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# Population, macroeconomic variables, quality of life, and interprovincial migration of Italians and foreigners

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## ABSTRACT

We study Italian interprovincial migration flows, analysing total migrants, Italians and foreigners separately. Along with traditional gravity variables, we introduce a quality-of-life index. The results show distinct and heterogeneous effects of migration determinants across national groups and different internal migration corridors. Foreigners exhibit higher mobility and respond more strongly to labour market differentials compared with Italians. We find that the influence of quality of life varies between Italians and foreigners, and across different migration corridors. We frame our analysis inside a theoretically grounded gravity model and apply the common correlated effect panel data estimator to account for multilateral resistance to migration.

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Italy; internal migration; natives and foreigners; quality of life; gravity model; common correlated effects

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## 1. Introduction

This paper analyses the determinants of interprovincial migration flows in Italy. The analysis is conducted for total migrants, as well as Italians and foreigners separately. Economic, social and cultural factors drive internal migration. Still, the sensitiveness, motivations, nature of their movements and challenges they face can differ between these two groups of internal migrants. Few studies have analysed the different behaviours of foreigners and citizens concerning their internal migration propensity, finding heterogeneous results. By studying internal mobility patterns of immigrants between standard metropolitan statistical areas in the United States, Bartel and Koch (1991) find little evidence that they are more mobile than natives. On the contrary, Schündeln (2014) uncovers that immigrants are more likely to move internally within Germany, being more responsive to labour markets and income differentials across German federal states. Similarly, Maza et al. (2019) and Gutiérrez-Portilla et al. (2018) find that the foreign-born population is relatively more mobile across Spanish provinces.

As regards internal migration in Italy, economic factors have historically been found to be fundamental drivers, with people moving to areas offering better job opportunities and higher wages (Attanasio & Padoa-Schioppa, 1991; Etzo, 2011; Mocetti & Porello, 2012; Piras, 2017; Salvatore, 1977). These flows have been mostly unidirectional from the Southern to the Central–Northern regions since the former have consistently lagged behind the latter in terms of economic development, industrialisation and employment opportunities. According to Felice (2018, p. 500), the economic divide between the prosperous Centre–North and the less developed South is unparalleled amid similarly sized advanced nations. Among the developed countries, Italy stands out as a unique case, characterised by a longstanding economic divide between its two macro-areas, which has persisted for decades. Italy is perhaps the only Western country where deep regional inequalities remain a defining feature. These are the reasons why South to Centre–North flows have been largely explored in the past. After the Second World War millions of southerners migrated from the Southern to the Central–Northern macro-area of the country, seeking better living conditions and job opportunities. Although attenuated in the 1980s and the first half of the 1990s, this trend has

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persisted in recent decades. Less investigated are internal flows in the opposite direction and internal flows inside these two macro-areas (Piras, 2016).

Recent evidence indicates that an increasing number of foreigners are migrating across different areas of Italy (Basile et al., 2021; Casacchia et al., 2022; 2019). How push and pull factors affect them can differ from those of natives, but a systematic comparison of migration behaviour between Italians and foreigners has been neglected. A general finding in the migration literature is the greater dynamism of foreigners compared with natives (Finney & Catney, 2012; Friedberg & Hunt, 1995; Maza et al., 2019). Two main factors are connected to the greater migratory propensity of foreigners. First, they have already experienced migration from their home country to the host country. Comparing natives and foreigners, the latter have already borne the costs of international migration and have lower internal migration costs compared with the native population. As such, foreigners represent a self-selected group from their countries of origin, which differ in personal characteristics from those in their host country (Chiquiar & Hanson, 2005; Grogger & Hanson, 2011; Schündeln, 2014). Second, social and familial ties are weaker for foreigners than for natives, making foreigners less reluctant to move compared with natives.

Our empirical strategy covers different patterns of internal migration. First, the full bilateral sample, analysing overall interprovincial migration flows, unveils the role of push and pull factors nationwide. Second, by examining flows from Southern to Central–Northern provinces, we follow previous empirical studies that have concentrated on these specific directional flows. Third, migration between Central–Northern and Southern provinces have been almost completely neglected (Piras, 2016). We expect that these flows are less driven by social and economic reasons; rather, they are more likely motivated by return migrants who left the South and went to the Centre–North between the 1950s and 1970s and decided to return to their Southern provinces of origin once retired (Etzo, 2011; Mocetti & Porello, 2012; Piras, 2012). Fourth, migration flows within these two macro-areas have also been overlooked. We deem it important, per se, to examine these underexplored internal flows thoroughly and compare the different drivers of Italians and foreigners.

This paper presents three original contributions compared with the existing literature. First, we exploit the panel dimension of bilateral internal migration flows and apply the common correlated effects (CCE) estimator (Pesaran, 2006) to properly account for multilateral resistance to migration (MRM) (Bertoli & Fernández-Huertas Moraga, 2013). Within this theoretically grounded gravity framework, we contrast the migration behaviour of Italians and foreigners. Second, we investigate the role of quality of life in shaping internal migration flows. A third original novelty is a detailed analysis of bilateral flows not only at the full bilateral level and for the traditional South to Centre–North flows, but also for intra-Centre–North and intra-South flows, as well as the flows from the Centre–North to the South.

The paper is organised as follows. Section 2 reviews the literature. Section 3 discusses the data and variables. Section 4 details the methodology. Section 5 presents the results. Section 6 concludes.

## 2. Literature review

In Italy, internal migration flows have been intense in the aftermath of the Second World War and the mid-1990s. Thereafter, ups and downs have been recorded (Etzo, 2011; Piras, 2012). Studies investigating the determinants of migration flows have generally found that macroeconomic variables, such as gross domestic product (GDP) per capita and unemployment, play the greatest role. Other factors that emerged as determinants of internal migration are housing price differentials (Cannari et al., 2000), the industrial structure (Murat & Paba, 2002) and human capital (Fratesi & Percoco, 2014; Piras, 2017, 2020, 2021).

A related but distinct strand of literature examines how internal migration in Italy responds to the influx of immigrants. Mocetti and Porello (2010) find that immigration has a negligible overall effect, but it increases mobility among highly educated natives and reduces it for the less educated. Brücker et al. (2011) show that immigrants raise moving costs to North–West Italy. Basile et al. (2021) find that immigration displaces low-skilled natives, attracts high-skilled ones and affects the mobility of foreign-born individuals.

Only three papers have explicitly examined amenities and quality of life as factors influencing internal migration in Italy.<sup>1</sup> Biagi et al. (2011) study interprovincial net migration in the period 2001–02, grouping provinces into North, Centre and South. Migration is defined as long-distance when moving between

macro-areas and short-distance when moving within the same area. They find that long-distance migration from the South to the North is driven mainly by economic opportunities. At the same time, short-distance moves from large Northern cities to nearby areas may reflect quality-of-life preferences. Quality of life is proxied by robberies per 10,000 inhabitants and four dummy variables. Results suggest that long-distance migrants prefer provinces with universities and lower crime, while natural amenities show no positive effect. For short-distance migration, proximity to the coast, airports and universities has a positive influence, while crime has no impact. Etzo (2011) includes average temperature and the number of airports in a gravity model using regional data from 1996 to 2005, and finds that airports and warmer climates promote inter-regional migration, particularly from the South to the Centre–North. Bonasia and Napolitano (2012) analyse net migration across regions using disamenities such as juvenile delinquency and CO<sub>2</sub> emissions. Separate regressions for low- and high-educated migrants show significant, correctly signed effects for both groups.

More recently, a third strand of studies closer to ours has delved into the comparative analysis of the internal migration of Italians and foreigners. Contributions in this direction, however, are still scarce and adopt a theoretical and empirical framework that differs significantly from that presented in this paper. To our knowledge, only four studies jointly analyse the internal migration flows of Italians and foreigners, comparing their differentiated patterns.

Lamonica and Zagaglia (2013) apply factor variance analysis for each region and year from 1995 to 2006. While they cannot isolate individual variable effects, they find that population size, distance and economic factors explain Italian internal migration, while for foreigners, migrant presence and employment opportunities are key factors. Using provincial data, Casacchia et al. (2019) separately analyse five years (1995, 2000, 2005, 2010 and 2015), estimating a cross-sectional gravity model for each year. Variables include total and non-citizen population, distance, contiguity, unemployment and education. The number of foreigners in destination areas primarily drives the internal migration of foreigners. The unemployment rate at origin is positive for Italians, whereas for foreigners, it is positive for 1995, 2000 and 2005. The unemployment rate at the destination is always negative for Italians and foreigners (although it is not statistically significant for Italians in 2010). Casacchia et al. (2022) study 2014–17 flows for Italians and seven major foreign groups.<sup>2</sup> Actually, they do not exploit the panel structure of their data but pool the data from these four years to minimise the number of zero observations. Migrant networks play a key role for foreigners, whose flows are more responsive to employment conditions. For Italians, the population at the origin is more influential. Notably, unemployment at the destination can have a positive effect on Moroccans, Chinese, Filipinos and Indians due to their roles in niche labour markets. Pipitone et al. (2022) utilise 2007–19 local labour market area data to examine flows from Southern to Central–Northern areas, with a focus on Italians and foreigners. They find that technical efficiency<sup>3</sup> boosts migration in all groups. For Italians, migration is associated with efficiency losses in the South's secondary and tertiary sectors, and gains in the North's tertiary sector. Foreigners are drawn to efficient manufacturing and service firms, though they often move between equally inefficient areas in the primary sector.

Compared with these studies, our paper differs theoretically and empirically. Theoretically, none of them is framed inside a micro-founded random utility model (RUM), nor do they account for MRM. Empirically, Lamonica and Zagaglia (2013) do not estimate an econometric model. Casacchia et al. (2019) ignore the time dimension of the data and use five single cross-sections. Analogously, Casacchia et al. (2022) do not exploit the panel dimension of their dataset and analyse only the seven major foreign groups. Pipitone et al. (2022) investigate a longer period, but they focus on technical efficiency and overlook the roles of GDP per capita, unemployment rate and human capital. None of these papers considers the quality of life as a determinant of interprovincial migration, nor do they analyse migration flows at different territorial levels as we do in the present paper.

