase in immigration. The results are very similar to our baseline findings (see Tables A10 and A11). Similarly, the estimates are robust when we focus on municipalities with more than 1,000 residents (see Tables A12 and A13).

On the other hand, the results do not hold if we only look at small municipalities (below 5,000 inhabitants and below 1,000 inhabitants). However, for these samples, the F values are very low (respectively 4.06 and 2.70) which implies that we cannot draw strong conclusions from the second-stage estimates (see Tables A14, A15, A16 and A17).

6.4 Analyzing subsets of years

Next, we run the regressions excluding the year 2012, which is the only year in the sample in which owner-occupied units were subject to taxation, although the tax rate was still lower than on secondary residences. The results are very similar to the baseline findings (see Tables A18 and A19). In the next two Tables (A28 and A29), we exclude 1, 2, ..., up to 6 years of data from the empirical analysis and show the frequency of significant estimates. In particular, we drop 1 year in column (1), 2 consecutive years in column (2), ..., up to 6 consecutive years in column (6). Column (7) summarizes the results for all the sub samples considered in columns from (1) to (6). All the balance sheet results are fairly robust; among the property tax revenues estimates, it is the impact on property tax revenues from secondary residences that is the strongest.

7 Conclusions

This paper sheds new light on the fiscal impact of immigration at the local level in a European context, providing robust causal evidence for Italy during the period 2008-2015. Using administrative data for nearly $7,000$ municipalities and an instrumental variables strategy that exploits variation in immigrant inflows across origin groups, we find that immigration increases per capita total and current revenues, with no significant effect on total expenditures. The fiscal surplus thus expands, driven primarily by higher property tax revenues linked to secondary residences – a channel unique to the Italian institutional

[52]The decrease in property tax revenues on primary residences might be due to the fact that luxury houses, which are not exempt from property tax even if they are owner occupied, are rented out to (high-income) immigrants or tourists.

setting where cadastral values are fixed and owner-occupied dwellings are tax-exempt. On the expenditures side, we observe a reallocation from capital to current spending, reflecting binding fiscal rules that cap overall expenditure growth while local governments need to satisfy rising demand for municipal services. This reallocation highlights an important tension: while immigration strengthens local fiscal balances in the short run, reduced investment in capital expenditures may have implications for future local infrastructure and long-term public service quality.

These findings have broader implications for the literature on the fiscal effects of immigration. In contrast to results from contexts like the United States, where low-skilled immigration can erode local per capita tax bases through income and housing price effects, our results demonstrate that institutional characteristics such as property tax structures, exemption regimes, and expenditure rules can fundamentally shape the local public finance response to demographic shocks.

Future research should investigate several open questions. First, it would be valuable to study whether the observed fiscal impacts persist over longer horizons and whether capital expenditure constraints affect local economic development. Second, understanding how these fiscal changes interact with political attitudes towards immigration and local electoral outcomes could offer insight into the political economy feedbacks that shape migration policy. Finally, comparative work across European municipalities with varying fiscal institutions could illuminate how generalizable these channels are within the EU context.

Overall, our results suggest that concerns over the fiscal burden of immigration should be carefully contextualized within the specific institutional and policy environment. Thoughtful tax design and transparent expenditure rules can play a pivotal role in ensuring that immigration contributes positively to local public finances and community welfare.

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9 Tables

Table 1: Summary Statistics

	2008		2015		2008-2015	
Panel A: Per-Capita Revenues	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**
Taxes on Personal Income	52.404	38.286	75.054	38.466	62.198	38.405
Taxes on Real-Estate (Main Dwelling)	26.420	64.829	8.628	40.503	25.259	76.814
Taxes on Real-Estate (Other)	158.383	117.184	155.155	355.007	157.736	346.809
Taxes on Real-Estate (Garbage)	74.472	72.398	200.854	113.204	109.514	94.064
Other Taxes	11.011	12.141	15.440	24.175	12.512	18.028
Fees	194.583	220.744	187.812	206.813	195.907	215.657
Loans	79.631	121.393	7.481	40.289	59.717	113.239
Other Revenues	195.522	257.940	545.545	697.059	235.091	366.938
Transfers	426.760	231.170	246.731	191.077	371.049	314.328
Capital Revenues	314.288	490.376	174.645	512.641	209.365	421.108
Total Current Revenues	1219.186	573.423	1442.684	959.048	1438.319	907.825
Total Current Revenues (Excl. Transfers)	792.426	465.820	1195.953	879.965	1228.955	693.901
Total Revenues	1533.474	868.787	1617.329	1129.308	857.906	640.555
Panel B: Per-Capita Current Expenditures						
General Public Services	300.140	131.231	257.405	131.121	279.207	135.511
Legal Expenses	5.626	10.155	3.841	8.065	5.263	9.789
Law and Order	54.220	33.564	50.728	36.742	53.717	37.684
Education	94.558	47.488	81.855	45.894	89.879	48.608
Cultural Heritage	32.268	26.919	25.540	23.243	28.474	25.241
Sport and Recreation	14.782	14.750	11.575	15.356	13.046	15.203
Tourism	6.595	18.786	5.534	22.395	5.695	18.970
Transport	83.680	57.233	106.756	123.863	100.667	103.690
Garbage Disposal	162.514	105.461	230.438	123.829	196.545	121.565
Social Protection	146.944	103.882	134.359	99.143	143.533	111.526
Economic Affairs	9.069	11.101	8.386	14.973	8.117	10.874
Housing and Community Amenities	8.042	74.978	7.039	65.940	7.488	79.399
Total Current Expenditures	918.439	369.767	923.456	434.308	931.631	424.396
Panel C: Per-Capita Capital Expenditures						
General Public Services	124.720	335.885	60.194	490.756	72.270	323.584
Legal Expenses	1.269	9.499	0.714	9.662	0.741	8.024
Law and Order	1.962	11.739	0.989	4.504	1.312	6.508
Education	32.396	77.831	21.197	51.622	22.885	66.658
Cultural Heritage	12.360	47.456	7.890	37.170	8.839	40.402
Sport and Recreation	15.215	65.208	9.042	66.421	10.094	66.245
Tourism	3.150	65.030	3.435	43.485	3.019	62.383
Transport	115.864	161.171	56.148	115.441	71.359	131.665
Garbage Disposal	96.080	317.104	67.248	267.152	69.963	279.011
Social Protection	18.365	58.674	9.501	39.072	12.662	55.271
Economic Affairs	6.365	47.425	4.385	46.778	5.280	49.643
Housing and Community Amenities	7.349	149.605	2.523	36.287	4.320	190.536
Total Capital Expenditures	435.094	612.466	243.265	628.420	282.744	568.649
Panel D: Demographic Variables						
Native Population (Num. of People)	7,161	39,609	7,107	39,467	7,143	39,359
Immigrant Population (%)	5.481	3.556	8.206	4.715	7.100	4.396
Native Population Under 25 (%)	22.230	4.730	21.095	3.820	21.603	4.312
Native Population Over 65 (%)	20.054	4.373	21.760	3.910	20.723	4.165
Native Female Population (%)	48.450	2.211	47.320	2.517	47.765	2.422
Employment (%, by Province)	58.872	9.926	56.147	11.068	57.387	10.546
Observations	6936		6936		55488	

Notes: Per-capita values are obtained by dividing the current deflated monetary value by the total current population. The base year is the 2015. Summary statistics are population weighted, but native population.

Table 2: First-Stage Regression

	(1) Share of Immigrants
Instrumented Share of Immigrants	0.342*** (0.035)
Observations	55,488
Num. of *Comuni*	6,936
Municipality FE	YES
Year FE	YES

Notes: The estimation model is a panel regression with municipality and year fixed effects. The unit of analysis is the municipality. The dependent variable is the share of immigrants in the overall population, computed as the sum of the immigrant population and the 2008 native population. The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. The controls at the province level include the employment rate. All the controls are the 2008 value interacted with a linear time trend. Each regression is weighted by the total population of the municipality. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table 3: Reverse Causality and Falsification Test

	(1) Δ Imm. (2008-2015)	(2) Δ Imm. (2008-2015)	(3) Δ Exp. (2001-2007)	(4) Δ Rev. (2001-2007)
	OLS		IV	
Δ Rev. (2001-2007)	-0.004 (0.026)			
Δ Exp. (2001-2007)		-0.015 (0.024)		
Δ Imm. (2008-2015)			-0.005 (0.033)	-0.019 (0.031)
Observations	6,867	6,867	6,867	6,867
Weak IV Test	-	-	103.25	103.25

Notes: The estimation model is a cross-sectional regression. The unit of analysis is the municipality. In columns (1) and (2) the explanatory variable is the change in (log of) per-capita total revenues and expenditures, respectively, over the years 2001-2007. In columns (3) and (4) the explanatory variable is the change in the share of immigrants over the period of analysis (2008-2015). The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. The controls at the province level include the employment rate. All the controls are the 2008 value. Each regression is weighted by the total population of the municipality. The reported Weak IV Test is the Kleibergen-Paap rk Wald F statistic. Robust standard errors in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table 4: Long-Difference Regressions and Pre-Trend Analysis (Dix-Carneiro et al., 2018)

	(1) Δ Rev.	(2) Δ Exp.	(3) Δ Rev.	(4) Δ Exp.
Δ Share of Immigrants	0.232**	0.001	0.230**	-0.000
	(0.092)	(0.066)	(0.092)	(0.066)
Δ Rev. (2001-2007)			0.002	
			(0.030)	
Δ Exp. (2001-2007)				-0.001
				(0.027)
Observations	6,936	6,936	6,867	6,867
Weak IV Test	102.43	102.43	105.07	105.07

Notes: The estimation model is a cross-sectional regression where the dependent variables are the change over the period of analysis in (log of) per-capita revenues, in columns (1) and (3), and (log of) per-capita expenditures, in columns (2) and (4). The unit of analysis is the municipality. The explanatory variable is the change in the share of immigrants over the period of analysis. In columns (3) and (4), we control for the change in (log of) per-capita total revenues and expenditures over the years 2001-2007, as in Dix-Carneiro et al. (2018). The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. The controls at the province level include the employment rate. All the controls are the 2008 value. Each regression is weighted by the total population of the municipality. Robust standard errors in parenthesis with * p<0.10, ** p<0.05, *** p<0.01

Table 5: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.155**	0.195***	-0.012	-0.023	0.094**	-0.327**	3.835**
	(0.064)	(0.043)	(0.073)	(0.025)	(0.048)	(0.146)	(1.653)
Sample Mean	1,438	1,229	209.4	1,214	931.6	282.7	164.2

Notes: See notes at the end of Table 6.

