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# RIVISTA ITALIANA DI ECONOMIA DEMOGRAFIA E STATISTICA

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**INDICE**

# DEMOGRAPHY OF MEDITERRANEAN COUNTRIES: WHAT DOES IT HAPPEN IN THE TWO SHORES?

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## 1. The demographic and economic context

Divided among the three continents of Europe, Asia and Africa[1], for a long time the Mediterranean formed an interrelated context or a "world economy": an area of the globe where economies, cultures and societies interacted with one another (Braudel, 2017). Even today, within the global economy, the Mediterranean countries are joined together both by flows of production factors and of migrants. Massive legal and illegal flows of people daily move from the less developed southern and eastern economies towards the North of the Mediterranean (Angeli and Salvini, 2018; Salvini, 1990). The trade of goods between the EU and the Mediterranean countries in the Euro-Mediterranean Partnership (MEDA) represents in 2015 around 9 percent of the total EU external trade (European Commission, 2015)[2]. Energy sources play a central role in these exchanges. The EU nations are the main investors in the countries of southern Mediterranean (Daniele and Malanima, 2016).

The population of Mediterranean countries is driving demographic change. Its total number increased from approximately 475 million inhabitants in 2010 to 522 million inhabitants in 2020, representing 6.7% of the world population. Almost one

[1] The northern (European) shore includes Spain, France, Monaco, Italy, Malta, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, and Greece. The eastern (Asian) shore includes Turkey, Cyprus, Syrian Arabic Republic, Lebanon, Israel, and the State of Palestine. The southern (African) shore includes Egypt, Libya, Tunisia, Algeria, Morocco.

[2] The Union for the Mediterranean aims to establish a common area of peace, stability, and shared prosperity in the Euro-Mediterranean region. EU-Southern Mediterranean relations at bilateral level are managed mainly through the Euro-Mediterranean Association Agreements.

- Nearly all countries have concluded Association Agreements with the EU. Preparations are going to deepen these agreements through the establishment of deep and comprehensive free trade areas.
- Negotiations for a Framework Agreement between the European Union and Libya are currently suspended.
- Steps towards the signature of the initialled Association Agreement with Syria are currently suspended.

third of the Mediterranean population lives in the coastal area and more than 70% in cities. Migration from rural to urban areas continues. The regional demographic context is very different on the northern (NMCs) and southern-eastern (SECs) shores. NMCs are characterized by a low fertility rate, an aging population, and a relatively low share of active population. SEMCs are in a phase of demographic transition, with relatively higher population growth, an overall younger population, and subsequently, a higher share of active population.

Looking at the region we can remember various cultural approaches. The book titled "*Lo scontro delle civiltà*" [The clash of civilizations] by Samuel P. Huntington (2000) argues that the main source of world conflicts after Cold War will depend on cultural and religious identities. Versus this theory, Courbage and Todd (2009) wrote the book titled "*L'incontro delle civiltà*" [The meeting of civilizations] where they reaffirm that the future will be represented by social convergence: despite the different cultures and religions, socio-demographic behaviors will get closer and closer. In the Mediterranean world, Courbage and Todd note the decline in the gap in marriage, fertility and survival between the Islamic countries and Mediterranean Europe. The region has always been a crossroads for the migration of people and communities. Migration only within non-EU Mediterranean countries involved around 7.5 million people, while migration from non-EU to EU Mediterranean countries involved around 5.7 million people. The number of refugees originating from Mediterranean States is particularly high, coming mainly from the State of Palestine and the Syrian Arab Republic (Elnakib *et al.*, 2021). The number of refugees, hosted in Mediterranean countries, is also high, both in terms of absolute numbers and of the proportion of refugees compared to the host country population, in particular in Lebanon, Malta and Turkey. The most significant causes of migration include war, lack of economic prospects, and climate and environmental changes (United Nations, 2020).

Since various years, we wonder if the countries of Mediterranean Sea demographically converge or diverge. The fertility patterns of the lowest-low fertility countries of the northern Mediterranean Sea are very different from those of the South-East, but recently fertility decline has been spreading rapidly in the region, especially in Maghreb countries. In certain countries the Total Fertility Rate (TFR) among women with secondary education is less than two children per woman. These recent developments question the reputation of the South-East Mediterranean (apart from Turkey) as a bastion of family conservatism and as having a high fertility rate. But are these groups of educated women forerunners of a broader and more generalized spread of fertility decline or only a sign of a plurality of behaviours in the increasing heterogeneity of such societies, which are still very traditional but at the same time are undergoing modernization?

As it regards economic convergence, what does it happen? We can analyse economic transformation processes that have taken place since 1995 in member countries of the Euro-Mediterranean Partnership in order to determine whether these processes have contributed to the convergence of the southern Mediterranean economies with the economies of the European Union, that is whether there is a trend toward homogenisation.

The most noticeable finding is the large gap in GDP per capita between the EU-15 and the SMCs (except for Israel). None of the southern countries have income equal to even just 40% of the EU-15 GDP throughout the period post 1995. In recent years the gap has reduced. Economic convergence implies that countries which have a lower than average per capita income at the end of the Second millennium tend to grow faster than the relatively richer countries of the group. In other words, there exists a steady state which all countries tend to converge pending their differences in preferences, technology and institutional settings. Thus, for convergence to occur there must be an inverse relation between per capita income of the initial year and its growth rate of the following years. If we plot the log of per capita income in the initial period and its growth from 1999 to 2017 for the sample of the countries of the Mediterranean Basin, we show that the regression line has a negative slope which shows that there exists an inverse relation between the two parameters. The value of the simple correlation coefficient is -0.69. Relatively poorer countries in 1999 experienced higher growths of their per capita GDP from 1999 to 2017 when this is compared with the relatively richer countries of the Mediterranean Basin.

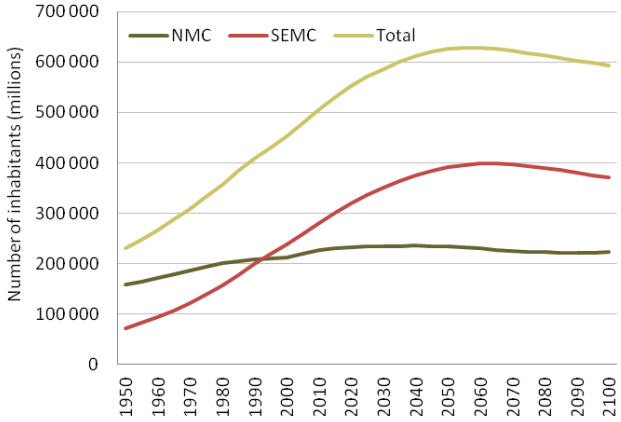
## 2. Population dimension and demographic growth

From 1960 to 2020, the demographic growth in the Mediterranean Basin (figure 1) was slower than world population growth. Its population has nonetheless undergone profound changes, which may well continue until 2050 due to the significant inertia of demographic phenomena. We assist to the shift of the demographic epicentre from the northwest to the southeast, to the significant generational imbalance between the southern (African) and eastern (Asian) shores, which have a very young population, and the northern shore (European), which is already characterized by marked demographic ageing and the increasing concentration of the population in urban areas, larger in the agglomerations of the southern and eastern coasts. The population growth is due to the eastern and southern shores, which constitute the dominant majority. This demographic dominance is also likely to continue for a long time, because their age structure is young and their fertility is higher than the replacement level of generations. The

combination of these phenomena produces some certainties that in turn, however, open up many unknowns. In the countries of the northern shore, where this is not already the case, deaths will quite soon be more numerous than births, and the stationarity of population depends on immigration from the southern shore (Pan Bleu, 2020).

As above noted, this low population growth in the Euro-Mediterranean countries has also greatly contributed, within the Mediterranean Basin, to a balance shift in favour of the southern and eastern shores. In 1960, 62% of the total population of the countries bordering the Mediterranean Sea lived in a European country, 23% in North Africa, and 15% on the Asian shore. In 2020, there are now fewer people on the northern shore (38%) than on the southern shore (39%). In the eastern coast is accommodating 23% of the 522 million Mediterranean people (United Nations, 2020).

**Figure 1** – *Population growth in Mediterranean countries, 1950-2010.*




*Source: United Nations 2011.*

The diversity of the pace of demographic transition[3] explains the reversal of demographic hierarchies in the Mediterranean basin. In the countries of the northern shore, this mechanism has been completed since several decades. Today, in this region the life expectancy is approaching or exceeding 80 years. At the same time, fertility has declined significantly, to levels now below two children per woman everywhere reaching a TFR of 1,2-1,3 in Italy, Spain and Greece. Despite

[3] Demographic transition is the shift from a situation of low demographic growth, where high mortality and a high birth rate more or less offset each other, to a new situation of quasi-equilibrium in which fewer births just about offset the number of deaths, which is also very low given the size of the populations.

the increase in the female population of reproductive age (15-49 years), this reduction in fertility has resulted in a decline in the birth rate and, therefore, in the size of recent generations, while gains in life expectancy have led to a huge increase in the relative weight of the baby boomers (those born between the late 1940s and the early 1960s) at older ages. So much so that in 2020, the countries of the northern shore have almost as many people aged 65 or over (42 million) as young people under 25 (50 million).

The young age structure of the populations of the SECs favors the excess of births over deaths and the growth of the population at a sustained rate: it is currently +1.1% on average per year in the East (i.e. a doubling of the population in just over 60 years) and +1.8% on average in the South (doubling in less than 40 years), versus barely +0.3% per year on average in the North (doubling in 230 years).

## 3. Generations

The Mediterranean is often presented as a heterogeneous geographical area. Demography has helped to create this narrative of a Mediterranean of contrasts in which the different shores are systematically opposed: a northern shore in decline, with low fertility rates and an ageing population, as opposed to the young and fertile southern and eastern shores, which are experiencing a rapid growth. However, this spatial dichotomy is gradually diminishing due to the demographic transition of SECs: population growth and fertility are in decline, and the disparities between the different areas of the Mediterranean are decreasing. Moreover, demographic transition automatically gives rise to an ageing population. While the varied populations of the Mediterranean are currently differentiated by their levels of ageing, it is presumably that these levels will converge in the future. Does perhaps this convergence realise in particular as it regards age structure (Doignon, 2019)?

Young generations are growing in SECs (except Tunisia) with respect to European countries, where they are diminishing. These generations represent those that will enter into labour market in the near future. Europe needs migrants nowadays and tomorrow, and even if politicians do not ever agree with this topic, demography does not deny. Policy must help native families to have children they want, and migrants to live decently in the countries of destination, to have a job and a home for their families and to maintain their culture which should not represent a stumbling block for assimilation.

In south-eastern shore (particularly in Egypt and Palestine) young people are growing faster due to the high level of fertility. It is precisely in these countries that

policies to support education and the labour market are needed. The demographic dividend, that is the potential induced by the favourable demographic window, represents only the beginning of the process that requires policies that favour, alongside the equilibrium of generations, a balanced social development.

The demographic window, based on the dependency ratios, brings its significance closer to the demographic dividend. The population structure describes the demographic relationship among generations. When dependency ratios are high due to the great presence of young people, demographic transition must still open itself (Malta and Montenegro). When dependency ratios are high due to a great proportion of elderly (Spain and Italy), the demographic window is already close. When the dependency ratios are the lowest in the period, the window is open and this is the moment in which policy must act to invest in human capital, schooling and labour market, helping young people to be included in the society. A demographic dividend is the accelerated economic growth that can result from improved reproductive health, a rapid decline in fertility, and the subsequent shift in population age structure. With fewer births each year, a country's working-age population grows larger relative to the young dependent population. With more people in the labour force and fewer children to support, a country has a window of opportunity for economic growth if the right social and economic investments and policies are made in health, education, governance, and the economy. Morocco and Tunisia are examples of an open demographic window. While child dependency ratios are strongly decreasing, old dependency ratios are increasing only a little. According to theory, if the governments take advantage of the favourable demographic conjuncture, the two countries will be able to undergo an accelerated development, given that the active population will be in greater proportions. For this to happen, governments need to invest in the school and labour market, to enhance human capital.

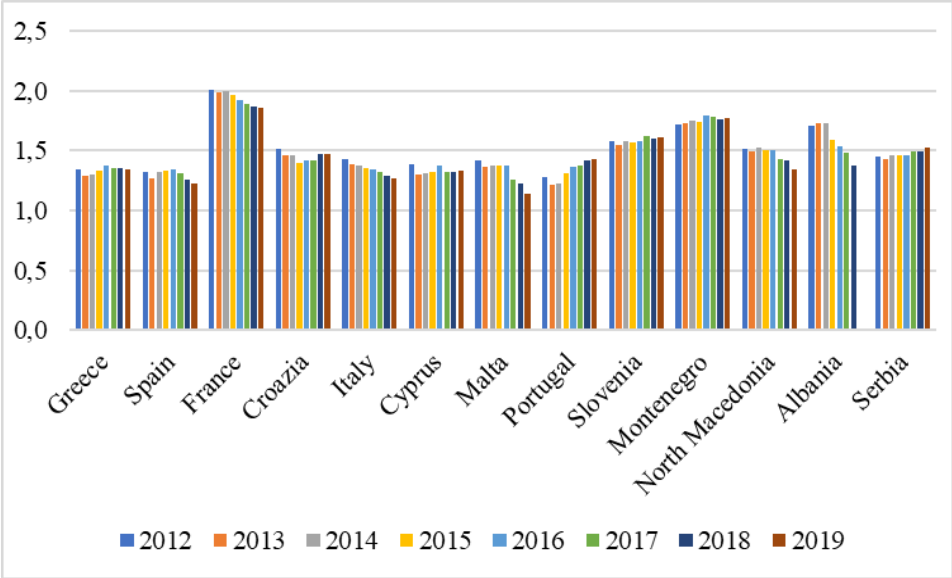
The interactive effect of youth bulge and the deteriorating economic situation in the two decades following the end of the Cold War are considered among the causes of the so-called "Arab Springs". The numerous and complex causes of recent revolutions in the Arab world have been exacerbated by the region's underlying demographics (United Nations 2015). Changing age structure, combined with other demographic trends exacerbated the challenge to governments, mainly regarding unemployment, underemployment and job creation (Mirkin, 2013).

## 4. Fertility

The component that most affects the evolution and structure of countries is undoubtedly fertility (Jain and Ross, 2012). The countries of the southern shore, with earlier and higher fertility than northern countries (figure 2), still have models of nuptiality, albeit changing, favourable to a high number of children, also in function of cultural and social factors, including the urbanization and the spread of education, which also play a significant role in changing the condition of women, one of the determining factors for demographic transition (figure 3).

In 2020, very few countries in this part of the Mediterranean basin have completed their demographic transition. With the exception of Cyprus and Tunisia, fertility now exceeds two children per woman everywhere, despite the spectacular decline observed since 1960: from 6.7 to 3.3 children per woman in Egypt (on the Egyptian experience we will focus in the following) where, after a period of decline, in the recent years we assist to an increase of children per woman; from 6.2 to 2.1 in Turkey; from 7.7 to 3.1 in Algeria, nevertheless with a recent trend similar to Egypt.

**Figure 2** – *TFR for European countries in the Mediterranean and the period 2012-2019.*

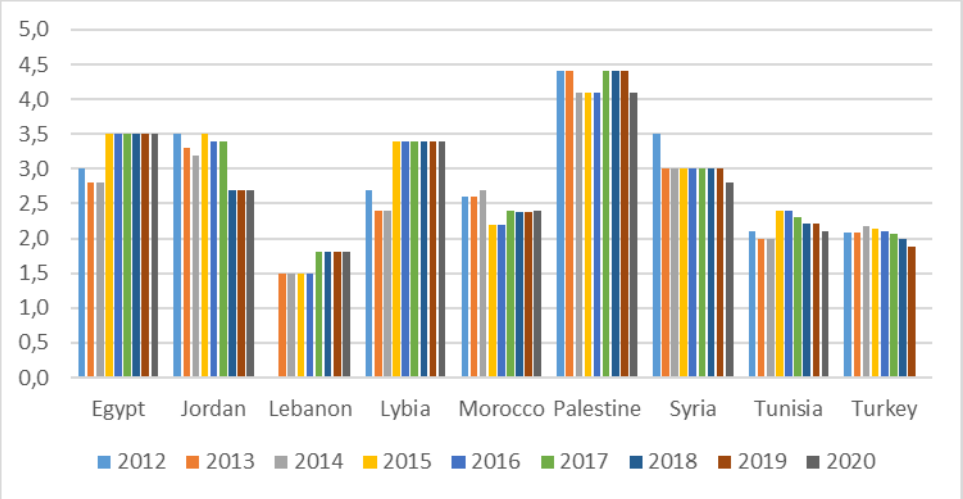



*Source: Our elaboration on data Eurostat 2020a) e b).*

In these countries, mortality has also declined significantly, the result of a drastic reduction in the mortality of younger members of the population, with mortality at

older ages remaining quite high. This change has led to a very large increase in the number of young adults of reproductive age, while the number of older people has increased more moderately.

**Figure 3** – *TFR for the Southern-Eastern Mediterranean countries and the period 2012-2020.*




*Source: Our elaboration on data Doignon 2019.*

The countries bordering the Mediterranean have in common a millennia-old history, characterized by continuous economic and cultural exchanges. Despite this, during the most recent years, those of the post-colonial era, the elements of differentiation have surpassed those of commonality. The need for work for the post-war reconstruction of Europe and the poverty of the countries of the South-East Bank represented the factors of the social and economic imbalance that led a large part of the population of North Africa and the Near East to move in the richest Europe.

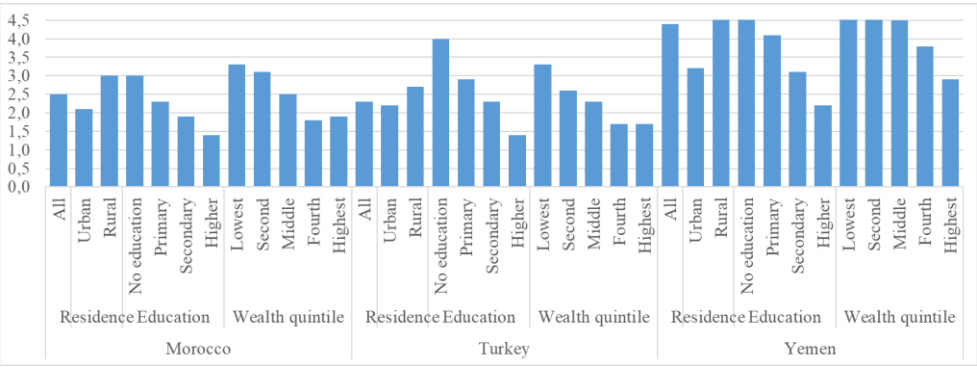
Although migration flows have so far remained limited, the nature of the different labour markets in industrialized countries (highly segmented) and internal unemployment in the countries of the South-East Bank have raised European countries' concerns about immigration, in particular from the Maghreb and Turkey. Some politicians and a part of public opinion express the fear that economic imbalances, together with demographic ones (the massive size of the young generations in the South-East Bank and the marked aging in the North Bank), could cause unmanageable flows of migrants South-North.

The south-eastern countries have collected important data through the Demographic and Health Survey (DHS data). These data permit to describe the fertility and contraceptive behaviour according to various factors, such as residence, education and wealth status, as we show in the figures 4-7. The availability of individual data permits the application of statistical models, able to outline the association with different variables.

**Figure 4** – *TFR for Egypt and Jordan according to residence, education and wealth quintile and to the most recent DHS.*

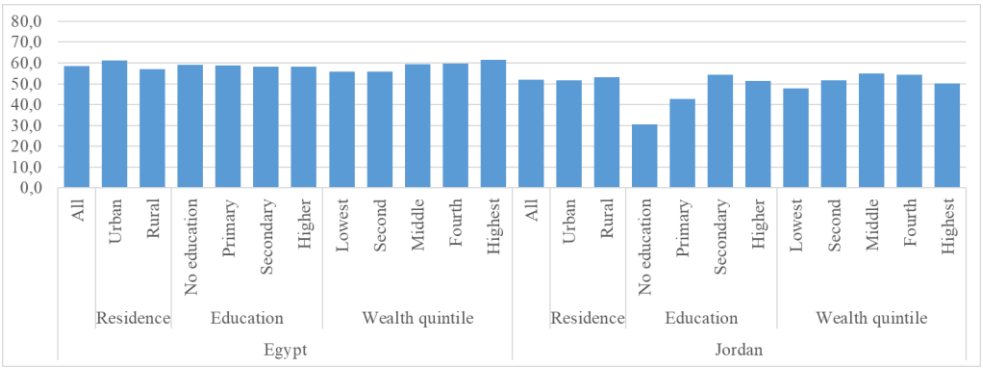

*Source: Our elaborations on DHS data.*

**Figure 5** – *TFR for Morocco, Turkey, and Yemen according to residence, education and wealth quintile and to the most recent DHS.*



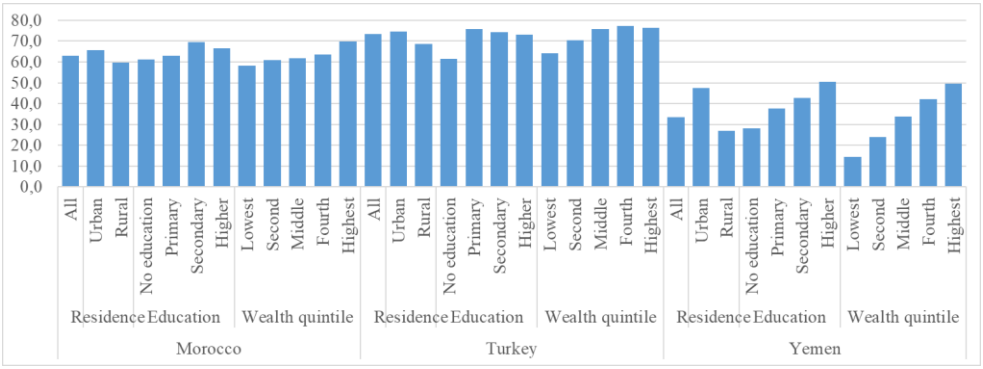

*Source: Our elaborations on DHS data.*

**Figure 6** – *Married women using any method of contraception for Egypt and Jordan according to residence, education and wealth quintile and to the most recent DHS (percentage).*




*Source: Our elaborations on DHS data.*

**Figure 7** – *Married women using any method of contraception for Morocco, Turkey, and Yemen according to residence, education and wealth quintile and to the most recent DHS (percentage).*




*Source: Our elaborations on DHS data.*

Fertility and contraception vary among the groups of population classified by residence, education and wealth. As education and wealth increase, TFR diminishes and contraception increases, while urban residence is associated with a lower TFR and a higher contraceptive use.

The regression model, we applied to Egypt, Jordan, Morocco and Turkey DHS data, reveals in a compact way the association between fertility and the covariates. We see that the relationship with contraception use is positive, meaning that contraception is used when number of children is higher, presumably because it is reached the desired number of children (Tables 1-4).

**Table 1** – *Linear regression. Egypt 2015. Dependent variable: Number of children.*

| Model: Linear regression | Not standardized coeff. | | Standardized coeff. | t | Signif. |
|---|---|---|---|---|---|
| | Beta | Standard error | Beta | | |
| Constant term | 0.075 | 0.085 | | 0.892 | 0.373 |
| Respondent's current age | 0.092 | 0.001 | 0.506 | 63.572 | 0.000 |
| Using fam. planning after the 1st birth (a) | 0.177 | 0.048 | 0.027 | 3.659 | 0.000 |
| Education (b) | -0.713 | 0.033 | -0.173 | -21.706 | 0.000 |
| Work (c) | -0.437 | | -0.112 | -14.399 | 0.000 |

*Notes: (a) Reference= No; (b) Reference= Low education; (c) Reference= Not worked in the last week.*
*Source: Our elaboration on DHS data.*

**Table 2** – *Linear regression. Jordan 2017-2018. Dependent variable: Number of children.*

| Model: Linear regression | Not standardized coeff. | | Standardized coeff. | t | Signif. |
|---|---|---|---|---|---|
| | Beta | Standard error | Beta | | |
| Constant term | -1.169 | 0.091 | | -12.833 | 0.000 |
| Respondent's current age | 0.140 | 0.002 | 0.543 | 72.626 | 0.000 |
| Residence (a) | -0.148 | 0.044 | -0.024 | -3.320 | 0.001 |
| Education (b) | -0.540 | 0.052 | -0.081 | -10.462 | 0.000 |
| Wealth (c) | -0.641 | 0.036 | -0.143 | -17.991 | 0.000 |
| Contraception (d) | 1.238 | 0.032 | 0.282 | 38.267 | 0.000 |
| Work (e) | -0.467 | 0.046 | -0.076 | -10.180 | 0.000 |

*Notes: (a) Reference= Urban; (b) Reference= Low education; (c) Reference= Low; (d) Reference= Not using; (e) Reference = Not working.*
*Source: Our elaboration on DHS data.*

**Table 3** – *Linear regression. Morocco 2003-2004. Dependent variable: Number of children.*

| Model: Linear regression | Not standardized coeff. | | Standardized coeff. | t | Signif. |
|---|---|---|---|---|---|
| | Beta | Standard error | Beta | | |
| Constant term | -2,333 | 0,044 | | -52,473 | 0,000 |
| Respondent's current age | 0,149 | 0,001 | 0,580 | 104,205 | 0,000 |
| Residence (a) | -0,352 | 0,034 | -0,061 | -10,344 | 0,000 |
| Education (b) | -0,233 | 0,040 | -0,045 | -5,829 | 0,000 |
| Wealth (c) | -0,546 | 0,040 | -0,105 | -13,677 | 0,000 |
| Contraception (d) | 1,535 | 0,029 | 0,282 | 52,492 | 0,000 |
| Work (e) | -0,561 | 0,033 | -0,088 | -17,172 | 0,000 |

*Notes: (a) Reference= Urban; (b) Reference= Low education; (c) Reference= Low; (d) Reference= Not using; (e) Reference = Not working.*
*Source: Our elaboration on DHS data.*

**Table 4** – *Linear regression. Turkey 2013. Dependent variable: Number of children.*

| Model: Linear regression | Not standardized coeff. | | Standardized coeff. | t | Signif. |
|---|---|---|---|---|---|
| | Beta | Standard error | Beta | | |
| Constant term | -0.317 | 0.086 | | -3.666 | 0.000 |
| Respondent's current age | 0.076 | 0.002 | 0.396 | 33.820 | 0.000 |
| Residence (a) | -0.089 | 0.045 | -0.023 | -1.966 | 0.049 |
| Education (b) | -0.808 | 0.043 | -0.232 | -18.912 | 0.000 |
| Wealth (c) | -0.588 | 0.044 | -0.165 | -13.363 | 0.000 |
| Contraception (d) | 0.869 | 0.037 | 0.248 | 23.388 | 0.000 |

*Notes: (a) Reference= Urban; (b) Reference= Low education; (c) Reference= Low; (d) Reference= Not using; (e) Reference = Not working.*
*Source: Our elaboration on DHS data.*

Factors associated with contraception (Table 5) are the type of residence (1 = urban, 0 = rural), the number of children (quantitative), wealth / income, expressed in quintiles (1 = lowest, 5 = highest), economic-social state, built by crossing work and education (3 = working and highly educated, 2 = working and low education, 1 = not working, highly educated, 0 = not working and low education) and age (quantitative) as a control variable.

**Table 5** – *Linear regression. Jordan, Turkey and Morocco according to the most recent DHS. Dependent variable: Contraceptive use (1=yes, 0=no).*

| Model: | Morocco | | Jordan | | Turkey | |
|---|---|---|---|---|---|---|
| Linear regression | Exp(B) | Signif. | Exp(B) | Signif. | Exp(B) | Signif. |
| Residence | 0.993 | 0.911 | 1.157 | 0.017 | 1.044 | 0.457 |
| Rabat-Casablanca/Amman | 2.806 | 0.004 | | | 1.174 | 0.000 |
| Number of children | 1.554 | 0.000 | 1.962 | 0.000 | 1.670 | 0.000 |
| Income quintile | 1.907 | 0.000 | 1.699 | 0.000 | 1.284 | 0.000 |
| Age | 0.956 | 0.000 | 1.025 | 0.000 | 0.989 | 0.000 |
| SES =Socio-economic status | 1.218 | 0.001 | 1.372 | 0.000 | 1.440 | 0.000 |
| Constant | 0.323 | 0.000 | 0.091 | 0.000 | 0.188 | 0.000 |

*Source: Our elaboration on DHS data.*

A particular issue of the reproductive behaviour is represented by adolescent fertility, very low in northern shore, still high in various countries of the southern and eastern shores. Adolescence is a period with special importance in the life course of an individual. While the “second demographic transition” acting in the northern shore leads new nuptial behaviours, in the South-West some characteristics remain stable, in a picture of “ancient regime”. In fact, during the last decades, western countries have witnessed remarkable socio-demographic changes in the family sphere: a definitive shift from extended to nuclear family forms, an intense decrease in nuptiality rates and a strong delay on its timing, an

important increase in separation and divorce rates, and the emergence of new living arrangements such as unmarried cohabitation. These changes have raised considerable concern among policy makers. These aspects involve Italy, France, Spain, Portugal and Greece.

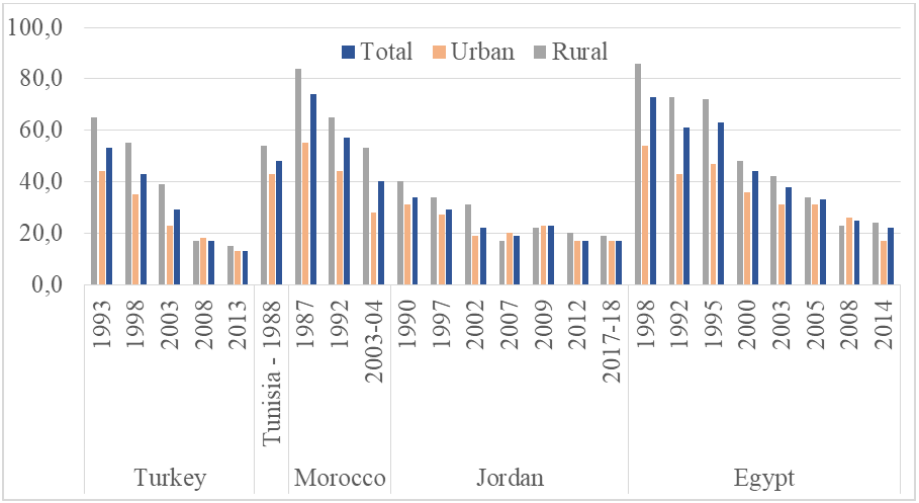
Looking at features of SECs, we note a weak convergence. Even if marriage is still precocious and universal in Palestine, in the other countries average age of first marriage for women is now close to EU countries, even if some regions show still adolescent and child marriages. Focussing on Morocco, Egypt and Turkey, despite the process of social change toward modernization, it is shown that social norms still strongly prescribe marriage and having at least one child. In most of these countries for which data are available, the average age of first marriage for women (for the latest reference year available) ranged from 24 in Egypt (2011) to 29 in Algeria (2008, narrowing to European levels). Only Palestine reported an early average marriage age, at 21.

The consequence of early marriage and the weak use of contraception in those couples where the wife is very young and the husband is much older, is adolescent fertility, that leads to low education and low labour participation.

## 5. Infant and child mortality

The declining trends in infant mortality are highlighted in figure 8 for the countries of the south-east bank also according to residence, which shows both the continuous decline in rates for the age 0-1, and the convergence process that has characterized the area. Today, the levels of infant mortality are 23 and 18 per 1000 live births respectively for North Africa and Western Asia, very low levels taking into account the conditions of backwardness that in some countries still characterize the countryside and disadvantaged areas of cities. Even if the level decreases, the urban / rural differences partially persist, particularly in Morocco, where the infant mortality rate is approximately equal to that of Italy in 1968 (Istat, 2014). Infant mortality is much lower in southern European countries: in Italy less than 3 children out of 1,000 die in the first year of life, in Spain 3.3 and in Greece 4.5 (Index Mundi, 2020). A victory against death, which can be summed up in the fact that in the most industrialized countries infant mortality is concentrated in the first days of life for strictly endogenous causes, while in the less modernized countries the exogenous causes still lead to the death of several children: in fact, despite the growth of vaccinations against infectious diseases and the decrease in gastrointestinal and lung infections, some children die before the first year of life.

**Figure 8** – *Infant mortality rate in the south-eastern shore countries according to residence and the most recent DHS (percentage).*




*Source: Our elaborations on DHS data.*

There is a strong relationship between fertility and infant mortality. The demographic transition from high to low levels of fertility and mortality is a defining feature of the development process. Historically, the precise timings of fertility and of mortality transitions have varied considerably. Furthermore, there are important questions about how the two processes interact (Hobcraft *et al.*, 1985; Lloyd and Ivanov, 1988; van de Walle, 1986; Knodel, 1986).