### 3. Data and variables

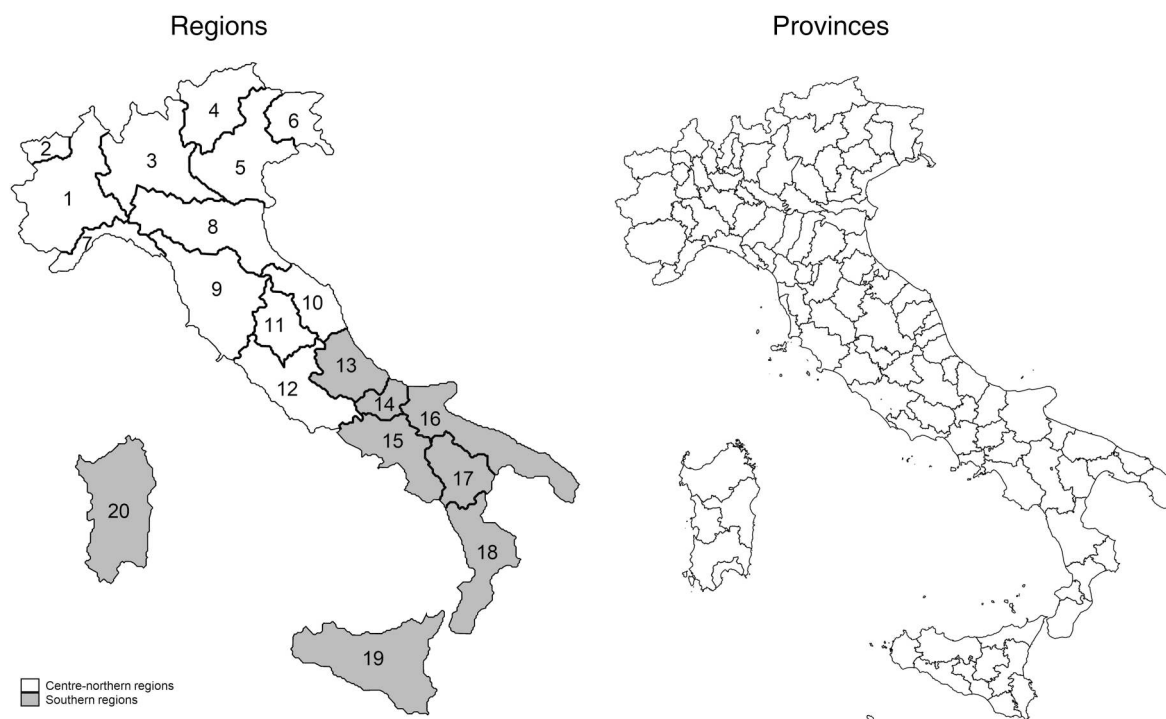
#### 3.1. Data sources

The data were collected from the Italian National Institute of Statistics (ISTAT), Eurostat and the Italian financial newspaper *Il Sole 24 Ore*.<sup>4</sup> The data span 19 years, from 2002 to 2020, and cover a variable number

of Italian provinces (corresponding to NUTS-3 according to the European Union (EU) classification). The number of provinces was not constant during those years, totalling 103 between 2002 and 2005; in 2006, four new provinces were established in the Sardinia region (Carbonia–Iglesias, Ogliastra, Olbia–Tempio and Medio Campidano), leading to 107 total provinces. Next, in 2010, three further new provinces (Monza e della Brianza in Lombardy, Fermo in the Marche and Barletta–Andria–Trani in Apulia) were created, resulting in a total of 110 provinces. Finally, in 2017, the newest four Sardinian provinces were abolished. However, a new one was made (Sud Sardegna), reducing the number of provinces again to 107 (see [Figure 1](#) for the current situation of provinces and the regions to which they belong). Summary statistics for all variables are shown in Tables A2–A4 in Appendix A in the supplemental data online.

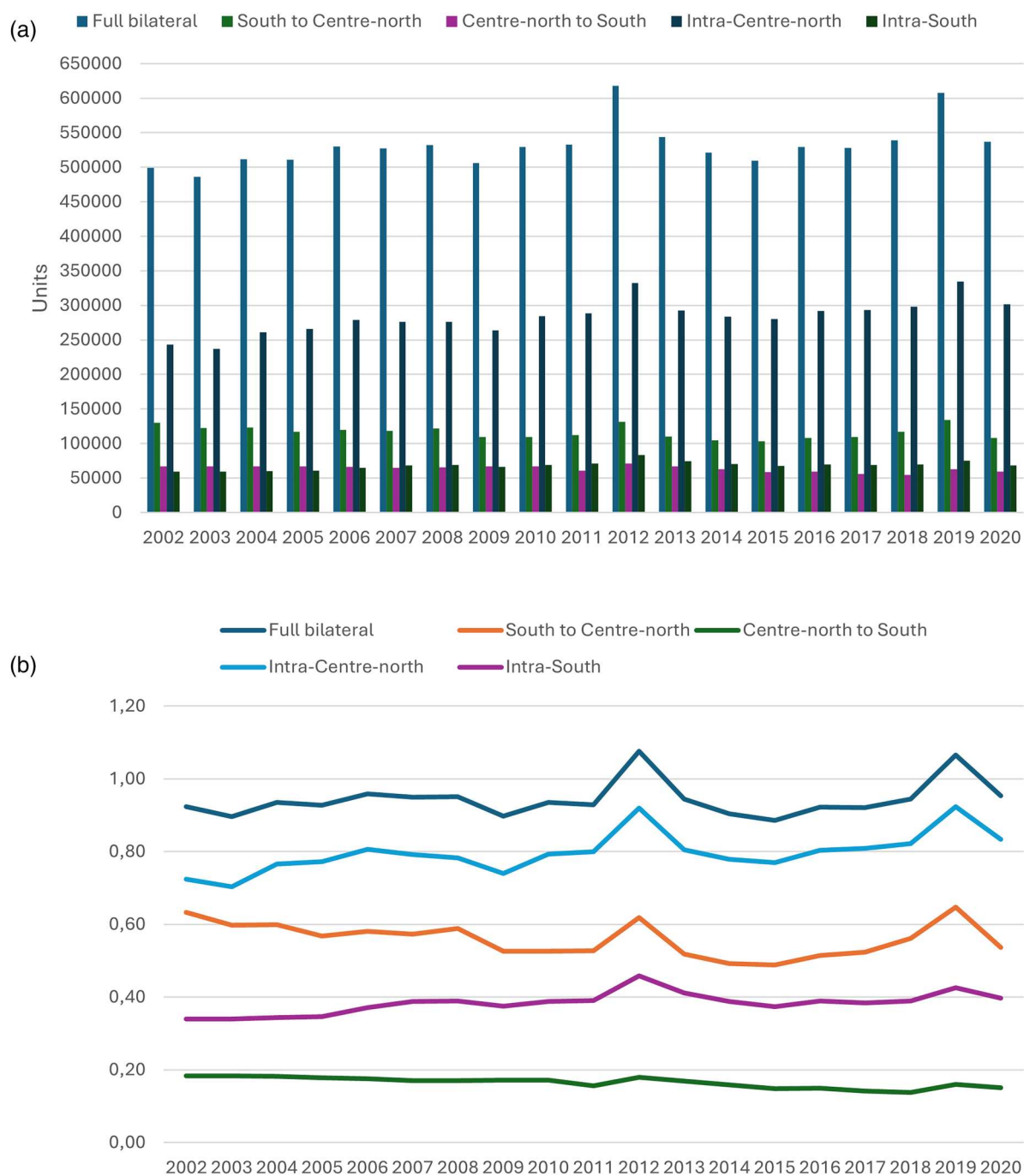
### 3.2. Interprovincial migration flows patterns

This subsection provides a cursory description of interprovincial migration flows, highlighting the differences across macro-areas and between Italians and foreigners. Statistics on migration flows are derived from administrative records tracking changes in residence between municipalities. The data are collected through individual registration forms, which document origin, destination and other socio-demographic details of migrants, such as citizenship. However, the forms do not consent to identify the reasons for moving. This source only captures the legally registered population; hence, illegal or asylum-seeking migrants are excluded. [Figures 2–4](#) display migration flows and rates for total, Italian and foreign migrants across the