Table 6: The Effect of Immigration on Municipalities' Current Revenues, 2SLS Results

	(1) Per. Income	(2) Property	(3) Other Taxes	(4) Fees	(5) Loans	(6) Transfers	(7) Other Revenues	(8) Excl. Transfers
Share of Immigrants	0.424	0.376***	0.863***	0.060*	-0.181	0.137**	0.310***	0.258***
	(0.339)	(0.081)	(0.201)	(0.031)	(0.291)	(0.063)	(0.089)	(0.061)
Sample Mean	62.20	292.5	12.51	195.9	59.72	371	235.1	857.9
Share of Curr. Rev.	0.051	0.238	0.010	0.159	0.049	0.302	0.191	0.698

Notes: The estimation model is a panel regression with municipality and year fixed effects. The unit of analysis is the municipality. In Table 5, model (7), the surplus is computed as total revenues minus total expenditures, net of loans. All the dependent variables are in logs and expressed in per-capita terms. The explanatory variable is the share of immigrants in the overall population, computed as the sum of the immigrant population and the 2008 native population. The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. The controls at the province level include the employment rate. All the controls are the 2008 value interacted with a linear time trend. Each regression is weighted by the total population of the municipality. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33. The number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table 7: The Effect of Immigration on Personal-Income Tax Rate and Tax Base (Details), 2SLS Results

	(1) Revenues	(2) Tax Base	(3) Tax Rate	(4) Class 1	(5) Class 2	(6) Class 3	(7) Class 4	(8) Class 5	(9) Class 6	(10) Class 7	(11) Class 8
Share of Immigrants	0.424	-0.025***	-0.040	-0.033*	-0.002	-0.001***	-0.003***	0.004***	0.011	0.011	0.070**
	(0.211)	(0.000)	(0.793)	(0.080)	(0.784)	(0.007)	(0.000)	(0.000)	(0.223)	(0.453)	(0.048)
Observations	55,486	55,488	55,488	51,329	55,488	55,486	55,488	55,486	53,749	52,313	44,843
Number of *Comuni*	6,936	6,936	6,936	6,845	6,936	6,936	6,936	6,936	6,862	6,770	6,149
Sample Mean	62.20	12,594	4.491	-10,524	5,068	12,981	20,804	35,511	65,289	92,966	193,560

Notes: See notes at the end of Table 8

Table 8: The Effect of Immigration on Property Tax, 2SLS Results

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.376***	0.561**	0.541***	0.831**	-0.002	0.102***	0.047**	0.532*	0.526***
	(0.081)	(0.268)	(0.143)	(0.409)	(0.043)	(0.025)	(0.023)	(0.276)	(0.147)
Main Tax Rate								0.282*	
								(0.148)	
Secondary Tax Rate									0.315*
									(0.189)
Observations	55,478	55,483	55,481	55,486	55,488	55,488	55,488	55,483	55,481
Sample Mean	292.5	25.26	157.7	109.5	160.1	4.803	8.017	25.26	157.7

Notes: The estimation model is a panel regression with municipality and year fixed effects. The unit of analysis is the municipality. In Table 7, models (4) to (11), the dependent variable is income per taxpayer in the reference income class. All the dependent variables are in logs. The explanatory variable is the share of immigrants in the overall population, computed as the sum of the immigrant population and the 2008 native population. The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. The controls at the province level include the employment rate. All the controls are the 2008 value interacted with a linear time trend. Each regression is weighted by the total population of the municipality. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33 in Table 8, and of 94.31 in Table 7. All regressions are based on 6,936 *Comuni*, unless otherwise specified. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table 9: The Effect of Immigration on Property-Tax Revenues, 2SLS Results on Years 2003-2007

	(1) Property Tax Revenues	(2) Property Tax Revenues
Share of Immigrants	-0.003	-0.149
	(0.006)	(0.099)
Observations	42,486	42,420
Number of *Comuni*	7,081	7,070
Weak IV Test	-	25.20
Sample Mean	5.998	5.998

Notes: The estimation model is a panel regression with municipality and year fixed effects. The unit of analysis is the municipality. All the dependent variables are in logs. The explanatory variable is the share of immigrants in the overall population, computed as the sum of the immigrant population and the 2003 native population. The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. All the controls are the 2003 value interacted with a linear time trend. Each regression is weighted by the total population of the municipality. The reported Weak IV Test is the Kleibergen-Paap rk Wald F statistic. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table 10: The Effect of Immigration on the Use of Houses, 2SLS Results on Years 2015-2021

	(1)	(2) Exempted	(3)	(4)	(5) Non exempted	(6)	(7) Total
	Total	Owner-Occ.	Other	Total	Rented	Empty	
Share of Immigrants	-0.006*	0.008***	-0.016***	0.033**	0.012***	-0.004***	0.001
	(0.004)	(0.002)	(0.004)	(0.016)	(0.004)	(0.001)	(0.006)
Observations	51,642	51,652	51,649	46,141	46,147	51,630	51,695
Num. of *Comuni*	7,379	7,379	7,380	6,749	6,749	7,378	7,385
Share of Total Stock	0.745	0.582	0.163	0.255	0.124	0.132	1

Notes: The estimation model is a panel regression with municipality and year fixed effects. The unit of analysis is the municipality. The dependent variables are: in model (1) the share of non-exempted houses, in model (2) the share of owner-occupied houses, in model (3) the share of non-declared houses and houses occupied by household members, in model (4) the share of exempted houses, in model (5) the share of rented houses, in model (6) the share of empty houses, in model (7) the total number of houses. All the dependent variables are in logs. The explanatory variable is the share of immigrants in the overall population, computed as the sum of the immigrant population and the 2015 native population. The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. All the controls are the 2015 value interacted with a linear time trend. Each regression is weighted by the total population of the municipality. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which value ranges from 13.41, in columns (4) and (5), to 13.44 in column (6). Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table 11: The Effect of Immigration on Municipalities' Current Expenditures, 2SLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	General Public Services	Legal Expenses	Local Police	Education	Culture	Sport and Recreation
Share of Immigrants	0.019	-0.036	0.078***	0.017	0.159***	0.048
	(0.089)	(0.070)	(0.015)	(0.029)	(0.029)	(0.042)
Sample Mean	279.2	5.263	53.72	89.88	28.47	13.05
Share of Curr. Exp.	0.300	0.006	0.058	0.096	0.030	0.014
Panel B	Tourism	Transport	Garbage Disposal	Social Protection	Economic Affairs	Housing and Community Amenities
Share of Immigrants	-0.033	0.155*	0.217**	0.028	0.070	0.008
	(0.107)	(0.089)	(0.107)	(0.044)	(0.055)	(0.072)
Sample Mean	5.695	100.7	196.5	143.5	8.117	7.488
Share of Curr. Exp.	0.006	0.108	0.211	0.154	0.009	0.008

Notes: See notes at the end of Table 12.