There is the complicated question of reverse causality (or endogeneity). Lower (or higher) mortality could lead to lower (or higher) fertility, but it is well known that higher birth rates lead to higher infant and youth mortality. This increased mortality is related to the effect on infants and children of early weaning and reduced maternal care (Haines, 1998).

The determinants of infant mortality are well illustrated in the approach of Mosley and Chen (2003), which is then used by numerous studies based on DHS data. The socio-economic determinants of infant mortality are the characteristics that describe the socio-economic status of the parents (education of the mother and father and employment), of the place of residence (degree of urbanization and location), of the home that reflect the material conditions of family life (quality of water supply, building materials, waste collection methods, disposal, lighting method, type of toilet, etc.) and cultural life (parental ethnicity, religion or language). Data on the key factors of these variables, maternal and paternal education, paternal occupation and degree of urbanization of the place of residence,

are usually provided by censuses and population surveys and therefore are the factors included in most of the analyses carried out.

If we consider for example Morocco, we see the correlation, not so high but significant, between number of children and mortality of children, calculated as the sum of died sons and daughters divided by number of children.

**Table 6** - *Correlation between children ever born and child mortality, Morocco 2003-2004.*

| | | Total children ever born | Child mortality |
|---|---|---|---|
| Total children ever born | Pearson correlation | 1 | 0.278** |
| | Sign. (two tails) | | 0.000 |
| | N. | 16,798 | 8,660 |
| Child mortality | Pearson correlation | 0.278** | 1 |
| | Sign. (two tails) | 0.000 | |
| | N. | 8,660 | 8,660 |

*Note: **. Significant correlation at 0,01 (two tails).*
*Source: Our elaboration on DHS data.*

The linear regression model for Morocco shows some covariates of mortality, that are all significant and negative: a higher mortality is associated to a lower diffusion of contraceptive use, to a lower income, to the urban residence a to a lower socio-economic status.

**Table 7** – *Linear regression. Morocco 2003-2004. Dependent variable: dependent variable child mortality.*

| Model: Linear regression | Not standardized coeff. | | Standardized coeff. | Signif. |
|---|---|---|---|---|
| | Beta | Standard error | Beta | |
| Constant term | 0.111 | 0.003 | | 0.000 |
| Contraception | -0.039 | 0.003 | -0.130 | 0.000 |
| Income quintile | -0.028 | 0.003 | -0.095 | 0.000 |
| Rabat-Casablanca | -0.020 | 0.004 | -0.053 | 0.000 |
| Socio-economic status | -0.025 | 0.007 | -0.039 | 0.000 |

*Source: Our elaboration on DHS data.*

## 6. Contradictory trends in Egyptian fertility. Ideal number of children

Over the last decade, many events in the countries of North Africa and the Middle East (MENA) have taken everyone by surprise. Reference here is to several domains, from the political domain (the 2011 “Arab spring” or revolutions) to social and demographic trends. The demographic transition and family modernization process seemed to be established and irreversible in many of the

MENA countries, in particular marriage and childbearing, the status of women and care of older persons (De Bel-Air, 2012; Mirkin, 2010; 2013). As already introduced, many of the countries have shown a decline in fertility as from the last decades of the 20th century (Engelhardt and Schulz, 2017; Eltigani, 2009). Afterwards in very recent years suddenly fertility has come back on the rise in some Arab countries. A slight fertility increase has been observed in Tunisia, Morocco, and Lebanon, while a persistent increase was observed in Egypt (and Algeria, starting from lower values) between the 2000-2015 periods. On the contrary fertility has remained stable in Libya, Iran, and Oman, but decreased in the other MENA countries (Mena, 2020): Djibouti, Iran, Bahrain, Jordan, Kuwait, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen, the Mediterranean region enlarged.

The atypical fertility increase experienced in many MENA countries in recent years is particularly striking in Egypt, the most populous country in the Arab world with about 102 million citizens at the beginning of 2022 and set to grow to about 121 million by 2030. In the country the demographic transition seemed an accomplished fact (Al Zalak and Goujon, 2017), even if the demographic regime is still characterized by nearly universal and relatively early marriage, first birth soon after marriage, and a common rejection of the one-child family (Ambrosetti, 2011).

Egypt has a relatively young population, where about 60% of the population is under 30 years old. Now women are more educated and laws are more egalitarian, but the patriarchal tradition is still strong in the country and restrains both men's and women's attitude to change behaviors. The dramatic demographic change is a national political issue in the country.

The fertility trend in Egypt has been quite irregular before the declining trend started in the 1980s under Hosni Mubarak's government, a period when oil prices began to fall and the Gulf States had less need for Egyptian labor. Fertility continued to decline up to the mid-1990s a period when the neoliberal policies involved reduction of both the civil service employment sector and the financial assistance for education, health, and basic necessities.

Between 1995 and 2008 the total fertility rate (TFR) slowly declined from 3.6 to 3 children per woman. Surprisingly, according to the latest Demographic and Health survey fertility rose from 3.0 children per woman in 2008 to 3.5 in 2014. This development is rather unusual for countries that are believed to be in the middle of their demographic transition, where fertility is expected to decline. It is important to underline that the increase of fertility is evident from all women, leading to a narrowing of the fertility gradient by socioeconomic status. The most recent data show a slow decline up to 2020, when TFR fell gradually to 3.24 births per woman.

There is a vast discussion on the causes of these fertility trends in the country. Researchers have provided different kinds of explanations of the recent rise in fertility discussing the role of the past demographic trend, the importance of market labor trends as well as the influence of socio-cultural factors. A lot of analyses have looked at the role of previously high fertility to the "youth bulge" and its relationship to the 2011 revolution. Courbage (2015) suggested that having more children may be an over-investment in future generations due to the economic problems that characterize the country, a kind of "poverty-driven transition". Furthermore, high female unemployment rates, coupled with the fact that many women are underemployed or working in the informal and domestic economy (World Bank, 2018), together with the decline in employment opportunities for women in the public sector, are considered as major factors in the rise of fertility (Assaad *et al*., 2015; Krafft, 2020).

The recent increase in fertility has also been associated with changes in contraceptive behaviour. A decreased use of contraceptives among women who already have two or more children may have been driven by changes in government policies, with the shortage of both funding for family planning facilities and public messaging about family planning (UNICEF *et al.*, 2022). Moreover, Casterline (2009) outlined that the two-child norm is not firmly and widely established in the Arab region; in particular in Egypt there is widespread indifference between the ideals of two and three children and a corresponding weak attachment to the two-child norm.

In a framework of raising fertility in the most populous country in the Arab world, whose causes are mostly still unknown, we can refer to the ideal number of children, starting from the hypothesis that attitudes towards ideal family size closely correlate with actual patterns of fertility. A series of studies have found or rather a high degree of correspondence between women' fertility preferences and subsequent contraceptive or fertility behavior in many developing countries (Cleland et *al.*, 2020). Ideal family size may be interpreted as a societal norm that is evolving together with major societal changes witnessed in a country during the last decades.

Table 8 shows stability in the ideal number of children during the period 1988-2014 at around 3 children. Data do not show major differences by background characteristics of women: the most striking differences being by age, place of residence, and wealth. Traditionally, the mean ideal number of children was higher among women in rural areas. Women with at least secondary education and whose households were in the middle and highest wealth quintiles had the lowest ideal number of children. The evaluation of 2008 and 2014 data highlights important changes in the fertility pattern: as for the TFR, the ideal number of children raised among educated women (from primary to higher education) and those in the first

two poorer wealth quintiles. It is important to underline that this issue is important for Egypt where Government is for the first time explicitly addressing the reduction of fertility via reduction of the ideal family size (Wahish, 2018; Ambrosetti *et al.*, 2021).

**Table 8** – *Mean ideal number of children for ever married women age 15-49 by socio-economic characteristics. Egypt 1988-2014.*

| | 1988 | 1992 | 1995 | 2000 | 2003 | 2005 | 2008 | 2014 |
|---|---|---|---|---|---|---|---|---|
| *Educational attainment* | | | | | | | | |
| No education | 3.1 | 3.1 | 3.1 | 3.3 | 3.1 | 3.2 | 3.3 | 3.3 |
| Some primary | 2.9 | 2.9 | 2.9 | 3.0 | 2.9 | 3.0 | 3.1 | 3.2 |
| Primary complete/some secondary | 2.5 | 2.5 | 2.5 | 2.7 | 2.6 | 2.8 | 2.9 | 3.0 |
| *Wealth quintile* | | | | | | | | |
| Lowest | 3.3 | 3.3 | 3.2 | 3.3 | 3.1 | 3.1 | 3.2 | 3.4 |
| Middle | 3.1 | 2.9 | 2.8 | 3.1 | 2.9 | 2.9 | 2.9 | 2.9 |
| Highest | 2.7 | 2.7 | 2.7 | 2.8 | 2.7 | 2.7 | 2.7 | 2.7 |
| *Residence* | | | | | | | | |
| Urban | | | | | | | 2.8 | 2.9 |
| Rural | | | | | | | 3.0 | 3.1 |
| Mean ideal number | 2.9 | 2.9 | 2.8 | 2.9 | 2.8 | 2.9 | 2.9 | 3.0 |

*Note: Mean values exclude women giving non-numeric answer.*
*Source: Our elaboration on DHS data.*

In addition to the various Egypt Demographic and Health Surveys (EDHS), the 2015 Egypt Health Issues Survey (EHIS, 2015) - collected by El-Zanaty and Associates on behalf of the Egyptian Ministry of Health and Population in 2015 - gives original evidence on the ideal number of children for both females and males, married and unmarried, aged 15-49 in the context of a developing country.

Table 9 confirms clear differences by place of residence, in both TFR in 2014 and mean ideal number of children between women and men aged 15-49 in 2015.

In all the geographic areas of the country, the male mean ideal number of children is higher than the female one and, except for Urban Governorates, it is closer to the level of TFR measured in 2014 EDHS.

**Table 9** – *Total Fertility Rate (TFR) and Mean Ideal Number of Children (INC) by gender and place of residence. Egypt 2014-2015.*

| *Place of Residence* | TFR 2014 | INC 2015 | |
|---|---|---|---|
| | | Women | Men |
| Urban Governorates | 2.5 | 2.8 | 3.0 |
| Lower Egypt | 3.4 | 3.0 | 3.2 |
| Urban | 3.0 | 2.8 | 3.1 |
| Rural | 3.6 | 3.0 | 3.2 |
| Upper Egypt | 3.8 | 3.3 | 3.7 |
| Urban | 3.2 | 3.0 | 3.5 |
| Rural | 4.1 | 3.4 | 3.9 |
| Frontier Governorates | 3.9 | 3.2 | 3.9 |
| *Total* | *3.5* | *3.1* | *3.4* |

*Source: EDHS 2014 for TFR; EHIS 2015 for INC.*

Data from Table 10 (published in Ambrosetti *et al.*, 2021) refer to both never married and ever-married men and women aged 15-49, aiming at explore differences in ideal number of children (dependent variable) by age, marital status, gender and gender attitudes. Information derives from the 2015 Egypt Health Issues Survey concerning several topics related to current fertility behavior in Egypt, including ideal family size. Elaboration considers explanatory variables (exposure to mass media, and exposure to family planning messages, attitudes towards wife beating), control variables (age group, marital status, family size) and socio-economic variables (educational level, type of residence, place of residence, working status, household wealth quintile, religion)[4].

Results show whether gender-equitable attitudes have different associations with the ideal number of children between ever and never-married women and men. Traditional gender attitudes (expressed with the justification of at least one reason for wife beating) are positively associated with larger ideal numbers of children for both genders and with a higher coefficient for men. Moreover, exposure to mass media shows a negative association with the ideal number of children for both genders with a more pronounced association for women. In contrast, exposure to family planning messages does not show any association with the ideal number of children. Household wealth emerges as a predictor of ideal number of children as a higher ideal number of children is negatively associated with high wealth index (good socio-economic status); the same relationship applies for not Muslim men. For women, results seem to be in agreement with those obtained for men.

[4] Information included in table 10 allows us to know the items of almost all the variables.

**Table 10** – *Poisson regression coefficients with [p-values], and (standard errors). Egypt 2015. Dependent variable: ideal number of children by gender.*

| Model: Poisson regression | Women | Men |
|---|---|---|
| *Number of household members* | 0.019 [0.000] (0.003) | 0.021 [0.000] (0.003) |
| *Age group* (ref. 15-24) | | |
| 25-34 | 0.037 [0.068] (0.020) | 0.019 [0.389] (0.025) |
| 35-49 | 0.166 [0.000] (0.020) | 0.126 [0.000] (0.022) |
| *Marital status* (ref. never-married) | | |
| Ever-married | 0.055 [0.001] (0.020) | 0.080 [0.000] (0.022) |
| *Working status* (ref. Not work./not work. cash) | | |
| Working for cash | 0.081 [0.000] (0.013) | 0.087 [0.000] (0.015) |
| *Education* (ref. No educ. + incomplete primary) | | |
| Complete primary + incomplete secondary | -0.014 [0.476] (0.020) | -0.045[0.047] (0.022) |
| Secondary and higher | -0.022 [0.219] (0.018) | -0.047[0.018] (0.020) |
| *Place of residence*: (ref. urban Governorates) | | |
| Lower Egypt | -0.014 [0.512] (0.022) | -0.014 [0.567] (0.024) |
| Upper Egypt | 0.132 [0.000] (0.022) | 0.125 [0.000] (0.024) |
| Frontier Governorates | 0.108 [0.000] (0.030) | 0.182 [0.000] (0.032) |
| *Type of residence*: (ref. urban) | | |
| rural | 0.083 [0.000] (0.015) | 0.054 [0.002] (0.017) |
| *Wealth index* | -0.212 [0.001] (0.065) | -0.170 [0.019] (0.072) |
| *Religion* (ref. Muslim) | | |
| Other than Muslim | -0.117 [0.000] (0.030) | -0.142 [0.000] (0.034) |
| *Exposure to family plan. messages:* (ref. not exp.) | -0.003 [0.834] (0.015) | 0.008 [0.631] (0.017) |
| *Exposure to mass media*: (ref. never exposed) | -0.193 [0.017] (0.015) | -0.014 [0.904] (0.115) |
| *Tolerance for wife beating:* (ref. No to all 5 items)* | 0.083 [0.000] (0.014) | 0.064 [0.000] (0.016) |
| Constant term | 1.031 [0.000] (0.086) | 0.871 [0.000] (0.118) |
| Observations | 7,779 | 6,204 |
| Log Likelihood | -13,821.47 | -10,971.78 |
| Akaike Inf. Crit. | 27,677 | 23,100 |

*Note: Poisson regression coefficients are in bold; standard errors in brackets ( ) and p-values in square brackets [ ];*
**Five items on the possibility to justify wife beating by the husband in specific situations.*
*Source: Ambrosetti, Novelli and Angeli 2021.*

For both men and women the desire to have a large family is positively associated with being in the age group 25-34 and 35-49, being married, with working for cash, with a large number of household members, with residence in all the rural environments (rather than the urban environments), and living in Upper Egypt or Frontier Governorates (rather than Urban Governorates). Finally, an

increase in women's and men's levels of education is associated with lower fertility preferences.

## 7. Conclusions

According to the projections of the United Nations (medium variant) the southern shore with 289 million individuals expected by 2050 (87 million more than in 2020) will impose by demographic consistency in the Mediterranean Basin, positioning itself far ahead of the European shore (188 million, 10 million less than to 2020) which will be closely followed by the east bank (158 million, 36 million in more than in 2020). This expected demographic imbalance calls for a second equally important, namely the unequal age distribution will follow on both sides of the Mediterranean. In fact, according to the projections' scenario, in 2050 111 million young people under the age of 25 will live in the countries of the African shore against the age of 50 million of those on the Asian side and 42 million on the European side. More than 50% of the "Mediterranean youth" will be concentrated in only five countries: Morocco, Algeria, Tunisia, Libya and Egypt. Forecasts estimate that almost one in two people aged 65 and over will reside in the North Bank towns: 61 million against 37 million in the countries of the southern shore and 29 million in those of the eastern shore (Carella et al. 2021).

What about convergence or divergence in the Mediterranean shores? The Euro-Mediterranean region represents an area of possible collaboration, but also of possible conflict, between EU nations and countries in the Mediterranean region that are not EU members. The reasons for effective cooperation have been evident for decades, and may be summarised as follows: increased trading and economic assistance in exchange for lasting peace. Over the years we have also begun to realise that the environment and cultural heritage of the Mediterranean need to be protected, also in the interest of EU countries with no direct access to the Mediterranean Sea. Covid-19 and the measures introduced to combat it are changing many of the ways our societies work. Human mobility, for example, in the form of migrant and tourist flows, is being transformed from a global phenomenon to a proximity relationship. The concept of proximity is still being defined. The Mediterranean may well be considered, in the near future, as an area of enhanced accessibility for all EU countries.

By the demographic point of view, we note a narrowing of reproductive and survival models, but the two shores present nevertheless many differences. In particular, some countries of the South, such as Egypt and in a lower measure Algeria, have revealed a rise of fertility after a long period of decline. The reasons

are perhaps cultural and religious, due to a more precocious age at marriage linked to a halt in women's emancipation and the growth of Islamic fundamentalism.

At the same time, other countries on the south-east bank have moved forward on the path of demographic transition and there has been a certain convergence, in particular as it regards infant mortality which, as is well known, represents a strong indicator of social development.

Alongside the migratory flows, which draw close to the cultures of the two shores, these phenomena of convergence represent the vehicle for future homogeneity and the possible elimination of conflicts.

Data on Egypt confirmed the importance of governmental policy. In Egypt, despite a long tradition of population policies, the amount of governmental resources and efforts dedicated to family planning and reproductive health rapidly declined during the last years of Mubarak presidency and then during the early years after the revolution of 2011. Afterwards, in a context of economic instability coupled with high youth unemployment rates, population policies gained again new energy with the implementation - among other measures - of the *Two is enough* policy.

The in-depth analysis on ideal number of children showed that for Egyptian women particular attention must be devoted to the context they belong to as a major factor affecting their empowerment: education and/or employment do not necessarily enhance autonomy if traditional factors remain strong. In a society that does not give women many opportunities outside the household, having children endows them with power in the household and acceptance at the societal level, while childless women may experience social isolation.

## References

AL ZALAK Z., GOUJON A. 2017. Exploring the fertility trend in Egypt, *Demographic Research*, Vol. 37, No. 32, pp. 995-1030.

AMBROSETTI E. 2011. *Égypte, l'exception démographique*, Les cahiers de l'INED, No. 166, Paris: PUF, INED.

AMBROSETTI E., NOVELLI M., ANGELI A. 2021. Childbearing intentions among Egyptian men and women: The role of gender-equitable attitudes and women's empowerment, *Demographic Research*, Vol. 44, No. 51, pp. 1229-1270.

ANGELI A., SALVINI S. 2018. *Popolazione mondiale e sviluppo sostenibile*. Bologna: Ed. Il Mulino.

ASSAAD R., NAZIER H., RAMADAN R. 2015. Empowerment is a community affair: community level determinants of married women's empowerment in Egypt. *ERF Working Paper* 959, Cairo: Economic Research Forum.

BRAUDEL F. 2017. *Il Mediterraneo* (trad. it.). Milano: Bompiani.

CARELLA M., BELLIS G., LEGER J-F., PARANT A. 2021. La popolazione del Mediterraneo all'orizzonte del 2050: le previsioni sollevano molti interrogativi, *Neodemos* 12 febbraio 2021. https://www.neodemos.info/2021/02/12.

CASTERLINE E.L. 2009. *Fertility Prospects in the Arab Region*. New York: United Nations Department of Social and Economic Affairs.

CLELAND J, MACHIYAMA K, CASTERLINE JB. 2020. Fertility preferences and subsequent childbearing in Africa and Asia: A synthesis of evidence from longitudinal studies in 28 populations, *Population Studies*, Vol. 74. No. 1, pp. 1-21.

COURBAGE Y. 2015. Égypte, une transition démographique en marche arrière. *Orient XXI*, https://orientxxi.info/magazine/egypte-une-transition-demographique-en-marche-arriere,0956.

COURBAGE Y., TODD E. 2009. *L'incontro delle civiltà* (trad. it.), Milano: Tropea Editore.

DE BEL-AIR F. 2012. Mariage et famille dans le golfe Arabe : vers un bouleversement politique?, *Espace Populations Sociétés*, No. 2, pp. 79-96.

DANIELE V., MALANIMA P. 2016. Trends in Mediterranean inequalities 1950-2015. *Mpra*, No. 78324, pp.1-23, https://mpra.ub.uni-muenchen.de/78324/.

DHS data. https://dhsprogram.com/data/.

DOIGNON Y. 2019. Demographic ageing in the Mediterranean: the end of the spatial dichotomy between the shores? *Spatial Demography*, Vol. 8, No.1, pp. 85-117.

EHIS. 2015. *The 2015 Egypt Health Issues Survey (EHIS)* - collected by El-Zanaty and Associates on behalf of the Egyptian Ministry of Health and Population in 2015.

ELNAKIB S., ABOU HUSSEIN S., SALI H., MAY E., HUNERSEN K., METZLER J., ROBINSON W. C. 2021. Drivers and consequences of child marriage in a context of protracted displacement: a qualitative study among Syrian refugees in Egypt, *BMC public health*, Vol. 21, No. 1, pp. 1-14.

ELTIGANI E.E. 2009. Toward replacement fertility in Egypt and Tunisia. *Studies in Family Planning*, Vol. 40, No. 3, pp. 215-226.

ENGELHARDT H., SCHULZ F. 2017. Demographic developments in the Middle East and North Africa. *Demographic discussion paper* 20/2017, Bamberg: Otto-Friedrich-Universität.

EUROSTAT 2020a. https://ec.europa.eu/eurostat.

EUROSTAT 2020b. *Statistics explained*, https://ec.europa.eu/eurostat.

HAINES M. R. 1998. The Relationship Between Infant and Child Mortality and Fertility: Some Historical and Contemporary Evidence for the United States. In MONTGOMERY M.R. and COHEN B. (Eds.) *From Death to Birth: Mortality Decline and Reproductive*. Washington (DC): National Academies Press, https://www.ncbi-.nlm.nih.gov/books/NBK233807/.

HOBCRAFT J.N., MCDONALD J.W., RUTSTEIN S.O. 1985. Demographic Determinants of Infant and Early Child Mortality: A Comparative Analysis, *Population Studies*, Vol. 39, No 3, pp. 363-385.

HUNTINGTON S.P. 2000. *Lo Scontro delle Civiltà e il Nuovo Ordine Mondiale* (trad. it.), Milano: Garzanti editore.

INDEX MUNDI 2020. https://www.indexmundi.com/en/greece/infant_mortality rate.html.

ISTAT 2014. *The Italian child mortality: a statistical analysis from the 18th to the 21st century*. Statistiche Focus, file:///C:/Users/Lenovo/Downloads/Child_mortality-1.pdf.

JAIN A.K., ROSS J.A. 2012. Fertility Differences Among Developing Countries: Are They Still Related to Family Planning Program Efforts and Social Settings? *International Perspectives on Sexual and Reproductive Health*, Vol. 38, No.1, pp. 15- 22.

KNODEL J. 1986. Demographic Transitions in German Villages. In COALE A. J. and WATKINS S. (Eds.), *The Decline of European Fertility*. Princeton: Princeton University Press Chapter 9, pp. 337-389.

KRAFFT C. 2020. Why is fertility on the rise in Egypt? The role of women's employment opportunities, *Journal of Population Economics*, Vol. 33, No. 4, pp.1173-1218.

LLOYD C. B., IVANOV S. 1988. The Effects of Improved Child Survival on Family Planning Practice and Fertility, *Studies in Family Planning*, Vol. 19, No. 3, pp. 141-161.

MENA 2020. Marriage Patterns in Palestine, *Mena working papers series* - PRB. http://www.prb.org .

MIRKIN B. 2010. Population levels, trends and policies in the Arab region: challenges and opportunities. *Research paper series.* Arab human development report. UNDP Regional Bureau for Arab States.

MIRKIN B. 2013. *Arab Spring: Demographic in a region in transition*. New York: United Nations Development Programme, Regional Bureau for the Arab Census.

MOSLEY W.H., CHEN L.C. 2003. An Analytic Framework for the Study of Child Survival in Developing Countries, *Bulletin of the World Health Organisation*, Vol. 81, No. 2, pp.140-145.

PAN BLEU 2020. *Demographic Trends and Outlook in the Mediterranean. Building the Mediterranean future together*. https://planbleu.org.

SALVINI S. 1990. La demografia delle rive sud e est. In LIVI BACCI M. e F. MARTUZZI VERONESI (Eds.), *Le risorse umane del Mediterraneo*, Bologna: Il Mulino, pp. 125-153.

UNITED NATIONS 2015. *Youth Population and employment in the Middle East and North Africa: Opportunity or Challenge*. http://www.un.org/esa.

UNITED NATIONS 2020. *State of the Environment and Development in the Mediterranean: Summary for Decision Makers*. Environment Programme/Mediterranean Action Plan and Plan Bleu, Nairobi: UNEP/ MAP and Plan Bleu. https://planbleu.org.

UNICEF, J-PALMENA, AUC 2022. *Fertility and family planning: insights on promoting healthy behaviors and curbing population growth in Egypt*, Seminar brief Cairo, February 22. https://www.unicef.org/egypt/media/8621/file.

VAN DE WALLE E. 1986. La fécondité française au XIXe siècle, *Communications 44, Dénatalité: l'antériorité française, 1800-1914*, pp. 35-45. https://www.persee-.fr/doc/comm_0588-8018_1986_num_44_1_1653.

WAHISH N. 2018. Family planning in Egypt: The 'Two is enough' project, *ahramonline*, 8 June, https://english.ahram.org.eg.

WORLD BANK 2018. *Women Economic Empowerment Study*. Washington DC: World Bank Publications.

## SUMMARY

The population of Mediterranean countries increased from approximately 475 million inhabitants in 2010 to 522 million inhabitants in 2020, representing 6.7% of the world population. Almost one third of the Mediterranean population lives in the coastal area and more than 70% in cities. Migration from rural to urban areas continues. The regional demographic context is very different on the northern (NMCs) and southern-eastern (SECs) shores. NMCs are characterized by a low fertility rate, an aging population, and a relatively low share of active population. SEMCs are in a phase of demographic transition, with relatively higher population growth, an overall younger population, and subsequently, a higher share of active population.

In recent years the gap of income has reduced. Economic convergence implies that countries which have a lower than average per capita income at the end of the Second millennium tend to grow faster than the relatively richer countries of the group. In other words, there exists a steady state which all countries tend to converge pending their differences in preferences, technology and institutional settings.

In this study we focus on fertility and infant mortality differences according to various characteristics: Residence, education and wealth, showing that the richest, the most educated and the urban present lower fertility and lower infant mortality. Then, we deep the situation of Egypt, that presents an increase in fertility in the most recent years. We conclude focusing on demographic convergence or divergence between the two shores.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# MIGRATIONS IN THE MEDITERRANEAN: OLD AND NEW CHALLENGES AND OPPORTUNITIES

Elena Ambrosetti

## 1. Introduction

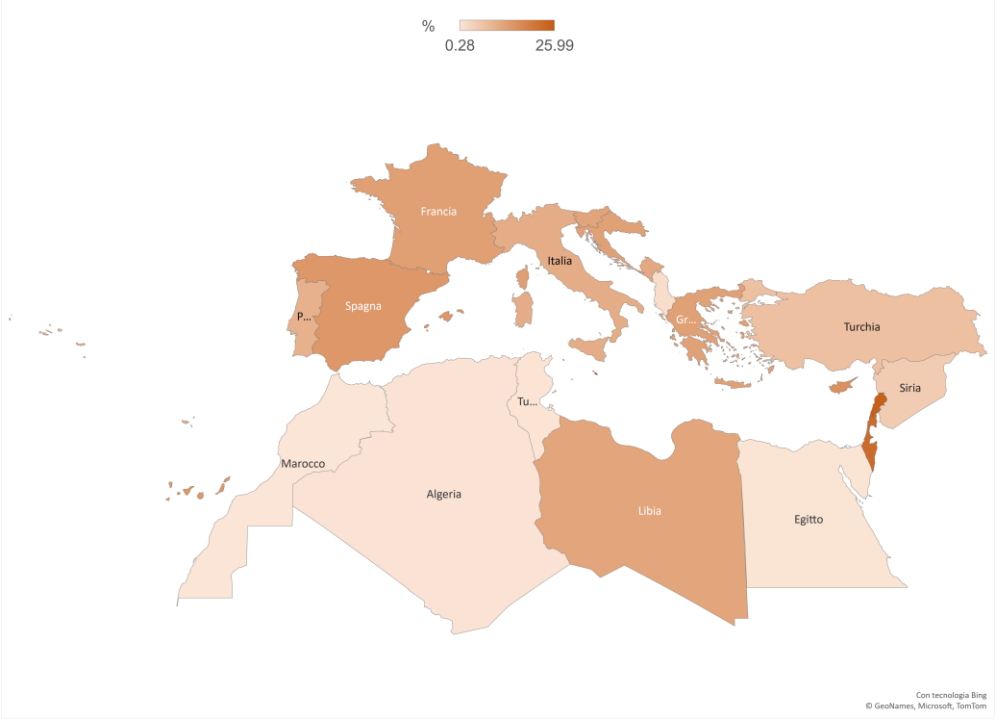
The Mediterranean region represents the largest migration area in the world together with the border between the US and Mexico. According to the UN in 2020 around 523 million of people lived in the countries bordering the Mediterranean Sea. In 2019 the number of immigrants resident in the Mediterranean countries was 37.9 million while 40 million people emigrated from these countries. Migration flows within the region are quite relevant: nearly 15.8 million emigrants moved from their home country to another country bordering the Mediterranean Sea (Map 1).

From the demographic point of view the Mediterranean countries are at different stages of the process of demographic transition: while the countries of the northern shore have ended their demographic transition, most countries of the southern and eastern shores are still in the third stage of the transition. That stage is characterized by a sustained population's growth because of the delay of the decline of birth rates, which occurs after a certain time of the decline of mortality rates. As a result of this process, the two regions have a different population age structure: while in countries of the North of Mediterranean, where population ageing is already evident, the median age is over 40 years (except Albania and Montenegro), in the Southern and Eastern shores, the age structure is much younger, and the median age is less than 30 years. These results, in the so-called youth bulge, show a positive situation from the demographic point of view, as the number of working age population is particularly high, thus it has great potential from the economic point of view: according to the demographic dividend theorists, it may cause rapid economic growth due to higher level of education and labour market participation (Bloom *et al.*, 2017). However, the benefits of the demographic dividend are yet to come for this region. Indeed, even if the young population is more educated and qualified compared to the generations of their parents, they have few economic opportunities resulting in a labour supply higher than the demand, and high unemployment rates. Inflation rates are high, feeding rising inequalities. As a consequence of their broken dreams and aspirations, the young generations belonging to the youth bulge, were at the hearth of the so-called

Arab Spring, at the beginning of the second decade of the 2000's (Martín and Bardak, 2011). Political and economic problems affecting the Arab Mediterranean countries act as a major driver of migration to European and Middle Eastern countries (Etling *et al.*, 2020).

Historically, the Mediterranean basin has been characterized by the movement of people within the region. The focus of this paper will be the period after World War II till today (1948-2022). This period has been characterized by several changes in the migration system in the Mediterranean: the main reasons behind those changes are due to economic and political factors (de Haas, 2011: S60). Through a chronological approach, in the following sections we will identify and describe five periods providing a synthesis of the evolution of migration in the Mediterranean region during this period, highlighting the new and old challenges and opportunities.

**Map 1 –** *Stock of international migrants in the Mediterranean countries in 2020 (% of the total population).*




*Source: UN.*

## 2. Migrations in the Mediterranean: from 1948 till the mid of the Nineties

During the first period (1948-1963) the countries of North and Western Europe proceed to the post-war reconstruction. Shortage of labour force in these countries is compensated by emigration from Southern European countries. In the early 1960s, there were 7.6 million of resident migrants in Western Europe while population movements in the Southern and Eastern Mediterranean countries were mostly internal.

During the following decade (1963-1973) there was a decline of migration from Southern European and an increase in migration from Southern and Eastern Mediterranean to Western European countries, particularly France, Germany, Switzerland, Belgium and Austria. France and Germany were the main receiving countries in Europe during this phase: migration to France, due to the colonial past, were characterized by a strong presence of migrants from the Maghreb while in Germany there was a strong increase in the presence of Turkish migrants, who replaced migrants from southern European countries, particularly Italy.