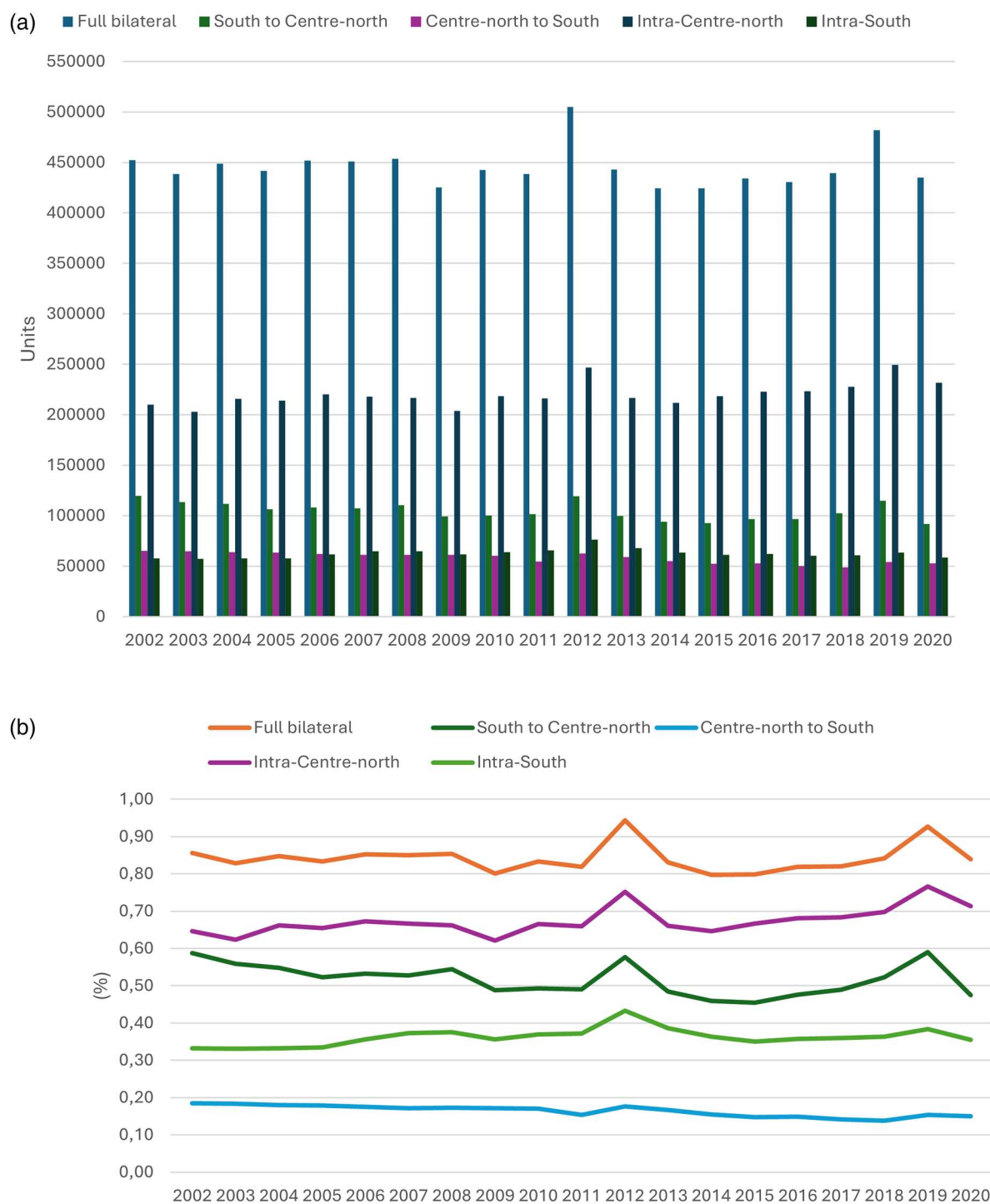


**Figure 1.** Italian regions and provinces (since 2017): Centre–North regions (provinces): 1, Piedmont (Torino, Vercelli, Novara, Cuneo, Asti, Alessandria, Biella, Verbano–Cusio–Ossola); 2, Aosta Valley (Valle d’Aosta/Vallée d’Aoste); 3, Lombardy (Varese, Como, Sondrio, Milano, Bergamo, Brescia, Pavia, Cremona, Mantova, Lecco, Lodi, Monza e della Brianza); 4, Trentino-Alto Adige/Südtirol (Bolzano/Bozen, Trento); 5, Veneto (Verona, Vicenza, Belluno, Treviso, Venezia, Padova, Rovigo); 6, Friuli-Venezia Giulia (Udine, Gorizia, Trieste, Pordenone); 7, Liguria (Imperia, Savona, Genova, La Spezia); 8, Emilia-Romagna (Piacenza, Parma, Reggio nell’Emilia, Modena, Bologna, Ferrara, Ravenna, Forlì–Cesena, Rimini); 9, Tuscany (Massa–Carrara, Lucca, Pistoia, Firenze, Livorno, Pisa, Arezzo, Siena, Grosseto, Prato); 10, Umbria (Perugia, Terni); 11, Marche (Pesaro e Urbino, Ancona, Macerata, Ascoli Piceno, Fermo); 12, Lazio (Viterbo, Rieti, Roma, Latina, Frosinone); and South regions (provinces): 13, Abruzzo (L’Aquila, Teramo, Pescara, Chieti); 14, Molise (Campobasso, Isernia); 15, Campania (Caserta, Benevento, Napoli, Avellino, Salerno); 16, Apulia (Foggia, Bari, Taranto, Brindisi, Lecce, Barletta–Andria–Trani); 17, Basilicata (Potenza, Matera); 18, Calabria (Cosenza, Catanzaro, Reggio Calabria, Crotona, Vibo Valentia); 19, Sicily (Trapani, Palermo, Messina, Agrigento, Caltanissetta, Enna, Catania, Ragusa, Siracusa); and 20, Sardinia (Sassari, Nuoro, Cagliari, Oristano, Sud Sardegna).

five different territorial samples of Italian provinces (intra-provincial flows are excluded). The full bilateral sample records the highest number of interprovincial flows, which range between approximately 500,000 and 600,000 per year (with a period average of 531,000), followed by the intra-Centre–North sample, in which, on average, 283,000 individuals change provinces. The traditional South to Centre–North flows are always above 100,000 (the period average is 116,000). Finally, similar numbers are those regarding the Centre–North to South and the intra-South samples, with the former at 64,000 and the latter at 68,000. The largest province-pairs flows were recorded between Milano and Monza e della Brianza in the Northern region of Lombardy and between Napoli and Caserta in the Campania Southern region (see Tables A5, A8 and A9 in Appendix A in the supplemental data online). In the South to Centre–North sample, the largest bilateral corridors were from Napoli to Roma and Milano (see Table A6 online).



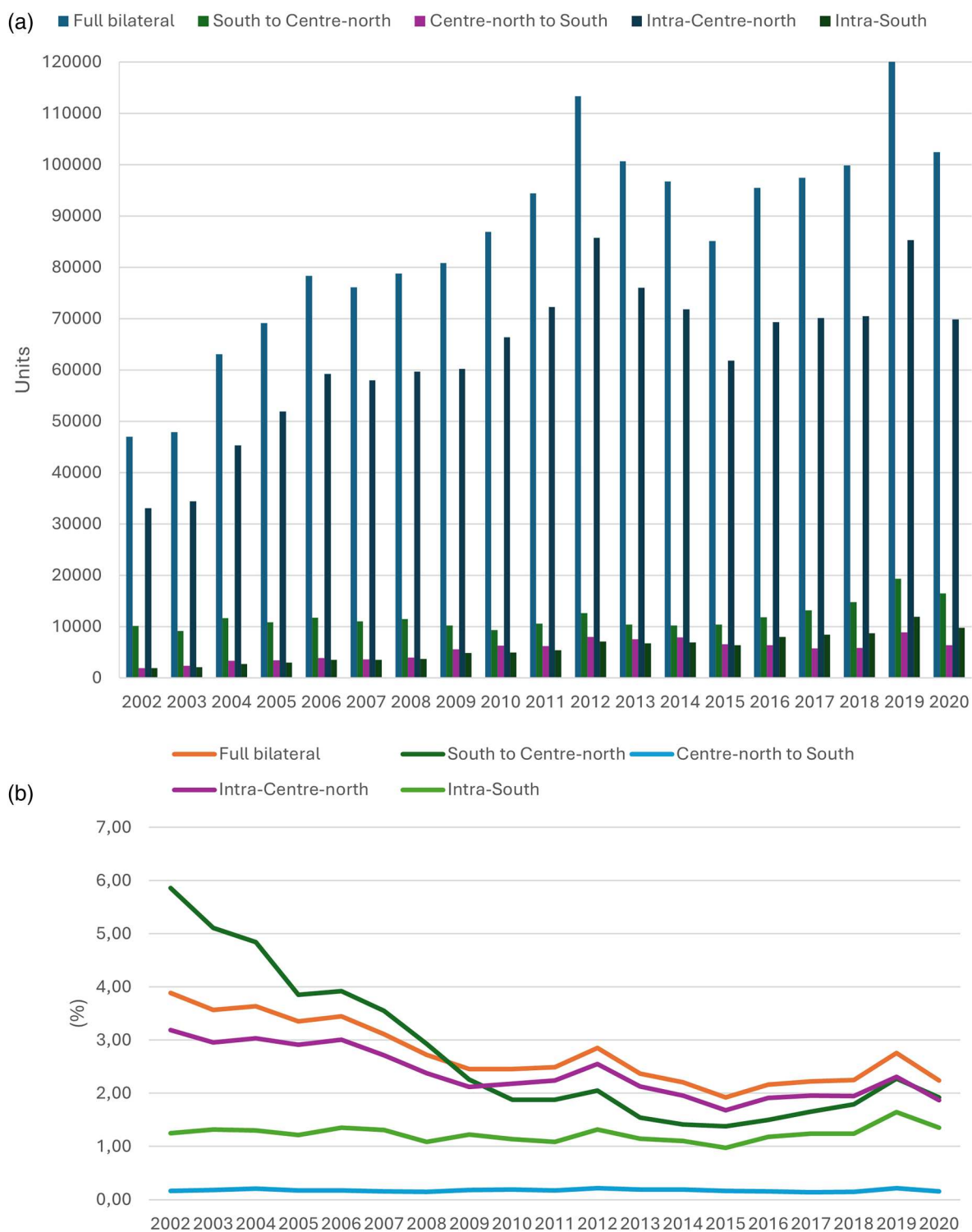
**Figure 2.** Interprovincial migration (total migrants): (a) migration flows (units); and (b) migration rates (%).



**Figure 3.** Interprovincial migration (Italians): (a) migration flows (units); and (b) migration rates (%).

Similarly, in the Centre–North to South direction, people moved mainly from Roma to Napoli and to L’Aquila in Abruzzo (see Table A7 online).

The comparative analysis of Figures 2–4 highlights the heterogeneity in migration dynamics between Italians and foreigners. Notably, it is evident that foreigners are more mobile than Italians, which aligns with the prevailing literature cited in Sections 1 and 2. On average, during the period under investigation, the highest migration rate among Italians was 0.84% for the full bilateral sample, followed by 0.67% for the intra-Centre–North sample, 0.52% for the South-to-Centre–North sample, 0.36% for the intra-South sample and 0.16% for the Centre–North-to-South sample. For foreigners, very similar percentages of 2.74% and 2.72% were observed for the full bilateral and the South-to-Centre–North samples, respectively,



**Figure 4.** Interprovincial migration (foreigners): (a) migration flows (units); and (b) migration rates (%).

followed by 2.37% for the intra-Centre–North sample, 2.24% for the intra-South sample and a marginal 0.17% for the Centre–North-to-South sample.

### 3.3. Explanatory variables

Some explanatory variables in the present study are standard in the literature on migration determinants, while others have not yet been fully explored. Population is the classical variable used to measure the mass of

the sending and destination locations. A larger population indicates a wider range of economic and social opportunities, better infrastructure and more opportunities for social integration, which in turn influences migration decisions. However, there is a significant difference between this common use of the population as a mass variable and the measure of the population used in this paper. Since we consider nationality-specific population measures, we can better grasp the role of migrants' nationality as a push factor.<sup>5</sup> The expected role of nationality-specific population is positive at both the origin and the destination.

Among the standard macroeconomic determinants of migration flows, GDP per capita and unemployment rates are the most commonly used to measure the expected incomes, based on which migrants choose to move. Measured at origin (destination), the higher (lower) GDP per capita and the lower (higher) the unemployment rate, the lower the willingness to leave the residence province.

Compared with GDP per capita and unemployment, human capital is a less investigated driver of migration. We consider the stock of human capital measured by average years of schooling. Notice that since GDP per capita is a proxy for wages and given that higher levels of GDP per capita embody higher per capita human capital, it follows that GDP per capita 'must be deflated by human capital stocks to reflect the relative returns alone' (Clark et al., 2007, p. 363). Under these theoretical premises, it is anticipated that human capital at the destination negatively affects migration flows, while its role is reversed at the origin.