Table 12: The Effect of Immigration on Municipalities' Capital Expenditures, 2SLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	General Public Services	Legal Expenses	Local Police	Education	Culture	Sport and Recreation
Share of Immigrants	-0.466**	0.011	-0.273***	-0.515*	-0.242	-0.221
	(0.184)	(0.167)	(0.091)	(0.301)	(0.192)	(0.249)
Sample Mean	72.27	0.741	1.312	22.89	8.839	10.09
Share of Cap. Exp.	0.256	0.003	0.005	0.080	0.031	0.036
Panel B	Tourism	Transport	Garbage Disposal	Social Protection	Economic Affairs	Housing and Community Amenities
Share of Immigrants	-0.104	-0.238	-0.108	-0.159	-0.014	-0.444*
	(0.099)	(0.244)	(0.160)	(0.149)	(0.148)	(0.246)
Sample Mean	3.019	71.36	69.96	12.66	5.280	4.320
Share of Cap. Exp.	0.010	0.252	0.247	0.045	0.019	0.0153

Notes: The estimation model is a panel regression with municipality and year fixed effects. The unit of analysis is the municipality. The dependent variables are per-capita current expenditures, Table 11, and per-capita capital expenditures, Table 12, divided by mission. All the dependent variables are in logs. The explanatory variable is the share of immigrants in the overall population, computed as the sum of the immigrant population and the 2008 native population. The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. The controls at the province level include the employment rate. All the controls are the 2008 value interacted with a linear time trend. Each regression is weighted by the total population of the municipality. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33. The number of observations is $55,488$ in all regressions. All regressions are based on $6,936$ *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

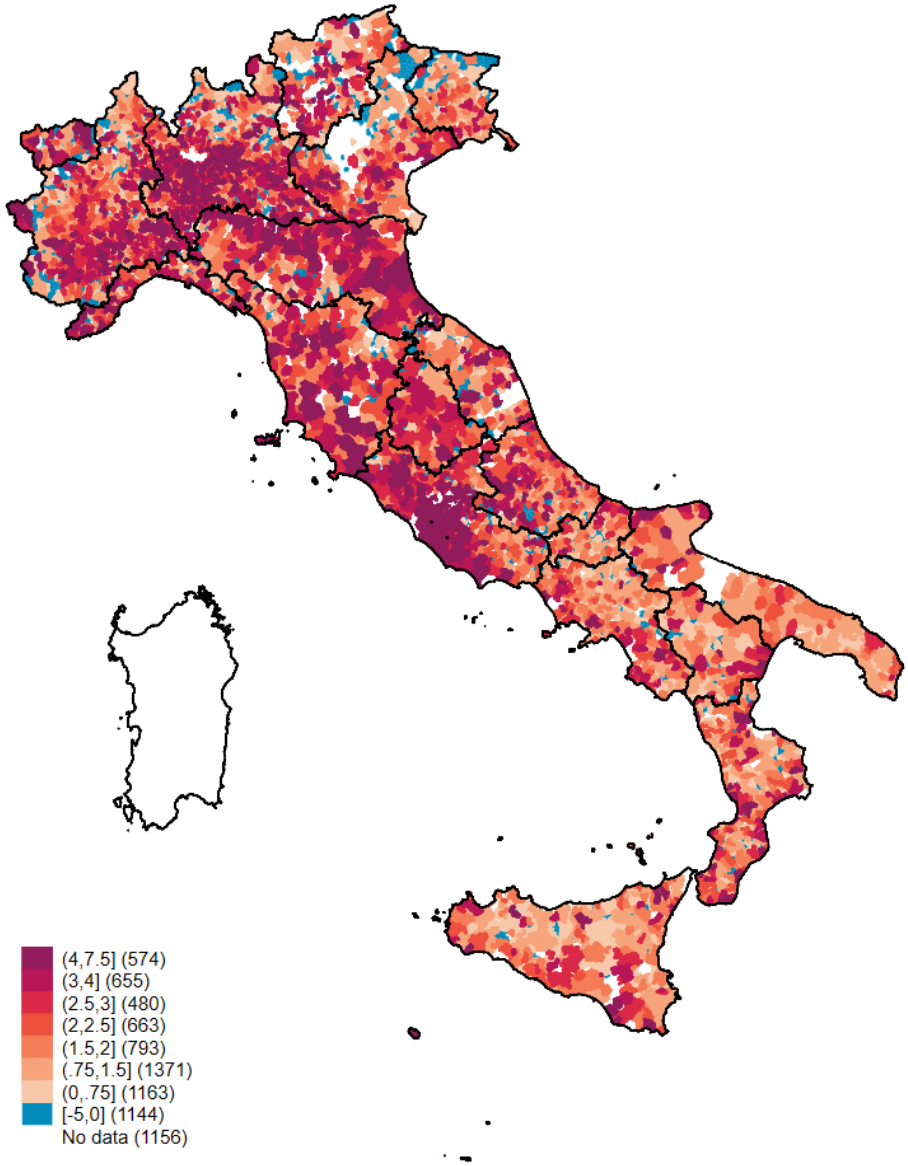
Table 13: Robustness Tests, Summary

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Explenatory Variable	(Instrumented) Share of Immigrants										
Dependent Variable	Baseline	Logs	Leave-one-out IV	Reg*Year FE	w/o Touristic	w/o Big	Unions	> 5,000	> 1,000	w/o 2012	Pre-period Obs.
Total Revenues	0.155**	0.155**	0.162**	0.096	0.146***	0.111***	0.126**	0.172**	0.159**	0.162**	0.154**
	(0.064)	(0.064)	(0.066)	(0.073)	(0.041)	(0.001)	(0.064)	(0.011)	(0.015)	(0.017)	(0.064)
Total Expenditures	-0.023	-0.023	-0.020	-0.058***	0.050**	0.032	-0.032	-0.024	-0.024	-0.017	-0.025
	(0.025)	(0.025)	(0.028)	(0.019)	(0.025)	(0.102)	(0.023)	(0.321)	(0.340)	(0.584)	(0.025)
Property Tax Revenues	0.376***	0.350***	0.382***	0.592***	0.379**	0.372***	0.356***	0.371***	0.376***	0.366***	0.356***
	(0.081)	(0.076)	(0.084)	(0.146)	(0.176)	(0.007)	(0.077)	(0.000)	(0.000)	(0.000)	(0.079)
Secondary Residence	0.541***	0.483***	0.537***	0.447**	0.825**	0.636**	0.572***	0.611***	0.555***	0.497***	0.521***
	(0.143)	(0.127)	(0.152)	(0.194)	(0.388)	(0.031)	(0.137)	(0.001)	(0.000)	(0.000)	(0.142)

Notes: The estimation model of each regression is a panel 2SLS regression with municipality and year fixed effects. The estimated coefficients are the results of the baseline specification, model (1), and all the robustness tests conducted, from model (2) to model (11). The details of the regression results are reported in Section 12. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

10 Figures

Figure 1: Change in Share of Immigrants between 2008 and 2015 across Italian Municipalities



11 Appendix: Theoretical model

The model in this section shows that the impact of immigration on local public finances depends on two factors: the socio-economic characteristics of immigrants (in particular their skill and income level) and the structure of the fiscal system. Importantly, differences in the structure of the fiscal system can give rise to opposite results in terms of the impact of immigration on public revenues and expenditures. As an example, consider local governments in the United States and Italy. The U.S. local fiscal system is characterized by three elements. Revenues depend mainly on property taxes, sales and income taxes, and transfers from higher levels of government. Property taxes depend on the market value of the housing stock. Local governments are bound to hold a balanced budget. In this context, Mayda et al. (2024) show that an increase in the share of high-skilled immigrants generates an increase in the tax base of both income and sales taxes, as well as property taxes, with a consequent increase in revenues (all variables are expressed in per capita terms). Given the balanced budget requirement, there is room to increase expenditures. On the other hand, if the share of low-skilled immigrants increases, the effects are opposite. Tax revenues decrease and, as a consequence of the balanced budget requirement, expenditures decrease as well.

In Italy the fiscal system and the fiscal rules are different from the U.S. and, as already discussed, the majority of immigrants are low skilled in terms of the occupations they are employed in. Besides fees and transfers from higher levels of government, Italian municipal revenues depend on property taxes and, to a much smaller extent, on income taxes, just like in the U.S. The important difference is that, in Italy, property taxes are calculated on the basis of cadastral values that, for existing buildings, do not depend on market values nor change over time. On the expenditures side, during the period of analysis, strict fiscal rules were in place in Italy: they not only mandated balanced budgets (or even surpluses in some cases), but also imposed an expenditure cap (independently of the overall fiscal stance). The expenditure cap makes the movement of revenues and expenditures disconnected, as it forces the municipalities to compensate any increase in an expenditure item within the overall expenditure envelope, independently of the evolution of revenues. Just like in the United States, Italian municipalities are responsible for delivering a wide range of services, in particular welfare services (complementary to those provided by the central government) and integration services mainly used by immigrants. Differently from the U.S., local Italian governments are only responsible for a small portion of expenditures related to public education.

Let us look at how these characteristics are likely to affect the impact of immigration on local public finances in Italy. We assume that the native working population is divided into low-skilled L_L and high-skilled workers L_H. To reflect the characteristics of the Italian immigration (and to simplify the discussion), we assume that immigrants are all low skilled M_L and that $M_L = 0$ at the inception. Assuming a static native population, $\Delta L_L = \Delta M_L$. Tax revenues are given by the sum of income and property taxes:

$$T = t \cdot Y + \tau \cdot H \tag{4}$$

where t is a progressive income tax $t = \{t_1, t_2\}$, $t_1 < t_2$, Y is taxable income, τ is the property tax rate and H is the property tax base. Assuming that income tax brackets nicely coincide with low-skilled wages w_L and high-skilled wages w_H we have:

$$t \cdot Y = t_1 \cdot w_L \cdot L_L + t_2 \cdot w_H \cdot L_H \tag{5}$$

The definition of the tax base for the real estate tax is more complex. As mentioned above, the Italian system does not rely on market values for assessing the property tax base. It uses instead cadastral values that are seldom updated for the existing buildings, but they are more in line with market values for new constructions. Moreover, there is an exemption from the tax for owner-occupied houses (and related categories) with marginal exceptions. Rented or unoccupied properties are instead subject to taxation. Therefore, the construction of new buildings as well as a shift towards rentals can increase the tax base. Hence, we can write the property tax base H as:

$$H = CV(NC) \cdot N \cdot (\frac{R}{N}) \tag{6}$$

where CV is the average cadastral value per unit, which is an increasing function of new constructions NC, N is the number of units and R the number of taxable (mainly rented) units. Putting things together and expressing in per capita terms, we have:[53]

$$TC = \frac{T}{L_L + L_H} = t_1 \cdot (\frac{w_L \cdot L_L}{L_L + L_H}) + t_2 \cdot (\frac{w_H \cdot L_H}{L_L + L_H}) + \tau \cdot \frac{CV(NC) \cdot N \cdot (\frac{R}{N})}{L_L + L_H} \tag{7}$$