The beginning of the 1970s are characterized by the 1973 energy crisis which marks a break in international migration trends in the Mediterranean and the opening of the third period (1973-1995). In Europe, the traditional receiving countries of migration are affected by the economic crisis and are no longer able (or do not have the political will) to receive foreign workers. They adopt restrictive entry policies hoping that migrants will return *en masse* to their countries of origin. This policy reversal results in a change in the nature and destination of migration flows. Migration to this region continues, however in different forms than in the past. From the 1980s onwards the flow of refugees and asylum seekers to Europe increases significantly. Family migration becomes very important because it allows to circumvent the restrictive entry regulations. A second major change of this period is the reversal of flows from the countries of southern Europe. Those countries for a long time were exporters of labour to other European countries and to America and Oceania. During this period, they became host countries for migratory flows from the countries on the southern shore of the Mediterranean, from sub-Saharan Africa, from Latin America and, after the fall of the Berlin Wall, from Eastern Europe. A third change occurred during this period is the emergence, due to strong economic growth, of the Persian Gulf countries together with Libya as a major of attraction for international migration, particularly for migrants from South-East Asia and the Arab countries. Last but not least since the 1970s, Egypt has become one of the main suppliers of labour in the region because of the opening to emigration decided by Anwar Sadat and the strong demographic growth.

The end of the 1980s and the beginning of the 1990s were characterized by major political changes: the fall of the Iron Curtain and the first Gulf War generated new migratory flows while in part weakening the existing ones.

During this period two countries of Southern Europe, Italy and Spain, have become the preferred destination countries for the Maghreb countries.

The year 1985 with the signature of the Schengen Agreements by the member countries of the European Union marked an important breakthrough in migration in the region: a zone of free movement was established within Europe (the effective implementation of the agreements only began in 1995). The internal borders of the Union no longer exist (except for the United Kingdom and Ireland): the internal space of the EU thus became a migratory system that includes 26 countries (including non-EU European countries: Iceland, Norway, Switzerland and Liechtenstein). While an EU without borders became a reality, paradoxically the EU's external borders are increasingly controlled and inaccessible to all those subject to the new Schengen visa regime, particularly the countries of the Southern and Eastern shores of the Mediterranean (Wihtol de Wenden, 2019). As a direct consequence of the entry restrictions from this period onwards important flows of irregular migration followed by massive regularizations develop.

Additionally, there is an increase of high skilled migration, characterized not only by the mobility of highly skilled workers but also by the increasing mobility of students.

## 3. Migration in the Mediterranean: the first two decades of the XXI century

A new phase of migration in the Mediterranean region characterizes the end of the 1990s and the beginning of the 2000s (1996-2010): this period opened up a new migratory sequence, strongly influenced by a positive economic situation. In the Northern shore of the Mediterranean, Spain and Italy maintain their role of poles of attraction of unskilled workers, especially from the Southern shore, employed in agriculture, family services, food services, small retail trade and construction. Since the 1990s these countries have been the major pole of attraction of migration, particularly for the Northern Africa countries. The traditional European receiving countries continue to welcome family migration and highly qualified migrants.

The countries on the Southern and Eastern shores of the Mediterranean are also experiencing important changes of migratory trends: part of them, such as Turkey, are assuming the role of host countries for migration, while others are among the major transit countries for migration flows from sub-Saharan Africa and Asia to Europe. Migration to the Arab countries of the Gulf and to Jordan continues to be very relevant, especially for Egypt and the Palestinian territories.

The global economic downturn of 2008 was very different in terms of its impact on migration compared to the 1973 crisis: the decline in migration flows was rather small, affecting mainly labour migration. In particular to Southern European countries, especially Spain.

A major disruptive factors of migration flow in this period are the political changes in the countries on the Southern and Eastern shores of the Mediterranean: the season of institutional transition, known as the "Arab Spring", began in 2010, has radically changed the institutional landscape of the area. It has triggered non-linear and on-going regime-change processes and structured the essence of the so called "refugee crisis". The main drivers of the crisis were the war in Afghanistan in Syria and Iraq, as well as continuing violence and instability in Eritrea.

The new political setting of the region marks the start of the ongoing new era of migration (2011-present). In 2010-2011 thousand of Tunisians (60,000) and Libyans (26,000) escaped to Europe fleeing their home countries facing a period of political instability. The Italian Island of Lampedusa become the main entry channel to Europe. The so-called "refugee's crisis" has shaken the entire region. Between 2011 and 2014, the significant reduction of the state's control on the socio-economic settings of most of North African countries has acutely affected regional and international migratory flows' dynamics, nourishing the growing relevance of the Central Mediterranean Route (CMR) that is the itinerary referred to irregular migration coming from Northern Africa towards Italy and Malta across the Mediterranean Sea. In the first stage of the new period, Italy and Malta in the CMR have been at the front line for rescuing and welcoming refugees.

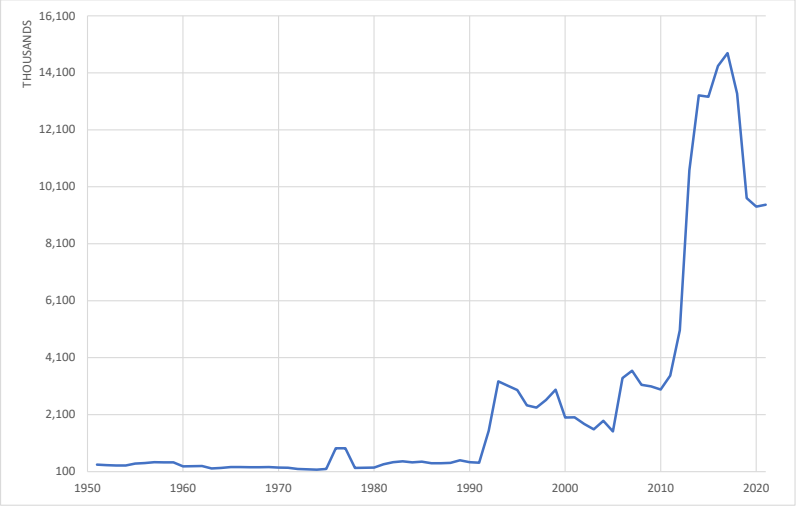
In 2014, at the end of Operation Mare Nostrum (OMN), a year-long naval and air search-and-rescue operation initiated by the Italian government in October 2013, the CMR lost its predominance for irregular-migration and asylum-seeker flows. In 2015, the main portal of entry to Europe became Greece. Migrants entered Europe mainly via the Eastern Mediterranean route (EMR), the route heading from Turkey through Greece and the Western Balkans, either by land via Macedonia and Serbia or across the Aegean Sea (UNHCR, 2016).

The 2015 flow of migration into Europe (going far beyond EU countries bordering the Mediterranean) was unprecedented, producing a massive humanitarian crisis and posing the European governments in a political and moral impasse. The International Organization for Migration's (IOM) Displacement Tracking Matrix flow-monitoring system counted the record figure of 1,005,504 irregular arrivals across the Mediterranean in 2015, including migrants journeying by land or sea to Greece, Bulgaria, Spain, Italy, Malta or Cyprus. This figure is enormous especially when compared with 280,000 arrivals by land or sea for the whole of 2014. refugee flows, which had been declining since 2005, have increased from 2011 onwards: the European countries most affected by this new wave of

refugees have been Germany, Sweden, Italy and France. According to UNHCR data the main countries of origin of asylum seekers in 2019 were Syria, Iraq, Afghanistan, Serbia, Kosovo and Eritrea. Unfortunately, migrants are most often taking unsafe journeys to Europe: according to UNHCR estimates, more than 22,000 people died in the Mediterranean Sea between 2014 and 2021 in the attempt to reach Europe (UNHCR, 2022).

However, despite the large attention received by the new and unprecedented situation faced by European countries, in reality the countries on the Southern and Eastern shores of the Mediterranean were the most affected by the crisis. Lebanon, Turkey, Jordan and Egypt have received the largest number of refugees and asylum seekers from neighbouring countries. These countries, which in the past were among the most important receiving countries of refugees from Palestine, Iraq and Sudan, are now receiving Syrians, Palestinians and Somalis. Overall, over the last 10 years in the Mediterranean region, there was a steady increase in the total stock of refugees and asylum seekers: in 2010 they were around 3 million, while in 2017 they reached the record figure of 14,8 million (figure 1). As already stressed, the top receiving countries are those of the Southern and Eastern shore of the region: most of the refugees and asylum seekers are internally displaced in Syria (7 million) or hosted in Lebanon (over 1 million), Turkey (almost 4 million), Egypt (almost 300 thousand) and Libya (around 375 thousand). Contrary to the common perception, only a minor part of them succeeded in reaching the richer countries of the Northern shore of the Mediterranean: France (400 thousand) and Italy (354 thousand) being the major hosting country. The top sending countries of refugees are mainly Syria, Iraq, the horn of Africa (through Libya), Afghanistan, Kosovo, and Albania. With the current crisis, Ukraine should be also added to the list of top sending countries at least for Northern Mediterranean receiving countries.

**Figure 1 –** *Stock of refugees in the Mediterranean countries 1950-2017.*




*Source: UNHCR.*

### *3.1 The emerging phenomenon of irregular migration*

Among the characteristics of the "Southern European model of migration" (King, 2000) there is the presence of a large undocumented component. Irregular migration is a phenomenon largely widespread and debated in the Mediterranean region. Given the growing interest of the media and public opinion by this type of migration, accompanied by the use of *imaginary* figures, the European Commission has funded between 2007 and 2009 the Clandestino project. The project was aimed to harmonize data sources and methodology used to study irregular migration, to build a database on undocumented migration and to guide policies on that topic in Europe.

The European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union better known by its acronym Frontex, was created in 2004 by the European Council and it is operational since October 2005. Frontex has the tasks to promote, coordinate and develop European border management. Frontex collects data on flows of irregular crossings of external borders and flows of irregular migrants' detections reported within European borders. Irregular crossing the external borders have been stable between 2009 and 2013 (around 100,000 passages). In 2014 because of the worsening of the Syrian crisis, approximately 283,000 irregular crossings were spotted by Frontex, 60% (170,000) crossed the maritime border of the CMR (Italy and Malta) (Frontex, 2015). It should be stressed that the data provided by Frontex

refer to detections of irregular border-crossing rather than the number of persons as the same person may cross the external EU border several times. Since 2015, with the worsening of the so-called "refugee's crisis", the European Commission and international organizations such as the UN High Commissioner for Refugees (UNHCR) and the International Organization for Migration (IOM), put additional efforts in the data production in the Mediterranean region. Nowadays these agencies are more systematically collecting data on death at seas and on flows of individual crossing the borders. From 2015 arrivals by sea and land borders in the Northern shore of the Mediterranean are collected by UNCHR and available on their portal, broken down by country of origin, age and gender. 2015 was, as already mentioned in the previous section, a record year for irregular border crossing: more than 1 million. From 2016 there has been a continuous decrease on border crossing because of the agreements of the EU member states with Turkey and Libya.

## 4. Conclusions

The region's migration scenario in the future could be characterized by a strong migratory pressure, particularly by young adults from the Southern and Eastern Mediterranean countries to Europe. To face such challenge, an alternative for the European countries to the migration policy paradigm based on securitization and solidarity with the poor, may be to (re)open the legal channels of migration, for both humanitarian and economic migrants, in order to avoid economic and political conflicts in both the receiving and sending countries that may cause crisis-related migration movements. At the European level, the (re)opening of legal immigration channels would help receiving countries to cope with their domestic labour shortages, in particular with the segmentation of the labour market and the need to find care workers to respond to structural demographic aging. Furthermore, it would help to recognize the phenomenon of immigration as a structural and not a transitory one and, above all, to mitigate negative attitudes towards migrants, which have generally been exacerbated by a political discourse and policy actions dominated by security and emergency issues.

## References

BLOOM, DAVID E., KUHN, M., PRETTNER, K. 2017. Africa's prospects for enjoying a demographic dividend, *Journal of Demographic Economics*. Vol. 83, No. 1, pp. 63-76.

DE HAAS H. 2011. Mediterranean migration futures: Patterns, drivers and scenarios, *Global Environmental Change*, Vol. 21 (Supplement 1), pp. S59–S69, doi:10.1016/j.gloenvcha.2011.09.003.

ETLING, A., BACKEBERG, L., THOLEN, J., 2020. The political dimension of young people's migration intentions: evidence from the Arab Mediterranean region, *Journal of Ethnic and Migration Studies*, Vol. 46, No. 7, pp. 1388-1404. https://doi.org/10.1080/1369183X.2018.1485093

FRONTEX 2015. Annual Risk Analysis 2015. Warsaw: European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union.

KING, R. 2000. Southern Europe in the changing global map of migration. In KING R., LAZARIDIS G. and TSARDANIDIS C. (Eds.), *Eldorado or Fortress? Migration in Southern Europe*, Basingtoke: Macmillan, pp. 1-26.

MARTÍN, I., and BARDAK. U. 2011. The Challenge of Youth Unemployment in the Mediterranean, *Union for the Mediterranean Regional Employment Review*, European Training Foundation.

UNHCR (United Nations High Commissioner for Refugees). Online database on Refugees/Migrants Emergency Response – Mediterranean. Accessed on 4th of May 2022 http://data.unhcr.org/mediterranean/regional.php

WIHTOL DE WENDEN C. 2019. Migration flows in the Euro-Mediterranean region. The challenge of migration and asylum crisis in contemporary Europe and the Global Compact. In FAURI F., MASI A.C., STROZZA S., WIHTOL DE WENDEN C. and STRANGIO D. (Eds.) *Migrations. Countries of migrants. Canada, Italy*, Roma: Edizioni Nuova Cultura, pp. 21-37.

## SUMMARY

Aim of this paper is to provide an analysis of the main migratory flows that occurred in the Mediterranean area during the last seventy years. The analysis provides a synthesis of the main population movements in the region divided into five broad periods. In the first period (1948-1963) the countries of Northern and Western Europe hosted migrants from Southern Europe to help in the after-war reconstruction effort. In the fifth and ongoing period (2011-onward) the "Arab Spring", has radically changed the institutional landscape of the area, triggering non-linear and ongoing regime-change processes and structuring the essence of the current refugee crisis. This new political configuration marks the beginning of the ongoing new era of migration. The periodization will allow to disentangle the main drivers behind international migrations in the area: economic, political, social and demographic factors. Those factors affect not only of the scope and the direction of flows but also of the typology of migrants.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# WHEN "AT THEIR HOME"[1] ALSO MEANS "AT OUR HOME": SURVEY ON THE QUALITY OF THE RECEPTION OF UNACCOMPANIED FOREIGN MINORS IN ITALY

Nidia Batic, Angelica Sandrin

## 1. Premise

The Italian reception system for UASCs (Unaccompanied Foreign Minors) provides for a widespread network of structures throughout the country and intervention programs that accompany these minors until they become of age. However, there is no set path which takes into consideration their needs and wants to help them make the "leap" into adulthood. A research was thus carried out to explore the needs of UASCs who are about to leave the facilities to move to the adult reception system, using a questionnaire divided into six survey areas regarding the well-being of children, their experiences of the welcome reception they received and their plans for the future. The information collected is useful for social workers to support and help minors on their onward path from the reception phase.

## 2. Unaccompanied Foreign Minors in Italy

In our legal system the most complete normative source is the law n. 47/2017, called "Zampa Law"[2], which together with the Directive 2013/33 / EU of the European Parliament[3], defines Unaccompanied Foreign Minor (UASC) as "a minor who does not have Italian or other EU citizenship, has not applied for asylum and is, for any reason, within the territory of the State without care or representation by

[1] *A casa loro (at their home)*, as the original title in Italian predicted, refers to a slogan from years ago of a political campaign of controversy against the immigration process in Italy.
[2]Law 7 April 2017, n. 47 Provisions regarding the protection measures for unaccompanied foreign minors.
[3] Directive 2013/33/EU of the European Parliament and of the Council of 26 June 2013 laying down standards for the reception of applicants for international protection.

their parents or other adults who are legally responsible for them under existing Italian laws"[4].

The main reasons why minors leave their country are attributable to economic factors and / or to reunite with their family or friends (Pandolfi, 2020), for security reasons (Traverso, 2018), or social hardship. They may also be fleeing situations where they are victims of trafficking or child exploitation channels (Bertozzi, 2005; Attanasio, 2016).

In Italy, as of November 30, 2021, it was calculated that there are 11,159 unaccompanied foreign minors within Italian territory. 97.3% of them are Male. The following age distribution was recorded: 62.9% were 17 years old, 23.7% were 16 years old, 8.1% were 15 years old, 5.3% were 14 or below. The main countries of origin were: Bangladesh (24.8%), Tunisia (14.4%), Egypt (13.9%) and Albania (10.5%) (Ministero del Lavoro e delle Politiche Sociali, 2021).

These minors undergo the migration experience mostly by themselves. In most cases they are close to the age of being legally adults so they have little time available to achieve social integration, personal, economic and housing autonomy (Pandolfi, 2020). When minors move away from their country, and therefore from their family, from the social and cultural context, they find themselves in a state of potential vulnerability and fragility (Zannoni, 2020). There are many sources of uncertainty and disorientation; consider simply the difficulties that they may encounter during a career path as well as the difficulties in reconciling their own culture with ours (Fichera and Pitzalis, 2019).

Whatever the motivation to abandon their homeland, they leave behind many certainties: culture, habits, family, and other ties. These changes cause confusion to these minors and their perception of themselves and their identity is undermined, making this period they live in very delicate (Biagioli, 2016). Added to these is the fact that children also find themselves facing their adolescence which is "the age of conflicts and strong personal experimentation, of the incessant fluctuation between the search for independence and the need for certain references" (Zannoni, 2020, p. 30). UASCs must look for these references in a social, cultural and linguistic reality different from their own, and must find their own identity in a society that is not always willing to welcome them (Favaro and Napoli, 2016). The foreign minor is therefore faced with a double detachment: from his/her homeland and from everything he/she has always considered to be "home", and subsequently the

[4] Operational Vademecum for taking charge and welcoming unaccompanied foreign minors, prepared by the Ministry of the Interior (Department for Civil Liberties and Immigration), with the support of the European Asylum Support Office (EASO), and the collaboration of the Department of Public Security, Central Service of the Reception and Integration System (SAI), Ministry of Labor and Social Policies (Directorate General for Immigration and Integration Policies), United Nations High Commissioner for Refugees (UNHCR) and International Organization for Migration (IOM).

abstract detachment from a perception of him(her) self going through the period of greater change (Crotti and Meregalli, 2017).

In the light of these reflections, it appears important that welcoming of minors is oriented towards their well-being, so that they can feel they are in a positive situation of security, support and emotional, mental and social balance.

## 3. Research objectives, tool and method

The initial objective of this research was to investigate the perception of the quality of hospitality by UASC from those present on the Italian territory, through the administration of a questionnaire structured in six general areas aimed at verifying the research hypotheses, namely: nostalgia for one's country (in terms of family ties and cultural aspects), a low degree of integration and training in favour of clear expectations about one's work plans, little availability of opportunities for socialization, a high perception of prejudice and minimal levels of acceptance, dissatisfaction with one's experience of staying in Italy (including life at the reception facility and appreciation for the territory), absence of optimism and hope and conviction regarding the career to be undertaken after leaving the circuit of hospitality.

In the final version, the questionnaire consisted of 32 structured questions with different response methods and with simple language, to avoid misunderstandings.

The questionnaire administration took place between May 24th and September 10th 2021. 57 facilities distributed throughout the country were contacted to ask for their collaboration in administering the questionnaire available online to the minors. 12 structures (equal to 21.1%) collaborated with a total of 95 completed questionnaires (anonymously) on the Google Forms platform. It is assumed that the low percentage of adhesion by the structures is due to the summer period of the research (social operators on vacation) and to the priority of the management of the pandemic between users and staff. Finally, it should be noted that the linguistic difficulties encountered by the children sometimes made the answers inconsistent or difficult to interpret.

Given the methods of selecting the sample and the aims of the research, there is no probabilistic sample; therefore the results of the research cannot be the object of inference for purposes of generalization, but they have provided useful information for the theoretical awareness of what should be the most appropriate educational interventions.

## 4. Data analysis and hypothesis testing

All respondents are male, 75.8% have been in Italy for a maximum of one year and 50.5% turned 18 in 2021. 49.5% of the sample comes from Bangladesh, 20.0% from Albania and 13.7% from Pakistan, while the remaining 16.9% comes from Kosovo, Afghanistan, Egypt, Gambia, Tunisia, Ivory Coast and Mali. Given the small size of the sample, it was not possible to construct significant profiles by country of origin.

### *4.1 Nostalgia for one's own country*

As was to be expected, nostalgia for their country of origin is very high (71.6% between "a lot of nostalgia" and "so much nostalgia"), however 15.8% do not have this type of feeling. Even stronger is the nostalgia for their own family ("a lot" and "a lot") for 89.5% of the children, but there is no relationship between the level of nostalgia and the length of stay in Italy of the children[5].

As Zannoni points out (2020, p. 26) it is necessary to remember that "even after months or years in Italy, suffering persists and on the one hand feeds the experiences of loss, nostalgia and lack for the places and people left behind, by another is the torment for still not feeling integrated".

### *4.2 Integration and training*

The reception system of UASCs has training programs that include the study of the Italian language. The study of the language is a right, a key to understand the new social context and to communicate with the educators and a tool for social and work integration. It also promotes the achievement of autonomy (Save the Children 2017). 77.9% of young people share the interest to learn Italian language for reasons related to the possibility of finding a job (tab. 1).

[5] In order to determine the statistical significance of each different experience of homesickness for one's own family and towards one's own country a statistical test has been conducted to provide evidence. The $\chi^2$ test, with $\alpha = 0.05$, was related to the length of stay of UASCs in Italy. In the subsequent analysis of the data subjected to the $\chi^2$ test, only the values of the tests that are significant will be reported together with the corresponding critical values (for the $\chi^2$ tests, see Ian Diamond and Julie Jefferies, 2006).

**Table 1 –** *Pleasure in studying the Italian language (percentage values)*

| | % |
|---|---|
| Yes, because it allows me to work | 77,9 |
| Yes, because I understand Italians when they speak | 45,3 |
| Yes, because it has a nice sound | 36,8 |
| Yes, because it's easy | 36,8 |
| Yes, because I can read without difficulty | 17,9 |
| I haven't started yet | 4,2 |
| No, because it is difficult to speak | 2,1 |
| No, because it is difficult to write it | 1,1 |

Literacy, training and apprenticeship are necessary tools to achieve one's autonomy, to reduce feelings of anxiety and fear for the future once the period of stay at the reception facilities has ended. At the time of the research, only 4.2% of respondents were engaged in any work activity.

By using a network of friends as an indicator of integration, we discover that 60.0% of these young people have no Italian friends, and this data can be correlated with the length of stay in Italy (Test of $\chi^2 = 16.767$, value critical = 9.488): the boys who have been in Italy for the longest time are those who have the most Italian friends. Friendships with non-Italian children are more widespread: 93.7% of the interviewees have friends from other countries.

### *4.3 Available opportunities for socialization*

To understand the quality of relationships between UASCs and peers, the physical attendance of friends was used as an indicator: some see each other every day (8.4%), 15.8% only at weekends and most (72. 6%), a few days during the week. The most intense relationship which is maintained (or replaced) with friends and family is through the use of the smartphone: 58,9% of young people use it every day and 32.6% "sometimes" a week. Only 5.3% communicate only on weekends (but we do not know if this is a free choice or an organizational need for the interlocutor too). Finally, 3.2% never use it.

When it comes to physical meetings and participation in events (concerts, parties ...) in their own city or in Italy in general, the percentages drop, showing that 74.7% of the sample has never, or almost never, taken part in such initiatives. The reasons for this low participation are not known, and comparing the data on participation in local events and the stay in Italy of minors, there are no differences in behaviour based on the duration of their presence in our country.

*4.4 Prejudice, acceptance and opinions regarding one's experience in Italy*

Tackling the issue of social inclusion means not only counting the number of friends or contacts, but also looking at the psychological experience of young people in relation to the welcoming community. A positive picture of acceptance emerges as 65.3% of UASC perceive that they receive great kindness from the Italians and only 5.3% define omit them as “little” or “not at all” kind. A further indicator of acceptance is the awareness of feeling cheated. Overall, 83.2% of young people do not feel teased by either Italians or non-Italians and only 1 boy (1.1%) feels that they is being targeted by "almost all"; the remaining percentage is divided between those who feel laughed at only by some non-Italians (5.3%) and those who feel laughed at only by some Italians (4.2%) and 6.3% who feel mocked by everyone.

In general, the minors live their Italian experience positively, while dissatisfaction with the welcoming structures is more evident. 64.2% express their experiences in very positive terms, both in relation to the structures and to the country (they are "very" or "indeed very happy”), while 7.4% are “quite” “very” happy, or "extremely" happy to live in Italy but "rather" or "not at all" happy in the specific structure, probably because the reception is perceived as inadequate.

We chose an iconic technique to understand the emotional response of the children towards their own experience as immigrants; the technique was ideal to represent moods without the mediation of words, with the insertion of four images in the questionnaire, two referring to the mood of the minors at the present time (loneliness and solidarity), and two to describe their experience as immigrants in Italy (object of discrimination and inclusion), visible in table 2. 85.3% of the minors in both cases chose images with a more inclusive meaning: this suggests that the experience in Italy includes few episodes of prejudice or discrimination or (ideally) none and that at the time of compilation, the minors were going through a good phase of their life. On the other hand, there is 2.1% of young people (equal to two young people) who feel isolated. 12 respondents, however, (12.6%), although most had a positively defined experience in Italy, felt loneliness at the time of compilation.

Hypothesizing whether the moods and attitudes detected were attributable to the length of stay in Italy, we proceeded with a comparison between the two variables, to discover that there is no significant relationship between them.

**Table 2** – *Evaluation of the perception of one's current state of mind and referring to the immigration experience in Italy.*

| | *Which picture describes how you are doing?* | | |
|---|---|---|---|
| *Which image describes your experience?* |  |  | Total |
|  | 2 | 2 | 4 |
|  | 10 | 81 | 91 |
| Totale | 12 | 83 | 95 |

*Image source: Google Images*

### *4.5 Optimism, hope and future plans*

The well-being of minors can be assessed not only with reference to the social / relational sphere, but also by investigating future projects. 96.9% of the interviewees declared that they want to stay in Italy for various reasons referable to economic factors (87.4% hope to find a job while 5.3% have already found it), linked to reception ("I'm happy" 52. 6%, "Italy is a welcoming country" 32.6%, "I found friends" 23.2%) and safety (43.2%).

The young people who hope to find a job are mostly oriented towards the professions they learn in the vocational courses they have attended. 24.2% largely concern the catering sector (waiter, kitchen help, cook, pizza maker, restaurant help), 10.5% are related to construction (drywall installer, bricklayer, welder) while other trades amount to 21.4% (electrician, plumber, mechanic, barber, carpenter, worker, cleaner). The percentage of undecided people who do not have clear ideas is high (37.3%) while 7.4% said they had never thought about it yet at the time of the interview. The desire to stay in Italy is accompanied by the hope that, once they leave the welcoming community, there will be someone to help them find a job (80.0%) and a house (67.4%). Another significant data is the desire to stay in touch with their educator (45.3%) and with the minors of the community (29.5%), to continue to see their friends (24.2%) and, in general, to have support, presumably psychological and relational (21.1%). Other types of responses that were chosen in a lower percentage are: finding another reception facility (8.4%), moving to another country (4.2%), helping minors who are in the community (1.1%), continue studying (1.1%). Young foreigners have clear ideas about projects for

their future which can be traced back to various categories: 1) well-being of their family, 2) purchase of material goods, 3) sentimental and emotional relationships and plans to form a family, 4) social commitment and 5) self-realization (tab. 3).

**Table 3 –** *Wishes for one's future (percentage values).*

| | % | | % |
|---|---|---|---|
| *1) Well-being of one's family* | | Living with your partner | 28,4 |
| Saving up for my family | 64,2 | Living with friends | 25,3 |
| Bring the family to Italy | 61,1 | Living on my own | 10,5 |
| *2) Purchase of material goods* | | *4) Social commitment* | |
| Buy a car | 60,0 | Promoting the integration of immigrants | 39,0 |
| Save up for myself | 53,7 | Helping other foreign youths | 34,7 |
| Buying a house | 53,7 | Do volunteering work | 27,4 |
| Buy a cellphone | 27,4 | *5) Self-realization* | |
| *3) Affective relationships and projects* | | Travelling | 43,2 |
| Getting married | 52,6 | Continue studying | 26,3 |
| Find a partner | 42,1 | Investing | 1,1 |
| Having children | 41,1 | | |

Perceived fears reconfirm how important work and housing solutions are after they leave the reception circuit (tab. 4).

The third fear these minors experience is that of losing their residence permit (45.3%) due to obstacles or bureaucratic quibbles; this in fact is more worrying than surprising. The issue of money to be sent to the family of origin also covers an important position. The "not knowing where to go" and "feeling lonely" are two fears that demonstrate the need to feel the support from the reception environment, reinforced by the fear of "getting no more help from this facility".

The overall view that can be taken from reading the data that emerged, allows us to understand how well-structured and complex the educational intervention is within the UASC. Examining the information obtained allows us to measure the responsibility of the educator in being a valid guide in the growth of these minors.

**Table 4** – *Fears about one's future (percentage values)*

| | % | | % |
|---|---|---|---|
| *1) Financial fear* | | Not being able to go anywhere else | 6,3 |
| Failing to find work | 70,5 | *4) Lack of references* | |
| Not having enough money | 43,2 | Getting no more help from this facility | 15,8 |
| Not being able to send money to the family | 30,5 | *5) Psychological difficulties* | |
| *2) Affective-relational fears* | | Feeling lonely | 28,4 |
| Failing to find a partner | 10,5 | Not knowing how to deal with problems | 9,5 |
| Failing to make new friends | 7,4 | Not being happy | 6,3 |
| Being rejected/avoided | 4,2 | *6) Learning linguistic difficulties* | |
| *3) Concerns about permanence* | | Failing to finish school | 13,7 |
| Failing to find a home | 47,4 | Not being able to understand the Italian language | 10,5 |
| No longer in possession of a residence permit | 45,3 | *7) Other* | |
| Not knowing where to go | 29,5 | No fear | 6,6 |
| Being sent back to the country of origin | 10,5 | I do not know | 1,1 |

The educational relationship, where the minor is listened to and welcomed, is of vital importance. Acting as a reference adult, allowing the child to grow and acquire relational, linguistic and professional skills, and being a promoter of agency are, among the attitudes that can be implemented, the fundamental actions for a transition to an autonomous adult life.

## 5. Conclusions

The interviewed UASCs strongly feel nostalgia for their country of origin and above all for family ties, nevertheless they have made a choice of emigration to improve their economic conditions and be able to help their family. They are happy to have chosen Italy; they especially hope to find work and show good will for linguistic and training integration. The results of the research therefore open to a series of reflections regarding the present and the future of the UASCs interviewed.

The present is lived in positive terms: they feel welcomed and not discriminated; they have a friendship network made up mostly of foreigners but also Italians. On the other hand, the future is a source of concern and makes us reflect on the fact that, on the threshold of coming of age, these minors project themselves into their near future with very clear and important projects (home, work, family, ...), demonstrating a maturity of thought can be explained through cultural constructs.

The multidisciplinary educational teams present in the reception structures should be aware of the emotional and planning experiences of these minors and they should therefore acquire some specific and necessary skills. First and foremost, they should acquire relational and empathetic skills for an adequate educational intervention (Bugno, 2020) that is not (only) welfarist and controlling (Agostinetto *et al.*, 2018) but oriented to the well-being of the minor (Castiglioni *et al.*, 2020), which must be accompanied by adequate in-depth training on the legal-bureaucratic and regulatory aspects. Last but not least there is also the interrelation between the first or second reception services and the collaboration between the various public, private, human and financial resources (Ricucci, 2018).

These attentions allow us to define the need for an ecological, integrated, global, multidisciplinary and holistic approach (Bianchi, 2016; Traverso, 2018; Salinaro, 2020) on which to root an action of transcultural and intercultural care (Traverso, 2018; Fichera and Pitzalis, 2019). It can therefore be concluded that, alongside the know-how, the team must know the dimension of the know-why, that is, knowing 'to what end' the educational practice itself is oriented: the possibility of providing the minor and the adolescent with the tools for the creation of their independence, for the achievement of their self-determination and for the choice of what is the best definition of themselves (Augelli, 2020; Salinaro, 2020).

## References

AGOSTINETTO L., FIORUCCI M., POLENGHI S. (a cura di) 2018. Diritti Cittadinanza Inclusione, Atti del convegno SIPED (Società Italiana di Pedagogia) presso il Dipartimento di Scienze della Formazione dell'Università degli Studi Roma Tre, Roma, 22 - 23 marzo 2018.

CASTIGLIONI M., AGOSTINETTO L., BOBBO N. 2020. Migrazioni minori. Vulnerabilità, salute e pratica educativa, *Journal of Health Care Education in Practice*, Vol. 2, No. 1, pp. 1-4.