Finally, a new variable we introduce here, never used in studying internal migration flows in Italy, is an index of quality of life that captures the role of amenities. In more detail, we consider the *Indice della qualità della vita nelle provincie italiane* (quality-of-life index in the Italian provinces) published yearly by *Il Sole 24 Ore*. The quality-of-life index is evaluated through a set of 90 indicators divided into six macro-categories (wealth and consumption; business and work; environment and services; demography, society and health; justice and security; culture and leisure), each composed of 15 indicators provided by official statistical sources, public and private institutions, and research institutes.<sup>6</sup> Each indicator is expressed in the range between 0 (for the province with the lowest value) and 1000 (for the province with the highest value). For all other provinces, the score is then attributed according to the distance from these extremes. Next, for each macro-category, a ranking is identified based on the average score reported in the 15 indicators, equally weighted. Finally, the ultimate ranking is built based on the simple arithmetic mean of the six sector rankings. Compared with previous works that investigated the role of amenities in Italian internal migration using single variables to proxy for the quality of life, we deem that this index captures the overall quality of life much more broadly.

A higher quality-of-life index at the origin is expected to act as a stay-home factor for migrants; conversely, a higher quality-of-life index at the destination is expected to attract migrants. Yet Italians and foreigners could react differently. For example, it might be the case that while Italians give more importance to quality of life when deciding to move from one province to another, foreigners attach less weight to the quality of life and a higher weight to the main macroeconomic variables such as GDP per capita and unemployment. Under these circumstances, foreigners could move towards those provinces with lower quality-of-life values to fill the gaps left by Italians moving towards provinces with a higher quality of life.

## 4. Methodology

### 4.1. Theoretical framework

A comprehensive exposition of the theoretically micro-founded migration model underlying our empirical analysis lies beyond the scope of this paper. For present purposes, it suffices to note that the model is grounded in the random utility model (RUM) framework proposed by Bertoli and Fernández-Huertas Moraga (2013) and is specifically designed to address MRM.<sup>7</sup> As is well established, MRM arises because migration decisions between any two locations are influenced by the attractiveness of the chosen destination and the (potentially time-varying) appeal of all alternative destinations. Failure to properly account for these dynamics can lead to biased estimates.

Bertoli and Fernández-Huertas Moraga (2013, p. 84) demonstrate that 'the multilateral resistance to migration [MRM, derived from their RUM specification] which enters into the equation to be estimated, can be approximated in a way that fits the multifactor error structure', which characterises the common

correlated effects (CCE) estimator proposed by Pesaran (2006). This estimator also has the ‘additional advantage of being robust even in the presence of residual cross-sectional dependence’ (Beine et al., 2016, p. 7). The CCE estimator is consistent as long as the number of units tends to infinity, independently of the time dimension, and when regressors are endogenous. The general empirical specification to be estimated through CCE is:

$$m_{ijt} = \beta'_i x_{it} + \beta'_j x_{jt} + \beta'_{ij} x_{ijt} + \varepsilon_{ijt}, \quad (1)$$

where  $m_{ijt}$  are the bilateral migration flows from origin  $i$  to destination  $j$  at time  $t$ ,  $x_{it}$  is a vector of time-varying origin-specific variables,  $x_{jt}$  is a vector of time-varying destination-specific variables,  $x_{ijt}$  represents origin–destination-specific time-varying variables, and  $\beta'_i$ ,  $\beta'_j$  and  $\beta'_{ij}$  are vectors of parameters. The error term in equation (1) is:

$$\varepsilon_{ijt} = \gamma'_{ij} f_t + \eta_{ijt},$$

where  $\gamma'_{ij}$  and  $f_t$  are, respectively, a vector of factor loadings and a vector of common factors, while  $\eta_{ijt}$  is a well-behaved error term. Pesaran (2006) shows that consistent estimates of the  $\beta$ 's in equation (1) can be retrieved from an ordinary least squares (OLS) regression in which  $f_t$  is replaced by the cross-sectional averages of the dependent and all the independent variables  $\bar{z}_t$ :

$$m_{ijt} = \beta'_i x_{it} + \beta'_j x_{jt} + \beta'_{ij} x_{ijt} + \xi'_{ij} \bar{z}_t + \eta_{ijt} \quad (2)$$

The vector of parameters  $\xi'_{ij}$ , which represents the dyadic-specific estimates of the factor loadings, has no specific interpretation. However, their joint statistical significance must be tested for the CCE estimates to be valid.

It should be noticed that, under different and less general assumptions regarding the stochastic component of the utility function of the RUM and also depending on the specific research question and data availability, the time-varying origin-specific variables  $x_{it}$ , and the time-varying destination-specific variables  $x_{jt}$ , could be substituted by origin–year ( $\vartheta_{it}$ ) and destination–year ( $\vartheta_{jt}$ ) dummies.<sup>8</sup> Under these circumstances, two equations are estimated. The first allows to estimate the parameters at the destination:

$$m_{ijt} = \beta'_j x_{jt} + \beta'_{ij} x_{ijt} + \vartheta_{it} + \vartheta_j + \eta_{ijt} \quad (3)$$

the second at the origin:

$$m_{ijt} = \beta'_i x_{it} + \beta'_{ij} x_{ijt} + \vartheta_{jt} + \vartheta_i + \eta_{ijt}, \quad (4)$$

where  $\vartheta_i$  and  $\vartheta_j$  are dummy variables that control for time-invariant factors varying only across origins or only across destinations, respectively. Notice that equations (3) and (4) do not incorporate common factors, and MRM is accounted for by origin–year and destination–year fixed effects (FE) alone.

Finally, one could ignore MRM altogether and estimate a model using a two-way fixed effects (2FE) specification, incorporating origin–destination FE ( $\vartheta_{ij}$ ) and year dummies ( $\vartheta_t$ ) as in the following formulation:

$$m_{ijt} = \beta'_i x_{it} + \beta'_j x_{jt} + \beta'_{ij} x_{ijt} + \vartheta_{ij} + \vartheta_t + \eta_{ijt}, \quad (5)$$

To sum up, depending on the different assumptions on the stochastic component of the utility function of the RUM, various approaches exist to estimate the gravity migration model. Ultimately, the most appropriate specification should be selected empirically based on residual diagnostics performance, as consistency with the RUM framework requires that the residuals be free from cross-sectional dependence (CD). In this regard, various tests are available. Recently, Juodis and Reese (2022) demonstrated that the most frequently used CD test (Pesaran, 2015) is biased and diverges when the time dimension increases and the test is conducted on residuals obtained from a CCE or FE regressions, resulting in over-rejection of the null hypothesis of weak CD. They suggest a modified test (CDw) based on specifically weighted cross-section covariances that are weighted with individual-specific random draws from a Rademacher distribution. This test is more robust to heteroskedasticity and small sample distortions and tends to avoid false-positives. Although the CDw test has good small-sample properties, Juodis and Reese (2022) recognise that it lacks power. To address this issue, Pesaran and Xie (2025) propose an alternative test (CD\*) that, without

sacrificing power, mitigates the over-rejection problem associated with the CD test. When presenting our empirical results, the CDw and CD\* tests are shown below each regression, helping to detect residual CD and to assess the adherence of the empirical estimates to the theoretical RUM.

## 4.2. Empirical approach

Our data do not have origin–destination-specific time-varying variables  $\mathbf{x}_{ijt}$ ; we have time-varying origin-specific variables  $\mathbf{x}_{it}$  and time-varying destination-specific variables  $\mathbf{x}_{jt}$ . We apply the CCE advocated by Bertoli and Fernández-Huertas Moraga (2013) and estimate the following two equations:

$$m_{ijt}^n = \boldsymbol{\beta}'_j \mathbf{x}_{jt-1} + \boldsymbol{\xi}'_{ij} \bar{\mathbf{z}}_{t-1} + \vartheta_{it} + \vartheta_j + \eta_{ijt} \quad (6)$$

$$m_{ijt}^n = \boldsymbol{\beta}'_i \mathbf{x}_{it-1} + \boldsymbol{\xi}'_{ij} \bar{\mathbf{z}}_{t-1} + \vartheta_{jt} + \vartheta_i + \eta_{ijt} \quad (7)$$

where  $m_{ijt}^n$  are gross migration flows of nationality  $n$ , from origin province  $i$  to destination province  $j$  at time  $t$ . All variables are in logs; independent variables are lagged one year to account for a delay in the migration decision.<sup>9</sup> By estimating equation (6), we retrieve the coefficients  $\boldsymbol{\beta}'_j$  regarding time-varying destination-specific variables  $\mathbf{x}_{jt-1}$ , controlling all time-variant factors at origin through origin–year FE  $\vartheta_{it}$  and for time-invariant factors at destination through  $\vartheta_j$ ; analogously, equation (7) delivers the  $\boldsymbol{\beta}'_i$  estimates of time-varying origin-specific variables  $\mathbf{x}_{it-1}$ , taking into account all time-variant factors at destination through destination–year FE  $\vartheta_{jt}$  and of time-invariant factors at origin through  $\vartheta_i$ . More importantly, both equations account for MRM via the  $\boldsymbol{\xi}'_{ij} \bar{\mathbf{z}}_{t-1}$  term.

The two vectors  $\mathbf{x}_{it-1}$  and  $\mathbf{x}_{jt-1}$  contain the five explanatory variables described in Section 3:  $pop_{kt-1}^n$  is the resident population of nationality  $n$  in province  $k$  ( $k = i, j$ ),  $gdp_{kt-1}$  is for GDP per capita in province  $k$ ,  $unr_{kt-1}$  is the unemployment rate in province  $k$ ,  $ays_{r(k)t-1}$  is a proxy for human capital measured by the average years of schooling of resident population at regional level  $r$  to which province  $k$  belongs, finally  $qli_{kt-1}$  is the provincial quality-of-life index. Notice that GDP per capita and quality-of-life index refer to the provincial (NUTS-3) level and do not vary between nationalities; conversely, population is nationality-specific, while human capital is measured at the regional (NUTS-2) level. Unfortunately, there are no provincial data on the educational attainment of the resident population. Hence, we assigned the average years of schooling at the regional level ( $r$ ) to all provinces belonging to that region.