The impact on per capita income tax revenues of an increase in the number of immigrants is:

$$\frac{\partial \frac{t \cdot Y}{L_L + L_H}}{\partial L_L} = \frac{L_L}{L_L + L_H} \cdot \frac{(t_1 \cdot w_L - t_2 \cdot w_H)}{L_L + L_H} \tag{8}$$

which is negative as $w_H > w_L$ and larger the higher the degree of progressivity. There are also the possible labour market effects to consider. Tax revenues might decrease further if low-skilled wages decrease, but they also might benefit from the increase of high skilled wages. As an example consider that, in order for the arrival of low-skilled immigrants to have no impact on income tax revenues, the wages of high-skilled workers should rise by (holding the low skilled wages constant):

[53] In the model, all individuals are workers, hence per capita is the same as per worker.

$$\Delta w_H = \frac{(t_2 \cdot w_H - t_1 \cdot w_L)}{(L_L + L_H) \cdot t_2} \tag{9}$$

where the increase is larger, the greater the wage differential and the tax progressivity. Note also that if w_H increases enough to compensate for revenues loss, then average taxable income will not decrease (not shown here). Turning now to the effects of low-skilled immigration on per capita property tax base (h), there are three effects to consider, omitting the scale one which is obviously negative:

$$\frac{dh}{dL_L} = (\frac{1}{L_L + L_H}) \cdot (CV \cdot \frac{\partial N}{\partial L_L} \cdot (\frac{R}{N})) + (\frac{\partial CV}{\partial NC} \cdot \frac{\partial NC}{\partial L_L} \cdot N \cdot (\frac{R}{N})) + (CV \cdot N \cdot (\frac{\partial \frac{R}{N}}{\partial L_L})) \tag{10}$$

The first is related to the impact of the arrival of immigrants on new constructions; the second effect is the increase in the average cadastral value of the housing stock, if new constructions take place; and the third effect is related to the increase in the share of taxable real estate (mainly rentals) due to the arrival of immigrants. All these effects, if present, are positive and might counterbalance the dilution effect leading to an increase in per capita revenues from real estate taxation. Of course, tax revenues also dipend on the tax rate and changes in it can either reinforce or weaken the effects just described.

On the expenditures side, we assume that welfare and integration-oriented expenditures (E_i) are an increasing function of the number of low-skilled workers. In per capita (per worker) terms:

$$e_i = \frac{E_i}{(L_L + L_H)}; \frac{\partial e_i}{\partial L_L} \geq 0 \tag{11}$$

Per capita aggregate expenditures are given by the sum of the j types (including i):

$$e = \sum_{j=1}^{n} e_j \tag{12}$$

The existence of an expenditure cap implies that $\frac{\partial e}{\partial L_L} = 0$ and hence $\frac{\partial e_i}{\partial L_L} = -\sum e_j$ for $j \neq i$. Therefore, if a higher share of low-skilled immigrants increase per capita welfare expenditures, other expenditures must be reduced. If $\frac{\partial TC}{\partial L_L} \geq 0$, no further adjustment in expenditures is required and $\frac{\partial TC}{\partial L_L} \simeq \Delta(TC - e)$, i.e. any increase in revenues will be reflected in an increase of the surplus. If $\frac{\partial TC}{\partial L_L} < 0$, then $\frac{\partial e_i}{\partial L_L} = -\sum e_j - \frac{\partial TC}{\partial L_L}$ in order to keep a balanced budget.

12 Appendix Tables

Table A1: Skill Distribution of Immigrant and Native Population

	2008					2015				
	Blue	**White**	**Low**	**High**	**Share**	**Blue**	**White**	**Low**	**High**	**Share**
Europe	0.25	0.75	0.64	0.36	0.05	0.29	0.71	0.67	0.33	0.04
East Europe	0.93	0.07	0.90	0.10	0.48	0.91	0.09	0.90	0.10	0.51
Asia	0.94	0.06	0.91	0.09	0.16	0.93	0.07	0.92	0.08	0.17
North Africa	0.96	0.04	0.92	0.08	0.13	0.96	0.04	0.92	0.08	0.12
Other Africa	0.96	0.04	0.93	0.07	0.07	0.92	0.08	0.92	0.08	0.06
North America	0.14	0.86	0.32	0.68	0.00	0.00	1.00	0.34	0.66	0.00
South America	0.90	0.10	0.90	0.10	0.09	0.86	0.14	0.87	0.13	0.09
Oceania	1.00	0.00	0.69	0.31	0.00	0.25	0.75	0.52	0.48	0.00
Immigrants (Overall)	0.68	0.32	0.79	0.21	0.06	0.56	0.44	0.75	0.25	0.09
Italy (Natives)	0.44	0.56	0.89	0.11		0.42	0.58	0.87	0.13	

Notes: authors' own elaboration on LFS data (Istat). For each year, Blue and White are the shares of, respectively, blue- and white-collar workers by macro area of origin. For each year, Low and High are the shares of, respectively, low- and high-educated workers by macro area of origin. For each year, Share is the share of the (overall) immigrant population by macro area of origin. When we consider the overall immigrant population. Share represents the ratio with respect to the native population. Statistics are not population weighted.

Table A2: IV Diagnostic (Goldsmith-Pinkham et al., 2020)

Panel A: Negative and positive weights

	Sum	Mean	Share
Negative	-0.005	-0.002	0.005
Positive	1.005	0.201	0.995

Panel B: Correlations

	α_k	g_k	β_k	F_k	$\text{Var}(z_k)$
α_k	1				
g_k	0.991	1			
β_k	0.423	0.474	1		
F_k	0.554	0.632	0.896	1	
$\text{Var}(z_k)$	0.860	0.832	0.424	0.390	1

Panel C: Top 5 Rotemberg-weight origins

	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$	95 % CI
East Europe	0.472	5.38e+05	0.451	(0.380,0.500)
Asia	0.394	3.70e+05	0.289	(0.105,0.500)
North Africa	0.030	61732.000	0.250	(0.035,0.500)
South America	0.050	60700.000	0.304	(0.125,0.500)
Other Africa	0.060	99206.000	0.342	(0.195,0.500)

Panel D: Estimates of β_k for positive and negative weights

	α-weighted Sum	Share of overall β	Mean
Negative	-0.002	-0.004	0.340
Positive	0.370	1.004	0.327

Table A3: Exogeneity of the Initial (1991) Shares of Country-of-Origin Groups, OLS (Goldsmith-Pinkham et al., 2020)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A	Asia	East Eu.	Other Eu.	North Africa	Other Africa	North America	South America	Oceania
Change in (log of) Per-Capita Total Revenues (2001-2007)	-0.001	0.002	0.000	-0.001	0.000	-0.000	-0.001	0.001
	(0.004)	(0.004)	(0.001)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Rotemberg Weight	0.394	0.472	-0.004	0.030	0.060	-0.001	0.050	-0.001
Panel B	Asia	East Eu.	Other Eu.	North Africa	Other Africa	North America	South America	Oceania
Change in (log of) Per-Capita Total Expenditures (2001-2007)	-0.002	0.000	0.000	-0.001	-0.001	-0.001	-0.001	0.001
	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Rotemberg Weight	0.394	0.472	-0.004	0.030	0.060	-0.001	0.050	-0.001

Notes: The estimation model is a cross-sectional regressions. The unit of analysis is the municipality. The dependent variables are the 1991-immigrant shares by area of origin. The explanatory variable is the change in (log of) per-capita revenues and expenditures over the years 2001-2007. The controls at the municipality level include: the share of native population under 25, the share of native population over 65 and the share of native women. The controls at the province level include the employment rate. All the controls are the 2008 value. Each regression is weighted by the total population of the municipality. The number of observations is $6,867$. Robust standard errors in parenthesis with * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table A4: The Effect of Immigration on Balance Sheet Items, 2SLS Results.
Excluding Touristic Municipalities

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.146***	0.140***	0.092	0.050**	0.037**	0.062	0.948
	(0.041)	(0.042)	(0.077)	(0.025)	(0.017)	(0.108)	(0.618)
Sample Mean	1,246	1,067	178.9	1,055	801.6	253.4	142.8

Notes: See Section 5 for model specification details. Only non-touristic municipalities are included in the sample. Touristic and non-touristic municipalities follows the definition by Istat (`https://www.istat.it`). The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a values of 44.34. The number of observations is 52,320 in all regressions. All regressions are based on 6,540 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A5: The Effect of Immigration on Property Tax, 2SLS Results.
Excluding Touristic Municipalities

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.379**	-0.514**	0.825**	0.381	-0.002	0.003	-0.004	-0.515**	0.827**
	(0.176)	(0.246)	(0.388)	(0.363)	(0.087)	(0.052)	(0.014)	(0.249)	(0.388)
Main Tax Rate								0.282**	
								(0.116)	
Secondary Tax Rate									0.348**
									(0.175)
Observations	52,310	52,315	52,313	52,318	52,320	52,320	52,320	52,315	52,313
Sample Mean	260.3	24.40	135.3	100.6	160.1	4.803	8.017	24.40	135.3