ATTANASIO L. 2016. *Il bagaglio. Migranti minori non accompagnati: il fenomeno in Italia, i numeri, le storie.* Roma: Albeggi Edizioni.

AUGELLI A. 2020. Ascoltare il bisogno di senso dei migranti: per una cura integrale della persona, *Journal of Health Care Education in Practice*, Vol. 2, No. 1, pp. 5-14.

BERTOZZI R. 2005. *Le politiche sociali per i minori stranieri non accompagnati, pratiche e modelli locali in Italia*. Milano: Franco Angeli.

BIAGIOLI R. 2016. Sfide pedagogiche e integrazione scolastica dei minori stranieri non accompagnati. Una ricerca in Toscana, *I problemi della pedagogia*, Vol. 2, pp. 221-248.

BIANCHI L. 2016, Umanizzazione di frontiera. Una teoria grounded per la relazione educativa con i minori stranieri non accompagnati, *Osservatorio Isfol*, VI, n. 1-2, 87- 100.

BUGNO L. 2020. Minori stranieri non accompagnati e well-being: una revisione della letteratura, *Journal of Health Care Education in Practice,* Vol. 2, No. 1, pp. 67-75.

CROTTI M., MEREGALLI D. 2017. Minori stranieri non accompagnati tra confini geografici e umani, *Formazione, lavoro, persona,* Vol. 22, No. VII, pp. 226-236.

DIAMOND I., JEFFERIES J. 2006. *Introduzione alla statistica per le scienze sociali*. Milano: McGraw-Hill.

FAVARO G., NAPOLI M. (Eds.) 2016. *Almeno una stella: un progetto di tutoraggio per gli adolescenti immigrati.* Milano: Franco Angeli.

FICHERA F., PITZALIS S. 2019, Usi sociali dell'antropologia tra clinica ed etnografia. Per una comparazione critica del disagio mentale tra i Minori stranieri non accompagnati, *AM, Rivista della società italiana di antropologia medica*, Vol. 20, pp. 31-62.

MINISTERO DEL LAVORO E DELLE POLITICHE SOCIALI, Direzione Generale dell'Immigrazione e delle Politiche di Integrazione, Divisione II, Report mensile Minori Stranieri Non Accompagnati (MSNA) in Italia, dati al 31 luglio 2021.

PANDOLFI L. 2020. Giovani migranti in viaggio verso l'autonomia: traiettorie biografiche e percorsi educativi. Un'indagine nella regione Sardegna, *Journal of Health Care Education in Practice,* Vol. 2, No. 1, pp. 5-14.

RICUCCI R. 2018. Minori stranieri non accompagnati. Numeri, volti, percorsi. In LONG J. (a cura di) (2018), *Tutori volontari di minori stranieri non accompagnati materiali per l'informazione e la formazione*, Wolters Kluwer, Paesi Bassi, pp. 11-29.

SALINARO M. 2020. Quale tempo per la cura? La relazione nelle pratiche di accoglienza e inclusione dei migranti, *Journal of Health Care Education in Practice,* Vol. 2, No. 1, pp. 15-24.

SAVE THE CHILDREN 2017. *Atlante minori stranieri non accompagnati in Italia, prima di tutto bambini.* Roma.

TRAVERSO A. (Eds) 2018. *Infanzie movimentate. Ricerca pedagogica e progettazione dei contesti di emergenza per minori stranieri non accompagnati.* Milano: Franco Angeli.

ZANNONI F. 2020. Adolescenti immigrati e vulnerabilità: fragilità, patologie e comportamenti a rischio prima, durante e dopo la migrazione, *Journal of Health Care Education in Practice,* Vol. 2, No. 1, pp.25-34.

## SUMMARY

The Italian reception system for UASCs (Unaccompanied Foreign Minors) provides for reception and training programs that lead them, at the age of 18, to officially enter adulthood; however, there is little awareness of taking this status "leap" into consideration. A research was therefore launched which aimed to explore their well-being, the experience in Italy together with their plans for the future.

Between 24 May and 10 September 2021, 57 welcoming communities distributed throughout the country were contacted to ask for collaboration in administering a questionnaire available on Google forms to the minors. 12 structures participated (equal to 21.1%) and in total 95 questionnaires were filled in.

A comforting picture emerged on the reception front: 65.3% perceive great kindness towards them and 85.3% are living the experience in Italy feeling included and accepted. 64.2% are very happy to live in Italy and also in the host structure and they all want to stay in Italy hoping to find a job (87.4%), but they also want to stay because they feel well (52.6%) and the country is welcoming (32.6%). It is significant that 43.2% intend to stay in Italy because they feel safe.

The minors interviewed also have clear ideas for their future: first of all they think about well-being for the family of origin (sending them the savings, getting them to Italy) and then about acquiring material goods (a car, a house). Thirdly, they think about getting married and having children; they also consider engaging themselves in social activities (giving help for the integration of foreigners in Italy, volunteering). Fears for the future are primarily about economic and then emotional concerns, followed by those related to staying in Italy (about the residence permit, repatriation) and finally psychological and personal fears.

The data collection proved to be an opportunity to raise awareness and to emphasize the fundamental importance of the approach taken by the host structures; these structures are the starting point for a life project attentive to the needs of growth, autonomy and independence of UASCs.



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# IS THE PROPORTION OF IMMIGRANT CHILDREN IN ITALIAN SCHOOLS DIRECTLY OR INDIRECTLY ASSOCIATED WITH EDUCATIONAL PERFORMANCES?[1]

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Giuseppe Gabrielli, Alessio Buonomo

## 1. Introduction

International migration is generating a deep demographic transformation, giving rise to the children of immigrants as the fastest growing sector of the youth population in Italy (Gabrielli and Impicciatore, 2022).

The topic of the inclusion of immigrants in the Italian educational system is increasingly important. The segregation of children of immigrants across-schools is a demanding issue in terms of students' educational outcomes (Schneeweis, 2013; Cebolla-Boado and Fernández-Reino, 2021).

However, the relationship between immigrants' concentration at school and educational outcomes is not unique. On one hand, multicultural schools can determine positive effects on the school performance of students, including native ones. In fact, teachers can be facilitated in recognizing the needs of immigrant students if they do not represent a small minority, moreover all students can positively benefit from a multicultural climate, which favors the sharing of traditions and cultures (Schneeweis, 2013). On the other hand, immigrants are at greater risk of belonging to disadvantaged backgrounds (European Commission, 2011). In addition, an excessive proportion of immigrants in the same classes or schools could negatively affect the opportunity to learn the language of the country of destination (Cardinali *et al.*, 2015). Therefore, the concentration of immigrants is generally associated with lower performances (Van der Slik *et al.*, 2006; Cebolla-Boado and Fernández-Reino, 2021), higher risk of school dropout and to a higher probability of behavioral problems in school (Traag and Van der Velden, 2011).

Advancing the current literature, we aim to investigate if and how the proportion of immigrants, enrolled in the lower secondary Italian schools (grade 8), is directly or indirectly associated with the student's performances. We use data

[1] This work is the result of a close collaboration among the authors. As for this version, Buonomo wrote section 1; Gabrielli and Buonomo wrote section 2; Pagliuca, Longobardi and Gabrielli wrote section 3; Longobardi and Pagliuca wrote section 4; Gabrielli wrote section 5.

collected by the National Institute for the evaluation of education and training system (INVALSI) during the school years 2018/19 and 2020/21 and perform a multilevel mediation model that includes factors both at individual and school level.

Bearing in mind the theoretical background described below, we formulate the following research questions:

- RQ1: Is the proportion of immigrants at school associated with educational performances?
- RQ2: Has the school-based parents' participation a mediator role between the proportion of immigrants at school and educational performances?
- RQ3: Does the role of schools' socio-economic context prevail on school's ethnic composition in defining education performances?

## 2. Theoretical background

Ethnic-specific background has a role in determining educational trajectories and outcomes of students. We pointed out the attention on the clustering of students with different migratory backgrounds across schools.

Immigrant students are often overrepresented in socio-economic and cultural disadvantaged contexts, mainly because of their economic constraints. Clapp and Ross (2004) stressed in US the presence of "ghetto schools" concentrated in poor and racially and/or ethnically identified sub-municipal areas and typically attended by socio-economic and cultural disadvantaged students residing nearby because well-educated and affluent families are able to avoid so-called "black schools" by implementing "school flight" strategies (Ichou and Van Zanten, 2019) or by "fleeing" towards private, fee-based schools (Betts and Fairlie, 2003).

At the same time, characteristics of the origin family are also strictly connected to the educational outcomes of descendants, and it is well documented that disadvantaged students have less chance of academic success than more affluent students (Chowdry *et al.*, 2013). This is mainly based on the assumption that investments in education tend to be lower among families with poor socio-economic resources (European Commission, 2011; Blossfeld *et al.*, 2016). The disadvantaged socio-economic background of parents may impede them to support their children in education in terms of school practices, norms, and activities (Pfeffer, 2008) or to provide quality education services for their children (Nesse, 2010). In this perspective, scholars have found that active parents' participation in school-based activities supports the educational success of their children (Castro *et al.*, 2015; Curtis *et al.*, 2021).

In the literature less is known about how the links between school contextual factors and school-based parent participation can jointly shape, directly or indirectly, students' performances (Curtis *et al.*, 2021). In particular, little attention has been paid to the relationship between the compositional features of schools (e.g., concentration of migrants or schoolwide socio-economic disadvantage) and the degrees to which parents participate in school activities or interact with school staff.

For example, Chen and Stevenson (1995) showed that in US the higher performances in mathematics of Asian-American and East Asian students were only indirectly associated to family support and motivation. Greenman (2013) analyzed the direct and indirect effects of peers on educational outcomes in US. Although peers influence immigrant Mexican and Asian-origin students, they may be less susceptible to negative peer influences than native counterpart.

According to the cultural fit hypothesis (Calzada *et al.*, 2015), a higher concentration of co-ethnic students and lower study body diversity may promote school-based parent participation, because it promotes interactions among "similar" parents and boosts positive perceptions of the school environment. However, there are barriers that may inhibit parents' participation in school-based activities: parents' low level of education and of language proficiency, low socio-economic status, working time constraints and poor knowledge of the education system (Mantovani and Gasperoni, 2018). Thus, school concentration of immigrant students may be associated to poor parents' participation because immigrant families are often concentrated at the bottom of the academic achievement distribution and of the socio-economic status (Brunello and Rocco, 2013). In this perspective, it can be hypothesized that the schools' average socio-economic context plays a decisive role in parents' participation but at the same time also in the concentration of students with a migrant background who tend to attend disadvantaged schools (Brandén *et al.*, 2019).

## 3. Data and methods

INVALSI evaluates each year all Italian students at different school levels (primary and secondary education) through standardised tests related to students' achievement in Reading, Mathematics and English. At the same time, INVALSI administers specific questionnaires to the principals and teachers, included in a representative sample of schools and classes, to collect important information related to various aspects of school life, such as management and teaching practices, availability of infrastructure and resources and school climate.

Our analysis draws on the INVALSI data related to the students and principals of the lower secondary school classes (grade 8) in the school years 2018/19 and

2020/21[2]. Our dataset is the result of a merging that involves i) data from the INVALSI school questionnaire filled by school principals, ii) the results from the INVALSI tests assessing mathematical and reading skills, and iii) data related to socio-economic variables collected by the INVALSI student questionnaire. In detail, the analysis was conducted considering the data related to a nationally representative sample of 766 lower secondary school classes (grade 8) with 29.184 students for which the variables obtained from the school principals' questionnaire are available.

Due to the hierarchical data structure, with students (Level-1 units) nested in schools (Level-2 units), we chose a general Multilevel Structural Equation Model (MSEM), that is able to account for both sources of variability (within-school and between-school in our case) and separate between-school and within-school effects, without introducing bias (Asparouhov and Muthén, 2008). The general MSEM model partitions each observed Level-1 variable into two latent (within and between) components (Preacher *et al.*, 2010). In our case, every student-level variable is treated as jointly caused by within- and between-school variation: this means that the observations referring to different students in the same school have to be considered as multiple indicators of the latent school-level construct. In addition, at every level, multiple indicators can be used to reflect an underlying unobserved construct as in the measurement model of a common SEM approach. In these terms, the general MSEM framework appears as a doubly latent model (Marsch *et al.*, 2012).

Consistent with the literature and based on the availability of variables collected by the INVALSI school questionnaire[3], the school-based parent's participation (PP) dimension is measured by the school principal's answers to 13 items (Table 1).

The first four items refer to the interaction between parents and teachers, while the other nine items allow investigating the participation of parents in the activities and organization of the school. These 13 questions were answered on a 4-point Likert-type response option scale (1 = not at all; 2 = little; 3 = to some extent; 4 = a lot). Higher values suggest an higher participation of parents in the various aspects of their children's school life. For the validation of the measurement model, the values of Cronbach's alpha as a reliability index of the latent construct is estimated. A good level of internal consistency of the construct was found since the alpha coefficients is equal to 0.79 and exceeded the recommended 0.70 cut-off.

[2] INVALSI survey was not carried out during school year 2019/2020 because of Covid-19 pandemic.

[3] It is necessary to bear in mind that the parents participation is a multifaceted concept and there is a lot of debate in the literature on how to measure this construct and which aspects to include or exclude. In this perspective, although the INVALSI survey collects several variables relating to specific aspects of parents' participation, the data available does not allow an exhaustive investigation of this concept (ad hoc investigations would be necessary). For example, we have no information on the extent of parental support at home (home-based involvement) but, at the same time, we are not able to measure and analyse the quality of parental involvement which certainly assumes greater importance than the simple quantity.

Table 2 includes the descriptive statistics of the target variables (test scores in reading and mathematics), the proportion of immigrant in the school and a set of exogenous covariates that typically enter Education Production Function (EPF) models (Buchmann and Parrado, 2006), namely: gender, student socio-economic status (ESCS[4]), immigrant status, and four dummies to account for the territorial literacy divide (Quintano *et al.*, 2012) among the Italian geographical areas[5].

**Table 1 -** *Latent construct of school-based parents' participation.*

| Latent construct | Item | Mean | Std. dev. | Cronbach α |
|---|---|---|---|---|
| Parents' participation<br>*The school principal declares to what extent parents participate in the school life of their children:*<br>*1="Not at all"*<br>*2="Little"*<br>*3="To some extent"*<br>*4="A lot"* | Participate in parent meetings | 2.86 | 0.64 | 0.79 |
| | Vote for the election of school council | 2.58 | 0.66 | |
| | Participate in parent-teacher conferences | 3.18 | 0.60 | |
| | Meet the teachers to know progress and behaviours of their children | 3.35 | 0.55 | |
| | Volunteer in building maintenance activities or other outdoor spaces activities | 1.85 | 0.82 | |
| | Discuss the academic achiev. of all the stud. | 2.09 | 0.75 | |
| | Discuss on how to spend the school funds | 2.01 | 0.75 | |
| | Discuss the conditions of school structures and buildings | 2.52 | 0.84 | |
| | Contribute money to the good school perform. | 2.03 | 0.86 | |
| | Volunteer for the good school performance | 2.23 | 0.82 | |
| | Contribute to the definition of school programs | 1.44 | 0.58 | |
| | Participate actively in educational activities | 1.98 | 0.76 | |
| | Discuss the results of the INVALSI asses. tests | 1.67 | 0.69 | |

*Source: our elaborations on INVALSI data, s.y.2018/19 and s.y. 2020/21.*

Gender plays a very important role. Generally speaking, girls perform better than boys in reading but worse in mathematics (Croll, 2009). Ethnic-specific cultural traits play another central role in determining educational trajectories and outcomes of students. Children of immigrants underperform at school respect to native counterpart (Freeney and O' Connel, 2012). Characteristics of origin family and of parents are strictly connected to educational outcomes of descendants. Students have low educational performances because of (on average)

[4] The index of Economic and Social and Cultural Status (ESCS), provided by INVALSI, is used. This index takes into account parents' occupations and education, along with variables that measure home possession goods (see Campodifiori *et al.*, 2010 for details).

[5] The geographical areas are defined as follows: North-West (including Liguria, Lombardia, Piemonte and Valle d'Aosta), North-East (including Emilia Romagna, Friuli-Venezia Giulia, Trentino-Alto Adige and Veneto), Center (including Lazio, Marche, Toscana, and Umbria), South (including Abruzzo, Campania, Molise, Puglia, Basilicata, Calabria, Sardegna and Sicilia).

disadvantaged family background factors (low parents' social class and education, occupational, and income levels – Gabrielli and Impicciatore, 2022). A North-South socio-economic gradient is observed in Italy with more economically developed Northern regions than Southern ones.

The INVALSI metric for the overall reading and mathematics score is based on a mean set at 200 while the scale of ESCS index is standardized to have a mean of 0 and a standard deviation of 1.

The high difference in the sample sizes between the two editions are attributable to the Covid pandemic which resulted in a reduction in the sample of students and schools investigated in the 2020/21 edition.

**Table 2 –** *Descriptive statistics. Mean values (or alternatively relative values) and standard deviation.*

| | Variable | Description | Mean | Std.dev |
|---|---|---|---|---|
| Student level (n=29.184) | Math | INVALSI score in mathematics (outcome variable) | 200.00 | 39.01 |
| | Read | INVALSI score in reading (outcome variable) | 200.00 | 36.40 |
| | ESCS | Index of economic, social and cultural status | 0.00 | 1.00 |
| | Gender | Female | (0.49) | - |
| | | Male (reference category) | (0.51) | - |
| | Immigrant status | Immigrant | (0.11) | - |
| | | Native (reference category) | (0.89) | - |
| School level (n=766) | % Immigrant | Avg. proportion of immigrant students at school | (0.11) | - |
| | School ESCS | Schools' average socio-economic context (ESCS) | 0.00 | 1.00 |
| | Survey edition | 2020/21 | (0.28) | - |
| | | 2018/19 (reference category) | (0.72) | - |
| | Geographical area | North-west area | (0.21) | - |
| | | North-east area | (0.24) | - |
| | | Central area | (0.19) | - |
| | | South area (reference category) | (0.36) | - |

*Source: our elaborations on INVALSI data, s.y.2018/19 and s.y. 2020/21.*

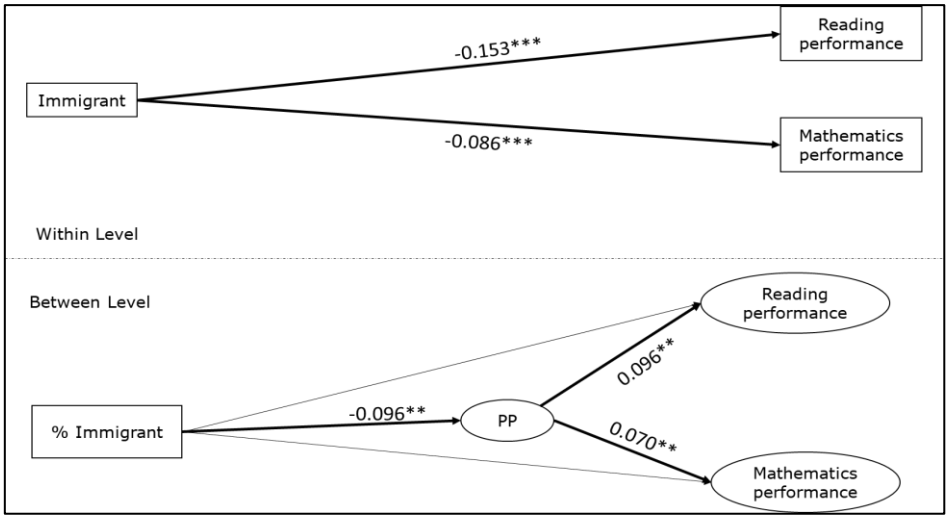
## 4. Results

The results of multilevel SEM with a random intercept are illustrated in Figure 1, where the standardized coefficients are reported and the straight lines reflect significant paths. At the student level, as expected, the paths from immigrant status to achievements are significantly negative. The standardized coefficients of immigrant status, controlling for gender and socio-economic background, are respectively -0.153 for reading and -0.086 for mathematics.

At the school level, the model accounts for 46% and 53% of the variance of the achievements, respectively for reading and mathematics. We found that the proportion of migrants at school is not directly related to students' performances

(neither for reading nor for mathematics). Conversely, there is an indirect negative association of the proportion of immigrants through PP. In detail, the path from the proportion of immigrants to PP is significantly negative (the standardized coefficient is equal to -0.096), while the paths from PP to reading and math performances are significantly positive (the standardized coefficients are respectively 0.096 for reading and 0.070 for mathematics). Higher proportion of immigrant students is significantly associated with lower parents' participation, while higher parents' participation is significantly associated with higher students' performances.

**Figure 1 –** *Multilevel standardized mediation model (MSEM). Coefficients and p-values.*




*Note: PP denotes the Parents' Participation in school activities and organization. The within-level model includes controls for students' gender and the family socio-economic status (ESCS); the between-level model includes controls for the schools' average socio-economic context, geographical area and the survey edition.*
*Source: our elaborations on INVALSI data, s.y.2018/19 and s.y. 2020/21.*

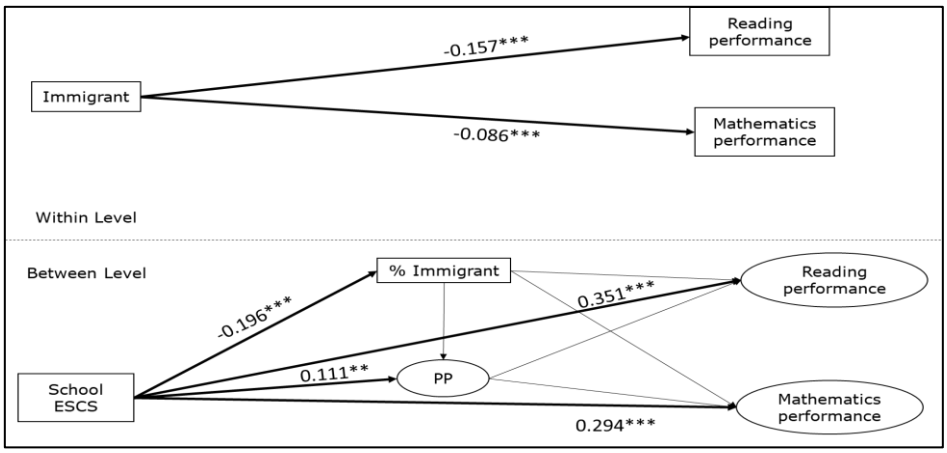
However, the lower parents' participation can be linked not only to the higher proportion of immigrants but also to the lower socio-economic and cultural traits of school, since immigrants are at greater risk of belonging to disadvantaged backgrounds (Brandén *et al.*, 2019). In this perspective, a further MSEM model has been estimated: it emphasizes the role of schools' average socio-economic context (School ESCS) not as a "simple" control variable but as a factor directly associated to educational performances and, at the same time, to the proportion of immigrants and to parents' participation. The model shows (Figure 2) the positive direct association between school ESCS and educational performances (standardized coefficients equal to 0.351 and 0.294 respectively for reading and mathematics). Moreover, there is a significantly negative association (-0.196) between school

ESCS and the proportion of immigrants.

This path highlights a selection process making immigrant students more segregated in socio-economic and cultural disadvantaged schools. At the same time, school ESCS is positively associated with PP (0.111): schools with higher socio-economic and cultural traits are characterized by a higher parents' participation.

Interestingly, the indirect association of proportion of immigrants on educational performances, through school-based parents' participation, becomes no longer statistically significant.

**Figure 2** – *Multilevel standardized mediation model (MSEM) focused on the direct and indirect effect of school socio-economic context. Coefficients and p-values.*




*Note PP denotes the Parents' Participation in school activities and organization. The within-level model includes controls for students' gender and the family socio-economic status (ESCS); the between-level model includes controls for the geographical area and the survey edition.*
*Source: our elaborations on INVALSI data, s.y.2018/19 and s.y. 2020/21.*

## 5. Discussion

Our analyses focused on the direct and indirect links among schools' socio-economic context, school's ethnic composition, school-based parents' participation, and students' performances.

Results don't seem to support the general scientific debate regarding the direct negative effects of migrants' concentration at school on overall students' educational outcomes (RQ1).

However, multivariate results seem to point out, on the one hand, the importance of parents' participation in determining children's educational pathways and, on the other, the lower participation of immigrant parents in their children's

school life. Thus, the proportion of immigrants at school has a significant and negative association with educational performances when mediated through parents' participation in the school life of their children (RQ2).

On the other hand, schools with higher socio-economic and cultural traits are characterized by a lower presence of migrant students and higher parents' participation (conversely, a lower socio-economic school context corresponds to a higher proportion of immigrants and a lower parents' participation).

Consequently, the indirect association of the proportion of immigrants on educational performances, through school-based parents' participation, becomes no longer statistically significant once the role of schools' average socio-economic context is emphasized in the analysis. This result leads us to argue that the role of schools' socio-economic context prevails over the school's ethnic composition in defining the educational performances of students (RQ3).

Our final remarks concern the limitations of our analyses. First, our contribution remains descriptive by considering the association between covariates (or factors) included in the multivariate analysis and the dependent variable. Second, the survey does not collect exhaustive information about origin families and their migratory-related characteristics because the survey design is not focused on migrants and their descendants. This limit prevented us from further stratifying immigrant students. Lastly, the covid pandemic has led to a remodelling of the INVALSI survey, which has been focused on the response of the schools and the teachers to the challenges posed by the pandemic but, at the same time, has left out many aspects of the school life that had previously been investigated. In this light, it will be interesting to include in future analyses other constructs, other than school-based parents' participation, to in-depth the analysis of the indirect role of immigrants' concentration at school on educational performances.

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## References

ASPAROUHOV T., MUTHÉN B. 2018, *SRMR in Mplus.* Available at: https://www.statmodel.com/download/SRMR2.pdf

BETTS J. R., FAIRLIE R. W. 2003. Does Immigration Induce' Native Flight' from Public Schools into Private Schools?, *Journal of Public Economics*, Vol. 87, pp. 987-1012.

BLOSSFELD H. P., BUCHHOLZ S., SKOPEK J., TRIVENTI M. (Eds.) 2016. *Models of Secondary Education and Social Inequality: An International Comparison*. Cheltenham, UK: Edward Elgar.

BRANDÉN M., BIRKELUND G. E., SZULKIN R. 2019. Ethnic composition of schools and students' educational outcomes: evidence from Sweden, *International Migration Review*, Vol. 53, No. 2, pp. 486-517.

BRUNELLO G., ROCCO L. 2013. The effect of immigration on the school performance of natives: Cross country evidence using PISA test scores, *Economics of Education Review*, Vol. 32, pp. 234-246.

BUCHMANN, C., PARRADO, E.A. 2006. Educational achievement of immigrant-origin and native students: a comparative analysis informed by institutional theory. In: BAKER, D.P., WISEMAN, ALEXANDER W. (eds.) *The Impact of Comparative Education Research on Institutional Theory*, Bingley: Emerald Group Publishing Limited, pp.335–366.

CARDINALI P., MIGLIORINI L., ANDRIGHETTO L., RANIA N., VISINTIN E. P. 2015. Improving academic attitudes among ethnic minority youth at risk for early school leaving: the interactive effects of cross-group friendships and ethnic identity, *Journal of Applied Social Psychology*, Vol. 46, No. 5, pp. 294-301.

CALZADA E. J., HUANG K.-Y., HERNANDEZ M., SORIANO E., ACRA C. F., … BROTMAN, L. 2015. Family and teacher characteristics as predictors of parent involvement in education during early childhood among afro-Caribbean and Latino immigrant families, *Urban Education*, Vol. 50, No. 7, pp. 870–896.

CAMPODIFIORI, E., FIGURA, E., PAPINI, M., RICCI, R. 2010. Un indicatore di status socio-economico culturale degli allievi della quinta primaria in Italia. *Working Paper 2, INVALSI.*

CASTRO M., EXPOSITO-CASAS E., LOPEZ-MARTÍN E., LIZASOAIN L., NAVARRO-ASENCIO E., GAVIRIA J. L. 2015. Parental involvement on student academic achievement: A meta-analysis, *Educational Research Review*, Vol. 14, pp. 33–46.

CEBOLLA-BOADO H., FERNÁNDEZ-REINO M. 2021. Migrant Concentration in Schools and Students' Performance: Does It Matter When Migrants Speak the Same Language as Nonmigrant Students?, *American Behavioral Scientist*, Vol. 65, No. 9, pp. 1206-1221.

CHEN C., STEVENSON H. W. 1995. Motivation and mathematics achievement: A comparative study of Asian-American, Caucasian-American, and East Asian high school students, *Child development*, Vol. 66, No. 4, pp. 1215-1234.

CHOWDRY H., CRAWFORD C., DEARDEN L., GOODMAN A., VIGNOLES

A. 2013. Widening Participation in Higher Education: Analysis Using Linked Administrative Data, *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, Vol. 176, pp. 431–457.

CLAPP J. M., ROSS S. L. 2004. Schools and Housing Markets: An Examination of School Segregation and Performance in Connecticut, *The Economic Journal*, Vol. 114, pp. 425-440.

CROLL P. 2009. Educational participation post-16: A longitudinal analysis of intentions and outcomes, *British Journal of Educational Studies*, Vol. 57, No. 4, pp. 400-416.

CURTIS K., ANICAMA C., ZHOU Q. 2021. Longitudinal relations among school context, school-based parent involvement, and academic achievement of Chinese American children in immigrant families, *Journal of School Psychology*, Vol. 88, pp. 1–17.

EUROPEAN COMMISSION. 2011. *Reducing early school leaving*. Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2011:0096:FIN:EN:PDF

FREENEY Y., O'CONNELL M. 2012. The predictors of the intention to leave school early among a representative sample of Irish second-level students, *British educational research journal*, Vol. 38, No. 4, pp. 557-574.

GABRIELLI G., IMPICCIATORE R. (Eds.). 2022. Children of Immigrants in Southern Europe: Overcoming Ethnic Penalties, *Journal of Ethnic and Migration Studies*, Vol. 48, No. 10.

GREENMAN E. 2013. Educational attitudes, school peer context, and the "immigrant paradox" in education, *Social Science Research*, Vol. 42, No. 3, pp. 698-714.

ICHOU M., VAN ZANTEN A. 2019. France: The Increasing Recognition of Migration and Ethnicity as a Source of Educational Inequalities. In STEVENS A. J. and DWORKIN A. G. (Eds.) *The Palgrave Handbook of Race and Ethnic Inequalities in Education*, London: Palgrave Macmillan, pp. 511-558.

MANTOVANI D., GASPERONI G. 2018. Native and Immigrant Parents' Involvement in School-Related Activities in France and Italy, *Italian Journal of Sociology of Education*, Vol. 10, No. 3, pp. 110-139.

MARSCH, H., LÜDTKE, O., NAGENGAST, B., TRAUTWEIN, U., MORIN, A., ABDULJABBAR, A., et al. 2012. Classroom climate and contextual effects: Conceptual and methodological issues in the evaluation of group-level effects. *Educational Psychologist*, Vol. 47, pp. 106–124

Network of Experts in Social Sciences of Education and Training – NESSE. 2010. Early school leaving: Lessons from research for policy makers. An independent expert report submitted to the EU Commission. Available online at: http://www.nesse.fr/nesse/activities/reports/activities/reports/early-school-leaving-report, last-visited 15 July 2022.

PFEFFER F. T. 2008. Persistent inequality in educational attainment and its institutional context, *European Sociological Review*, Vol. 24, pp. 543–565.

PREACHER K. J., ZYPHUR M. J., ZHANG Z. 2010. A general multilevel SEM framework for assessing multilevel mediation, *Psychological Methods*, Vol. 15, pp. 209-233.

QUINTANO C., CASTELLANO R., LONGOBARDI S. 2012. The effects of socio-economic background and test-taking motivation on Italian students' achievement, in DI CIACCIO A., COLI M., ANGULO J.M. (Eds.) *Advanced Statistical Methods for the analysis of large datasets, series Studies in Theoretical and Applied Statistics*, Springer: Berlin

SCHNEEWEIS N. 2013. Immigrant Concentration in Schools: Consequences for Native and Migrant Students, *Labour Economics*, Vol. 35, pp. 63-76.

TRAAG T., VAN DER VELDEN R. K. W. 2011. Early school-leaving in the Netherlands: The role of family resources, school composition and background characteristics in early school-leaving in lower secondary education, *Irish Educational Studies*, Vol. 30, No. 1, pp. 45-62.

VAN DER SLIK F. W., DRIESSEN G. W., DE BOT K. L. 2006. Ethnic and socio-economic class composition and language proficiency: A longitudinal multilevel examination in Dutch elementary schools. *European Sociological Review*, Vol 22, No. 3, pp. 293-308.