## 5. Results

Tables 1–5 present the empirical results for the full bilateral sample and the other four geographically differentiated samples. The formal comparison between Italians and foreigners is performed through a test on the equality of estimated coefficients, as shown in Table D1 in Appendix D in the supplemental data online. In discussing the results, these differences will be highlighted when synthesising the results for each sample. At the bottom of each table, we provide information about the validity and robustness of the estimated models. As discussed in Section 4, we report the  $F$ -test on the joint statistical significance of the cross-sectional averages of the dependent and the independent variables. All estimates confirm the joint significance of the cross-sectional averages and hence the validity of the chosen estimator. In addition, we report the CDw and CD\* tests on the regression's residuals. The former reveals that the null hypothesis of weak CD is always rejected, except for Table 4 (intra-Centre–North sample), in which the CDw suggests that CD is still present for foreigners and Italians (only for variables at the origin). Overall, based on this test, we feel reassured that almost all estimates are consistent with the RUM theoretical framework discussed in Section 4. We further note that the most demanding CD\* test suggests that some estimates fail to fully capture CD. We observe that this happens in all samples, but almost exclusively for foreigners.<sup>10</sup> This suggests that the empirical model may be neglecting some channels relevant to this group, such as ethnic clustering, informal job markets, or other common constraints across provinces that prevent the estimated residuals from fully adhering to cross-sectional independence. If this conjecture is correct, then foreign internal migrants are likely moving under different

**Table 1.** Estimation results for the sample of full bilateral interprovincial migration flows in Italy.

	(1)			(2)			(3)			(4)			(5)			(6)		
	Variables at the origin						Variables at the destination											
	Total migrants		Italians		Foreigners		Total migrants		Italians		Foreigners							
<i>Population</i>	1.30***		1.22***		0.40***		0.95***		1.18***		0.22***							
	[0.06]		[0.08]		[0.01]		[0.06]		[0.08]		[0.01]							
<i>GDP per capita</i>	-0.19***		-0.12***		-0.10***		0.35***		0.44***		0.22***							
	[0.03]		[0.03]		[0.03]		[0.03]		[0.03]		[0.03]							
<i>Unempl. rate</i>	0.05***		0.04***		0.15***		-0.03***		0.02**		-0.11***							
	[0.01]		[0.01]		[0.01]		[0.01]		[0.01]		[0.01]							
<i>Human capital</i>	0.26**		0.86***		0.17		0.82***		1.48***		-0.92***							
	[0.13]		[0.13]		[0.14]		[0.13]		[0.13]		[0.15]							
<i>Quality of life</i>	-0.26***		-0.24***		0.26***		-0.13***		-0.10***		-0.05							
	[0.03]		[0.03]		[0.04]		[0.03]		[0.04]		[0.04]							
<i>Observations</i>	201,396		201,385		198,531		201,382		201,371		198,482							
<i>R</i> <sup>2</sup>	0.89		0.89		0.80		0.89		0.89		0.79							
<i>VIF</i>	2.91		2.90		3.09		2.91		2.90		3.11							
<i>F</i> -test	130000		170000		68647.8		170000		94574.12		36538.14							
[ <i>p</i> -value]	[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]							
Residual diagnostics																		
<i>CDw</i>	0.61		0.25		0.52		-0.59		-0.36		-1.23							
[ <i>p</i> -value]	[0.544]		[0.800]		[0.600]		[0.577]		[0.718]		[0.219]							
<i>CD*</i>	0.34		1.11		15.63		0.72		1.97		37.57							
[ <i>p</i> -value]	[0.730]		[0.266]		[0.000]		[0.473]		[0.049]		[0.000]							

Note: Robust standard errors clustered at the origin–destination are shown in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Variance inflation factor (VIF) is a measure used to check for multicollinearity. As a guide, a VIF considerably greater than 10 suggests high multicollinearity. The *F*-test (an  $\chi^2$ -test) checks that the coefficients on cross-sectional averages are jointly zero. *CDw* and *CD\** are the cross-sectional dependence (CD) tests proposed by Juodis and Reese (2022) and Pesaran and Xie (2025), respectively. They are normally distributed under the null hypothesis of weak CD. See the main text for further details.

**Table 2.** Estimation results for the sample of South to Centre–North interprovincial migration flows.

	(1)			(2)			(3)			(4)			(5)			(6)		
	Variables at the origin						Variables at the destination											
	Total migrants		Italians		Foreigners		Total migrants		Italians		Foreigners							
<i>Population</i>	2.28***		1.50***		0.43***		-0.27**		-0.12		0.30***							
	[0.16]		[0.17]		[0.03]		[0.13]		[0.15]		[0.03]							
<i>GDP per capita</i>	-0.35***		-0.40***		0.04		0.70***		0.85***		0.25***							
	[0.06]		[0.06]		[0.07]		[0.06]		[0.07]		[0.08]							
<i>Unempl. rate</i>	0.06***		0.07***		0.04**		-0.11***		-0.09***		-0.18***							
	[0.02]		[0.02]		[0.02]		[0.01]		[0.01]		[0.02]							
<i>Human capital</i>	3.43***		3.63***		-0.01		-1.59***		-1.35***		-2.15***							
	[0.31]		[0.32]		[0.38]		[0.24]		[0.25]		[0.31]							
<i>Quality of life</i>	-0.67***		-0.63***		0.08		-0.03		0.06		0.11							
	[0.07]		[0.07]		[0.08]		[0.08]		[0.08]		[0.09]							
<i>Observations</i>	46,059		46,056		45,641		47,742		47,742		47,024							
<i>R</i> <sup>2</sup>	0.90		0.90		0.72		0.89		0.89		0.71							
<i>VIF</i>	1.89		1.88		2.00		1.56		1.56		1.66							
<i>F</i> -test	4768.64		7860.83		1931.24		3914.12		4411.52		1690.56							
[ <i>p</i> -value]	[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]							
Residual diagnostics																		
<i>CDw</i>	-0.15		0.02		0.75		-0.35		-1.22		-0.71							
[ <i>p</i> -value]	[0.880]		[0.985]		[0.452]		[0.725]		[0.222]		[0.477]							
<i>CD*</i>	0.89		0.74		7.09		-1.38		-0.31		0.2							
[ <i>p</i> -value]	[0.375]		[0.462]		[0.000]		[0.167]		[0.760]		[0.843]							

Note: See Table 1.

sets of determinants, which are not accounted for by the variables of the standard gravity model, suggesting the need for further research on this topic.

## 5.1. Full bilateral flows

### 5.1.1. Variables measured at the origin

The coefficient of nationality-specific population is large, positive and highly significant across all groups, indicating that, as expected, more populous provinces generate more outflows. The effect is markedly

**Table 3.** Estimation results for the sample of Centre–North to South interprovincial migration flows.

	(1)	(2)		(3)	(4)		(5)	(6)
	Total migrants	Variables at the origin		Foreigners	Variables at the destination		Italians	Foreigners
<i>Population</i>	0.64*** [0.15]	0.57*** [0.17]		0.28*** [0.02]	0.67*** [0.18]		0.67*** [0.20]	0.08*** [0.02]
<i>GDP per capita</i>	0.19** [0.07]	0.27*** [0.07]		−0.17*** [0.06]	−0.12* [0.07]		−0.23*** [0.07]	0.09 [0.06]
<i>Unempl. rate</i>	0.00 [0.02]	0.01 [0.02]		0.03** [0.01]	0.01 [0.02]		0.02 [0.02]	0.00 [0.02]
<i>Human capital</i>	−0.84*** [0.29]	−0.95*** [0.30]		0.33 [0.24]	4.57*** [0.37]		4.33*** [0.37]	0.19 [0.33]
<i>Quality of life</i>	−0.08 [0.08]	−0.02 [0.09]		0.09 [0.07]	−0.80*** [0.08]		−0.72*** [0.08]	−0.78*** [0.07]
Observations	47,744	47,744		46,586	46,057		46,056	45,238
$R^2$	0.84	0.84		0.64	0.85		0.84	0.63
VIF	1.56	1.56		1.66	1.89		1.88	2.02
<i>F</i> -test	4004.70	6667.63		1394.35	4270.54		4510.20	1221.89
[ <i>p</i> -value]	[0.000]	[0.000]		[0.000]	[0.000]		[0.000]	[0.000]
Residual diagnostics								
CDw	0.95	1.38		−0.56	−0.23		−0.56	−0.44
[ <i>p</i> -value]	[0.345]	[0.167]		[0.573]	[0.818]		[0.578]	[0.663]
CD*	−2.17	−1.40		41.37	−1.56		−1.5	25.67
[ <i>p</i> -value]	[0.030]	[0.160]		[0.000]	[0.119]		[0.132]	[0.000]

Note: See Table 1.

**Table 4.** Estimation results for the sample of intra-Centre–North interprovincial migration flows.

	(1)	(2)		(3)	(4)		(5)	(6)
	Total migrants	Variables at the origin		Foreigners	Variables at the destination		Italians	Foreigners
<i>Population</i>	1.55*** [0.10]	1.46*** [0.12]		0.46*** [0.02]	1.12*** [0.10]		1.37*** [0.12]	0.31*** [0.02]
<i>GDP per capita</i>	0.02 [0.05]	0.00 [0.05]		0.23*** [0.06]	0.52*** [0.05]		0.69*** [0.05]	0.37*** [0.06]
<i>Unempl. rate</i>	0.03*** [0.01]	−0.01 [0.01]		0.10*** [0.01]	−0.06*** [0.01]		0.00 [0.01]	−0.13*** [0.01]
<i>Human capital</i>	0.52*** [0.19]	0.33 [0.21]		0.96*** [0.23]	−0.43** [0.19]		−0.09 [0.20]	−0.98*** [0.23]
<i>Quality of life</i>	−0.12** [0.06]	−0.04 [0.06]		−0.08 [0.07]	0.10* [0.06]		0.14** [0.06]	0.10 [0.07]
Observations	81,742	81,736		81,650	81,742		81,737	81,651
$R^2$	0.90	0.89		0.83	0.90		0.89	0.83
VIF	1.89	1.88		2.00	1.89		1.88	2.00
<i>F</i> -test	67545.31	120000		29906.53	66030.55		370000	33848.73
[ <i>p</i> -value]	[0.000]	[0.000]		[0.000]	[0.000]		[0.000]	[0.000]
Residual diagnostics								
CDw	−1.28	2.65		3.55	3.01		0.50	−2.58
[ <i>p</i> -value]	[0.201]	[0.008]		[0.000]	[0.003]		[0.620]	[0.010]
CD*	1.31	0.66		2.14	3.27		0.79	3.52
[ <i>p</i> -value]	[0.191]	[0.510]		[0.032]	[0.001]		[0.432]	[0.000]