Notes: See Section 5 for model specification details. Only non-touristic municipalities are included in the sample. Touristic and non-touristic municipalities follows the definition by Istat (`https://www.istat.it`). The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a values of 44.28. All regressions are based on 6,540 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A6: The Effect of Immigration on Balance Sheet Items, 2SLS Results for **Municipality Unions**

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.126**	0.168***	-0.023	-0.032	0.088**	-0.343**	3.674**
	(0.064)	(0.044)	(0.070)	(0.023)	(0.045)	(0.137)	(1.594)
Sample Mean	1,438	1,229	209.4	1,214	931.6	282.7	-164.2

Notes: See Section 5 for model specification details. The unit of analysis is the municipality union, made up of two or more municipalities for the joint exercise of functions or services of municipal competence. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 78.76. The number of observations is 40,472 in all regressions. All regressions are based on 5,059 unions. Robust standard errors, clustered at the union level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A7: The Effect of Immigration on Property Tax, 2SLS Results for **Municipality Unions**

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.356***	0.567**	0.572***	0.942**	0.099***	0.042*	0.012	0.532**	0.558***
	(0.077)	(0.250)	(0.137)	(0.384)	(0.024)	(0.022)	(0.038)	(0.259)	(0.141)
Main Tax Rate								0.352**	
								(0.166)	
Secondary Tax Rate									0.324
									(0.214)
Sample Mean	292.5	25.26	157.7	109.5	4.803	8.006	159.5	25.26	157.7

Notes: See Section 5 for model specification details. The unit of analysis is the municipality union, made up of two or more municipalities for the joint exercise of functions or services of municipal competence. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 78.76. The number of observations is 40,472 in all regressions. All regressions are based on 5,059 unions. Robust standard errors, clustered at the union level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A8: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results.
Excluding Big Municipalities

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.111***	0.115***	0.023	0.032	0.032**	-0.004	0.702
	(0.001)	(0.001)	(0.707)	(0.102)	(0.021)	(0.969)	(0.538)
Sample Mean	1,284	1,099	184.3	1,077	824.7	252.8	157.1

Notes: See Section 5 for model specification details. The sample excludes municipalities with more than 250,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 64.35. The number of observations is $55,400$ in all regressions. All regressions are based on $6,925$ *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A9: The Effect of Immigration on Property Tax, 2SLS Results.
Excluding Big Municipalities

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.356***	0.567**	0.572***	0.942**	0.099***	0.042*	0.012	0.532**	0.558***
	(0.077)	(0.250)	(0.137)	(0.384)	(0.024)	(0.022)	(0.038)	(0.259)	(0.141)
Main Tax Rate								0.352**	
								(0.166)	
Secondary Tax Rate									0.324
									(0.214)
Sample Mean	292.5	25.26	157.7	109.5	4.803	8.006	159.5	25.26	157.7

Notes: See Section 5 for model specification details. The sample excludes municipalities with more than 250,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 64.32. All regressions are based on $6,925$ *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A10: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results.
Sample of Municipalities With More Than 5,000 Inh.

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.172**	0.218***	-0.013	-0.024	0.107**	-0.393**	4.442**
	(0.011)	(0.000)	(0.856)	(0.320)	(0.029)	(0.024)	(1.825)
Sample Mean	1,432	1,240	191.8	1,200	948.9	250.9	173.6

Notes: See Section 5 for model specification details. The sample includes only municipalities with More than 5,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 86.97. The number of observations is 16,872 in all regressions. All regressions are based on 2,109 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A11: The Effect of Immigration on Property Tax, 2SLS Results.
Sample of Municipalities With More Than 5,000 Inh.

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.371***	0.588*	0.611***	0.734*	-0.005	0.095***	0.047*	0.563*	0.598***
	(0.000)	(0.054)	(0.001)	(0.075)	(0.920)	(0.001)	(0.063)	(0.072)	(0.001)
Main Tax Rate								0.270	
								(0.118)	
Secondary Tax Rate									0.290
									(0.178)
Observations	16,869	16,870	16,870	16,871	16,872	16,872	16,872	16,870	16,870
Sample Mean	292.5	25.26	157.7	109.5	160.1	4.824	8.150	25.82	162.3

Notes: See Section 5 for model specification details. The sample includes only municipalities with more than 5,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 86.98. All regressions are based on 2,109 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A12: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results.
Sample of Municipalities With More Than 1,000 Inh.

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.159**	0.201***	-0.012	-0.024	0.097**	-0.341**	3.980**
	(0.015)	(0.000)	(0.870)	(0.340)	(0.046)	(0.026)	(1.706)
Sample Mean	1,425	1,223	202.5	1,202	928.8	273.3	164.2

Notes: See Section 5 for model specification details. The sample includes only municipalities with more than 1,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 92.68. The number of observations is 42,784 in all regressions. All regressions are based on 5,348 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A13: The Effect of Immigration on Property Tax, 2SLS Results.
Sample of Municipalities With More Than 1,000 Inh.

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.376***	0.565**	0.555***	0.817**	-0.001	0.100***	0.047**	0.537*	0.540***
	(0.000)	(0.041)	(0.000)	(0.045)	(0.982)	(0.000)	(0.048)	(0.060)	(0.000)
Main Tax Rate								0.286*	
								(0.057)	
Secondary Tax Rate									0.304
									(0.112)
Observations	42,775	42,779	42,778	42,783	42,784	42,784	42,784	42,779	42,778
Sample Mean	292.5	25.26	157.7	109.5	160.1	4.804	8.031	25.24	157.5

Notes: See Section 5 for model specification details. The sample includes only municipalities with more than 1,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 92, 78. All regressions are based on 5,348 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A14: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results.
Sample of Municipalities With Less Than 5,000 Inh.

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	-0.061	-0.056	-0.219	-0.279*	-0.018	-0.983*	4.015
	(0.450)	(0.460)	(0.378)	(0.071)	(0.671)	(0.076)	(2.625)
Sample Mean	1,472	1,175	297.1	1,287	845.2	441.7	117.3

Notes: See Section 5 for model specification details. The sample includes only municipalities with less than 5,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 4.01. The number of observations is $38,616$ in all regressions. All regressions are based on $4,827$ *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A15: The Effect of Immigration on Property Tax, 2SLS Results.
Sample of Municipalities With Less Than 5,000 Inh.

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.025	-1.666*	0.704	0.284	-0.274	-0.054	-0.017	-1.641*	0.710
	(0.955)	(0.094)	(0.409)	(0.646)	(0.291)	(0.594)	(0.696)	(0.092)	(0.405)
Main Tax Rate								0.465***	
								(0.006)	
Secondary Tax Rate									0.340
									(0.108)
Observations	38,609	38,613	38,611	38,615	38,616	38,616	38,616	38,613	38,611
Sample Mean	292.5	25.26	157.7	109.5	160.1	4.698	7.352	22.46	134.8

Notes: See Section 5 for model specification details. The sample includes only municipalities with less than 5,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 4.04. All regressions are based on $4,827$ *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A16: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results.
Sample of Municipalities With Less Than 1,000 Inh.

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	-0.039	-0.045	-0.145	0.012	0.042	-0.344	-0.576
	(0.626)	(0.550)	(0.601)	(0.906)	(0.447)	(0.321)	(1.733)
Sample Mean	2,225	1,599	625.8	1,965	1,105	859.5	167.6

Notes: See Section 5 for model specification details. The sample includes only municipalities with less than 1,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 2.76. The number of observations is 12,704 in all regressions. All regressions are based on 1,588 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A17: The Effect of Immigration on Property Tax, 2SLS Results.
Sample of Municipalities With Less Than 1,000 Inh.

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	-0.365	-0.869	0.656	-0.060	-0.016	0.050	0.018	-0.869	0.641
	(0.505)	(0.246)	(0.446)	(0.911)	(0.796)	(0.363)	(0.615)	(0.248)	(0.456)
Main Tax Rate								0.002	
								(0.990)	
Secondary Tax Rate									0.815**
									(0.011)
Observations	12,703	12,704	12,703	12,703	12,704	12,704	12,704	12,704	12,703
Sample Mean	292.5	25.26	157.7	109.5	160.1	4.746	7.152	26.47	169.1

Notes: See Section 5 for model specification details. The sample includes only municipalities with less than 1,000 inhabitants in 2008. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 2.70. All regressions are based on 1,588 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A18: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results. **Excluding the Year 2012**

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.162**	0.201***	0.016	-0.017	0.099*	-0.310**	3.983**
	(0.017)	(0.000)	(0.861)	(0.584)	(0.056)	(0.012)	(1.719)
Sample Mean	1,448	1,234	213.3	1,226	934.3	292.1	160

Notes: See Section 5 for model specification details. The sample excludes the year 2012. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 92.12. The number of observations is 48,552 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A19: The Effect of Immigration on Property Tax, 2SLS Results. **Excluding the Year 2012**

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.366***	0.630**	0.497***	0.833*	-0.004	0.106***	0.054**	0.612**	0.478***
	(0.000)	(0.025)	(0.000)	(0.065)	(0.922)	(0.000)	(0.026)	(0.037)	(0.001)
Main Tax Rate								0.170	
								(0.336)	
Secondary Tax Rate									0.346
									(0.147)
Observations	48,547	48,550	48,549	48,550	48,552	48,552	48,552	48,550	48,549
Sample Mean	283.6	18.05	154.8	110.7	154.1	4.864	7.837	18.05	154.8

Notes: See Section 5 for model specification details. The sample excludes the year 2012. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 92.15. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A20: The Effect of Immigration on Municipalities' Balance Sheet Items **(Logarithms)**, 2SLS Results