## SUMMARY

Advancing the current literature, we aim to investigate if the proportion of immigrants, enrolled in the lower secondary Italian schools (grade 8), is, directly or indirectly, associated to mathematical and reading skills of students. Due to the hierarchical structure of INVALSI data, collected during school years 2018/19 and 2020/21, we perform a multilevel standardized mediation analysis. This approach includes a measurement and structural model at both individual and school level, with random slopes and intercepts. Our results don't seem to support the general scientific debate regarding the direct negative effects of migrants' concentration at school on students' educational performances. Conversely, an indirect effect, mediated by school-based parents' participation, is observed. However, this effect becomes no more statistically significant once the role of schools' average socio-economic context is emphasized in the analysis. This result leads us to argue that the role of schools' socio-economic context prevails on school's ethnic composition in defining education performances of students.

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# iFeel
# A TOOL FOR STUDYING THE EFFECT OF THE PANDEMIC AND THE LOCKDOWN ON SOCIO-ECONOMIC BEHAVIOURS

Stefania M.L. Rimoldi, Antonella Zambon, Dario Pescini, Alessandro Avellone

## 1. Introduction

In the early months of 2020, Italy had to face the spread of Covid-19, by intensifying the preventive public health and social distancing measures initially in some restricted areas, and gradually extended to the entire territory, up to the lockdown on 11 March 2020. The pandemic and the lockdown have changed people's lives with important economic, social and health implications. Several studies conducted during the acute phase of the pandemic revealed the negative impact on business and economic outcomes of Italian families. Other surveys showed how Italians have been affected by feelings such as anxiety, boredom, loneliness, panic, and the quality of sleep.

Now that the acute phase has finished it is interesting to measure if and to what extent some attitudes/behaviours and upsets that occurred during the acute phase have persisted over time, or if they have changed, both in an evolutionary and involutional sense, over a short and medium-term period.

In this paper we present the experience of a pilot study that aimed at measuring the impact of the pandemic and the lockdown on the socio-economic behaviour of the Italian population in the short and medium term, by conducting a survey with a smartphone APP. The research design is proposed as a framework to collect longitudinal data, in order to measure the impact of an event as a change over time in the behavioural profile of individuals in everyday life. We also present some analyses on a first extraction of data (in November 2021), with the aim of illustrating the potentiality of the framework proposed.

## 2. Data and methods

### *2.1. Research design*

The target population is represented by the Italian population aged 14 or over[1]. The survey design is of a longitudinal observational type with repeated measurements during the first year after lockdown, ideally every two months. The survey was conducted by the smartphone APP "iFeel", developed with the ANDROID system. The app was launched by the Communication Office of the University of Milan - Bicocca through institutional social media (Facebook, Twitter, etc.). The survey detected some socio-demographic variables related to the pre and post lockdown. At each measurement, both the current attitude/behaviour and the expected one in the short (two-month window) and long-term (one-year window) were detected. The difference between what the respondent projected and what was achieved in the period considered provides a measure of the gap between observed and expected behaviours.

The framework for recording responses to questionnaires provided by respondents has a one-way client (APP) server (cloud) architecture, to ensure the safety and anonymity of the respondents while preserving the possibility of analysing time series of the same individual. The choice to use smartphones as a client is due to their diffusion, their pervasiveness in daily life and the ease of use to fill out a questionnaire.

The survey is composed of two questionnaires: the first must be filled in just the first time, the second questionnaire is proposed each time the respondent decides to participate. The first questionnaire includes socio-demographic questions: age, gender, zip-code, household size, number of minor children in the household, presence of disabled in the household, and, finally, whether the respondent had been working during the lockdown. The second questionnaire is composed of three sections: the first section aims to capture the discomfort generated by the epidemic (occupational status, having a general discomfort thinking of Covid, having trouble sleeping because of Covid, having contracted Covid, knowing people who came down with Covid, having relatives or friends who died for Covid, changes in working intensity and in economic situation, expectations about future working and economic difficulties, opinions on loosening family and friends relations, and the sense of loneliness); the second section focuses on on-line purchasing behaviours

[1] The App was initially addressed to the students of the University of Bicocca, however, it was launched through social media (such as Facebook, Twitter and so on) by the Communication Office of the University, therefore it reached people outside the community of the University and its territory.

during the lockdown and intentions to maintain new habits (technology, food, medicines, books music and films, banking insurance and postal services, catering); the third section is meant to detect opinions about constraints and opportunities for own life provided by the pandemic (to critically reconsider aspects of own life, to increase skills and competences in the use of technology, to discover new opportunities for lifestyle improvement, to rediscover relationships and friendships, and to imagine new job opportunities), and to evaluate sentiments about the short/long-term future (fear, uncertainty, opportunity, reconstruction, community, solidarity, poverty, inequality, sustainability, inconsistency).

### *2.2. Methods used in the analyses*

To illustrate the potentiality of the framework proposed we analyse three issues addressed in the questionnaire: first, the sense of loneliness following the lockdown, second, we examine the changes in expectations over time about future working situation, own economic situation, and economic situation of family by comparing the first and the last responses given by the respondents, and, finally, we analyse the respondents' sentiments about short and long-term future.

The first item is addressed by applying a robust Poisson regression model to the dichotomous variable "Are you feeling more alone, compared to before the epidemic?". We selected the following covariates: 'Gender', coded "Man" (reference) and "Woman"; 'Age class', coded "< 20", "20-30", "30-40", "40-50", "50-60", "60 or over"; 'Occupational status' at the interview, coded "Working" and "Other"; the dichotomous variables 'Minor children in the household, 'Family relations' (worsened after the lockdown); 'Labour reduction' (after the lockdown); 'Income reduction'; and finally, 'Discomfort score', ranging 0-5, built as the sum of positive answers to having a general discomfort thinking of Covid, having trouble sleeping because of Covid, having contracted Covid, knowing people who came down with Covid, having relatives or friends who died for Covid. Poisson regression was preferred to the logistic regression due to high frequency of outcome and since the prevalence ratio is more interpretable and easier to communicate to non-specialists than the odds ratio (Barros and Hiraka, 2003; Chen *et al*., 2018). We used a robust estimator for the standard errors to take into account the correlation between repeated measurements.

The second item (i.e., change in expectations over time) is analysed by adopting the method of decomposition of the contingency table of each variable in times 1 and 2 in multiplicative components of the saturated log-linear model, traditionally applied to spatial migration flows in a closed system (Rogers *et al.*, 2002a, 2002b; Rogers *et al.*, 2010; Raymer and Rogers, 2007; Raymer *et al.*, 2006). Here we

transform transition in space to transition in time. Therefore, a contingency table that describes the transition flows $n_{ij}$ from time 1 (O = origin) to time 2 (D = destination), with *i* and *j* the categories of the variable can be reproduced by a saturate log-linear model as in equation (1):

$$n_{ij} = T \cdot O_i \cdot D_j \cdot OD_{ij} \quad (1)$$

Where *T* is the total number of responses ($T = \sum_i \sum_j n_{ij}$), and represents the overall level of responses, $O_i$ and $D_j$ are the proportion of responses to the *i*-th category in time 1 (origin effect), and the proportion of responses to the *j*-th category in time 2 (destination effect), respectively.

Then,

$$OD_{ij} = n_{ij} / \left(T \cdot O_i \cdot D_j\right) \quad (2)$$

The interaction component $OD_{ij}$ is defined as the ratio of an observed flow of responses from category *i* to category *j*, and the expected flow in the case of no interaction. Interactions greater than one (case of independence) mean association between $O_i$ and $D_j$. Decomposition adopt the total sum reference coding (Raymer and Rogers, 2007; Rogers *et al.*, 2010).

For the third item, (respondents' sentiments about short and long-term future) we used simple descriptive statistics to compare the share of preferences conferred in first and last responses, to the following words: fear, uncertainty, opportunity, reconstruction, community, solidarity, poverty, inequality, sustainability, inconsistency.

## 3. Results

### *3.1. Characteristics of the sample*

In November 2021 a first extraction from the data set counts 330 responses, corresponding to 189 individuals (Table 1). Of them, only 83 gave 2 responses.

Although of extremely limited size, the sample extracted looks quite balanced as for the main structural characteristics (Table 2).

**Table 1 –** *Frequency distribution of individuals by number of responses*.

| N. responses | N. Individuals | N. ind. cum. | % cum. |
|---|---|---|---|
| 1 | 106 | 189 | 100.0 |
| 2 | 25 | 83 | 43.9 |
| 3 | 51 | 58 | 30.7 |
| 4 | 4 | 7 | 3.7 |
| 5 | 3 | 3 | 1.6 |
| Total | 189 | | |

**Table 2 –** *Socio-demographic characteristics of the individuals.*

| | | Freq. | % |
|---|---|---|---|
| Gender | Women | 108 | 57.1 |
| | Men | 81 | 42.9 |
| Age class | < 25 | 56 | 29.6 |
| | 25 – 34 | 32 | 16.9 |
| | 35 – 54 | 75 | 38.6 |
| | 55 – 64 | 5 | 2.6 |
| | >= 65 | 23 | 12.2 |
| Working condition | Student | 72 | 38.1 |
| | Self-employed | 18 | 9.5 |
| | Employee | 80 | 42.3 |
| | Retired | 12 | 6.3 |
| | Unemployed | 1 | 0.5 |
| | Other | 6 | 3.2 |
| Family size | 1 | 8 | 4.2 |
| | 2 | 38 | 20.1 |
| | >=3 | 134 | 75.7 |
| Minors in household | Yes | 82 | 43.3 |
| | No | 107 | 56.6 |
| Disabled in household | Yes | 24 | 12.7 |
| | No | 165 | 87.3 |
| Total obs. | | 189 | 100.0 |

### *3.2. Some results*

We analyse three issues addressed in the questionnaire: first, the sense of loneliness following the lockdown, second, we examine the changes in expectations over time about future working situation, own economic situation, and economic situation of family by comparing the first and the last responses given by the respondents, and, finally, we analyse the respondents' sentiments about short

and long-term future. As aforementioned, these analyses are of illustrative purposes of the potentiality of the framework proposed.

We first analysed the sense of loneliness that arose or worsened due to the lockdown. Table 3 reports the descriptive statistics of the variables used in the analysis. We considered the first answer to the outcome variable 'Are you feeling more alone, compared to before the epidemic?'.

**Table 3 –** *Frequency distribution of first responses: covariates by dependent variable (%).*

| | | Are you feeling more alone compared to the epidemic? | | |
|---|---|---|---|---|
| Variables | | Yes | No | Total |
| Gender | Women | 67.7 | 46.9 | 57.1 |
| | Men | 32.3 | 53.1 | 42.9 |
| Age class | < 20 | 10.8 | 4.2 | 12.7 |
| | 20 - 30 | 37.6 | 34.4 | 32.3 |
| | 30 - 40 | 6.5 | 9.4 | 9.0 |
| | 40 - 50 | 20.4 | 18.8 | 20.1 |
| | >= 50 | 24.7 | 33.3 | 25.9 |
| Working condition | Working | 44.1 | 59.4 | 51.9 |
| | Other | 55.9 | 40.6 | 48.1 |
| Minors in household | No | 49.5 | 63.5 | 56.6 |
| | Yes | 50.5 | 36.5 | 43.4 |
| Family relations worsened | No | 69.9 | 88.5 | 79.4 |
| | Yes | 30.1 | 11.5 | 20.6 |
| Family size | No | 53.8 | 75.0 | 64.6 |
| | Yes | 46.2 | 25.0 | 35.4 |
| | No | 65.6 | 65.6 | 70.9 |
| Labour activity reduction | Yes | 34.4 | 24.0 | 29.1 |
| | 0 | 1.1 | 12.5 | 6.9 |
| Income reduction | 1 | 17.2 | 24.0 | 20.6 |
| | 2 | 41.9 | 41.7 | 41.8 |
| Discomfort score [(a)] | 0 | 1.1 | 12.5 | 6.9 |
| | 1 | 17.2 | 24.0 | 20.6 |
| | 2 | 41.9 | 41.7 | 41.8 |
| | 3 | 24.7 | 12.5 | 18.5 |
| | 4 | 7.5 | 7.3 | 7.4 |
| | 5 | 7.5 | 2.1 | 4.8 |
| Total obs. | | 93 | 96 | 189 |

*Notes.(a) the discomfort score is built as the sum of positive answers to having a general discomfort thinking of Covid, having trouble sleeping because of Covid, having contracted Covid, knowing people who came down with Covid, having relatives or friends who died for Covid*

Results of robust Poisson regression model applied to the dependent variable 'Are you feeling more alone, compared to before the epidemic?' (Table 4) show that, holding the other variables constant, women are significantly much likely to

feel increasing alone after the lockdown, than men (the prevalence ratio for women is 1.776 the p.r. for men). Age is not significant. Working is a protective factor against the sense of increasing loneliness (the prevalence ratio for who do not work is 1.523 the p.r. for those who work). The presence of minor children in the household is not significant. The reduction of family relations and labour activity have substantial impact on increasing loneliness (the p.r. for those who have gone through these experiences are respectively 1.402 and 1.502 the p.r. of the others). Conversely, income reduction is not significant. Finally, the more the sense of discomfort caused by the Covid, the higher the sense of increased loneliness.

**Table 4 –** *Results of the robust Poisson regression. Prevalence Ratios. Response variable: "Are you feeling more alone, compared to before the epidemic?" (reference "No").*

| Variables | | p.r.. |
|---|---|---|
| Gender (ref. Men) | Women | 1.776*** |
| Age class (ref. <20) | 20 - 30 | 0.875 |
| | 30 - 40 | 0.954 |
| | 40 - 50 | 1.276 |
| | >= 50 | 0.922 |
| Working condition (ref. Working) | Other | 1.523** |
| Minors in household (ref. No) | Yes | 1.197 |
| Family relations worsened (ref. No) | Yes | 1.402** |
| Labour activity reduction (ref. No) | Yes | 1.552*** |
| Income reduction (ref. No) | Yes | 0.801 |
| Discomfort score | 0 | 1.156** |
| Constant | 4 | 0.153*** |
| N. Observations | | 189 |

**** p<0.01. ** p<0.05. * p<0.1*

Then, in we analysed the variables 'Expectations about work', 'Expectations about own economic changes in expectations about future working situation, own economic situation, and economic situation of family by comparing the first and the last responses difficulties', and 'Expectations about the economic difficulties of the family' are coded as "worsening", "stability" and "improvement". From Table 5 we can draw interesting features. In the general framework where stability prevails in both the two times observed, expectations improve over time: the effect of "worsening" decreases for the three domains (from 0.266 to 0.127 for work, from 0.203 to 0.139 for own economic difficulties, and from 0.190 to 0.165 for

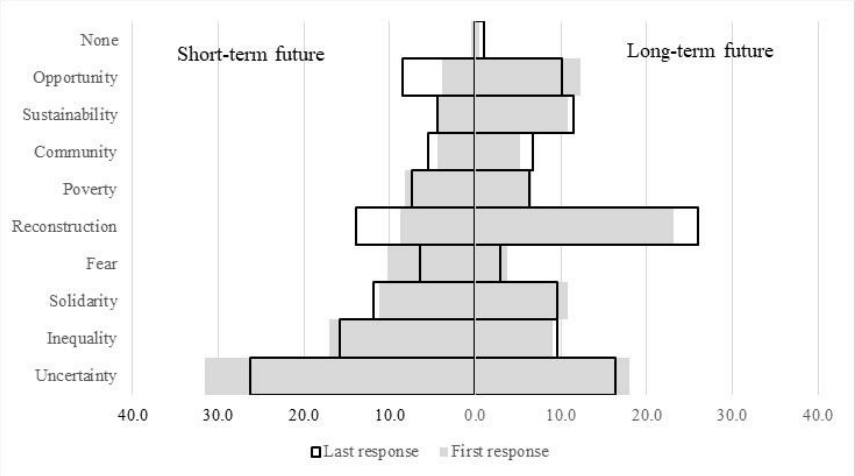
family difficulties), while the effect of "improvement" increases, as well for the three domains. Examining the interactions, it is interesting to notice the positive effects "worsening-improvement" for own economic-difficulties, and for the economic difficulties of the family, and "stability-improvement" for work. These results suggest that the negative impact of the lockdown on the expectations tends to reduce over time.

Finally, we analysed the sentiments about the short/long-term future (fear, uncertainty, opportunity, reconstruction, community, solidarity, poverty, inequality, sustainability, inconsistency).

**Table 5 –** *Multiplicative components of the saturated log-linear model for the contingency table first response-last response, using total sum reference coding.*

| First response | | Last response | | | |
|---|---|---|---|---|---|
| | | Worsening | Stability | Improvement | Total |
| Expectations about work | Worsening | 1.505 | 0.926 | 0.940 | 0.266 |
| | Stability | 0.817 | 1.027 | 1.022 | 0.734 |
| | Improvement | - | - | - | - |
| | Total | 0.127 | 0.823 | 0.051 | 79 |
| Expectations about own economic difficulties | Worsening | 2.244 | 0.748 | 2.469 | 0.203 |
| | Stability | 0.706 | 1.060 | 0.648 | 0.772 |
| | Improvement | 0.000 | 1.197 | 0.000 | 0.025 |
| | Total | 0.139 | 0.835 | 0.025 | 79 |
| Expectations about the economic difficulties of the family | Worsening | 2.836 | 0.576 | 2.633 | 0.190 |
| | Stability | 0.570 | 1.099 | 0.617 | 0.810 |
| | Improvement | - | - | - | - |
| | Total | 0.165 | 0.810 | 0.025 | 79 |

**Figure 1 –** *Frequency distribution of first and last responses to the question "Choose at most three words, among those listed, that come to mind, thinking about the future". % over total responses.*




*Note: words are ordered by increasing share in first response.*

Figure 1 compares first and last responses. As far as the first response is concerned, the pessimistic feelings predominate in the short-term future: the sense of uncertainty, followed by the feeling of increasing inequality and poverty; conversely, fear (presumably related to health) appears to play a minor role. In the long-term future people are more confident; it emerges the importance of the positive feelings of reconstruction, opportunity, and sustainability. Looking at the last response, we observe the negative feelings shrinking, both in short- and long-term future, and the positive feelings expanding, especially the feeling of reconstruction.

## 4. Conclusions

The paper proposes a framework of research based on the adoption of the technique of survey by an instant app to collect longitudinal data. In this pilot study, the aim was to capture the impact of an unexpected and sudden event that modify the daily lives of people, such as the Covid pandemic. In this circumstance, the app *iFeel* is devoted to the consequences of the pandemic and the lockdown on the socio-economic behaviour of the Italian population in the short and medium-term.

The potentiality of the tool is supported by the results of some analyses: socio-demographic characteristics of people (working, being female, and having experienced the event on oneself) determine the magnitude of the impact on loneliness; over time, the negative impact of the lockdown on the expectations tends to reduce, confirming the hypothesis of adaptation to critical circumstances; optimism about the future demonstrates the desire for resilience in the face of an event, albeit dramatic.

However, the tool proposed has some critical limitations. First, the survey does not follow a sampling design, and this prevents from proposing results that are representative of the population, unless a very high number of interviewees is reached, and post-stratification weight are applied. Second, respondents are free to respond or not in the following times after the first, therefore the number of multiple responses for individual decreases over time.

In order to contain the limitations described, some precautions can be used such as, for example, an invitation message to recompile the questionnaire at the appropriate deadlines. Moreover, the use of this tool must be accompanied by an appropriate communication campaign addressed to increase diffusion and awareness of importance of results among people involved in the project.

Finally, based on the evidence of an ongoing research on another subject, we found that this tool can be more effective when applied to specific populations (such as a school or a set of working domains, for example), where the research team can control and stimulate the adhesion to the project.

## References

BARROS A. J., HIRAKATA V. N. 2003. Alternatives for logistic regression in cross-sectional studies: an empirical comparison of models that directly estimate the prevalence ratio, *BMC medical research methodology*, Vol. 3, No. 1, pp. 1-13.

CHEN W., QIAN L., SHI J., FRANKLIN M. 2018. Comparing performance between log-binomial and robust Poisson regression models for estimating risk ratios under model misspecification, *BMC medical research methodology*, Vol 18, No. 1, pp. 1-12.

RAYMER J., BONAGUIDI A., VALENTINI A. 2006. Describing and projecting the age and spatial structures of interregional migration in Italy, *Population, Space and Place*, Vol. 12, No. 5, pp. 371-388.

RAYMER J., ROGERS A. 2007. Using age and spatial flow structures in the indirect estimation of migration streams, *Demography*, Vol. 44, No. 2, pp. 199-223.

ROGERS A., LITTLE J., RAYMER J. 2010. *The indirect estimation of migration: Methods for dealing with irregular, inadequate, and missing data*, Vol. 26. Springer Science & Business Media.

ROGERS A., RAYMER J., WILLEKENS F. 2002a. Capturing the age and spatial structures of migration, *Environment and Planning A*, Vol. 34, No. (2), pp. 341-359.

ROGERS A., WILLEKENS F., LITTLE J., RAYMER J. 2002b. Describing migration spatial structure, *Papers in Regional Science*, Vol. 81, No. 1, pp. 29-48.

**SUMMARY**

In the early months of 2020, Italy had to face the spread of Covid-19, by intensifying the preventive public health and social distancing measures initially in some restricted areas, and gradually extended to the entire territory, up to the lockdown on 11 March 2020. The pandemic and the lockdown have changed people's lives with important economic, social and health implications. In this paper we present the experience of a pilot study that aimed at measuring the impact of the pandemic and the lockdown on the socio-economic behaviour of the Italian population in the short and medium term, by conducting a survey with a smartphone APP. The research design is proposed as a framework to collect longitudinal data, in order to measure the impact of an event as a change over time in the behavioural profile of individuals in everyday life. The survey has detected some socio-demographic variables related to the pre and post lockdown. At each measurement, both the current attitude/behaviour and the expected one in the short (two-month window) and long term (two-year window), have been detected. The survey is composed of two questionnaires: the first must be filled in just the first time, and the second questionnaire is proposed each time the respondent decides to participate. In November 2021 a first extraction from the data set counts 330 responses, corresponding to 189 individuals. In this paper we present some analyses od these data, with only illustrative purposes of the potentiality of the framework proposed. The potentiality of the tool is supported by the results of some analyses: socio-demographic characteristics of people (working, being female, and having experienced the event on oneself) determine the magnitude of the impact on loneliness; over time, the negative impact of the lockdown on the expectations tends to reduce, confirming the hypothesis of adaptation to critical circumstances; optimism about the future demonstrates the desire for resilience in the face of an event, albeit dramatic. Although potentially very informative, the tool proposed has critical limitations: first, the survey does not follow a sampling design, and second, respondents are free to respond or not, in the following times.

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# AGEING POPULATION IN ITALY: A SPACE-TIME ANALYSIS

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## 1. Introduction and aim

Population ageing, defined as the increase of the old population in comparison to the rest of the population, particularly the young component, is one of the most relevant demographic phenomena of this century (Bloom and Luca, 2016). The demographic factors that have led to the ageing of populations in several Western countries mainly originate from the improvements in survival and the ability to control the desired number of children (Golini, 2003). Indeed, population ageing is the result of relevant changes in demographic behaviours. On the one hand, progress in increasing life expectancy has led to people reaching previously unimaginable ages and thus has resulted in an absolute increase in the number of elderly people (WHO, 2020). On the other hand, the continuous decline in fertility rates, determined not only by individuals' wishes but also by social changes and difficulties in having many children, caused a decline of births and younger people (Golini, 1998). Furthermore, this decrease has led to a reduction in the generations of women in childbearing age which in turn has led and will continue to lead to a decline in births. All these dynamics together have determined an ever-increasing elderly population. These demographic (permanent) shocks are common factors across Western countries as well as across regions within each country. Nevertheless, there are typically socio-economic factors (such as availability of public and social services, presence of tertiary sector and others) as well as exogenous land features (altitude, proximity to the sea, accessibility, and so on) which idiosyncratically characterise each territory or region and contribute to determine a large spatial heterogeneity in population ageing.

The number of elderly people (conventionally people aged more than 65) is increasing and will increase in several developed countries, but Italy is one of the countries in the world where the phenomenon has been fastest and most intense (Golini, 1997). The Italian population over 65 increased from 18.7% to 22.9% between 1.1.2002 and 1.1.2019. The ageing index, the ratio between the old population aged more than 65 year and the younger population under 15 years, was 131.7 on 1.1.2002 and it reached the value of 174.0 old people for 100 young people on 1.1.2019. The Italian population is the oldest in the European context,

and the second in the world after Japan (Eurostat, 2021). This strong increase in ageing in Italy over the last 20 years has also been accompanied by a strong spatial heterogeneity: by looking at the major socio-economic regional level (NUTS-1 spatial units under Eurostat classification)[1], the ageing index in the South was equal to 94.3 on 1.1.2002 and 154.4 on 1.1.2019, while it was 157.7 at the beginning of the period and 184.5 at the end in the North-West. Obviously, this heterogeneity increases by using more detailed spatial units. At provincial level (NUTS-3), the ageing index ranged from 108.3 in the Naples (South), to 157.8 in Trieste (North-East) on 1.1.2002, while it ranged from 116.4 to 267.7 in the same provinces on 1.1.2019. Using the lowest administrative territorial level, the Italian municipality (LAU, under Eurostat classification), on 1.1.2019, 216 out of 8,092 municipalities have fewer older people than younger and an ageing index lower than 100, but as many as 1,319 municipalities have an ageing index higher than 300. The spatial dimension is therefore extremely important when investigating a phenomenon such as ageing in Italy. Indeed, Italy presents large differences with regard to population ageing, to the demographic factors behind it and to the economic and social contexts where this phenomenon develops and impacts.

In general, space is an important element in the study of all demographic phenomena (De Castro 2007; Howell et al. 2016; Thiede and Monnat 2016), although it has not always been considered as relevant as the time dimension (Courgeau and Lelièvre 1997). Indeed, all demographic phenomena involving individuals at a specific instant of time take place in a specific place. Differences in the observation of a phenomenon may emerge across space and this is also true for population ageing. As already stated, the dynamics of this phenomenon varies, depending on the geographic area (Schoeni and Ofstedal 2010) and, recently, investigations about population ageing and its connection with space have become more widespread than in the past (i.e., Walford and Kurek, 2008; Shiode *et al.*, 2014; Reynaud *et al.*, 2018).

This paper is part of the area of studies dealing with the analysis of demographic phenomena using both a spatial and a temporal perspective. The aim of the paper is to study population ageing in Italy by conducting a spatio-temporal analysis at a very fine territorial level. In particular, we analyse population ageing by describing ageing trend in Italian municipalities during 17 years, from 1.1.2002 to 1.1.2019 and by focusing on space-time evolution of ageing processes and on the investigation of the large-scale patterns of this process through the application of a nonparametric model incorporating a spatio-temporal trend (i.e. a smooth

[1] Italy is divided into 5 NUTS-1 regions: the North-West, the North-East, the Centre, the South and the Islands (together also known as Mezzogiorno). Then, Italy is composed by 20 NUTS-2 regions, 110 provinces (NUTS-3) and about 8,000 municipalities (LAU), the low-level administrative divisions of the country.

interaction between the spatial coordinates and the time trend) on the right-hand side. In this way, we attempt to answer the following research questions: Is there a time-trend of ageing population across Italian municipalities? (RQ1); Is there a spatial-trend of ageing population across Italian municipalities? (RQ2). The rest of the paper is organised as follows: section two presents the data and a descriptive analysis; section three reports the results of a nonparametric estimation of the spatio-temporal trend; the last section is devoted to conclusions and discussion.

## 2. Data and descriptive analysis

The data used for the analysis come from the inter-census estimates of the resident population, calculated by ISTAT by integrating the Census population data[2] and the demographic flows (statistics of births, deaths and migrations) in the inter-census period (ISTAT, 2021). The data cover the period between 2002 and 2019 and refer to the Italian municipalities (LAU). Since there have been several changes in the boundaries and in the number of municipalities over the years, the data have been harmonized to the classification of the municipalities at the 2011 Census, when there were 8,092 LAUs. The indicator of the age structure used in the analysis is the ageing index, computed for each municipality and for each sample year over the period between January 1 2002 and January 1 2019.

Ageing levels in the North-Centre are persistently higher than in the rest of the Country (Table 1). At the beginning of the sample period, the South had more young than older people, while the number of older people in the Islands was only slightly higher than the number of young people. In the last ten years, the increase in the levels of aging has spread to the whole national territory, so that at the end of the period the differences between the regions appear much less strong and the aging index has reached very high values in all NUTS-1 regions.

As mentioned above, the spatial differentials in the ageing index in Italy increases when we consider smaller spatial units. A huge spatial heterogeneity appears indeed at the municipality level, with values ranging from a minimum of 20 to a maximum of 11,600. During the sample period the ageing index increased substantially (Figure 1). Spatial heterogeneity also increases over time as shown by the kernel density estimates (Figure 2), obtained after excluding values greater than 750.[3] The distribution is always right-skewed: a long right tail (i.e. values above the third quantile) clearly suggests that a limited number of municipalities

[2] The latest census, for 2019, is not a traditional decennial census but a permanent census, conducted with a new methodology (Istat,2020).

[3] The threshold of 750 was only used to generate Figure 1. The subsequent analysis was carried out using the whole sample.

contribute to the exponential increase in the average value (from 183 in 2002 to 235 in 2019). Indeed, we observe a positive trend in the simple average of the municipalities' ageing indexes, with the greatest increase concentrated in the period from 2012 and 2019 (Figure 1). This evidence is likely correlated to the impact of the double economic crises (occurred in 2009 and in 2012, respectively) on demographic dynamics (Reynaud and Miccoli, 2019). While in the previous period a slight recovery in the birth rate and a strong increase in immigration slowed down the ageing process, after the two economic crises a lower birth rate, due to the difficult decision to have a child in recession periods, and a lower attractiveness for foreign immigrants accelerated the ageing process (De Rose and Strozza, 2017).

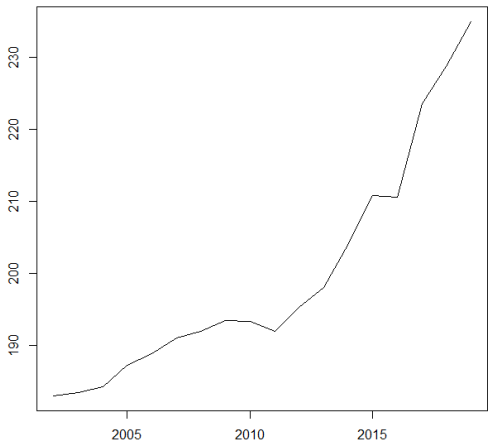
**Table 1 –** *Ageing index in NUTS-1 regions*

| NUTS-1 regions | Ageing index | | |
|---|---|---|---|
| | 1.1.2002 | 1.1.2011 | 1.1.2019 |
| North West | 157.7 | 159.8 | 184.5 |
| North East | 156.9 | 152.8 | 177.9 |
| Center | 157.5 | 161.6 | 183.9 |
| South | 94.3 | 119.1 | 154.4 |
| Islands | 102.9 | 130.7 | 166.3 |
| Italy | 131.7 | 145.2 | 174.0 |

*Source: Authors' calculation from ISTAT data.*

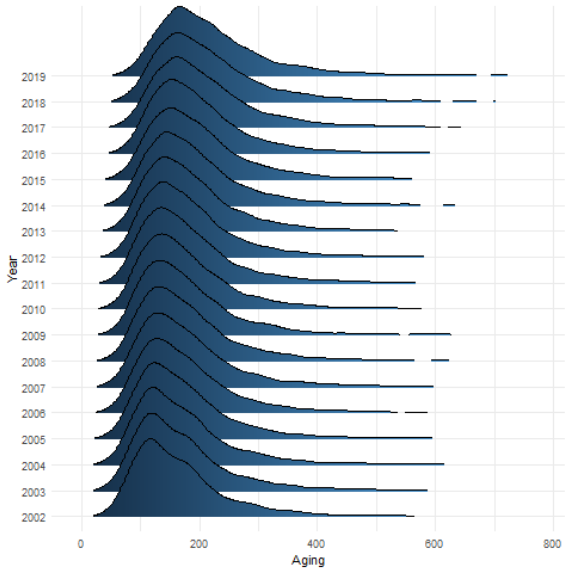
Observation of this trend shows how ageing, a phenomenon that only at the beginning of this century seemed to be confined to municipalities and areas in the Centre-North, is now a widespread phenomenon throughout the territories. As already said, high levels of ageing are also spreading to municipalities in the South and the Islands, in contexts that are therefore economically and socially disadvantaged compared to those in the Centre-North. The ageing process also seems to affect very small municipalities, often located in marginal areas, such as the inner regions, often mountainous areas. Modest levels of ageing remain only in those contexts still characterised by a high fertility.