Note: See Table 1.

stronger for Italians (1.22) than for foreigners (0.40). This disparity suggests that internal mobility among Italians is more elastic to population size, reflecting a more even spatial distribution. Foreigners, by contrast, may be more geographically concentrated due to community clustering (e.g., networks). GDP per capita has a consistently negative and highly significant effect across all groups, indicating that economically disadvantaged provinces tend to experience more outflows. However, again, the effect is weaker for foreigners (−0.10) than Italians (−0.12), although this difference is not statistically significant. Overall, this pattern suggests that Italians and foreigners are both sensitive to local economic conditions when making migration decisions, taking into account interregional income differentials. As theoretically expected, the unemployment rate at origin exerts a positive and statistically significant influence on outmigration for all groups. The effect is strongest for foreigners (0.15) and weakest for Italians (0.04). This suggests that foreigners are highly responsive to deteriorating local labour market conditions, possibly due to greater economic

**Table 5.** Estimation results for the sample of intra-South interprovincial migration flows.

	(1)	(2)		(3)	(4)		(5)	(6)
	Total migrants	Variables at the origin		Foreigners	Total migrants	Variables at the destination		Foreigners
		Italians				Italians		
<i>Population</i>	1.34*** [0.24]	1.08*** [0.26]		0.32*** [0.03]	0.39* [0.24]	0.53** [0.26]		0.24*** [0.03]
<i>GDP per capita</i>	-0.51*** [0.09]	-0.33*** [0.09]		-0.52*** [0.09]	-0.01 [0.09]	0.02 [0.09]		0.02 [0.09]
<i>Unempl. rate</i>	-0.01 [0.02]	-0.01 [0.02]		0.01 [0.02]	0.02 [0.02]	-0.01 [0.02]		0.07*** [0.02]
<i>Human capital</i>	2.06*** [0.47]	2.79*** [0.47]		-1.69*** [0.46]	0.65 [0.46]	1.09** [0.46]		-1.36*** [0.48]
<i>Quality of life</i>	-0.64*** [0.10]	-0.55*** [0.10]		0.19* [0.10]	-0.49*** [0.10]	-0.43*** [0.10]		-0.17* [0.10]
Observations	25,851	25,849		24,654	25,841	25,836		24,569
$R^2$	0.91	0.91		0.78	0.91	0.91		0.76
VIF	1.56	1.56		1.66	1.56	1.56		1.66
<i>F-test</i>	26622.12	27237.49		4336.78	26827.92	27411.75		4394.59
[ <i>p-value</i> ]	[0.000]	[0.000]		[0.000]	[0.000]	[0.000]		[0.000]
Residual diagnostics								
CDw	0.61	-0.61		-0.97	-1.52	1.30		-1.05
[ <i>p-value</i> ]	[0.541]	[0.539]		[0.331]	[0.129]	[0.195]		[0.292]
CD*	-1.46	3.58		68.41	0.54	0.74		25.95
[ <i>p-value</i> ]	[0.144]	[0.000]		[0.000]	[0.587]	[0.462]		[0.000]

Note: See Table 1.

precarity. In contrast, Italians may be less mobile due to homeownership or familial ties. Human capital yields striking differences between Italians and foreigners. For Italians, higher human capital levels in the province of residence significantly increase outmigration (0.86), which is consistent with the aforementioned theory. For foreigners, the estimated coefficient is not statistically significant. A better quality of life reduces the likelihood of migrating for Italians (-0.24), suggesting that amenities and subjective well-being play a very important role in retaining Italian residents in their provinces of origin. In stark contrast, the coefficient is positive (0.26) and statistically significant for foreigners, implying that a higher quality of life at origin increases their propensity to leave. This counterintuitive finding might suggest that the quality-of-life index captures aspects with different meanings for foreigners.

### 5.1.2. Variables measured at the destination

Nationality-specific population positively affects migration across all groups, but this effect is more pronounced for Italians (1.18) than for foreigners (0.22). This result suggests that Italians are more responsive to provincial agglomerations, maybe due to better labour market access. Foreigners' weaker response may reflect a greater reliance on specific migrant networks rather than provincial size per se. As theoretically anticipated, GDP per capita exerts a positive influence, consistent with migration driven by economic opportunities. The effect is stronger for Italians (0.44) than for foreigners (0.22). This result again reflects that Italians are more economically motivated or better equipped to access the benefits of wealthier provinces. Unemployment is negatively associated with migration flows for total migrants and foreigners (-0.03 and -0.11, respectively), which aligns with expectations. Unexpectedly, albeit very small in magnitude, the coefficient is positive for Italians (0.02). This puzzling result might reflect unobserved characteristics of those moving into high-unemployment areas. Human capital has a negative effect on foreigners (-0.92), but a strongly positive and significant effect on Italians (1.48). This divergence is notable and suggests that while foreigners' response accords with expectations, other mechanisms are at work for Italians. It may be the case that Italians are attracted to high human capital provinces due to agglomeration forces that draw them to highly attractive places where firms and other workers concentrate (Piras, 2017). Regarding the quality-of-life index, an unexpected negative effect is found for Italians (-0.10) and total flows (-0.13), whereas the coefficient is statistically insignificant for foreigners. While suggesting that quality-of-life considerations do not influence foreigners' locational choices, hinting at a prioritisation of more tangible factors linked to better income opportunities and labour market conditions, this result is puzzling for Italians.

### 5.1.3. Synthesis of the results for the full bilateral sample

Overall, the results from Table 1 highlight a clear asymmetry in the determinants of interprovincial migration between Italians and foreigners. Qualitatively, the drivers of migration flows function as theoretically expected, although in some circumstances theoretical a priori expectations are not confirmed by the empirical results. Quantitatively, these results clearly show heterogeneous impacts of migration drivers on nationality-specific migration flows. As shown in Table D1 in Appendix D in the supplemental data online, these heterogeneous impacts are statistically significant for the nationality-specific population, unemployment rate, human capital and quality of life at the origin, as well as for the nationality-specific population, GDP per capita, unemployment rate and human capital at the destination. Very importantly, the estimated elasticities of unemployment rates for foreign migrants demonstrate that they are more mobile and react more promptly to labour market differentials than Italians, thus corroborating previous results found by Schündeln (2014) for Germany and by Maza et al. (2019) and Gutiérrez-Portilla et al. (2018) for Spain. Conversely, heterogeneous behaviours with contrasting effects regarding human capital and the quality-of-life index become evident. As theorised by scholars of the new economic geography (Fujita & Thiess, 2002), the positive influence of human capital at the destination for Italians may reflect the role of agglomeration economies that attract high-skilled individuals, who benefit from increased productivity through knowledge spillovers (Faggian et al., 2019). Italians prefer to stay in provinces with a higher quality of life. In contrast, foreigners tend to migrate away from these provinces, favouring those with lower quality-of-life indices. This behaviour suggests that foreigners may prioritise labour market conditions over general well-being.<sup>11</sup>

## 5.2. South to Centre–North flows

Focusing on Table 2, which presents estimation results for the sample of South to Centre–North interprovincial migration flows, we observe further evidence of group-specific heterogeneity in how origin and destination characteristics shape internal migration decisions. As mentioned above, this directional sample is particularly interesting due to the persistent socio-economic divide between Southern and Central–Northern provinces. Yet a caveat is in order. In fact, it is worth noting that this empirical exercise effectively examines the determinants of destination choice among migrants who have already decided to leave Southern provinces and move to Central–Northern ones (migration between two Southern provinces is not included). Consequently, estimated effects should be interpreted as conditional on a first-stage migration decision to move to the Centre–North. This conditioning may introduce selection bias if the initial decision to leave the South depends on unobserved factors (e.g., individual migration propensity, access to networks, liquidity constraints, moving costs) that are not captured by the model. In other words, the estimated coefficients capture what affects where migrants settle in the Centre–North, not what makes them leave the South in the first place. The results of this subsection should therefore be interpreted as conditional estimates of destination-specific attractiveness, acknowledging that the first-stage decision to move to the Centre–North may depend on individual unobserved characteristics.

### 5.2.1. Variables measured at the origin

The nationality-specific population is a strong and significant predictor of outflows, with the highest coefficient observed for total migrants (2.28), followed by Italians (1.50), and the lowest for foreigners (0.43). This supports the basic gravity theory prediction that migration is more prevalent among Italians residing in more populated Southern provinces. The effect remains significant for foreigners, but is much smaller, indicating that their migration decisions are less sensitive to the population size of their nationality-specific origin. The coefficient for GDP per capita is negative and statistically significant for Italians (−0.40) and total migrants (−0.35), but it is insignificant for foreigners. This result suggests that Italians are more sensitive to income than foreigners, migrating in response to poor or deteriorating economic conditions in their home provinces. The lack of statistical significance for foreigners implies that origin-level general economic factors are less relevant for this group, possibly because their spatial mobility is driven more by labour market considerations (see below). Indeed, with very small differences, unemployment has a positive and significant effect on migration for all groups: Italians (0.07), total migrants (0.06) and foreigners (0.04). This aligns with classical economic models, where weakening labour conditions push individuals to migrate. Human capital exhibits dramatic differences across groups. For total migrants (3.43) and Italians (3.63), higher schooling

levels at the origin are associated with significantly higher outmigration. In contrast, the coefficient for foreigners is statistically insignificant, confirming that this variable is largely irrelevant to their migration behaviour. Quality of life strongly deters migration for Italians ( $-0.63$ ) and total migrants ( $-0.67$ ), again consistent with the idea that individuals tend to leave low-amenity areas. For foreigners, the coefficient is positive but insignificant ( $0.08$ ), indicating that quality-of-life factors do not significantly influence their outmigration from the South. This could indicate that perceived or experienced quality of life does not translate into improved integration or opportunity for this group, limiting its relevance in migration decisions.