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.155**	0.195***	-0.015	-0.023	0.094**	-0.328**	3.835**
	(0.064)	(0.043)	(0.073)	(0.025)	(0.048)	(0.146)	(1.653)
Sample Mean	1,438	1,229	209.4	1,214	931.6	282.7	164.2

Notes: See Section 5 for model specification details. All the dependent variables, but the surplus, are in natural logarithms and expressed in per-capita terms. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33. The number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A21: The Effect of Immigration on Property Tax **(Logarithms)**, 2SLS Results

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.350***	0.459**	0.483***	0.739**	0.102***	0.047**	-0.001	0.434*	0.468***
	(0.076)	(0.226)	(0.127)	(0.363)	(0.025)	(0.023)	(0.042)	(0.232)	(0.131)
Main Tax Rate								0.248*	
								(0.127)	
Secondary Tax Rate									0.328*
									(0.170)
Observations	55,478	55,483	55,481	55,486	55,488	55,488	55,488	55,483	55,481
Sample Mean	292.5	25.26	157.7	109.5	4.803	8.017	160.1	25.26	157.7

Notes: See Section 5 for model specification details. All the dependent variables are in natural logarithms and expressed in per-capita terms. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A22: The Effect of Immigration on Municipalities' Balance Sheet Items **(Leave-one-out IV)**, 2SLS Results

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.162**	0.201***	0.008	-0.020	0.094*	-0.302**	3.785**
	(0.066)	(0.046)	(0.083)	(0.028)	(0.051)	(0.136)	(1.624)
Sample Mean	1,438	1,229	209.4	1,214	931.6	282.7	164.2

Notes: See Section 5 for model specification details. The Instrumental Variable (IV) is the Leave-one-out version of the shift-share instrument. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 79.52. The number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A23: The Effect of Immigration on Property Tax **(Leave-one-out IV)**, 2SLS Results

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.382***	0.538**	0.537***	0.871**	0.102***	0.047**	-0.005	0.509*	0.522***
	(0.084)	(0.274)	(0.152)	(0.416)	(0.026)	(0.022)	(0.045)	(0.282)	(0.156)
Main Tax Rate								0.292*	
								(0.149)	
Secondary Tax Rate									0.317*
									(0.190)
Observations	55,478	55,483	55,481	55,486	55,488	55,488	55,488	55,483	55,481
Sample Mean	292.5	25.26	157.7	109.5	4.803	8.017	160.1	25.26	157.7

Notes: See Section 5 for model specification details. The Instrumental Variable (IV) is the Leave-one-out version of the shift-share instrument. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 79,63. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A24: The Effect of Immigration on Municipalities' Balance Sheet Items **(Region*Year Fixed Effects)**, 2SLS Results

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.096	0.164***	-0.118	-0.058***	0.078	-0.285	3.099
	(0.073)	(0.055)	(0.127)	(0.019)	(0.048)	(0.200)	(2.160)
Sample Mean	1,438	1,229	209.4	1,214	931.6	282.7	164.2

Notes: See Section 5 for model specification details. In all regressions, we include region-by-year dummies. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 17.91. The number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A25: The Effect of Immigration on Property Tax **(Region*Year Fixed Effects)**, 2SLS Results

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.592***	0.844**	0.447**	1.019**	0.162***	0.087**	-0.036	0.815**	0.400**
	(0.146)	(0.373)	(0.194)	(0.474)	(0.046)	(0.037)	(0.060)	(0.367)	(0.200)
Main Tax Rate								0.178	
								(0.111)	
Secondary Tax Rate									0.533***
									(0.155)
Observations	55,478	55,483	55,481	55,486	55,488	55,488	55,488	55,483	55,481
Sample Mean	292.5	25.26	157.7	109.5	4.803	8.017	160.1	25.26	157.7

Notes: See Section 5 for model specification details. In all regressions, we include region-by-year dummies. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 19.38. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A26: The Effect of Immigration on Municipalities' Balance Sheet Items **(Pre-period Observations)**, 2SLS Results

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.154**	0.194***	-0.014	-0.025	0.094*	-0.331**	3.856**
	(0.064)	(0.043)	(0.073)	(0.025)	(0.048)	(0.146)	(1.648)
Sample Mean	1,436	1,228	208.3	1,212	931.1	281.2	163.9

Notes: See Section 5 for model specification details. The sample is a balanced panel of municipalities from 2001 to 2015. The period of analysis is from 2008 to 2015. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 95.21. The number of observations is 54,936 in all regressions. All regressions are based on 6,867 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A27: The Effect of Immigration on Property Tax **(Pre-period Observations)**, 2SLS Results

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.356***	0.563**	0.521***	0.796*	-0.000	0.104***	0.047**	0.535*	0.506***
	(0.079)	(0.267)	(0.142)	(0.407)	(0.043)	(0.025)	(0.023)	(0.276)	(0.147)
Main Tax Rate								0.271*	
								(0.150)	
Secondary Tax Rate									0.324*
									(0.189)
Observations	54,926	54,931	54,929	54,934	54,936	54,936	54,936	54,931	54,929
Sample Mean	293	25.31	157.9	109.8	159.7	4.805	8.021	25.31	157.9

Notes: See Section 5 for model specification details. The sample is a balanced panel of municipalities from 2001 to 2015. The period of analysis is from 2008 to 2015. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 95.31. All regressions are based on 6,867 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table A28: Frequency Table of the 2SLS Results (Balance-Sheet Items)

Dependent Variable	(1) w/o 1 year	(2) w/o 2 years	(3) w/o 3 years	(4) w/o 4 years	(5) w/o 5 years	(6) w/o 6 years	(7) sum
Total Revenues	100% (+,*)	86% (+,**)	67% (+,**)	80% (+,**)	75% (+,**)	67% (+,**)	82% (+,*)
Total Current Revenues	100% (+,***)	100% (+,**)	83% (+,**)	100% (+,**)	100% (+,**)	100% (+,**)	97% (+,**)
Total Capital Revenues	13% (-,*)	29% (-,*)	17% (-,***)	20% (+,***)	0% (.,.)	0% (.,.)	15% (.,.)
Total Expenditures	13% (-,**)	14% (-,*)	17% (-,*)	20% (-,*)	25% (-,*)	33% (-,*)	18% (-,*)
Total Current Expenditures	88% (+,*)	86% (+,*)	67% (+,*)	60% (+,*)	75% (+,*)	67% (+,*)	76% (+,*)
Total Capital Expenditures	75% (-,*)	57% (-,*)	33% (-,*)	80% (-,*)	75% (-,*)	67% (-,*)	64% (-,*)

Notes: Each column refers to sub samples that results from dropping out, respectively, 1 year in column (1), 2 consecutive years in column (2), 3 consecutive years in column (3), 4 consecutive years in column (4), 5 consecutive years in column (5), 6 consecutive years in column (6). Column (7) refers to all the sub samples considered in columns from (1) to (6). The figures displayed in each cell indicate the percentage of estimation outputs with a significant coefficient of the share of immigrant population. The maximum significance level and the sign are reported in parenthesis. The estimation models are as in Table 5. * p<0.10, ** p<0.05, *** p<0.01.

Table A29: Frequency Table of the 2SLS Results (Property-Tax Revenues)

Dependent Variable	(1) w/o 1 year	(2) w/o 2 years	(3) w/o 3 years	(4) w/o 4 years	(5) w/o 5 years	(6) w/o 6 years	(7) sum
Property Tax Revenues	100% (+,***)	100% (+,***)	100% (+,***)	100% (+,***)	100% (+,***)	100% (+,***)	100% (+,***)
Main Residence	88% (+,*)	86% (+,*)	50% (+,*)	60% (+,*)	75% (+,*)	100% (+,*)	76% (+,*)
Secondary Dwelling	100% (+,***)	100% (+,***)	83% (+,***)	100% (+,***)	100% (+,***)	100% (+,***)	97% (+,***)
Garbage	88% (+,*)	57% (+,*)	17% (+,*)	20% (+,*)	25% (+,*)	33% (+,*)	45% (+,*)
Main-Residence Tax Rate	100% (+,***)	100% (+,***)	83% (+,***)	100% (+,***)	100% (+,***)	100% (+,***)	97% (+,***)
Secondary-Dwelling Tax Rate	88% (+,*)	100% (+,*)	83% (+,*)	80% (+,*)	75% (+,*)	67% (+,*)	85% (+,*)
Deduction	0% (.,.)	0% (.,.)	0% (.,.)	0% (.,.)	0% (.,.)	0% (.,.)	0% (.,.)
Rental Income	88% (-,*)	71% (-,**)	50% (-,*)	60% (-,*)	75% (+,***)	100% (+,***)	73% (.,.)
Secondary Dwelling (Controlling for the Tax Rate)	100% (+,***)	100% (+,***)	83% (+,**)	100% (+,**)	100% (+,**)	100% (+,***)	97% (+,**)
Main Residence (Controlling for the Tax Rate)	63% (+,*)	71% (+,*)	33% (+,*)	40% (+,*)	50% (+,*)	67% (+,*)	55% (+,*)

Notes: Each column refers to sub samples that results from dropping out, respectively, 1 year in column (1), 2 consecutive years in column (2), 3 consecutive years in column (3), 4 consecutive years in column (4), 5 consecutive years in column (5), 6 consecutive years in column (6). Column (7) refers to all the sub samples considered in columns from (1) to (6). The figures displayed in each cell indicate the percentage of estimation outputs with a significant coefficient of the share of immigrant population. The maximum significance level and the sign are reported in parenthesis. The estimation models are as in Table 8. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

13 Appendix: OLS Tables

Table B1: The Effect of Immigration on Municipalities' Balance Sheet Items, OLS Results

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	0.018*	0.030***	-0.030**	-0.004	0.008	-0.036**	0.446**
	(0.011)	(0.010)	(0.014)	(0.005)	(0.008)	(0.017)	(0.175)
Sample Mean	1,438	1,229	209.4	1,214	931.6	282.7	164.2

Notes: See notes at the end of Table B2.