**Figure 1 –** *Time trend of the simple annual average values of the ageing index across the Italian municipalities in the period 2002-2019.*




*Source: Authors' calculation from ISTAT data.*

**Figure 2 –** *Distribution of the aging index over the Italian municipalities in the period: 2002-2019. Kernel density estimate.*




*Source: Authors' calculation from ISTAT data.*

## 3. The spatio-temporal distribution of ageing in Italy

To better analyse the changes over time and space in the ageing structure of the Italian population, we also estimate a simple nonparametric model, using the logarithmic transformation of the ageing index $a_{it}$ (number of elderly population - aged 65 years and over - per 100 individuals younger than 14 years old) as a dependent variable and including only a smooth spatio-temporal trend (i.e. a smooth interaction between the spatial coordinates of the municipalities and the time trend) on the right-hand side:

$$y_{it} = \alpha + f(s_{1i}, s_{2i}, \tau_t) + \epsilon_{it} \tag{1}$$

where *i* is an index for the spatial units (the 7,898 municipalities), and *t* is an index for the time dimension (years from 2002 to 2019); $y_{it}$ is the log of $a_{it}$; $s_{1i}$ and $s_{2i}$ are the spatial coordinates (latitude and longitude) of the municipality *i*; $\tau_t$ is the time period; and $\epsilon_{it}$ is an idiosyncratic error term assumed to be identically and independently distributed.

As the estimation of this spatiotemporal trend can be very complex with a large dataset, we consider a spatiotemporal ANOVA model as proposed by Lee and Durbán (2011), disaggregating the trend into spatial and temporal main effects, as well as second- and third-order interactions between them:

$$\begin{aligned} y_{it} &= \alpha + f_1(s_{1i}) + f_2(s_{2i}) + f_t(\tau_t) + \\ & f_{1,t}(s_{1i}, \tau_t) + f_{2,t}(s_{2i}, \tau_t) + f_{1,2}(s_{1i}, s_{2i}) + f_{1,2,t}(s_{1i}, s_{2i}, \tau_t) + \epsilon_{it} \end{aligned} \tag{2}$$

The model is estimated using a penalized regression approach based on a basis representation of the unknown functions, which is combined with a penalty on the likelihood to control the wiggliness of the curve/surface. In particular, we use the approach introduced by Eilers and Marx (1996) which applies cubic B-splines as bases functions, and second-order differences of adjacent coefficients as penalties.

As shown in Table 2, all ANOVA components of the spatio-temporal trend, but the third-order interaction between the spatial coordinates and the time trend, are significant. However, the second-order interaction between the spatial coordinates is the most important component, as revealed by the estimated degrees of freedom, and explains most of the spatiotemporal variability of ageing over the sample period. The main function of time is nonlinear (5 degrees of freedom), but less important than the main functions of each spatial coordinate. This suggests us to focus on the spatial distribution rather than on the time trend in the interpretation of the spatiotemporal trend.

**Table 2 –** *Estimation results*

| Effect | *Estimated degrees of freedom* | *F test* |
|---|---|---|
| $f_t$*(year)* | 5.94 | 224.5*** |
| $f_1$*(longitude)* | 16.91 | 340.2*** |
| $f_2$*(latitude)* | 15.87 | 266.6*** |
| $f_{1,2}$*(longitude, latitude)* | 88.20 | 538.1*** |
| $f_{1,t}$*(longitude, year)* | 1.56 | 5.7** |
| $f_{2,t}$*(latitude, year)* | 13.25 | 28.7*** |
| $f_{1,2,t}$*(longitude, latitude, year)* | 39.77 | 3.7 |

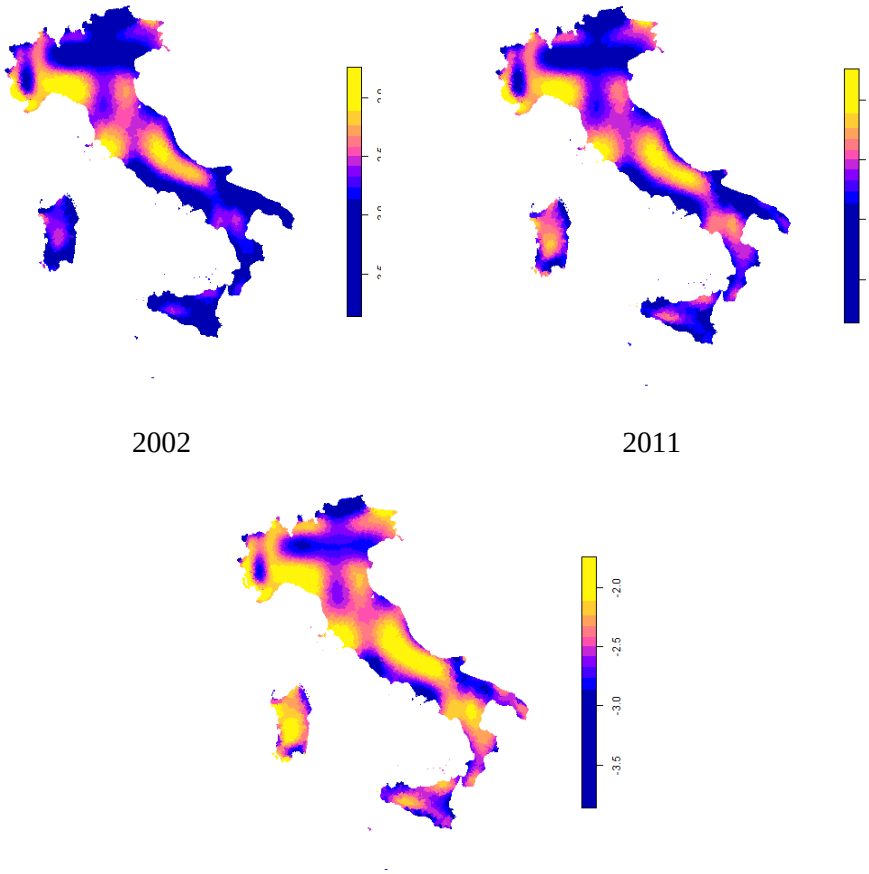
*Source: Authors' calculation from ISTAT data.*

Figure 3 reports the maps of the estimated spatial trend evaluated for three different years (2002, 2011, and 2019). Generally speaking, these maps confirm that the spatial distribution of the ageing index remains persistently characterized by a strong coastal-inland divide as a result of the complex interaction between demographic dynamics and local socio-economic contexts. As for its spatial pattern, at the beginning of the period (1.1.2002), the log of the ageing index recorded high values in the municipalities of the North-West and the Centre, while it was much lower in some municipalities of the North-East and in the Mezzogiorno (the South and Island). Areas in the North-West, especially the Liguria and lower Piedmont regions, have always been those with a particularly high level of ageing. These are the areas with the lowest fertility since the 1970s. The only areas with values below 100 are the northernmost part of the North-East (Bolzano province) and part of Campania (Naples and Salerno provinces), as well as small areas of Sicily: in all these areas, the average number of children per woman has always been above the national average.

Over time, however, many municipalities and areas in the Centre have also reached very high values of the ageing index: on 1.1.2011 the municipalities located along the Apennines[4] in the Centre and South Italy were among those with the highest values. In particular, there is a concentration of high values in some inner areas in the Centre of the Country (in particular in Abruzzo). In 2011, the index was also particularly high in some limited areas in the South of Italy, especially in Sardinia region. Since the 1990s, a depopulation process has been observed in the mountainous areas and in the interior of central and southern Italy, contributing to the subsequent increase of ageing population (Reynaud and Miccoli, 2018).

[4] The Apennines are a mountain system traversing several regions from the North to the South of Italy.

**Figure 3 –** *Smooth spatial trend evaluated in 2002, 2011, and 2019.*




*Source: Authors' calculation from ISTAT data.*

On 1.1.2019, ageing phenomenon is widespread in almost all Italian municipalities. As expected, the demographic dynamics are linked to the changing age structure of the population. On the one hand fertility rates continue to decline in all regions and on the other the women generation in mid-reproductive age are born during the baby-bust and less numerous of their mother generations. Over time, the ageing phenomenon spreads to other inner areas in the South, especially in Calabria and in Sardinia. On the other hand, Sicily, Puglia and the west coast in

the Centre show low values of ageing. However, some important deviations from this overall spatial pattern (i.e. the coastal-inland divide) do emerge. In particular, we can observe a concentration of high values of ageing in the North-West (Piemonte, Liguria and other coastal areas), while the lowest values are persistently shown in Trentino Alto Adige.

As mentioned above, these spatiotemporal dynamics could be greatly explained by typical determinants of ageing, such as the demographic dynamics (reduced fertility and death rates levelling off at low rates) and the dynamics of local socio-economic variables. In our research agenda, we will go beyond this simple exploratory analysis by carrying out a more complex econometric analysis which includes a large set of covariates to assess these hypotheses.

## 4. Discussion and conclusions

The phenomenon of ageing in Italy has become increasingly intense in recent years during which persons over the age of 65 have increased in absolute and relative numbers in most of the Italian territories. While the increase was slower in the early period, it became more intense in the subsequent years, mainly due to the drop in fertility and birth rates after the 2008 economic crisis, but also due to the decrease in women in the mid-reproductive ages. Even going down to a more detailed level of territorial analysis, such as that of the municipalities, the results of the analysis show how the phenomenon has grown throughout Italy, especially in recent years. Thus, a significant time effect allows us to define a very general trend (RQ1). With such a growth of ageing population, there are very few areas where the ageing is low.

The existence of municipalities where the number of elderly people is two or three times the number of young people poses a problem of sustainability of these administrative realities, not only from an economic point of view, but also from a political, social and cultural point of view. In some municipalities the population under 15 does not exist or is disappearing. A population is such when a generational turnover is ensured; therefore a population without young people and children, which does not guarantee this turnover, can hardly be considered a population in the original sense of the term. But the demographic characteristics of these municipalities must be analysed in the context in which they are embedded: the clusters of all very old municipalities are more problematic in governance than the clusters of municipalities with different levels of ageing. The spatial model applied for this analysis consider space (in this case, the context of the major socio-economic region) as a latent variable. The results demonstrate and underline the importance of the territorial context and the need to consider it in the analysis of

the demographic dynamics of the territories. A spatial model such as the one applied here plays a key role in the analysis of the relationship between territory and population ageing (RQ2). The spatial model also allows us to show that the two dynamics - space and time - are linked: it is possible to observe clusters of municipalities that have experienced the same increase over time in ageing indexes.

The spatial analysis conducted in this paper provides important elements that need to be considered. The spatial variability is very high not only within the major socio economic regions (NUTS-1), but also within regions (NUTS-2) or provinces (NUTS-3). Therefore, the spatial dimension cannot be considered a secondary element, and looking at the more detailed spatial units is crucial to investigate the spatial component in depth. The analysis of municipalities characteristics is also important as a tool to support the governance: municipalities constitute the level of administration that provides their citizens with the basic services they need and these can differ if the population is mainly elderly or young people.

This paper contributes to the deep knowledge of the phenomenon of population ageing in Italy by providing a spatial perspective. The consequences of this important demographic process in all Italian territories are and will be relevant. The knowledge of the territorial dynamics and space-time evolution of this phenomenon can help to the formulation and implementation of focused politics able to face this demographic challenge. Our results show that a continuous and slow increase of the populations ageing in inner territories has resulted in particularly aged territorial areas, especially in the mountainous or inner areas of the Mezzogiorno. High level of ageing seems to lead to unsustainable conditions for the populations of determined areas. The consequences of an ageing population will fall on the total population and the Country as a whole, but in certain areas the consequences may be more negative. For this reason, knowing the deep dynamics of this phenomenon is essential for managing the future.

## References

BLOOM D. E., LUCA D. L. 2016. The global demography of aging: facts, explanations, future. In PIGGOTT, J., WOODLAND, A. (Eds.). *Handbook of the economics of population aging*. North-Holland: Elsevier, pp. 3-56).

COURGEAU D., LELIÈVRE E. 1997. Changing paradigm in demography. *Population an English Selection*, pp. 1-10.

DE CASTRO M. C. 2007. Spatial demography: An opportunity to improve policy making at diverse decision levels. *Population research and policy revi*ew, 26(5), 477-509.

DE ROSE A., STROZZA S. 2017. *Rapporto sulla popolazione l'Italia nella crisi economica*. Bologna: Il Mulino.

EILERS P.HC., MARX B. D. 1996. Flexible smoothing with B-splines and penalties, *Statistical science*, Vol. 11, No. 2, pp. 89-121.

EUROSTAT. 2021. More than a fifth of the EU population are aged 65 or over - Eurostat News. https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210316-1

GOLINI A. 1997. Demographic trends and ageing in Europe. Prospects, problems and policies, *Genus*, Vol. 53, No. 3/4, pp. 33-74.

GOLINI A. 1998. How low can fertility be? An empirical exploration, *Population and Development review*, 59-73.

GOLINI A. 2003. *La popolazione del pianeta.* Bologna: Il Mulino.

HOWELL F. M., PORTER J. R., MATTHEWS S. A. 2016. *Recapturing space: New middle-range theory in spatial demography*. Berlin: Springer.

ISTAT 2020. *Nota tecnica sulla produzione dei dati del Censimento Permanente: la stima della popolazione residente per sesso, età, cittadinanza, grado di istruzione e condizione professionale per gli anni 2018 e 2019*. Nota tecnica Istat.

ISTAT 2021. *Ricostruzione della popolazione residente per sesso età e comune. Anni 2002-2018*. Nota informativa Istat.

LEE D.J., DURBÁN M. 2011. P-spline ANOVA-type interaction models for spatio-temporal smoothing, *Statistical modelling*, Vol. 11, No.1, pp. 49-69.

REYNAUD C., MICCOLI S. 2018. Depopulation and the aging population: The relationship in Italian municipalities, *Sustainability*, Vol.10, No. 4, 1004.

REYNAUD C., MICCOLI S. 2019. Population ageing in Italy after the 2008 economic crisis: A demographic approach, *Futures*, Vol. 105, pp. 17-26.

REYNAUD C., MICCOLI S., LAGONA F. 2018. Population ageing in Italy: An empirical analysis of change in the ageing index across space and time, *Spatial Demography*, vol. 6, no. 3, pp. 235-251.

SCHOENI R. F., OFSTEDAL M. B. 2010. Key themes in research on the demography of aging, *Demography*, Vol. 47, Suppl 1, S5-S15.

SHIODE N., MORITA M., SCHIODE S., OKUNUKI K. I. 2014. Urban and rural geographies of aging: a local spatial correlation analysis of aging population measures. *Urban Geography*, Vol. 35, No. 4, 608–628.
THIEDE B.C., MONNAT S.M. 2016. The Great Recession and America's geography of unemployment, *Demographic Research*, Vol. 35, No. 891.
WALFORD N. S, KUREK S. 2008. A comparative analysis of population ageing in urban and rural areas of England and Wales, and Poland over the last three census intervals. *Population, Space and Place*, Vol. 14, No.5, 365–386.
WORLD HEALTH ORGANIZATION (WHO). 2020. *Ageing*.

## SUMMARY

Population ageing is one of the most relevant demographic phenomena of this century. Italy is one of the countries in the world where the phenomenon has been fastest and most intense. Indeed, it presents large differences with regard to population ageing, to the demographic factors behind it and to the economic and social contexts where this phenomenon develops and impacts. The spatial dimension is therefore extremely important when investigating this phenomenon in Italy.
This paper is part of the area of studies dealing with the analysis of demographic phenomena using both a spatial and a temporal perspective. The aim of the paper is to study population ageing in Italy by conducting a spatio-temporal analysis at a very fine territorial level. The data used for the analysis cover the period between 2002 and 2019 and refer to the Italian municipalities (LAU). The indicator of the age structure used is the ageing index, computed for each municipality and for each sample year. Beyond the descriptive analysis of the ageing levels and trends, we also estimate a simple nonparametric model.
The spatial distribution of the ageing index remains persistently characterized by a strong coastal-inland divide as a result of the complex interaction between demographic dynamics and local socio-economic contexts. The spatial model allows to show that the two dynamics - space and time - are linked; space cannot be considered a secondary element, and looking at the more detailed spatial units is crucial. The analysis of municipalities characteristics is also important as a tool to support the governance in facing future demographic challenges.

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# ECONOMIC OUTCOMES AND IMMIGRANTS' SELF-IDENTIFICATION[1]

Alessio Buonomo, Stefania Capecchi, Francesca Di Iorio, Salvatore Strozza

## 1. Introduction and motivation

The empirical evidence on the sizeable differences between natives and immigrants with respect to occupational status and wages, as well as to other economic outcomes, is substantive in all the advanced western economies. Nonetheless, comparative analyses and studies aimed at analysing the reasons for the weaker occupational performances of immigrants are still limited and non-conclusive (for a recent review, see, among others: Edo *et al.*, 2020).

In recent years, in this field the specific issue of ethnic identity is attracting a growing number of researchers coming from different disciplines. As a matter of fact, sociological and psychological literature found that both migrants' attachment to their cultural background and their identification with the host countries may exert fruitful effects in terms of self-esteem, well-being, self-perceived discrimination, delinquency, and ability to adapt to the host country (see recent contribution by Balidemaj and Small, 2018).

The recent empirical literature on ethnic identity has mainly focused on the economic outcomes. However, such economic analyses yielded heterogeneous and, sometimes, contrasting findings, leaving several questions unanswered at a national and cross-national level (Nekby and Rödin, 2007; Constant and Zimmermann, 2009).

With specific reference to the Italian context, our contribution aims at filling this gap by providing some empirical evidence on the role played by ethnic identity on the probability of working of migrants residing in the country. The ethnic identity is here measured in a two-dimensional theoretical framework: according to this approach individuals can simultaneously present a strong (or weak) identification with both the culture of origin and the host culture.

Our empirical analysis employs microdata stemming from the "Social Condition and Integration of Foreign Citizens" (SCIF) survey, carried out by the National Institute of Statistics (ISTAT) in 2011-2012 as released in 2016, which

[1] All authors equally contributed to the study and are responsible for its content.

still remain the most up-to-date on the subject. The paper is organized as follows: section 2 recalls the concept of ethnic identity and presents a synthetic reconstruction of the main results that emerged in the literature with reference to its role in determining economic outcomes; section 3 introduces the data used and the asymmetric multivariate analysis methodologies used in the empirical evaluations; section 4 analytically discusses the main results that emerged from the proposed applications; section 5 summarizes the results of the analyses to indicate how the identification with both the culture of origin and the host culture may be fruitful in terms of labour market outcomes.

## 2. The concept of ethnic identity and its role in determining economic outcomes

The topic of the socio-economic integration of immigrants has always played a central role in the political debate. In Italy, the prominent growth in the number of immigrants that has characterized the last twenty years has prompted many researchers to investigate the issue of optimal management of the immigrant occupation (Strozza and De Sanctis, 2017). In recent times, international literature pointed out on the association between the psychological and emotional aspects of immigrants and their economic outcomes has played an increasingly central role. One of the aspects of growing interest has been that of ethnic identity. Specifically, these studies highlighted that ethnic identity play a crucial role in determining the probability to being employed, the quality of employment, the home ownership and the income level (Mason, 2004; Pendakur and Pendakur, 2005; Constant *et al.*, 2006; Nekby and Rödin, 2007; Constant and Zimmermann, 2009; Drydakis, 2013; Carillo *et al.*, 2021). However, although most of the studies indicate a positive effect of ethnic identity on economic outcomes, there is also some literature highlighting a marginal and insignificant (Islam and Raschky, 2015), if not negative (Casey and Dustmann, 2010), role.

These results may depend on the differences between the countries in which the analysis is carried out and on the way in which ethnic identity is measured (Berry, 2003).

In this contribution, we follow the approach provided by Phinney and Ong (2007) who consider the ethnic identity as a component of social identity. Therefore, ethnic identity is something that may change over time, and it may also depend on the way a person perceives him/herself. In addition, we will follow Tajfel's definition (1981) that considered ethnic identity like an individual's self-concept, which is associated with the knowledge of his/her membership of a social group "together with the value and emotional significance attached to that

membership" (p. 255). In other words, while the concept of ethnicity is static and immutable being linked to the place of birth or to the phenotype, ethnic identity is something that each individual attributes to him/herself based on his or her beliefs, convictions, and choices (Phinney and Ong 2007).

## 3. The empirical analysis: data and methods

In order to investigate how differences in ethnic identities may exert some impact on immigrants' probability of being employed in Italy, we propose a Probit analysis (Agresti, 2010), carried out on the whole sample and also separately on males and females, based on data from the survey on "Social Condition and Integration of Foreign citizens" (SCIF). The survey was conducted by the Italian National Statistical Institute (ISTAT) in 2011-2012 (data were released in 2016) in framework of the system of multipurpose household surveys. The survey collects data on households with at least one foreign citizen (or of foreign origin) and provides original information on immigrants living in Italy. Usual respondents' characteristic as family/household composition, marriage, fertility, education, employment history, working conditions, religious affiliation, etc. are considered.

Our target sample refers to people aged 15-64. We excluded individuals born in Italy and naturalized immigrants because the survey does not provide information on the ethnic identity of those who have Italian citizenship. We excluded also people in education or training and those from more economically developed country (MDCs). Our final sample amounts to 12,733 unweighted observations. We considered the weighted data in order to reproduce the main characteristics of the universe. Using a vector of weights resized to the total sample size, we observe that males are 45.3%; over 58% of the target sample is occupied with evident differences by gender (employed men are 83.1%, whereas employed female are 57.5%), and migratory generation (first generation immigrants are 89.2% of the sample and, among that, 70.4% are employed). The difference in the employment rate by migratory generation could however depend on the different age structure of the two groups considered.

To identify variables representing the ethnic identity issues, we focus on the self-assessed two-dimensional measure of identity in line with Phinney and Ong (2007) distinguishing between the ethnic identity associated to the origin country and the one linked to the destination country (Italy, in our case). Following Akerlof and Kranton (2000), the origin identity is operationalized using the following question from the SCIF survey: "How proud you are to be a foreigner?". Similarly, the Italian identity is measured by the question: "How much do you feel at home in Italy?". The original answers are expressed on a 4-point Likert scale ranging from

"not at all" (1) to "a lot" (4). These ratings are transformed in two variables (origin identity and Italian identity), each of them based on three categories: "weak identity" associated to original ratings 1 or 2, "intermediate identity" of those who answered 3, and finally we considered "strong identity" of those who manifested the strongest identification (rating 4).

Along as those indicators, many other determinants are recognized in literature as impacting the employment probability. Considering the available information, we selected several individual and household characteristics as possible explanatory factors. Usual individual and household covariates included in the model are (in brackets the weighed percentages): gender; age (continuous, we included the square term); years since migration (continuous, we included the square term); marital status (in three categories: single are 28.8%, married 51.7% and other conditions 19.5%); number of children (in four categories: 34.7% have no child, one child 23.8%, two children 26.5%, three or more children 14.9%); educational level (in three categories: 10.0% has no education or primary educational level, 51.2% low or middle secondary education and 38.7% have a complete secondary or tertiary education); self-perceived knowledge of Italian language (dichotomous: poor 30.5%); religion (in five categories: catholic are 22.4%, muslim 20.6%, other religion 8.4%, non religious/non-practicing 19.5%). Migratory generation is described by a dummy variable that divides first generation of immigrants from children of immigrants immigrated before age 18 (1.5 Generation). We used citizenship at birth, instead of the current one, in order to identify ethnic minorities even if respondents are naturalized, aggregated by main geographical macro-areas: Est Europa EU 30.2%, Est Europa non- EU 26%, North Africa 13%, other Africa 5.9%, Asia 16.9%, Latin America 8.1% (we recall that MDCs are excluded from our sample).

## 4. Results: the role of ethnic identity on the probability to be employed

The selected Probit model (Agresti, 2010) is estimated for male and female sub-samples and for the sample as a whole considering the same set of explanatory variables. The estimated coefficients and associated p-values are reported in Table 1.

As far as the sample as a whole is concerned, almost all of the selected variables turn out to be statistically significant. The exceptions are the following categories referring to the geographical area of citizenship at birth: non-EU Eastern Europe, Asia and Latin America, which were not statistically significant at least at 5% as compared to the reference category (Eastern Europe EU). Similarly, the knowledge of Italian is not statistically significant, and practising other Christian confessions

or being not religious are not statistically significant with respect to the reference category (Catholic religion).

For the *origin country identity indicator*, the statistical significance in the model is clear: the coefficients associated with the "intermediate" and "strong" categories are significant and positive as compared to the reference category ("weak"). The same can be observed for the *Italian identity indicator*. These coefficients present a very similar magnitude, leading to argue that when the strength of the origin identity increases and, at the same time, the sense of integration measured by Italian Identity is higher, the probability of being employed also improves. The reasons for this result can be found in the effectiveness of the support provided by the community of origin in the search for work, and also in the fruitful circumstances linked to greater integration in the country of destination. The effect given to the community of origin itself may also explain the low relevance of language knowledge. The age of the respondents and the number of years since their arrival display a significant parabolic effect, and the positive impact of education is also highlighted.

As expected, gender seems to evidently influence the employment probability: being female clearly reduces the probability of being employed. The same decreasing impact can be seen for being married, compared to the reference category (being single), having children (regardless of their number), and belonging to the generation 1.5. All other things being equal, the lower probability to be employed by 1.5 generation could depend on their lower need to accept any job, even those placed at the bottom of the professional qualifications scale, which instead characterizes the first generation. Regarding the declared religion, being Muslim and belonging to other non-Christian confession yield a negative coefficient.

Comparable results are observed in the models estimated for two sub-samples of males and females. Among men, marital status, however, is not statistically significant in any category, as well as the fact of having two children. The same can be observed for education, which is never significant, and being 1.5 Generation.

The variable referred to the knowledge of the Italian language, which was not significant on the whole sample, turns to be significant for males; on the contrary, for women it is significant but in the opposite direction, negatively. Such last occurrence may be supported by the relevance of Italian language use in personal service occupations, where immigrant women are often employed. Finally, the only category for the reported religion that is otherwise significant with respect to the entire sample is that of "other religions", neither Christian nor Muslim, thus probably relating to respondents coming from Asia.

**Table 1** – *The probability to be employed of immigrants aged 15-64 by gender. Italy, 2011-2012. Probit model coefficients estimates and p-values*

| | **All** | | **Male** | | **Female** | |
|---|---|---|---|---|---|---|
| | Coef. | Pvalue | Coef. | Pvalue | Coef. | Pvalue |
| *Origin country identity* | | | | | | |
| - Intermediate | 0.130 | **0.013** | 0.220 | **0.008** | 0.085 | 0.214 |
| - Strong | 0.131 | **0.009** | 0.221 | **0.005** | 0.085 | 0.200 |
| *Italian Identity* | | | | | | |
| - Intermediate | 0.119 | **0.002** | 0.215 | **0.000** | 0.048 | 0.353 |
| - Strong | 0.136 | **0.000** | 0.212 | **0.001** | 0.070 | 0.178 |
| *Gender (ref: Male)* | | | | | | |
| Female | -0.854 | **0.000** | | | | |
| *Age* | 0.172 | **0.000** | 0.198 | **0.000** | 0.151 | **0.000** |
| *Age*$^2$ | -0.002 | **0.000** | -0.003 | **0.000** | -0.002 | **0.000** |
| *Marital status (ref: single)* | | | | | | |
| - Married | -0.430 | **0.000** | 0.031 | 0.671 | -0.670 | **0.000** |
| - Other | 0.379 | **0.000** | 0.089 | 0.291 | 0.442 | **0.000** |
| *No. of Children (ref: none)* | | | | | | |
| - One | -0.317 | **0.000** | -0.186 | **0.014** | -0.497 | **0.000** |
| - Two | -0.382 | **0.000** | -0.083 | 0.302 | -0.596 | **0.000** |
| - Three and plus | -0.559 | **0.000** | -0.269 | **0.002** | -0.753 | **0.000** |
| *Area of Citizenship at Birth (ref: Eastern Europe EU)* | | | | | | |
| - East. Europe non-EU | -0.063 | 0.109 | -0.207 | **0.003** | -0.010 | 0.845 |
| - North Africa | -0.233 | **0.000** | -0.341 | **0.000** | -0.272 | **0.004** |
| - Other African countries | -0.199 | **0.002** | -0.391 | **0.000** | 0.038 | 0.679 |
| - Asia | 0.095 | 0.060 | -0.125 | 0.126 | 0.265 | **0.000** |
| - Latin America | -0.107 | 0.062 | -0.378 | **0.000** | -0.003 | 0.971 |
| *Migrant generation (ref: first Generation)* | | | | | | |
| 1.5 Generation | -0.162 | **0.005** | -0.165 | 0.052 | -0.172 | **0.039** |
| *Education (ref: none)* | | | | | | |
| - Compulsory education or lower | 0.114 | **0.018** | -0.111 | 0.119 | 0.304 | **0.000** |
| - High school/graduated | 0.107 | **0.035** | -0.087 | 0.260 | 0.260 | **0.000** |
| *Italian language knowledge (ref: no language difficulties)* | | | | | | |
| Some difficulties | -0.024 | 0.461 | 0.120 | **0.020** | -0.115 | **0.006** |
| *Years since arrival* | 0.092 | **0.000** | 0.058 | **0.000** | 0.103 | **0.000** |
| *Years since arrival*$^2$ | -0.002 | **0.000** | -0.001 | **0.002** | -0.003 | **0.000** |
| *Religion (ref: Catholic)* | | | | | | |
| - Other Christians | 0.067 | 0.114 | -0.114 | 0.153 | 0.094 | 0.070 |
| - Muslim | -0.397 | **0.000** | -0.118 | 0.142 | -0.599 | **0.000** |
| - Other religions | -0.270 | **0.000** | -0.203 | **0.026** | -0.305 | **0.000** |
| - Non-religious/non-practicing | -0.080 | 0.074 | 0.022 | 0.766 | -0.082 | 0.157 |
| *Constant* | -2.676 | **0.000** | -2.992 | **0.000** | -2.977 | **0.000** |

Boldface: Statistically significant at least at 5%
*Source:* SCIF.

As far as women are concerned, the greatest difference in response behaviour compared to the estimates in the whole sample is given by the two identity

indicators: in fact, neither of them is statistically significant. Such result is first and foremost determined by the lower employment rate of women, in general, and by the fact that women, as mentioned earlier, are mostly occupied in home-based occupations and in the personal care sector, where the greatest facilitator of employment is the availability of time and knowledge of the language. Such circumstance may also affect the significance of the number of children, which negatively influence the probability of being employed, as expected. Moreover, it may be observed the statistically significant (negative) coefficient for women with respect to difficulties experienced with Italian language.

In order to better investigate the effects of the two identity indicators, Tables 2 and 3 present, separately by gender, the estimated probabilities to be employed, and the associated 95% confidence intervals, for each area of citizenship at birth, considering the most "frequent" respondent profile. In particular, such probabilities are evaluated considering four possible combinations of the identity indicator levels (weak-weak, weak-strong, strong-weak, strong-strong), when all the remaining variables are set at their modal value for each geographical area (see the respondents' characteristics as specified in the notes to Tables 2 and 3).

Referring to male respondents, for every area of citizenship at birth, the modal profile is characterized by having no children, compulsory or lower education, some difficulties experienced with Italian language; all the individuals here considered are married but Latin Americans (single). The male profile by area of citizenship at birth is also defined with respect to age, years since arrival and reported religion. Whereas, with respect to female respondents, for all areas of citizenship at birth, the modal profile is described by holding compulsory or lower education, experiencing some difficulties with Italian language, and being married. Distinguishing by area of citizenship at birth, the female profile is defined with respect to the following variables: number of children, age, years since arrival and declared religion.

Tables 2 and 3 corroborate the evidence of the gender gap in employment probability. Moreover, results seem to display a greater similarity in the estimated probability values for males, while those estimated for females are much more differentiated. For both males and females, it can be observed that by moving from the weak-weak to the strong-strong combination of identity indicators, the probability of being employed increases and the confidence intervals tend to be less wide. For male respondents, and for each combination of such indicators, no marked variation seems to occur in the estimated probabilities, which tend to be not statistically different by area of origin.

On the other hand, for females, the area of origin seems to exert some effect on the estimated probability of being employed. In case of North African interviewees, the low values of the probabilities may be explained by the combined

impact of the declared religion and the prevailing young age (in this case, confidence intervals tend also to be larger). Table 3 highlights in a clearer way the predominant effect of the area of origin on the probability of being employed, rather than that of the identity indicators.