### **5.2.2. Variables measured at the destination**

In contrast to its effects at the origin, the nationality-specific population has an overall weaker and more heterogeneous impact at the destination. For foreigners, the coefficient is positive and significant ( $0.30$ ), indicating a preference to move towards provinces in the Centre–North where the foreign population is higher. For Italians, the coefficient is not significant. These results may reflect a difference in the role of social networks: foreigners may rely more on ethnic communities at the destination, whereas Italians prioritise labour market and income levels. Indeed, GDP per capita and unemployment rates are the primary drivers of South to Centre–North interprovincial migration flows at the destination. GDP per capita exerts a strong positive effect on migration for all groups, with the highest coefficient for Italians ( $0.85$ ), followed by total migrants ( $0.70$ ), and then foreigners ( $0.25$ ). These results confirm the economic rationale of South to Centre–North migration: individuals move toward provinces with greater income opportunities. The smaller coefficient for foreigners is consistent with their partial exclusion from full labour market integration or limited access to information. Unemployment has a significantly negative impact on migration across all groups, supporting a labour market-driven explanation of migration for this specific sample. Foreigners are more responsive than Italians ( $-0.18$  and  $-0.09$ , respectively). This pattern reflects the higher importance that foreigners associate with employment prospects in destination areas. Consistent with theoretical expectations, human capital reveals sharply negative effects on South to Centre–North migration flows. For Italians, a higher level of human capital at the destination reduces migration significantly ( $-1.35$ ), and the effect is even stronger for foreigners ( $-2.15$ ). Quality of life at the destination is not statistically significant for any group, indicating that this variable does not shape destination choices within this specific directional flow. This implies that migration from South to Centre–North is overwhelmingly driven by economic fundamentals, with softer factors such as lifestyle or amenities playing no role.

### **5.2.3. Synthesis of the results for the South to Centre–North sample**

The evidence from Table 2 underscores that in Italy, South to Centre–North migration is largely driven by economic factors at the origin and opportunities at the destination, and that these mechanisms are stronger for Italians than foreigners. Italians appear to make migration decisions based on a clear economic rationale, leaving less developed and higher unemployment provinces for wealthy, lower unemployment provinces, and showing significant sensitivity to both human capital and quality of life (the latter only at the origin). Foreigners, by contrast, display more muted or inconsistent responses, particularly concerning GDP per capita at the origin. At the destination, they react strongly to unemployment and moderately to GDP. It is worth stressing that the estimated elasticities of the unemployment rate at the destination confirm a stronger sensitivity of foreigners to labour market imbalances and demonstrate that they are more reactive to labour market differentials than Italians. Regarding statistically significant differences of parameter estimates between Italians and foreigners (see Table D1 in Appendix D in the supplemental data online), at the origin we find it for nationality-specific population, GDP per capita, human capital and quality of life, at the destination for nationality-specific population, GDP per capita, unemployment rate and human capital.

## **5.3. Centre–North to South flows**

Table 3 presents estimation results for the Centre–North to South interprovincial migration flows. A markedly different dynamic from the South to Centre–North direction, as analysed in Table 2, emerges. These flows are particularly interesting because they concern individuals moving from wealthier to poorer

provinces. As such, they are likely to reflect a different and more complex set of motivations, such as family reunification, return migration, lifestyle choices or retirement, especially for Italians.<sup>12</sup>

### **5.3.1. Variables measured at the origin**

The effect of nationality-specific population is positive and significant across all groups. Albeit not statistically different, higher coefficients are recorded for Italians (0.57) than for foreigners (0.28). Hence, the population acts as a mass variable predicted by migration theory. The relatively smaller coefficient for foreigners implies that their migration is less frequent along this specific migration corridor, since family reunification and, above all, return migration are less likely to occur. Interestingly, GDP per capita has a positive and significant effect for Italians (0.27), meaning that individuals from wealthier provinces in the Centre–North are more likely to migrate to the South. This is counterintuitive and suggests non-economic motives, such as lifestyle migration, return to one’s region of origin, or retirement. For foreigners, the effect, as expected, is negative and significant (−0.17). This aligns more closely with standard migration models. Unemployment is not statistically significant for Italians, but it is significant for foreigners (0.03). The near-zero and non-significant coefficients suggest that local labour market conditions in the Central–Northern provinces do not systematically influence southward migration. This result further supports the idea that push factors, particularly for Italians, do not drive these flows. The effect of human capital is strongly negative and significant for Italians (−0.95) and total migrants (−0.84). While contrasting with theoretical expectations, this result reinforces the point that Centre–North to South migration is not motivated by the same factors that determine overall migration flows, nor the more traditional South to Centre–North flows. The coefficient is positive but insignificant for foreigners (0.33), indicating no clear pattern concerning this variable. Quality of life is statistically insignificant for all groups, suggesting that subjective or amenity-related aspects of the origin province are not central in motivating migration to the South.

### **5.3.2. Variables measured at the destination**

The nationality-specific population has positive and significant effects for Italians (0.67) and a much smaller, though still significant, effect for foreigners (0.08). These findings suggest that even in the South, more populous provinces are more attractive. The small coefficient for foreigners may reflect that their reliance on existing networks in the South is relatively low, given that the foreign population is mainly concentrated in the Central–Northern provinces. GDP per capita has a negative and significant effect on Italians (−0.23). This again contradicts classical economic logic and reinforces the idea that migration to the South is not determined by job-seeking behaviour. For foreigners, the coefficient is positive but insignificant (0.09), indicating that economic incentives do not significantly influence their decision to relocate to the South. Unemployment is not significant for any group, indicating that labour market conditions in the South do not affect migration. Regarding human capital, we see a remarkably strong, positive, and statistically significant effect for Italians (4.33). This is in sharp contrast to the South to Centre–North flow. For foreigners, the coefficient is positive but not significant (0.19). Counterintuitively, quality of life exerts a strong and negative effect on migration for all groups: −0.72 for Italians and −0.78 for foreigners, both highly significant.

### **5.3.3. Synthesis of the results for the Centre–North to South sample**

Overall, Table 3 highlights the fundamentally different nature of Centre–North to South migration compared with more economically motivated migration flows in the opposite direction. These findings, often contrasting with a priori expectations, underscore that the underlying motivations of Centre–North to South flows differ markedly compared with those in the South to Centre–North direction. Regarding Italians, these flows are likely driven by the return migration of Southerners who migrated to the Centre–North during the second half of the last century and decided to return to their provinces of origin after retirement (Etzo, 2011; Mocetti & Porello, 2012; Piras, 2012). Conversely, foreigners appear much more constrained in their southward movement. Statistically significant differences emerge in estimates for GDP per capita and human capital at the origin and nationality-specific population, as well as for GDP per capita and human capital at the destination (see Table D1 in Appendix D in the supplemental data online).

## 5.4. Intra-Centre–North

Table 4 focuses on intra-Centre–North migration flows, capturing movements within Italy’s more economically advanced provinces. This context fundamentally differs from South to Centre–North or Centre–North to South migration, as migrants here move within a relatively homogeneous, high-income macro-area. This setting allows for finer distinctions in individual preferences, such as labour matching, lifestyle and amenities, and thus provides insight into more competitive and voluntary migration dynamics.

### 5.4.1. Variables measured at the origin

Nationality-specific population exerts a strong and positive influence on migration for all groups. The coefficient is higher for Italians (1.46) than for foreigners (0.46). These results confirm that more populous provinces generate more outflows. Surprisingly, GDP per capita is statistically insignificant for Italians, and positive and significant for foreigners (0.23). This implies that while Italians are not systematically leaving richer provinces, foreigners are more likely to migrate from richer provinces within the Centre–North. Unemployment has mixed effects. For total migrants (0.03) and foreigners (0.10), the results are positive and significant, indicating that higher joblessness in the origin province modestly encourages people to migrate. However, the coefficient is negative but insignificant for Italians, suggesting that unemployment does not systematically trigger outmigration. Human capital is positively and significantly associated with total migrants (0.52) and foreigners (0.96), but not with Italians (0.33), and this result aligns with theoretical expectations. Quality of life exerts a restraining role on all groups, but it is statistically significant only for the total sample (–0.12). This suggests that people tend to leave less desirable provinces, although the effect is limited. These small effects are consistent with the idea that within the Centre–North, quality-of-life differentials are narrower and less influential in triggering outmigration.

### 5.4.2. Variables measured at the destination

The nationality-specific population is positive and significant across all groups, with higher sensitivity among Italians (1.37) compared with foreigners (0.31). These findings confirm the persistent attractiveness of more populated provinces in the Centre–North. The lower coefficient for foreigners again suggests more constrained or network-driven mobility. GDP per capita is a strong pull factor, particularly for Italians (0.69) compared with foreigners (0.37). This difference reflects a classical economic migration pattern: individuals move toward more prosperous provinces, indicating that economic incentives still matter within the more homogeneous Central–Northern provinces. Unemployment has a negative and statistically significant effect on total migrants (–0.06) and foreigners (–0.13), whereas it is statistically insignificant for Italians. High unemployment deters foreign workers, suggesting greater dependence on the labour market. Italians may have more flexibility (e.g., commuting options without a change in residence) or be guided by other non-economic factors. As theoretically expected, the estimated coefficient of human capital is negative and shows statistically differentiated effects: it is –0.43 for total flows and –0.98 for foreigners, while it is not significant for Italians. Quality of life positively affects Italians (0.14) and is not significant for foreigners. For Italians, this indicates a mild preference for provinces with better amenities. For foreigners, lifestyle variables do not seem to shape destination choice significantly.

### 5.4.3. Synthesis of the results for the intra-Centre–North sample

These findings reinforce the idea that migration becomes more selective and nuanced within a relatively more homogeneous macro-area. Italians and foreigners respond to a broader set of incentives in provinces of high prosperity. Examining the estimated elasticities differences between Italians and foreigners, Table D1 in Appendix D in the supplemental data online confirms that this holds for nationality-specific populations, GDP per capita, unemployment rates, and human capital at both the origin and destination.

## 5.5. Intra-South flows

Table 5 presents the estimation results for intra-South interprovincial migration flows, capturing movements within Italy’s least economically developed macro-area. This type of internal migration is often overlooked in favour of South to Centre–North mobility. However, it is crucial to understand local opportunity-

seeking patterns, residential adjustment, and regional cohesion patterns. Given the overall structural disadvantage of the South, this subsection offers insight into how internal disparities within the South itself shape migration decisions, and whether Italians and foreigners respond differently to local conditions.