Table B2: The Effect of Immigration on Municipalities' Current Revenues, OLS Results

	(1) Per. Income	(2) Property	(3) Other Taxes	(4) Fees	(5) Loans	(6) Transfers	(7) Other Revenues	(8) Excl. Transfers
Share of Immigrants	0.127	0.022	0.096**	0.004	0.017	0.013	0.048**	0.041***
	(0.122)	(0.023)	(0.042)	(0.014)	(0.053)	(0.010)	(0.020)	(0.012)
Observations	55,486	55,478	55,488	55,488	55,488	55,488	55,488	55,488
Sample Mean	62.20	292.5	12.51	195.9	59.72	371	235.1	857.9
Share of Curr. Rev.	0.050	0.238	0.010	0.159	0.049	0.302	0.191	0.698

Notes: See Section 5 for model specification details. In Table B1, the number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table B3: The Effect of Immigration on Personal-Income Revenues, Tax Rate and Tax Base (Details), OLS Results

	(1) Revenues	(2) Tax Base	(3) Tax Rate	(4) Class 1	(5) Class 2	(6) Class 3	(7) Class 4	(8) Class 5	(9) Class 6	(10) Class 7	(11) Class 8
Share of Immigrants	0.127	-0.011***	0.026	-0.029***	-0.001	0.000*	-0.001***	0.001***	-0.001	-0.005	-0.005
	(0.299)	(0.000)	(0.573)	(0.000)	(0.375)	(0.089)	(0.000)	(0.002)	(0.889)	(0.410)	(0.750)
Observations	55,486	55,488	55,488	51,393	55,488	55,486	55,488	55,486	53,785	52,375	45,068
Number of *Comuni*	6,936	6,936	6,936	6,909	6,936	6,936	6,936	6,936	6,898	6,832	6,374
Sample Mean	62.20	12,594	4.491	-10,524	5,068	12,981	20,804	35,511	65,289	92,966	193,560

Notes: See notes at the end of Table B4.

Table B4: The Effect of Immigration on Property Tax Revenues, OLS Results

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	0.022	0.088**	0.097**	0.058	0.013*	0.029***	0.015*	0.075*	0.089**
	(0.023)	(0.044)	(0.041)	(0.120)	(0.008)	(0.008)	(0.008)	(0.040)	(0.040)
Main Tax Rate								0.462***	
								(0.147)	
Secondary Tax Rate									0.528***
									(0.194)
Observations	55,478	55,483	55,481	55,486	55,488	55,488	55,488	55,483	55,481
Sample Mean	292.5	25.26	157.7	109.5	160.1	4.803	8.017	25.26	157.7

Notes: See Section 5 for model specification details. In Table B3, models (4) to (11), the dependent variable is income per taxpayer in the reference income class. All regressions are based on 6,936 *Comuni*, unless otherwise specified. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table B5: The Effect of Immigration on Municipalities' Current Expenditures, OLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	General Public Services	Legal Expenses	Local Police	Education	Culture	Sport and Recreation
Share of Immigrants	-0.024*	-0.008	0.009	0.005	0.013	-0.021***
	(0.014)	(0.010)	(0.007)	(0.007)	(0.008)	(0.008)
Sample Mean	279.2	5.263	53.72	89.88	28.47	13.05
Share of Curr. Exp.	0.300	0.0056	0.058	0.096	0.031	0.014
Panel B	Tourism	Transport	Garbage Disposal	Social Protection	Economic Affairs	Housing and Community Amenities
Share of Immigrants	-0.040	0.034	0.046	0.002	0.012	-0.030**
	(0.030)	(0.025)	(0.032)	(0.006)	(0.023)	(0.014)
Sample Mean	5.695	100.7	196.5	143.5	8.117	7.488
Share of Curr. Exp.	0.006	0.108	0.211	0.154	0.009	0.008

Notes: See notes at the end of Table B6.

Table B6: The Effect of Immigration on Municipalities' Capital Expenditures, OLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	General Public Services	Legal Expenses	Local Police	Education	Culture	Sport and Recreation
Share of Immigrants	-0.057**	-0.007	-0.057***	-0.042	-0.068***	-0.017
	(0.027)	(0.028)	(0.022)	(0.039)	(0.023)	(0.038)
Sample Mean	72.27	0.741	1.312	22.89	8.839	10.09
Share of Cap. Exp.	0.256	0.003	0.005	0.080	0.031	0.036
Panel B	Tourism	Transport	Garbage Disposal	Social Protection	Economic Affairs	Housing and Community Amenities
Share of Immigrants	-0.008	-0.004	0.000	-0.011	-0.005	-0.055
	(0.009)	(0.023)	(0.028)	(0.022)	(0.026)	(0.043)
Sample Mean	3.019	71.36	69.96	12.66	5.280	4.320
Share of Cap. Exp.	0.011	0.252	0.247	0.045	0.019	0.015

Notes: See Section 5 for model specification details. The dependent variables are per-capita current expenditures, Table B5, and per-capita capital expenditures, Table B6, divided by mission. The number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

14 Appendix: Dependent Variables in Levels

Table C1: The Effect of Immigration on Municipalities' Balance Sheet Items, 2SLS Results

	(1) Total Revenues	(2) Current Revenues	(3) Capital Revenues	(4) Total Expenditures	(5) Current Expenditures	(6) Capital Expenditures	(7) Surplus
Share of Immigrants	229.591	353.465***	-123.874	-128.743*	118.676**	-247.419***	343.088***
	(163.487)	(92.389)	(106.358)	(67.198)	(60.529)	(57.259)	(118.695)
Sample Mean	1,438	1,229	209.4	1,214	931.6	282.7	164.2

Notes: See notes at the end of Table C2.

Table C2: The Effect of Immigration on Municipalities' Current Revenues, 2SLS Results

	(1) Per. Income	(2) Property	(3) Other Taxes	(4) Fees	(5) Loans	(6) Transfers	(7) Other Revenues	(8) Excl. Transfers
Share of Immigrants	21.235**	82.306***	6.235**	27.236	15.246	-12.462	213.634**	365.927***
	(9.469)	(17.754)	(2.815)	(20.135)	(33.020)	(34.553)	(84.881)	(101.590)
Observations	55,486	55,478	55,488	55,488	55,488	55,488	55,488	55,488
Sample Mean	62.20	292.5	12.51	195.9	59.72	371	235.1	857.9
Share of Curr. Rev.	0.050	0.238	0.010	0.159	0.049	0.302	0.191	0.698

Notes: See Section 5 for model specification details. The dependent variables are in levels. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33. In Table C1, the number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table C3: The Effect of Immigration on Property Tax, 2SLS Results

	(1) Revenues (2)+(3)+(4)	(2) Main	(3) Secondary	(4) Garbage	(5) Deduction	(6) Main Tax Rate	(7) Secondary Tax Rate	(8) Main	(9) Secondary
Share of Immigrants	82.306***	-1.673	40.046***	43.940***	-0.844	0.503***	0.485***	-2.478	37.215***
	(17.754)	(3.056)	(11.533)	(16.341)	(4.925)	(0.127)	(0.141)	(3.092)	(11.074)
Main Tax Rate								7.882	
								(7.036)	
Secondary Tax Rate									60.817***
									(18.330)
Observations	55,478	55,483	55,481	55,486	55,488	55,488	55,488	55,483	55,481
Sample Mean	292.5	25.26	157.7	109.5	160.1	4.803	8.017	25.26	157.7

Notes: See Section 5 for model specification details. The dependent variables are in levels. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

Table C4: The Effect of Immigration on Municipalities' Current Expenditures, 2SLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	General Public Services	Legal Expenses	Local Police	Education	Culture	Sport and Recreation
Share of Immigrants	-5.312	0.220	4.761***	-0.737	5.343***	1.136***
	(28.688)	(0.324)	(1.613)	(3.372)	(1.731)	(0.382)
Sample Mean	279.2	5.263	53.72	89.88	28.47	13.05
Share of Curr. Exp.	0.300	0.006	0.058	0.096	0.030	0.0140
Panel B	Tourism	Transport	Garbage Disposal	Social Protection	Economic Affairs	Housing and Community Amenities
Share of Immigrants	0.135	50.944**	55.562**	3.721	1.756	1.148
	(0.677)	(23.540)	(23.071)	(9.389)	(1.606)	(1.913)
Sample Mean	5.695	100.7	196.5	143.5	8.117	7.488
Share of Curr. Exp.	0.006	0.108	0.211	0.154	0.009	0.008

Notes: See notes at the end of Table C5.