**Table 2** – *Estimated probability to be employed by Area of citizenship at birth and level of identity indicators and 95% confidence interval (CI) – Males, modal profiles*

| | **Males** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Origin identity →** | Weak | | Weak | | Strong | | Strong | |
| **Italian identity →** | Weak | | Strong | | Weak | | Strong | |
| *Eastern Europe EU* | 0.813 | | 0.865 | | 0.8766 | | 0.907 | |
| *95% IC* | 0.744 | 0.869 | 0.810 | 0.908 | 0.820 | 0.904 | 0.872 | 0.934 |
| *Est Europe non-EU* | 0.831 | | 0.879 | | 0.881 | | 0.918 | |
| *95% IC* | 0.764 | 0.885 | 0.825 | 0.920 | 0.835 | 0.917 | 0.883 | 0.944 |
| *North Africa* | 0.811 | | 0.863 | | 0.865 | | 0.906 | |
| *95% IC* | 0.738 | 0.870 | 0.804 | 0.909 | 0.818 | 0.903 | 0.870 | 0.934 |
| *Other African countries* | 0.784 | | 0.841 | | 0.843 | | 0.889 | |
| *95% IC* | 0.692 | 0.858 | 0.762 | 0.900 | 0.777 | 0.895 | 0.834 | 0.929 |
| *Asia* | 0.797 | | 0.852 | | 0.854 | | 0.897 | |
| *95% IC* | 0.716 | 0.863 | 0.797 | 0.904 | 0.797 | 0.898 | 0.852 | 0.931 |
| *Latin America* | 0.805 | | 0.858 | | 0.860 | | 0.902 | |
| *95% IC* | 0.727 | 0.868 | 0.795 | 0.907 | 0.806 | 0.903 | 0.861 | 0.934 |

*Respondents' profile characteristics.* Eastern Europe EU: age=33 years; years since arrival=4; religion=other Christian. Eastern Europe non-EU: age=30 years; years since arrival=10; non-religious. North Africa: age=41 years; years since arrival=10; religion=Muslim. Other African areas: age: 42 years; years since arrival=9; religion=Muslim. Asia: age=39; years since arrival=5; religion=other. Latin America: age=33; years since arrival=11; religion=Catholic.
*Source:* SCIF.

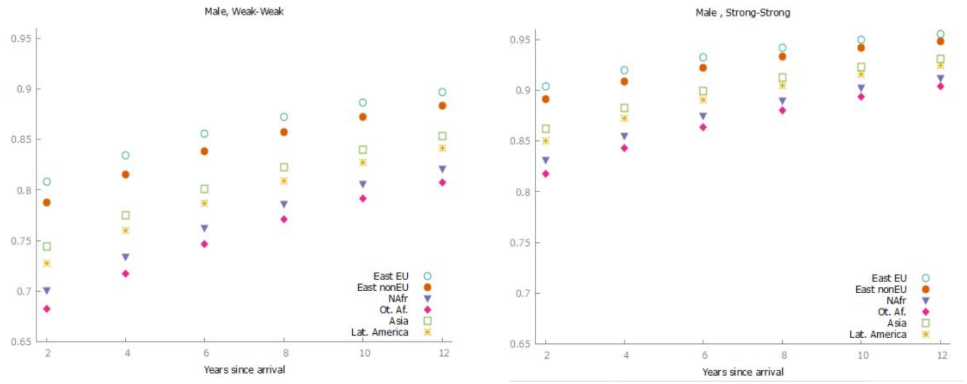
Furthermore, in Figure 1 the estimated probabilities of being employed are depicted for a male respondent (the reference category), distinguishing by area of origin and years since arrival, for two different combinations of the identity indicators: "weak-weak" (left panel) and "strong-strong" (right panels). The age of the respondents is fixed at the general mean (33 years), the religion at the modal value by area, and all the remaining variables are set to their reference values. As expected, the estimated probability of being employed evidently improves with the "strong-strong" combination for all the areas of origin and as a function of the years from arrival (in the "strong-strong" combination, the effect of the years since arrival is limited). Compared to the areas of origin, in both panels of figure 1 it can be clearly observed how the probability is higher for those coming from Europe (both EU and non-EU) and it is lower for those coming from other (non-North) African countries.

**Table 3** – *Estimated probability to be employed by Area of citizenship at birth and level of identity indicators and 95% confidence interval (CI) – Females, modal profiles*

| | **Females** | | | |
|---|---|---|---|---|
| **Origin identity →** | Weak | Weak | Strong | Strong |
| **Italian identity →** | Weak | Strong | Weak | Strong |
| *Eastern Europe EU* | 0.592 | 0.619 | 0.624 | 0.651 |
| *95% IC* | 0.518 0.662 | 0.551 0.683 | 0.567 0.680 | 0.599 0.700 |
| *Est Europe non-EU* | 0.385 | 0.412 | 0.418 | 0.446 |
| *95%IC* | 0.315 0.460 | 0.345 0.482 | 0.359 0.480 | 0.391 0.502 |
| *North Africa* | 0.027 | 0.032 | 0.033 | 0.039 |
| *95% IC* | 0.016 0.045 | 0.019 0.051 | 0.022 0.049 | 0.026 0.056 |
| *Other African countries* | 0.396 | 0.423 | 0.429 | 0.457 |
| *95% IC* | 0.306 0.492 | 0.333 0.518 | 0.349 0.513 | 0.376 0.539 |
| *Asia* | 0.283 | 0.307 | 0.313 | 0.338 |
| *95% IC* | 0.218 0.356 | 0.242 0.380 | 0.257 0.398 | 0.281 0.398 |
| *Latin America* | 0.713 | 0.736 | 0.741 | 0.763 |
| *95% IC* | 0.634 0.783 | 0.665 0.783 | 0.680 0.796 | 0.709 0.812 |

*Respondents' profile characteristics.* Eastern Europe EU: no children; age=34 years; years since arrival=5; religion=other Christian. Eastern Europe non-EU: children=2; age=29 years; years since arrival=10; religion=other Christian; North Africa: children=2; age=24 years; years since arrival=4; religion=Muslim. Other African areas: children=2; age=41 years; years since arrival=5; religion=Catholic; Asia: children=2; age=32; years since arrival=5; religion=other; Latin America: no children; age=37; years since arrival=11; religion=Catholic.
*Source:* SCIF.

**Figure 1 –** *Estimated probability to be employed by Area of origin and identity indicators, reference categories (Males).*




*Source:* SCIF.

## 5. Final remarks

We investigated the impact of the ethnic identities, as measured in Phinney and Ong (2007), on immigrants' probability of being employed in Italy. Our findings seem to support the idea that both minority and Italian ethnic identity play a positive role in employment outcomes, but with important gender differences. We have not found any indication of a detrimental impact of the immigrants who preserve their original culture in accessing the labour market.

The results may provide valuable information and have some implications for decision-makers in terms of post-immigration policies. In fact, recent international literature has highlighted that an increasing part of both public opinion and policymakers believe that behaviours of immigrants who preserve the identity and culture of their country of origin could negatively affect the public interest. This assimilationist conception assumes that the preservation of the attachment to the origin country is incompatible with the identification to the host country's culture and society. However, our results indicate that the adaptation to the host culture seems to be uncorrelated to the preservation of minority culture and that they both may be fruitful in terms of labour market outcomes.

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**References**

AGRESTI A. 2010. *Analysis of ordinal categorical data*, (2nd ed.), Wiley, Hoboken, NJ.

AKERLOF G. A., KRANTON R. E. 2000. Economics and Identity, *The Quarterly Journal of Economics*, Vol. 115, No. 3, pp. 715-753.

BALIDEMAJ A., SMALL M. 2018. Acculturation, ethnic identity, and psychological well-being of Albanian-American immigrants in the United States. *International Journal of Culture and Mental Health*, Vol. 11, No. 4, pp. 712-730.

BERRY J. 2003. Conceptual approaches to acculturation. In CHUN K., ORGANISTA P. AND MARIN G. (Eds.) *Acculturation: Advances in theory, measurement, and applied research*, Washington, DC: American Psychological Association, pp. 17–37.

CARILLO M. R., LOMBARDO V., VENITTELLI T. 2021. *Identity and Labor Market Outcomes of Immigrants*, GLO Discussion Paper, No. 749.

CASEY T., DUSTMANN C. 2010. Immigrants' identity, economic outcomes and the transmission of identity across generations, *Economic Journal*, Vol. 120, No. 542, pp. 31-51.

CONSTANT A. F., GATAULLINA L., ZIMMERMANN K. F. 2006. Gender, ethnic identity and work, *IZA Discussion Papers*, No. 2420.

CONSTANT A., ZIMMERMANN K. F. 2009. Work and Money: Payoffs by Ethnic Identity and Gender, *IZA Discussion Paper*, No. 4275.

DRYDAKIS N. 2013. The effect of ethnic identity on the employment of immigrants. *Review of Economics of the Household*, Vol. 11No. 2, pp. 285-308.

EDO A., RAGOT L., RAPAPORT H., SARDOSCHAU S., STEINMAYR A., SWEETMAN A. 2020. An introduction to the Economics of Immigration in OECD countries. *IZA Discussion Eon Paper*, No. 13755.

ISLAM A., RASCHKY P. A. 2015. Genetic distance, immigrants' identity, and labor market outcomes, *Journal of Population Economics*, Vol. 28, No. 3, pp. 845-868.

ISTAT 2016. Social Condition and Integration of Foreign Citizens (SCIF), https://www.istat.it/en/archivio/191097

MASON P. L. 2004. Annual income, hourly wages, and identity among Mexican-Americans and other Latinos, *Industrial Relations: A Journal of Economy and Society*, Vol. 43, No. 4, pp. 817-834.

NEKBY L., RODIN M. 2007. Acculturation identity and labor market outcomes, *IZA Discussion Paper*, No. 2826.

PENDAKUR K., PENDAKUR R. 2005. *Ethnic identity and the labour market*. Vancouver Centre of Excellence.

PHINNEY J. S., ONG A. D. 2007. Conceptualization and measurement of ethnic identity: Current status and future directions, *Journal of counseling Psychology*, Vol. 54, No. 3, pp. 271-281.
STROZZA S., DE SANTIS G. (Eds.) 2017. *Rapporto sulla popolazione: le molte facce della presenza straniera in Italia*. Società editrice il Mulino, Spa.
TAJFEL H. 1981. *Human Groups and Social Categories: Studies in Social Psychology*. Cambridge University Press, Cambridge.

## SUMMARY

The issue of ethnic identity is attracting a growing number of researchers from different disciplines, due to its high explanatory potential. Most of the empirical literature on the topic focuses on economic features of immigrants' living conditions, highlighting the prominent role of the identity in affecting income, home ownership, and employment. However, such research studies have yielded heterogeneous and mixed results. Therefore, more analyses should be addressed producing more conclusive evidence on such a relevant issue. The objective of this paper is to investigate the impact of ethnic identity on the immigrants' probability of being employed, exploiting data stemming from the multipurpose survey on "Social Condition and Integration of Foreign citizens" carried out by ISTAT in 2011-2012.

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# BASS MODEL-BASED APPROACH TO MIGRATION

Francesca Bitonti


## 1. Introduction

International migration has a long history and, in the recent past, has further enhanced under the influence of globalization. Unsurprisingly, the topic has become the focus of a great deal of disciplinary and inter-disciplinary social sciences with the aim of interpreting and synthesizing population movements. Sociological, economic, geographical, and multidisciplinary approaches have been employed to explain migration (Bijak, 2006). Following the literature review proposed by Bijak (2006), it is possible to draw a general overview of the main contributions to migration theory from different areas of knowledge.

Sociological theories of migration mainly focus on the push-and-pull factors approach of Lee (1966), according to which attracting or repelling causes, as better living and working conditions on the one hand, and humanitarian crises, conflicts, unemployment, and poverty on the other, modulate migration flows between origin and destination countries. Macroeconomic theories generally explain migration through the lens of labour market differences between countries in terms of nominal or real wage differentials (Lewis, 1954), expected income (Harris and Todaro, 1970), and labour demand characteristics at the destination (Piore, 1979). At the microeconomic level, migration decisions are explained as a result of rational cost-benefit analysis (Stark, 2003; Massey *et al.*, 1993; Sjaastad, 1962). Human geography, instead, describes migration choices in relation to the geographic distance between origin and destination, allowing spatial interactions between regions (Stewart, 1941; Zipf, 1946; Isard, 1960; Clark, 1982). The gravity theory of migration, in analogy to Newton's law, especially concerns the notion of mass – defined as population sizes, employment, and income – and distance, measured according to different metrics. Apart from the discipline-specific theories of migration, there have also been several attempts to propose a unified explanation for population flows, combining economic, political, sociological, and psychological determinants of migration. Nonetheless, these approaches are far from constituting an all-inclusive theory of migration and seem hardly possible to be operationalized in practical applications (Bijak, 2006).

With the exception of some sociological concepts, the majority of migration theories focus on structural explanations of migrant behaviour, disregarding the social forces influencing individual conduct and changes in behaviour. Indeed, in their seminal work, MacDonald and MacDonald (1964) described how the organization of migration flows may occur in several ways, spanning from chain migration to its complete opposite, which they termed "impersonally organized migration". The former results from the establishment of social ties between actual and potential migrants, while the latter accounts for movements originating from political and economic instabilities or from individual motivations. In my thought, these two extremes of migration arrangements theoretically concern diffusionism, when referring to chain migration, and structuralism, in relation to the impersonal organization of movements. For this reason, the work proposes a multi-perspective approach, combining diffusionist and structural theories, which provides explanations for a novel Italian emigration process started in the early 2000s. The diffusionist theory is briefly described in the next section 2, while the recent Italian emigration process is presented in section 3. The unifying theoretical framework proposed here will be applied to real-world data via the formulation of a specific methodology introduced in section 4. In particular, an ad-hoc extension of the benchmark model of diffusion studies, i.e. the Bass diffusion model, will provide a practically viable technique to apply the multidisciplinary framework of migration to analyze an actual phenomenon. The results of the application are reported in section 5, while the general conclusions of the work are drawn in section 6.

## 2. Combining structural and diffusionist approaches to migration

The diffusionist framework is used in the social sciences to explain the spread of new ideas and practices, also called "innovations", among the members of a given population (Rogers, 1962; Strang and Meyer, 1993). The ground idea of diffusionism is that the interplay of social influence mechanisms, such as interpersonal information exchange, social norms, and emulative processes, shapes individual conduct and, eventually, the macro-level dynamics. From a demographic standpoint, innovation could be any innovative idea or behaviour having implications on the population dynamics, namely fertility, mortality, and migrations (Vitali and Billari, 2017). In this sense, examples are contraceptive adoption, solo living, smoking behaviour, novel migration practices, and the like. Diffusionism gained momentum in demography with the necessity to explain the decline in marital fertility that occurred across Europe during the past century. This approach challenged the classical demographic transition theory, which argued that modernization and structural changes in society were the main drivers for

variations in fertility (Casterline, 2001). After this introduction to the demographic debate, the diffusionist vision has been the theoretical background for several studies on fertility choices and family planning and the promotion of public health campaigns aimed at contrasting the spread of diseases and health-damaging behaviours (Alvergne *et al.*, 2011; Bengtsson and Dribe, 2014; Lesthaeghe, 2010; Ramseyer Winter, 2013; Svenkerud *et al.*, 1998; Vitali *et al.*, 2015). Recently, structural and diffusionist arguments have not been considered as distinct nor in opposition anymore. Rather, they are conceptualized as strictly embedded explanations of demographic changes (Cleland, 2001). This strand of thought gives additional strength to my research objective of analyzing and conveying meaningful insights into international migration processes integrating diffusionism with structural explanations.

## 3. The new Italian emigration

In recent years, Italian emigration has considerably grown compared to the 80s and 90s. The current emigration presents specific peculiarities, configuring a situation different from the past, which in literature is known as "the new Italian emigration". Among the novelties, an increased share of women and well-educated individuals leaving the country has been recorded (Colucci, 2018; Fondazione Migrantes, 2020; Strozza and Tucci, 2018). Furthermore, although the Southern regions continue, as in the past, to contribute to the outgoing movements, recently, the more advanced northern Italy has become the main outflow area (Bonifazi, 2018; Strozza and Tucci, 2018). The destinations preferred by Italian migrants mainly converge to some E.U. countries (Bonifazi, 2018). Finally, the new Italian emigration appears to be paired with a change in attitude towards international migration. The globalization and the availability of new communication technologies could have overcome several of the barriers hindering movements in the past, allowing Italians, especially the youngsters, to approach international mobility in a novel and more confident way (Tirabassi, 2018).

Overall, the interaction among the global economic downturn, the E.U. integration process (De Rose and Strozza, 2015; Livi Bacci, 2014; Pugliese, 2018), and the change in attitudes toward outward mobility appears to have shaped a new migration behaviour that has diffused across Italy. The novel aspects characterizing Italian emigration define an innovative migrant behaviour that diffuses among the population through particular communication channels and according to established social dynamics, but also in accordance with the economic cycle of origin and destination countries.

## 4. Methods and data

Even though the diffusionist framework has found applications in several population studies, it is hard to find implementations of a specific diffusionist model to describe demographic dynamics. Here, I propose to exploit the Bass model (Bass, 1969), extensively employed in market research studies to analyze the diffusion of new ideas, products, and behaviours in a given population. According to the model, the pace of diffusion is driven by two forms of communication: the *external* one, such as mass media advertisement or awareness and prevention health campaigns, and the *internal* one, including social influence, word of mouth, and imitation. These two drivers of diffusion shape two categories of adopters: the innovators, mainly influenced by the external source, and the imitators, who adopt in response to their interaction with prior adopters. The Bass model consists of a first-order differential equation:

$$Y'(t) = \left(p + \frac{q}{m}Y(t)\right)\big(m - Y(t)\big) = p\big(m - Y(t)\big) + q\frac{Y(t)}{m}\big(m - Y(t)\big) \qquad (1)$$

where the variation of adoption *Y'(t)* over time is proportional to the residual susceptible population *(m - Y(t))*, with *m* being the constant overall susceptible population, and *Y(t)* the cumulative adoptions at time *t*. Rearranging the left-hand side equation (1) it is possible to notice that the instantaneous adoptions *Y'(t)* is the result of the sum between the *external* component governed by parameter *p* and the *internal* one modulated by *q*. Parameter *p* is the so-called coefficient of innovation, representing the effect of the external influence . Parameter *q* is the coefficient of imitation and reflects the inter-personal influence individuals can exert on each other. The external component is mainly active during the first phase of the diffusion process: the individuals adopting earlier ("innovators") create the initial group of adopters who, with the passing of time, inform or show the benefits gained from the adoption of the new behaviour, stimulating (through an "avalanche effect") the adoption by the other adopter category ("imitators"), influenced by human interaction mechanisms. The basic Bass model and its extensions have found empirical applications not only in the realm of marketing studies but also in the demographic field: e.g. to analyze the diffusion of oral contraception (Sharif and Ramanathan, 1981), to clarify the dynamics in vaccination propensity and address public health policy (Kahana and Yamin, 2021; Onofrio *et al.*, 2012), and to study the diffusion of disease-related information during an epidemic outbreak (Gündüç, 2019). In the present work, I propose an extended version of the traditional Bass model to capture both structural and diffusionist explanations to the new Italian emigration:

$$\frac{dY_{it}}{dt} = p_{it}(m - Y_{it}) + \frac{q_{it}}{m} Y_{it}(m - Y_{it}) \quad (2)$$

where the coefficients $p$ and $q$ depend on the structural characteristics of the destination countries, the emigration flow is directed to:

$$p_{it} = \alpha_0 + \alpha_1 U_{it} + \gamma_2 D2_i + \gamma_3 D3_i + \cdots + \gamma_n Dn_i + \epsilon_{it} \quad (3)$$

$$q_{it} = \beta_0 + \beta_1 U_{it} + \delta_2 D2_i + \delta_3 D3_i + \cdots + \delta_n Dn_i + \epsilon_{it} \quad (4)$$

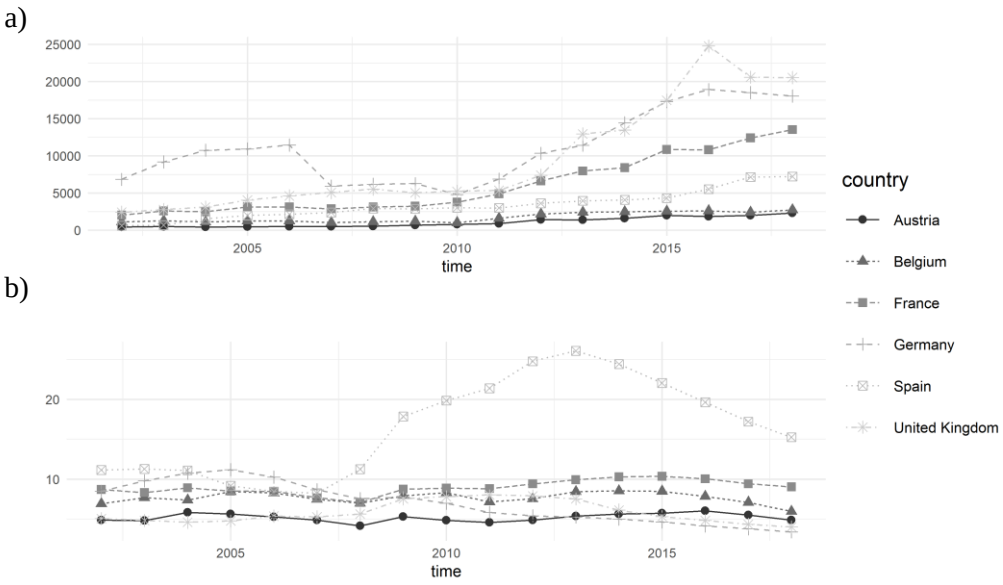
$i=1,\ldots,n$ are the destination countries at each time interval $t$, $U_{it}$ is the unemployment rate for destination country $i$ at time $t$, $D2_i + \cdots + Dn_i$ are $n-1$ dummy variables identifying the $i=2,\ldots,n$ destination countries respectively, lastly, the erratic component is defined as $\epsilon_{it} \sim N(0, \sigma^2)$. The extended version of the Bass model has been fitted using an ad-hoc numerical optimization algorithm minimizing the mean squared error (MSE) in the R software, which automatically estimated all the model parameters for several destination countries at once. The main advantage of the proposed model is to parsimoniously provide the time-varying parameters $p$ and $q$ for each destination country considered. With the same interpretative, rather than forecasting, objective found in many applications (Bunea *et al.*, 2020; Furlan *et al.*, 2016; Guidolin and Mortarino 2010), this work intends to combine the diffusionist paradigm with the traditional structural perspective of the new Italian emigration process. Note that the proposal is that of a "toy model", i.e., a simplistic model used to provide insights into whether some mechanism might explain complex real-world phenomena. Typical examples of toy models are the Lotka–Volterra model in population ecology and the Schelling model of segregation in the social sciences. Toy models usually do not perform well in prediction and empirical adequacy, rather, they serve other epistemic goals.

Annual counts of Italian citizens who cancelled their Italian residence due to transfer of residence abroad from 2002 to 2018 towards the main E.U. destination countries (Austria, Belgium, France, Germany, Spain, and United Kingdom – pre-Brexit) were retrieved from the Italian National Institute of Statistics (Istat) repository. Data on unemployment rates come from the World Bank online database[1]. Overall, the emigration flows illustrated in Figure 1.a appear to grow with time. The 2007-2011 period characterized by the global financial crisis records a stagnation of the movements for all the countries considered. After those years, annual emigrations have recorded a steady increase through time, which is more marked for the United Kingdom, Germany, and France. Annual

[1] Istat data are available at: http://dati.istat.it/; World Bank data are available at: https://data.worldbank.org/

unemployment rates (Figure 1.b) have registered an increase between 2007-2009 for each destination as a consequence of the global economic downturn. The upward trend started to reverse some years later, with Germany and the United Kingdom being the first economies to recover.

**Figure 1 –** *a) Annual emigration counts toward the main E.U. countries. Source: Istat repository. b) Annual unemployment rates for the main E.U. destination countries. Source: World Bank online database. Period: 2002–2018.*

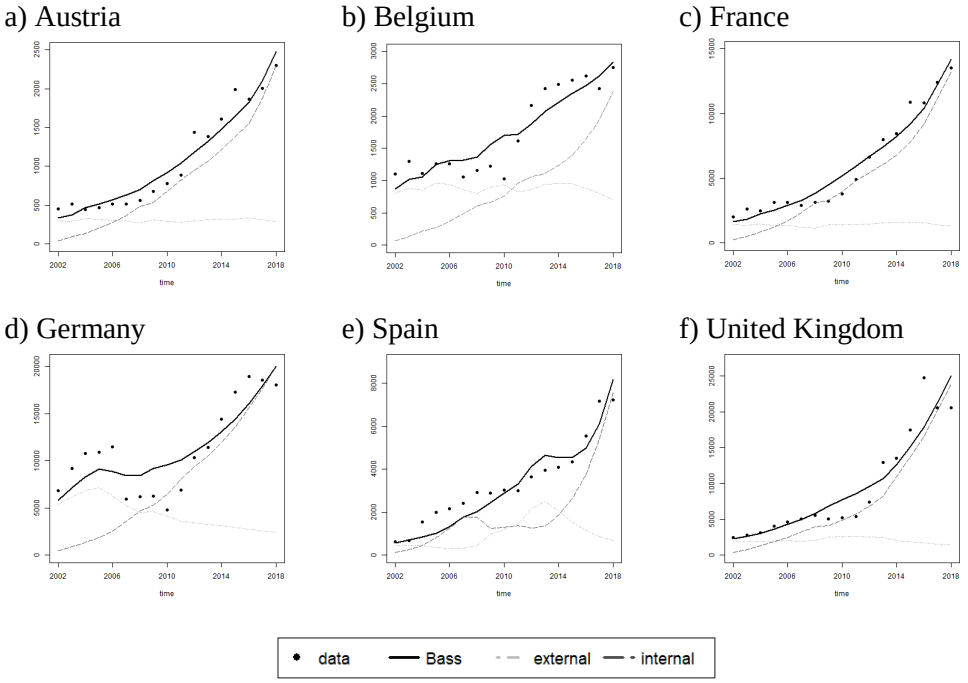



## 5. Results

The main objective of this work was to gain possible diffusionist insights into a modern migration process like the new Italian emigration, besides the traditional structural explanations. Figure 2 shows the fit of the extended Bass model (in black solid line) to the annual Italian emigration counts (in black dots) towards the main E.U. countries. Besides the fluctuations in the data, due to some issues intrinsic to the national data collection process and corrections during routine surveillance activities, the model seems to capture the trend of the flows quite well. For each destination, the internal driver of migration (in dark gray dashed line) seems to have outnumbered the external one (in light gray dashed line) before 2010 approximately. In particular, the inter-human influence has grown exponentially

while the mediatic component has remained constant or at least decreasing. The increasing weight of the internal driver of migration suggests that word of mouth and imitative behaviours of those who have already emigrated could have guided potential migrants in their choice to emigrate abroad. On the other side, the little variations in the external component seem to confirm that the diffusion process has overcome its "initial phase" where adoptions are mainly led by mediatic sources of information.

**Figure 2** – *Extended Bass model fitting the new Italian emigration towards the main E.U. countries. Time: 2002-2018. Annual counts, different y-axis scales. Source: author's elaboration.*




The fit of the model with the inclusion of an economic covariate connects the structural conditions with the temporal dynamics of coefficients *p* and *q*. The unemployment rates have indeed contributed configuring a specific pattern of diffusion for each destination country, letting *p* and *q* vary with time. The inclusion of a structural variable within a diffusionist model allowed us to relate the sociological motives to emigrate with the actual economic conditions of each country. Indeed, whether the diffusion of new attitudes towards international emigration and the emulative behaviours to emigrate pertain to Italy as a whole,

information about economic and living conditions differ according to the specific destination. In this sense, the extended Bass model provides country-specific diffusion processes, both in terms of mediatic information spread (modulated by $p$) and contagious mechanisms leading to emigrate (mediated by $q$).

Finally, the adjusted version of the R-squared for the complete model ($adj\text{-}R^2 = 0.912$) results to be greater than the one for the model estimated without the inclusion of the structural covariate ($adj\text{-}R^2 = 0.900$). This outcome provides further support to the proposal of theoretical integration between different types of migration determinants.

## 6. Conclusions

The diffusionist framework, originally rooted in social sciences, has been applied to gain novel insights into innovative ideas and practices leading to demographic changes. However, studies of migration have not usually taken a diffusionist perspective, even when considering sociological aspects of movements. The main discipline-specific theories of migration have generally focused on the structural (e.g. political and economic) explanations of migration, disregarding diffusionist drivers, such as mediatic and inter-human information diffusion and imitative behaviours. Here, I attempted to integrate both structural and diffusionist perspectives to explain human movements, employing a practically viable methodology. In this sense, I challenged the existing multidisciplinary theories to migration which have proved to be not operationalizable in practice (Bijak, 2006). In particular, I introduced an extended version of the benchmark model of diffusion studies, i.e. the Bass model, including structural variables in a pure diffusionist framework. The application focused on a novel emigration process recently occurring in Italy, the so-called new Italian emigration. This flow presents peculiar characteristics configuring a situation markedly different from the past. Its aspects of innovation let the new Italian emigration be well-suited to be analyzed through the lens of the diffusion of innovations theory. Estimating simultaneously a parsimonious model for several flows divided by destination, I disentangled the two components of the model, namely the mediatic (or *external*) and the interhuman (or *internal*) information channels modulating the diffusion of the novel migrant behaviour. The different trends in the two diffusionist mechanisms detected for each country revealed that for the destination countries considered, the increasing weight of the internal driver of migration, i.e. word of mouth and imitative behaviours of those who already have emigrated could have guided potential migrants in their choice to emigrate abroad. The general prevalence of the internal component over the external one could find an explanation in terms of the

interplay between the integration of the European Union, the availability of advanced means of communication and transportation, and the global economic crisis. These structural dynamics could have boosted the interpersonal diffusion of a novel confident behaviour toward international migration: the first fostering cross-border movements and labour mobility, the second logistically facilitating connections and shortening the psychological distance between homeland and host country, and the latter by acting as an economic push factor to emigrate. As a result, what in the past was accounted for international mobility today resembles an inter-regional one.

## References

ALVERGNE A., GIBSON M.A., GURMU E., MACE R. 2011. Social Transmission and the Spread of Modern Contraception in Rural Ethiopia, *PLoS O.N.E.*, Vol. 6, No. 7, 22515.

BASS F.M. 1969. A New Product Growth for Model Consumer Durables, *Manage. Sci.*, Vol. 15, No. 5, pp. 215-227.

BENGTSSON T., DRIBE M. 2014. The historical fertility transition at the micro level: Southern Sweden 1815-1939. *Demogr. Res.*, Vol.30, No.17, pp.493-534.

BIJAK J. 2006. *Forecasting international migration: Selected theories, models, and methods.* Warsaw, Poland: Central European Forum for Migration Research.

BONIFAZI C. 2018. Da dove si parte, dove si va, *Il Mulino*, Vol. 6, pp. 49-56.

BUNEA A. M., DELLA POSTA P., GUIDOLIN M., MANFREDI P. 2020. What do adoption patterns of solar panels observed so far tell about governments' incentive? Insights from diffusion models. Technol. Forecast, *Soc. Chang*., 120240.

CASTERLINE J.B. 2001. *Processes and Fertility Transition: Selected Perspectives*. Washington DC: National Academies Press (U.S.), pp. 1-38.

CLARK W.A.V. 1982. Recent Research on Migration and Mobility: A Review and Interpretation, *Progr. Plann*., Vol. 18, pp. 1-56.

CLELAND J. 2001. Potatoes and Pills: An Overview of Innovation Diffusion Contributions to Explanations of Fertility Decline. In: CASTERLINE J.B. (ed.), *Diffusion processes and fertility transition: Selected perspectives*. Washington D.C.: National Academy Press (U.S.), pp. 39-65.

COLUCCI M. 2018. Formazione e reclutamento degli italiani che emigrano, *Il Mulino*, Vol. 6, pp. 33-40.

DE ROSE A., STROZZA S. (eds.). 2015. *Rapporto sulla popolazione. L'Italia nella crisi economica*. Il Mulino.

FONDAZIONE MIGRANTES. 2020. *Rapporto Italiani nel Mondo* 2020.

FURLAN C., GUIDOLIN M., GUSEO R. 2016. Has the Fukushima accident influenced short-term consumption in the evolution of nuclear energy? An analysis of the world and seven leading countries, *Technol. Forecast. Soc. Chang*., Vol. 107, pp. 37-49.

GUIDOLIN M., MORTARINO C. 2010. Cross-country diffusion of photovoltaic systems: Modelling choices and forecasts for national adoption patterns, *Technol. Forecast. Soc. Chang*., Vol. 77, No. 2, pp. 279-296.

GÜNDÜÇ S. 2019. A Study on the Effects of Diffusion of Information on Epidemic Spread, *Int. J. Model., Simul., Sci. Comp*., Vol. 10, No. 3, 1950015.

HARRIS J.R., TODARO M.P. 1970. Migration, unemployment and development: A two- sector analysis, *Am. Econ. Rev.*, Vol. 60, No. 1, pp. 126-142.

ISARD W. 1960. *Methods of regional analysis: an introduction to regional science*. John Wiley, New York

KAHANA D., YAMIN D. 2021. Accounting for the spread of vaccination behavior to optimize influenza vaccination programs, *PLoS O.N.E.*, Vol. 16, No. 6, e0252510.

LEE E.S. 1966. A Theory of Migration, *Demogr.*, Vol. 3, No. 1, pp. 47-57.