### **5.5.1. Variables measured at the origin**

The nationality-specific population has a positive and significant effect for all groups, with a stronger impact for Italians (1.08), and a smaller yet highly significant coefficient for foreigners (0.32). This mirrors the broader trend observed in other samples. GDP per capita has a strongly and statistically significant negative effect for all groups ( $-0.51$  for total migrants,  $-0.33$  for Italians, and  $-0.52$  for foreigners). This suggests that less developed provinces in the South retain people, and this is also true among foreigners, who in all other samples were less responsive to GDP per capita variation. This particularly strong effect for foreigners suggests that they tend to seek relatively better off areas, even within a structurally weak area. The unemployment rate is never statistically significant, indicating that labour market distress within the South does not meaningfully drive migration. This contrasts with South to Centre–North migration, where unemployment at the origin was a clear push factor. Unemployment may be so widespread and persistent in the South that it fails to differentiate among provinces. Human capital reveals strong and divergent effects between groups. For Italians, higher levels of human capital significantly increase the likelihood of migrating (2.79), even within the South, while for foreigners, the coefficient is negative ( $-1.69$ ). Quality of life shows a clear and consistent pattern: for Italians and total migrants, it has a strongly negative and significant impact ( $-0.55$  and  $-0.64$ , respectively), meaning that people leave areas with lower quality of life. However, the coefficient (0.19) is positive and marginally significant for foreigners.

### **5.5.2. Variables measured at the destination**

The nationality-specific population effect is weaker than at the origin, but still significant for all groups. Italians (0.53) and foreigners (0.24) prefer more populous destinations, reflecting a preference for provinces with better perceived opportunities. Interestingly, GDP per capita is not significant for any group. This is in stark contrast to South to Centre–North or intra-Centre–North flows. Within the South, economic differences may be too marginal to influence destination choice, or expectations may be so tempered that GDP per capita does not signal real opportunity. Unemployment is not significant for Italians, but positive and significant for foreigners (0.07). This counterintuitive result might suggest that foreigners are moving to provinces with higher unemployment, possibly because those areas still offer them some employment opportunities, perhaps in the informal economy or in sectors where, despite high unemployment, Italians may not be willing to work. Human capital is positively and significantly associated with Italians (1.09), while the coefficient is negatively and significantly associated with foreigners ( $-1.36$ ), replicating the pattern observed in all other tables. Contrary to expectations, quality of life has a negative effect on Italians ( $-0.43$ ), total migrants ( $-0.49$ ) and foreigners ( $-0.17$ ).

### **5.5.3. Synthesis of the results for the intra-South sample**

Intra-South migration dynamics reveal shared structural constraints but also group-specific behaviours. Overall, intra-South migration appears less economically rational. These results suggest that mobility within the South does not offer a meaningful escape from structural disadvantages, particularly for migrants with fewer resources. It is evident that the factors driving Italians and foreigners to move across Southern provinces have little in common with the reasons and variables that explain migration flows in the rest of the country. As far as statistically significant differences between Italians and foreigners (see Table D1 in Appendix D in the supplemental data online), at the origin, it regards nationality-specific population, human capital and quality of life, at the destination it is recorded for unemployment rate and human capital.

## **6. Conclusions**

In this paper, we investigate the determinants of interprovincial migration flows in Italy, examining both the total number of migrants and the separate flows of Italians and foreigners. We frame our analysis inside a micro-founded RUM and apply the CCE panel data estimator (Pesaran, 2006) to account for MRM (Bertoli

& Fernández-Huertas Moraga, 2013). The assessment has been conducted for different samples: full bilateral, South to Centre–North, Centre–North to South, intra-Centre–North and intra-South. Along with the traditional gravity variables, we also consider human capital and, for the first time, an index of quality of life. This index evaluates Italian provinces using 90 indicators grouped into six macro-categories. Unlike previous studies relying on single proxies for amenities, this comprehensive index provides a broader measure of overall quality of life, offering new insights into the role of amenities in migration decisions. The main findings of our analysis are the following.

First, our results clearly demonstrate that crucial differences exist between Italians and foreigners. These differences are evident in terms of the varying magnitudes of estimated elasticities and the differing signs for the same variable. Additionally, differentiations emerge when examining the various migration corridors analysed. Broadly, migration drivers operate in line with theory, though some expected patterns are not supported empirically. Overall, the results show distinct and heterogeneous effects of migration determinants across national groups. Italians show economically driven migration patterns, moving from less developed, high-unemployment provinces to wealthier, low-unemployment ones, and responding strongly to human capital and quality of life at the origin. Foreigners, however, react less consistently, especially to GDP per capita at the origin, though they respond clearly to unemployment and moderately to GDP per capita at the destination. In synthesis, our findings reveal a distinct asymmetry in the factors driving interprovincial migration for Italians compared with foreigners.

Second, foreigners are more mobile and react more promptly to labour market differentials than Italians. These differences bear important consequences regarding the role of internal migration as an equilibrium mechanism in the provincial labour markets. Indeed, the greater mobility of foreigners could help the Italian economy recover more rapidly from labour market unbalances and, more generally, favour economic convergence in a country that has historically suffered from a pervasive divide between Southern and Central–Northern macro-areas. Previous studies have found that internal migration cannot accommodate labour market unbalances in Italy (Piras, 2012), and similar results have been obtained for Spain (Antolin & Bover, 1997) and other European countries (Decressin & Fatás, 1995; Puhani, 2001). Thus, the greater mobility of foreigners compared with natives could help ease this rigidity in the labour markets, shedding a positive light on the role of migrants in host countries. Among EU countries, Germany has similar regional disparities following the reunification of West and East Germany in 1990. Bergholz et al. (2025) document large differences in GDP per capita and unemployment rates between the former West and East Germany. Spain has economic disparities between some regions (Madrid, Catalonia and the Basque Country) and others, such as Andalusia, Extremadura and Galicia. However, these disparities are less intense than those observed in Italy or Germany. According to the most recent Eurostat data,<sup>13</sup> these three countries also have a large share of foreigners: 19.5% in Germany, 17.1% in Spain and 10.9% in Italy. Other EU countries have even greater foreign population shares (in Luxembourg, Austria, Sweden and Ireland, which exceed 20%), but do not exhibit the large socio-economic divides seen in Italy, Germany and Spain. The results presented in this paper, along with similar results provided by Schündeln (2014) for Germany and by Maza et al. (2019) and Gutiérrez-Portilla et al. (2018) for Spain, could be of interest for other countries where the foreign population is large compared with nationals and where geographical economic imbalances are present. In this regard, while our results cannot automatically be generalised to other nations, as labour market and other social and structural characteristics differ across countries, they certainly could stimulate further research to find evidence confirming or refuting them.

Third, the role of quality of life is carefully investigated for the first time in the internal migration studies regarding Italy. Our results show that its effects crucially depend on migrants' nationality and the different territorial levels explored. For Italians, a statistically significant role as a stay-at-home factor is found for the full bilateral, the South to Centre–North and the intra-South samples. A statistically insignificant coefficient is found in the Centre–North to South and intra-Centre–North samples. As a pull variable, quality of life operates as theoretically expected only in the intra-Centre–North sample. At the same time, it is not significant in the South to Centre–North sample. It operates contrary to expectations in the remaining samples. Regarding foreigners, the quality-of-life variable is either statistically insignificant or wrongly signed. This result suggests that foreign internal migrants prioritise economic over amenity factors in their migration decisions.

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## Notes

1. Regarding evidence for the United States, Graves (1980) introduces amenities as determinants of migration and concludes that they add explanatory power to predict migration across different age groups. Porell (1982) examines the relative significance of economic and quality-of-life factors in explaining migration and concludes that both factors play a role. Moving to European countries, Cheshire and Magrini (2006) find that weather is a crucial element that explains migration across European countries, even though it does not explain internal migration within them. Faggian and Royuela (2010) show that quality of life is an important determinant of short-distance migration movements in the Barcelona area. Regarding Spain, Gutiérrez-Portilla et al. (2018) look upon climate conditions as a proxy for amenities and find that good weather conditions attract Spanish and foreigners. Likewise, Maza et al. (2019) consider three amenity-like indices and find that climatic conditions pull natives more than foreigners, while foreigners are influenced by cultural facilities and social services more than the Spanish. For a discussion of the role of amenities/quality of life in interregional migration, see Faggian et al. (2015).
2. Romanians, Albanians, Moroccans, Chinese, Ukrainians, Filipinos and Indians.
3. Technical efficiency is defined as the capacity of firms to exploit productive factors efficiently.
4. See Table A1 in Appendix A in the supplemental data online.
5. Appendices B and C in the supplemental data online display further results regarding the role of population. Tables B1–B5 in Appendix B report regression results using the total population rather than nationality-specific population measures. Tables C1–C5 in Appendix C explore the potentially heterogeneous effects of foreign and Italian populations (introduced simultaneously) on both total and nationality-specific migration flows. Overall, the core findings are robust across specifications, confirming a positive effect of both foreign and Italian populations at origin provinces on migration flows. The only exception is the negative elasticity of foreign population with respect to Italian migration flows at the origin (Table C2, column 2). However, some patterns point to corridor-specific asymmetries. Evidence from Tables C1 (full bilateral sample), C3 (Centre–North to South) and C4 (intra–Centre–North) suggests that, in certain internal migration routes, a larger foreign presence at the destination may deter Italian migrants from moving, possibly due to perceived labour market competition or cultural frictions. Moreover, in Table C2 (South to Centre–North), column 4 shows a negative elasticity of total migration flows with respect to the Italian population (−0.40). Along the same corridor, the elasticity of Italian migration flows with respect to the Italian population is also negative (−0.14), though not statistically significant, whereas the elasticity of the foreign migration flows with respect to the Italian population is positive and significant (1.09). Taken together, these results imply that, along the South to Centre–North corridor, foreign migrants tend to be attracted to provinces with larger Italian populations, while Italian migrants are not. Overall, these nuanced and, in some cases, contrasting findings highlight the need for further research into the complex interactions between foreign presence, native population dynamics and internal migration patterns in Italy.
6. We do not have access to the single components of the quality-of-life index; thus, we cannot exploit them as additional robustness checks.
7. For a detailed description of the different versions of the RUM, see Bertoli and Fernández-Huertas Moraga (2013) and Beine et al. (2016).
8. The first approach is followed by Ortega and Peri (2013), the second by Beine and Parsons (2015).
9. To retain all observations for the dependent variable, including province pairs with zero migration flows, we replace 0 values with 1, allowing us to take logarithms without excluding any data.
10. For Italians, it happens only once in Table 5 for intra–South migration for variables measured at the origin.
11. Maza et al. (2019) find similar results for Spain.
12. The same reasoning highlighted at the outset of the previous subsection regarding the correct interpretation of estimated coefficients also applies here.
13. See <https://ec.europa.eu/eurostat/data/database>.

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No potential conflict of interest was reported by the author.

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**Data availability statement**

The data analysed in this study are all publicly available (see Table A1 in Appendix A in the supplemental data online for sources). In any event, the author will make the full dataset supporting this study's findings available upon reasonable request.

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