Table C5: The Effect of Immigration on Municipalities' Capital Expenditures, 2SLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	General Public Services	Legal Expenses	Local Police	Education	Culture	Sport and Recreation
Share of Immigrants	-110.487	-1.210	-0.159	-7.961**	-2.338	2.814**
	(78.080)	(1.473)	(0.256)	(3.339)	(3.683)	(1.379)
Sample Mean	72.27	0.741	1.312	22.89	8.839	10.09
Share of Cap. Exp.	0.256	0.003	0.005	0.081	0.031	0.036
Panel B	Tourism	Transport	Garbage Disposal	Social Protection	Economic Affairs	Housing and Community Amenities
Share of Immigrants	-1.144	-103.678**	-21.860	-0.493	3.339**	-4.244
	(0.793)	(41.447)	(16.179)	(1.207)	(1.433)	(4.407)
Sample Mean	3.019	71.36	69.96	12.66	5.280	4.320
Share of Cap. Exp.	0.011	0.252	0.247	0.045	0.019	0.015

Notes: See Section 5 for model specification details. The dependent variables are per-capita current expenditures, Table C4, and per-capita capital expenditures, Table C5, divided by mission. The dependent variables are in levels. The computed Weak IV Test is the Kleibergen-Paap rk Wald F statistic, which has a value of 94.33. The number of observations is 55,488 in all regressions. All regressions are based on 6,936 *Comuni*. Robust standard errors, clustered at the municipality level, in parenthesis with * p<0.10, ** p<0.05, *** p<0.01.

15 Appendix Figures

Figure B1: Share of Immigrant population

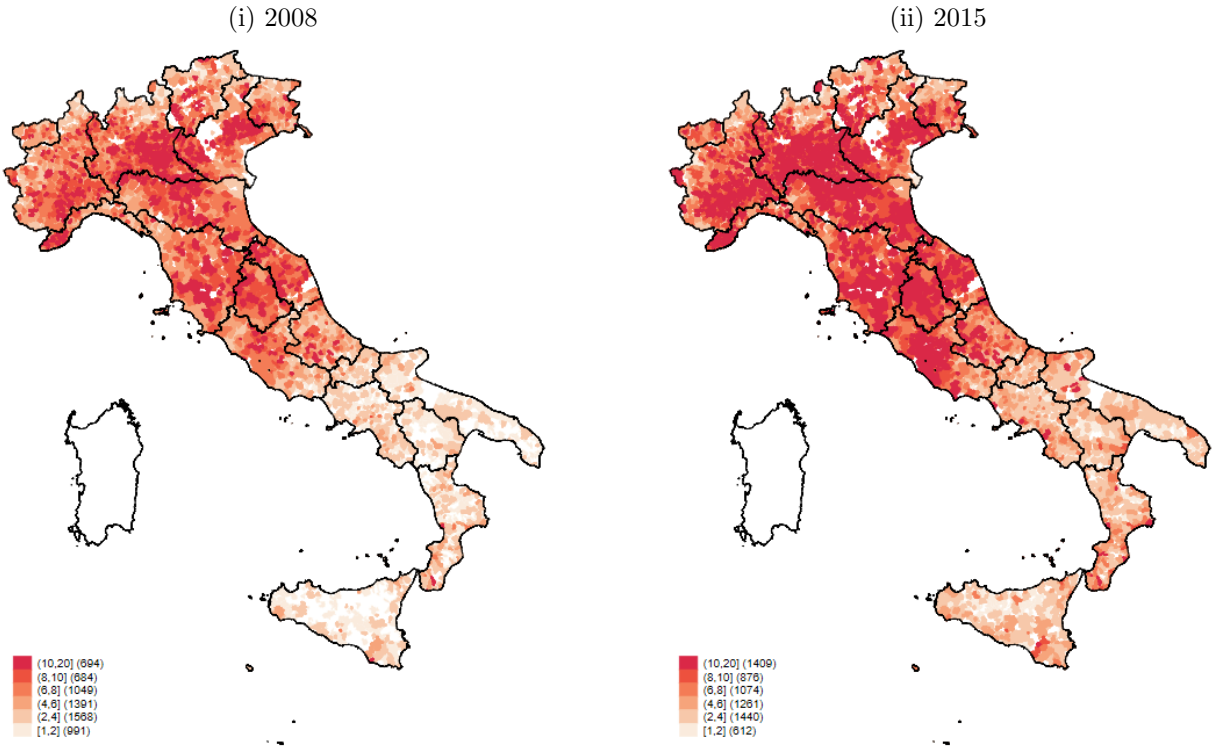


Figure B2: Share of Total Population

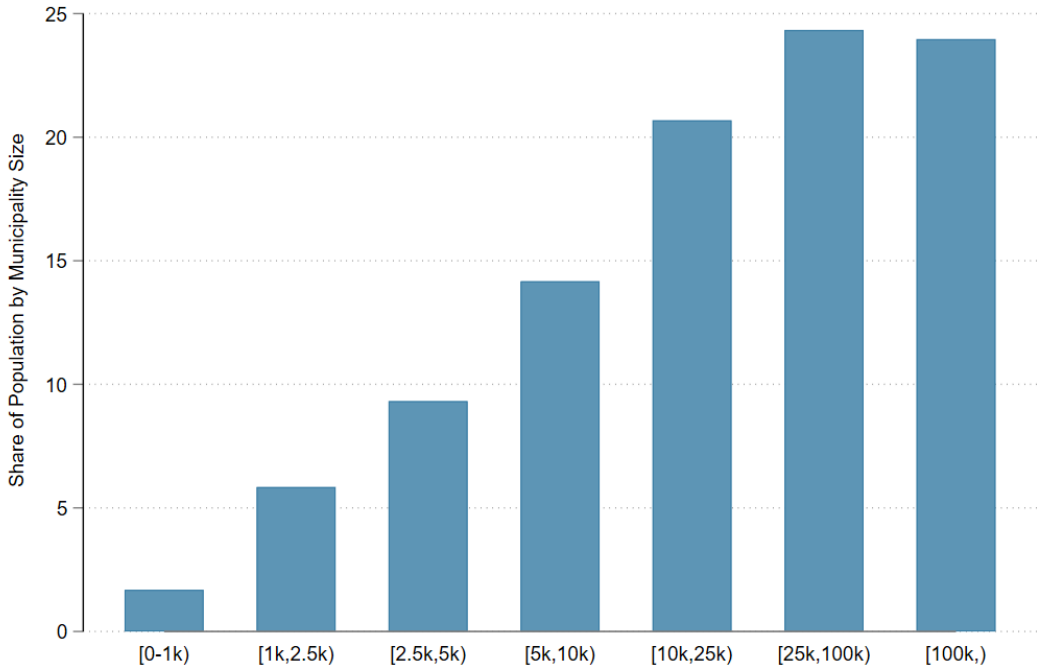


Figure B3: Percentage Change (2008-2015) by Municipality Size

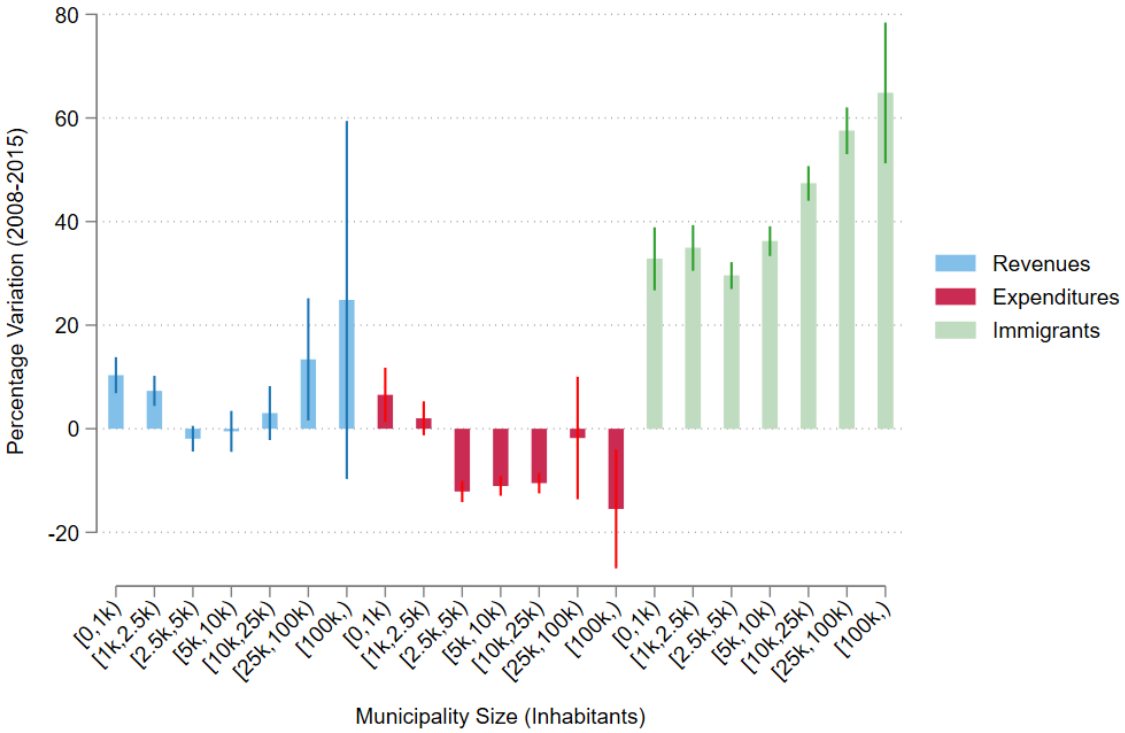


Figure B4: Percentage Change (2008-2015) by Municipality Income