LESTHAEGHE R. 2010. Long-Term Spatial Continuities in Demographic Innovations: Insights from the Belgian Example, 1846-2000. *Population Studies Center Research Report*, pp. 10-695.

LEWIS A.W. 1954. *Economic development with unlimited supplies of labour*. School of Economic and Social Studies, Manchester.

LIVI BACCI M. 2014. Italiani verso la Gran Bretagna. *Neodemos.*

MACDONALD J.S., MACDONALD L.D. 1964. Chain Migration Ethnic Neighborhood Formation and Social Networks. *The Milbank Memorial Fund Quarterly*, Vol. 42, No. 1, pp. 82-97.

MASSEY D.S., ARANGO J., HUGO G., KOUAOUCI A., PELLEGRINO A., TAYLOR J.E. 1993. Theories of International Migration: Review and Appraisal, *Popul. Develop. Rev*., Vol. 19, No. 3, pp. 431-466.

ONOFRIO A., MANFREDI P., POLETTI P. 2012. The Interplay of Public Intervention and Private Choices in Determining the Outcome of Vaccination Programmes, *PLoS O.N.E.*, Vol. 7, No. 10, 45653.

PIORE M.J. 1979. *Birds of passage: Migrant labour in industrial societies*. Cambridge University Press, Cambridge

PUGLIESE E. 2018. Tutto il mondo è paese: la nuova emigrazione italiana. *Il Mulino*, Vol. 6, pp. 8-22.

RAMSEYER WINTER V. 2013. Diffusion of Innovations Theory: A Unifying Framework for H.I.V. Peer Education, *Am. J. Sex. Educ*., Vol. 8, No. 4, pp. 228-245.

ROGERS E.M. 1962. *Diffusion of innovations*. New York: The Free Press.

SHARIF M.N., RAMANATHAN K. 1981. Binomial innovation diffusion models with dynamic potential adopter population, *Technol. Forecast. Soc. Chang*., Vol. 20, No. 1, pp. 63-87.

SJAASTAD L.A. 1962. The costs and returns of human migration, *J. Pol. Econ*., Vol. 70, No. 5, pp. 80-93.

STARK O. 2003. Tales of Migration without Wage Differentials: Individual, Family and Community Contexts. *ZEF Discussion Paper on Development Policy No. 73*, Zentrum für Entwicklungsforschung, Bonn.

STRANG D., MEYER J.W. 1993. Institutional Conditions for Diffusion, *Theor. Soc*., Vol. 22, No. 4, pp. 487-511.

STROZZA S., TUCCI E. 2018. I nuovi caratteri dell'emigrazione italiana. *Il Mulino*, Vol. 6, pp. 41-48.

STEWART J.Q. 1941. An inverse distance variation for certain social influences, *Science*, Vol. 93, No. 2404, pp. 89-90.

SVENKERUD P.J., SINGHAL A., PAPA M.J. 1998. Diffusion of innovations theory and effective targeting of HIV/AIDS programmes in Thailand, *Asian J. Commun*., Vol. 8, No. 1, pp. 1-30.

TIRABASSI M. 2018. Migranti da sempre, *Il Mulino*, Vol. 6, pp. 24-32.

VITALI A., AASSVE A., LAPPEGÅRD T. 2015. Diffusion of Childbearing Within Cohabitation, *Demogr*., Vol. 52, pp. 355-377.

VITALI A., BILLARI F.C. 2017. Changing Determinants of Low Fertility and Diffusion: a Spatial Analysis for Italy, *Popul., Space Place*, Vol. 23, No. 2.

ZIPF G.K. 1946 The P1P2/D Hypothesis: On the Intercity Movement of Persons, *Am. Sociol. Rev*., Vol. 11, No. 6, pp. 677-686.

## SUMMARY

Classical migration studies distinguish chain migration, where social relationships and social networks channel between different places, from the impersonally organized migration. Whereas the former is mediated by interpersonal information exchange or imitative behaviours, the latter is mainly guided by economic motives or political instabilities.

Objectives: Despite the theoretical distinction between the two types of migration mechanisms, at the current stage of literature development, no practically viable methodology has been proposed to analyze population flows while disentangling the social from the impersonal drivers of migration. The aim of this paper is to fill this gap by introducing an "all-inclusive" methodology which can be operationalized in practical applications. The work refers to the diffusion of innovation theory and to the structuralism (or adaptation), both used in research on fertility, to better characterize the two sources of migration. In particular, the diffusionist paradigm captures the social influence conveyed by specific communication channels (mediatic and interpersonal), which drives the diffusion of migratory practices among individuals. On the other end, the structural vision explains the movements occurring as an adaptation to variations in economic or political cycles.

Methods: Here an extended version of the traditional Bass diffusion model is proposed. The Bass model is widely applied in market research to analyze the diffusion of new products, ideas, and behaviours. The version introduced in the present work aims to analyze population movements while distinguishing between sociological and structural motives to migrate.

Results: The fit of the model has been carried out to study the so called new Italian emigration towards the main destination countries. The preliminary results highlight the underlying dynamics governing the new Italian emigration flow and provide novel insights.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# THE PANDEMIC CRISIS AND THE DECLINE OF BIRTHS IN ITALY: A CAUSAL-EFFECT ANALYSIS OF THE PANDEMIC SHOCK [1]

Francesca Feoli, Giovanni Fosco, Maria Antonietta Liguori

## 1. Introduction

The Covid-19 pandemic crisis has affected demographic dynamics, accelerating the depression of births already underway in Italy since 2008 (Mencarini *et al.*, 2022). From the provisional data published by ISTAT, the year 2021 certifies yet another negative milestone of a lower birth rate ever recorded in the history of Italy (Istat, 2022). If in the first ten months of 2020, compared to the same period of the previous year, there was a relatively small drop (-2.7%) and entirely in line with the order of magnitude of the regressive trends that have followed one after the other since 2009 (Blangiardo, 2021), starting in November 2020 there was a sign of a sudden sharp drop in the birth rate, which then continued, with some positive fluctuations, in 2021. In the following study, we show empirical evidence of the pandemic crisis's negative impact on our country's birth rate.

In an already articulated and complex decision-making process, the pandemic and its media narrative have added further layers of uncertainty, causing yet another postponement of life plans (Mencarini *et al.*, 2022). While the pandemic has hit our country particularly hard in terms of deaths, especially among the older generations, the health emergency has also intervened forcefully in demographic behaviour (i.e., having fewer births).

Our study tests the relationship between pandemic shocks and births in Italy. Using monthly data between 2019-2021, we link months of pandemic waves with pregnancy months. Then, through a regional time series analysis, the causal impact of the Covid-19 shock on births is measured. Further, exploiting the pandemic shock, we estimate the difference in the number of borns between high and low-welfare system regions (*Mezzogiorno*) through the difference-in-differences (dif-in-dif) econometric strategies. The results show that the Mezzogiorno regions suffered a greater negative impact than the other regions of about 1.4 percent fewer births.

[1] The introduction, the paragraphs 1.1 and 1.2 were written by Liguori M.A.. The paragraphs 1.3 is written by Feoli F.. The the paragraphs 2.1, 2.2 and the conclusion were written by Fosco G.

The article is organised as follows: Section 1 provides an institutional and historical overview of birth trends and the pandemic. Section 2 shows the impact measurement strategy and results. Section 3 concludes.

## 2. Institutional and historical framework

### *2.1. The timing of the pandemic*

On 31 December 2019, Chinese health authorities notified an outbreak of pneumonia cases of unknown etiology in the city of Wuhan (Hubei Province, China). On 9 January 2020, the China Centre for Disease Control and Prevention (the China CDC) identified a new coronavirus (provisionally named 2019-nCoV) as the etiological cause of these diseases. On 11 February, the World Health Organization (WHO) called the respiratory disease COVID-19 (Corona Virus Disease). One month later, on 11 March, the WHO, after assessing the severity levels and global spread of the SARS-CoV-2 infection, declared the status of a pandemic for COVID-19.

The World Health Organization counts almost 517 million diagnosed cases worldwide, leading to more than 6 million deaths from the beginning of the pandemic to 15 May 2022. The first two cases of Covid-19 in Italy were confirmed on 30 January 2020 by the Spallanzani Institute. The second case of infection occurred in Codogno, a Lombardy municipality in the province of Lodi, on 18 February 2020. The discovery of new coronavirus cases within national borders and their growth led to a decree on 22 February to quarantine delimited areas in northern Italy. The first weeks of March saw a succession of decree-laws that gradually brought the whole country into a strict lockdown, with the suspension of activities and mobility never seen in the history of the Italian Republic. The national lockdown period ran from 9 March 2020 to 2 May 2020. Later there was a progressive reduction of the restrictions to limit movement and the laws to regulate commercial and private activities.

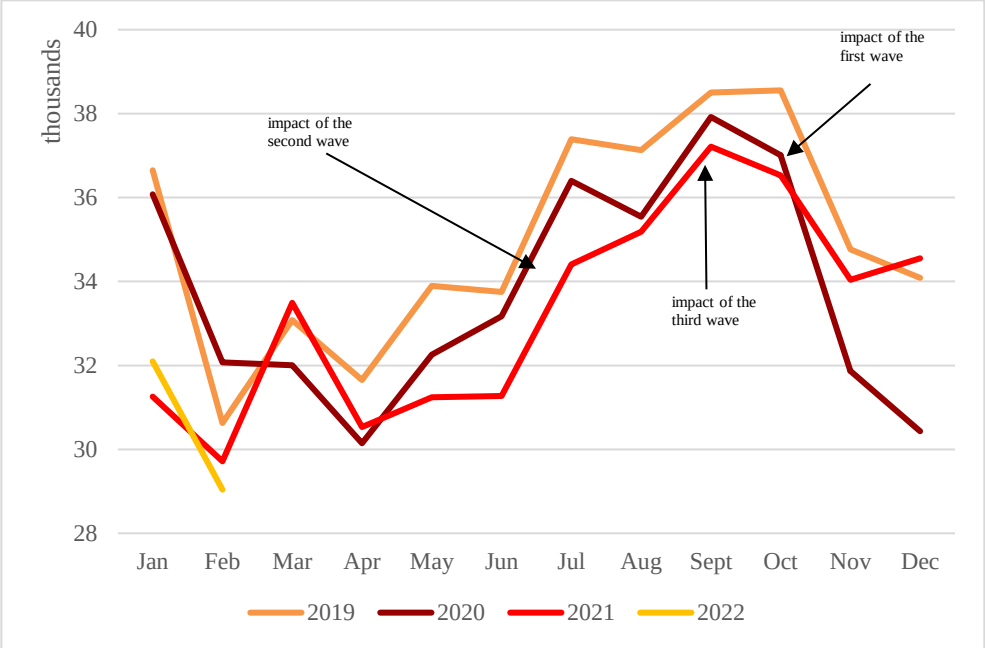
Since the increase in the infection curve, on 8 October 2020, the Italian prime minister reintroduced the previous containment measures, extending the state of emergency up to 31 January 2021. But given the tightening of the crisis, the 6 November 2020, the Italian government introduced additional social distancing measures, which provide a national curfew and containment for differentiated scenarios of infection risk to apply at the regional level, establishing more stringent actions for regions with a high level of infection (i.e., orange and red zones). During the Easter festivities we have witnessed a further reinforcement of the

emergency containment measures that has remained in force until 26 April. Starting from the end of April 2021, a new phase of emergency management began with a gradual reopening of the yellow zones and the introduction of the Covid-19 green certification.

### *2.2. Births and pandemic waves*

The spread of Covid-19 across territories explains the timing and geography of missed pregnancies. The first impact was in November 2020, with an 8.3% reduction in births compared to one year before. In December, the decline was even higher, equal to 10.7%. Then, the trend continued with a slight increase in March 2021. The second wave led to a new drop-in birth in July 2021. Figure 1 highlights the birth decline nine months after the pandemic waves (in the second wave there is only a slowdown in the increase in birth).

**Figure 1 –** *Births per month - Years 2019, 2020, 2021, 2022 - Values in thousands.*




*Source: Istat, Balance of the resident population (provisional data 2021)*

Several measures taken at the national and local level to contain the Covid-19 pandemic have had significant consequences on the well-being of citizens in terms

of their economic situation, social, family, and couple relationships, and life plans. Covid-19, along with restrictions on residential mobility and wedding celebrations, has had consequential effects on reproductive choices made in late 2020 and 2021.

According to the study of Boberg-Fazlic *et al.* (2017), the effects of the demographic structure can be classified into biological and behavioural effects. The first includes increased mortality and reduced fertility linked to the physical impossibility of conception due to the mortality or disease status of the fertile population. The latter include voluntary variations in conception choices. For instance, potential parents may postpone births or decide to have fewer or more children due to changing socioeconomic conditions. Hence, Covid-19 has mainly affected the behaviour of young families, aggravating an already difficult situation since it had a scarce biological effect on the fertile population.

In the decision-making of creating a family or choosing to have a child, the relevant factors are employment, the prospects of stability of professional paths, and the possibilities of reconciliation between life and work (Caracciolo *et al.*, 2021).

Aassve *et al.* (2020) claim that Covid-19 could negatively affect fertility in advanced economies due to worsening economic conditions and increase in future uncertainty about them. Authors also hypothesise other adverse effects related to the increased burden of child care due to the closure of educational facilities and worsening access to assisted fertilisation techniques.

Microeconomic evidence confirms that the perception of uncertainty about future conditions is crucial in explaining the pro-cyclical dimension of fertility. For instance, the US's post-World War II baby boom seems to be attributed mainly to a reduction in economic uncertainty linked to the Great Depression and World War II (Chabé-Ferret and Gobbi, 2018). Del Bono *et al.* (2015) point out that job loss induces women to reduce fertility, regardless of how quickly they find a new job.

In sum, the worse economic conditions, the reduction of hospital facilities, and the increased burden of childcare due to Covid-19 increased the uncertainty related to the future (Vignoli *et al.*, 2020). Thus, we hypothesize that these factors, in a decision-making framework, increase the cost of having children and disincentivize the choice, particularly during the pandemic waves, when the economy and health system has suffered more.

### *2.3. Covid-19, births, and regional-level heterogeneities*

During the pandemic, the average number of children per woman decreases in the North (1.16 to 1.14) and equally in the South (1.23 to 1.21). It remains stable at the Centre (1.11). In the North, the Autonomous Province of Bolzano (1.62), followed by the province of Trento (1.27), holds the primacy of Italian fertility. Among regions of the Centre, the highest level is observed in Lazio (1.13) while in Mezzogiorno, the peak is recorded in Sicily (1.30) and Campania (1.28). In comparison, Sardegna reaches a minimum value of 0.94 (Istat, 2021).

In 2018 (pre-covid), the Northern regions once again held the highest fertility record. Above all the autonomous provinces of Bolzano and Trento (respectively 1.72 and 1.45), Valle d'Aosta (1.38) and Lombardy (1.35). While in the Center and in the South the fertility levels were very close (1.23 and 1.26). In Southern Italy, the value was equal at 1.26 (1.29 in 2017), while the Centre felled from 1.27 and 1.23. At the regional level, Sardegna has the lowest fertility level (1.02), still decreasing compared to 2017 (Istat, 2019).

The regional heterogeneity in fertility, and thus, in pregnancy decision-making, is most related to imbalances in the supply of childcare support services of local and regional governments.

The results of a sample survey on educational services for children in Italy - conducted by the Presidency of the Council of Ministers-Department for Family Policies, Istat and Ca' Foscari University of Venice - show that private structures and especially the structures of the South have encountered greater difficulties. Unfortunately, the pandemic has adversely affected the behaviour of parents especially in the South of Italy, where there is a lower propensity to use structured educational services.

Analysing the per capita expenditure of municipalities for kindergarten per 100 children from 0 to 2 years of age (i.e., socio-educational services - Survey on social actions and services of single and associated municipalites), we can observe territorial disparities: on average, Italian municipalities sustained per capita expenditure of 876 euros in 2019 against 299 euros in the South and the 420 in the islands; whereas, the regions that invest more are those in the Centre, with an average expenditure of 1511 euros. The state does not change if we analyse the per-capita amounts of the kindergarten bonus for 100 children from 0 to 2 years old: in Italy, there is a per-capita amount of 179 euros while in the South, 106 euros, in the islands, 120 euros and the Centre 247 euros.

Analysing the educational offer, we see that the Italian coverage of posts authorized for children from 0 to 2 years in 2019 stands at 26.9%, still below the European parameter set at 33%.

At the regional level, we can see that the regions of the North are the ones with the highest coverage, Valle D'Aosta is the region with the highest value (43.9%), also exceeding the European parameter, while there are the regions of the South with the lowest values, Campania and Calabria have values below 11%.

Hence, regional heterogeneity can help us better understand factors affecting pregnancy path variations. In an economic decision-making process, the demand for children may be related to the burden of caring for them. Therefore, we expect that individuals that live in areas supplied by more childcare support facilities are more incentivized to have a child because they bear lower costs of having children, which are offset by the public sector.

## 3. Methodologies and results

### *3.1. The pandemic shock on births in each Italian region*

The ISTAT database provides updated Italian birth information up to January 2022. In particular, it delivers monthly and annual detail by each Italian region. These data allow us to identify months affected by the main pandemic waves and directly link them with children's conception months.

To address the causal impact of the pandemic, we develop an OLS regression in a time series framework using monthly data for every region from January 2019 to December 2021 to match the timing of the pandemic waves months with the child's conception month (nine months before birth). From a comparative perspective, we consider this time span, in which the emergency takes place in such a way as to compare critical months of the health crises with those less stressed.

Therefore, to quantify the extent of pandemic shock on births in each Italian region, we regress specific-region OLSs for the number of births per thousand inhabitants in each month on an indicator variable $covid_t$ equal 1 in nine months before if a (conception) month was affected by a pandemic wave[2] and 0 otherwise,

$$birth_{r,t} = \alpha_r + \beta_r covid_t + X_{r,t} + \varepsilon_{r,t} \quad (1)$$

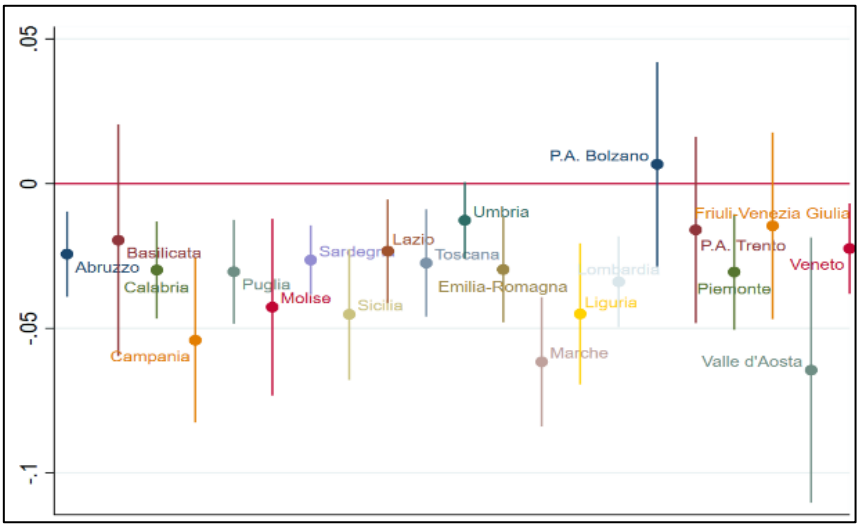
Where $X_{r,t}$ is a vector of control variables that includes a cubic polynomial in the number of months by January 2019 to control long-run trends and a month-

[2] The months affected by pandemic waves are those with the exponential growth of infections, typically, related to a $R_t$ greater than 1. The pandemic waves that occurred in Italy are three. The first goes from February to May 2020, concomitance with the WHO pandemic status declaration. The second one occurred between October and January 2021, and new covid variants characterized it. The third wave was between February and May 2021.

specific fixed effect of controlling for seasonality. These allow us to disentangle from pandemic shock possible confounding factors related to technological changes affecting demographics (Greenwood *et al.*, 2005) and the seasonal cycle of births. The Newey-West standard allows for autocorrelation of order twelve (i.e., one year) is also provided. Therefore, $\beta_r$ is the region-specific estimate. Consistent estimates of $\beta$ require that the timing of pandemic waves be uncorrelated with other (omitted) determinants of births in $\varepsilon_{r,t}$.

The $\beta_r$ is the time series coefficient specific to each region; it represents the mean difference between birth months in which nine months before the child's conception were exposed to the pandemic wave and those who were not exposed to the wave. In quantitative terms, the coefficients point out how many children are born per month for every thousand inhabitants.

**Figure 2** – *Pandemic shocks on births in Italian regions- Years 2019, 2020, 2021*




*Source: Authors' elaboration on Istat data*

Results. Figure 2 shows the differential effect of the covid pandemic waves on births in the Italian areas, based on separate regressions of the birth rate per thousand inhabitants in each region on a measure of the pandemic waves. The plots show the point estimate and confidence intervals of the coefficient of this variable. Newey-West standard errors are used for constructing confidence intervals. The figure shows the region-specific estimated $\beta_r$'s and the associated confidence intervals. The coefficient is not significantly different from zero for Basilicata, Provincia Autonoma Bolzano, Provincia Autonoma Trento, and Friuli-Venezia

Giulia and is close to statistically significant for Umbria. Further, the Valle d'Aosta point estimate is not precise due to the large confidence intervals.

The results point out that most regions belonging to *Mezzogiorno* are those worst affected by the pandemic shock, exhibiting spikes in the birth rate during the pandemic waves between -0.06 and -0.02 fewer born on average per thousand inhabitants. Therefore, since the statistical significance of the impact also after controlling for other relevant factors, we can conclude that pandemic waves due to Covid-19 represent random shocks.

*3.2. Childcare support facilities and regional differences in births*

In this next paragraph exploiting pandemic wave shocks, we try to measure the difference in births between *Mezzogiorno* and Centro-Nord regions. Since *Mezzogiorno* regions are historically those with structural weakness in the welfare system, we indirectly investigate the relationship between births during the pandemic period and the lack of the welfare system for childcare services support.

To estimate the impact of the pandemic shock on births in regions with deprived welfare systems in childcare support, we pool data from all regions and use the annual birth rate per thousand inhabitants.

We define the *Mezzogiorno* regions as the treatment group, corresponding to areas with deprived welfare systems in childcare services support, which have the public spending for socio-educational services by municipalities and posts authorized in the socio-educational sector (for children aged between 0-2) lower than their respective median values. Hence, we exploit the control group Center-North regions (above the median) to compare the difference in the number of births. We can thus compare the decrease in births during pandemic periods in regions with and without deprived welfare systems in childcare support, respectively, by estimating the following diff-in-diff specification:

$$birth_{r,t} = \beta \cdot (covid_t \cdot Mezzogiorno_r) + \gamma' X_{r,t} + f_r + f_t + \varepsilon_{r,t} \qquad (2)$$

The dependent variable is the birth rate per thousand inhabitants in region r and year t. The $covid_t$ is the fraction of months in each calendar year related to pandemic waves nine months before (which have contributed to the annual birth rate). The $Mezzogiorno_r$ is our treatment dummy equal to 1 for regions of Italian *Mezzogiorno*, $X_{r,t}$ is a vector of additional determinants of the birth rate, which may be correlated with the treatment group and the timing of pandemic waves (log population, fertility rate, covid positive rate, and covid deaths rate). The estimated coefficient β captures the differential change in births during the pandemic period in regions with deprived socio-educational services in childcare support (i.e., *Mezzogiorno*).

Results. Table 1 shows the differential effect of pandemic waves on births in the *Mezzogiorno* regions. In all columns, except for (4), the dependent variable is the birth rate per thousand inhabitants in each region and year; in column (4), the dependent variable is the logarithm of 1 plus the total number of births in each region and year. The explanatory variable is the interaction between covid, the fraction of months in each calendar year related to pandemic waves nine months before, and an indicator variable *Mezzogiorno*. Region-fixed effects are included in all regressions. In columns (2)-(4), we also have year-fixed effects, the logarithms of GDP per capita and population, and the fertility in each region and year. In columns (3) and (4), the contagion and covid death rates are also included. Robust standard errors to heteroskedasticity are reported in square brackets.

**Table 1** – *Pandemic shocks on births across Italian regions.*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| $covid_t \cdot Mezzogiorno_r$ | -0.095 | -0.241*** | -0.208*** | -0.014* |
| | [0.154] | [0.046] | [0.047] | [0.007] |
| Control and Year FE | NO | YES | YES | YES |
| Covid control | NO | NO | YES | YES |
| N | 84 | 84 | 84 | 84 |

*(* p < 0.05, ** p < 0.01, *** p < 0.001) - Source: Authors' elaboration on Istat data*

According to the diff-in-diff specification in column (1), which only includes region-fixed effects, the difference in the birth rate between *Mezzogiorno* regions and all others is not statistically significant. This result is affected by including the fertility rate and the log of the population (column (2)), the birth rate in *Mezzogiorno* regions decreases by 0,24 less per 1000 inhabitants (statistically significant at 1%). We also drop $covid_t$ in front of year fixed effect. In column (3), we also include the covid positive rate and covid deaths rate to control pressure on the hospital system. The result is relatively unchanged, as in column (2). In column (5), we re-estimate the same specification for the log of births. The result points out that the birth rate decreased by 1,4% in Mezzogiorno regions during the pandemic waves.

## 4. Conclusion

A persistently low birth rate accelerates the population's aging process, producing demographic imbalances with substantial negative consequences on economic growth and the welfare system.

The pandemic shock has further reduced births in Italy: our analyses estimate 30 fewer births per month in Italy during a covid wave nine months earlier. The

possible transmission mechanisms are attributable to the uncertainty due to worse economic conditions, the reduction of hospital facilities, and the increased burden of childcare.

Whereas, in the dif-in-dif model that measures the relationship between births and deprived socio-educational services in childcare support, we highlight that the most significant falls were felt in the regions with the lower childcare assistance services: -1.4% in the *Mezzogiorno* regions.

Since the desire to have children remains high (2 additional children per woman as the European average), to reverse the birth rate trend, it is needed for the development strategies of modern societies to focus on an integrated and systemic way on aspects such as reconciling work and family. In particular, by investing in childcare services to reduce the gap between the desire to have a children and actual births.

## References

AASSVE A., CAVALLI N., MENCARINI L., PLACH S., LIVI BACCI M. 2020. The COVID-19 pandemic and human fertility. *Science*. Vol. 369, No. 6502, pp. 370-371.

BLANGIARDO G.C. 2021. Calo di nascite a gennaio 2021: sintomo di un disturbo occasionale o conferma di un malessere strutturale?. *Report_Nati_Gennaio-2021*, Istat.

BOBERG-FAZLIC N., IVETS M., KARLSSON M., NILSSON T. 2017. Disease and fertility: Evidence from the 1918 influenza pandemic in Sweden. *IZA Discussion Paper* No. 10834.

CARACCIOLO G., LO BELLO S., PELLEGRINO D. 2021. *Alcune valutazioni sul probabile impatto demografico della crisi Covid-19*. Banca d'Italia

CHABÉ-FERRET B., GOBBI P. 2018. Economic uncertainty and fertility cycles: The case of the post-WWII baby boom. *CEPR Discussion Paper No. DP13374*.

DEL BONO E. D., WEBER A., WINTER-EBMER R. 2015. Fertility and economic instability: The role of unemployment and job displacement, *Journal of Population Economics*, Vol. 28, pp. 463-478.

GREENWOOD J., SESHADRI A., VANDENBROUCKE G. 2005. The baby boom and baby bust. *American Economic Review*, Vol. 95, No. 1, pp. 183-207.

ISTAT. 2019. *L'evoluzione demografica in Italia dall'unità a oggi - Anno 2019*. Istat

ISTAT. 2021. *Natalità e fecondità della popolazione residente - Anno 2020*. Istat

ISTAT. 2022. *La dinamica demografica - Anno 2021*. Istat

MENCARINI L., VIGNOLI D., MORABITO M.F. 2022. *La fecondità*. In BILLARI F., TOMASSINI C., Rapporto sulla popolazione. L'Italia e le sfide della demografia. Bologna: il Mulino.

VIGNOLI, D., GUETTO, R., BAZZANI, G., PIRANI, E., & MINELLO, A. 2020. A reflection on economic uncertainty and fertility in Europe: The narrative framework. *Genus*, Vol. 76, pp. 1-27.

## SUMMARY

The Covid-19 pandemic crisis has produced effects on demographic dynamics, accelerating the depression of births already underway in Italy since 2008. From the provisional data published by Istat, the year 2021 certifies yet another negative milestone of lower birth rate ever recorded in the history of Italy. In the following study we show new empirical evidence of the negative impact of the pandemic crisis on the birth rate in our country.

In recent years, Italy's birth rate has been among the worst in Europe. The collapse in birth rates is also linked to a widely documented structural phenomenon: the baby-boom generations of women have left childbearing age, replaced by smaller and smaller cohorts born in the baby bust years. In fact, the number of births depends not only on the average propensity to have children, but also on the number of parents of childbearing age.

In an already articulated and complex decision-making process, the pandemic and its media narrative have added further layers of uncertainty causing yet another postponement of life plans. While the pandemic has hit our country particularly hard in terms of deaths, especially among the older generations, the health emergency has also intervened forcefully in demographic behaviour.

Our aim was to check whether there is a link between the pandemic and the decision to have children.

Using updated birth data and pre-pandemic data, we developed a causal effect analysis on regional time series that allowed us to identify the impact of the Covid-19 shock on births, net of structural trends in the phenomenon. Subsequently, we exploited the pandemic shock to estimate its impact on the lower-performing regional family welfare systems (*Mezzogiorno*), through the difference-in-differences (dif-in-dif) treatment effect estimation model.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# INTERNAL AND INTERNATIONAL MIGRATION FROM ITALIAN REGIONS: OLD AND NEW DISPARITIES

Maria Herica La Valle, Francesca Licari, Maria Sole D'Orto, Cecilia Reynaud

## 1. Introduction and aim

In the last decade of 1900, after the historical exodus that characterized the Twentieth century, when millions of Italians left the country especially towards transoceanic destinations (America, Argentina, Brazil), Italy became an immigration land. The first significant immigration wave, due to globalization on a world scale encouraged large movements from the South to the most industrialized countries of the world. In Italy, the primary historical settlements of foreign citizens occurred in the southern regions (thanks to their position on the Mediterranean Sea) and hence involved the Centre and the North, where the highest presence of foreigners is registered nowadays.

Also, the collapse of communism and the entry of Romania, Bulgaria, and Poland into the European Union in the early 2000s, led to a new wave of foreign immigration, that came from the eastern European countries.

The economic crisis of 2008 marked a slowdown in immigration (Bonifazi, 2013a); also, the persistence of the crisis on one hand, and the difficult situation of the Italian labor market on the other hand, produced an increase in emigration of both foreigners and Italians (Bonifazi, 2017). In fact, there has been a reversal trend known in the literature as the "new Italian emigration" (Gjergji, 2015; Pugliese, 2018; Sanfilippo, 2017).

In addition to the dichotomy "Country of immigration and emigration", Italy is characterized by a dualism between North and South playing two opposite roles in the dynamics of national mobility (Impicciatore and Strozza, 2016). Indeed, internal migration has always characterized the history of Italian demographic dynamics and its contribution to the population distribution across the country is still different by subnational level (Bonifazi, 1999; Bonifazi *et al.* 2021). However, the migration flows from the South to the North of Italy depend on the significant economic gap between these two broad areas of the country, that has been increasing over time. The central and northern regions are more dynamic than the South, and this affects the emigration patterns of the areas: short or medium-range movements characterize the Centre and the North, while long-range departures and

reallocations characterize the South (Impicciatore and Strozza, 2016): the development of industrial and economic activities in the Center-North has driven the economy of the entire country thus representing a job opportunity for the entire population.

However, important inequalities in the study of both internal and foreign migration have been observed by scholars (Bonifazi, 2009) in terms of emigrants' characteristics, especially gender differences, with the male component more inclined to move than the female one (Reynaud and Tucci 2014). The continuous internal and international emigration from the South, accompanied by "slow" mobility, has led to an exacerbation of the economic delay of the South which seems to be aggravated by important gender differences: although the increasing share of graduated emigrants, compared to men, women show a lower propensity to leave their place of origin. It is worth noting that the economic crisis of 2008, seems to have partly changed emigration from the South of Italy: compared to the rest of the country, for people moving from the more developed regions, i.e., the Northern ones, movements towards other nations seem to be a useful tool to cope with the economic consequences of the crisis (Strozza and Tucci 2018).

The aim of the present work is to analyze the evolution of the main differences in Italian (internal and international) emigration over the last 25 years, by identifying the different migration types. In particular, we focus on the major areas of origin in order to highlight the role of the South in migration dynamics and investigate the evolution of the geographical gap in migration over time. The analysis also examines gender differences: the lower propensity of women to migrate compared to men shows the persistence of a gender disadvantage that is reflected in the economic delay of the South.

## 2. Data and methods

For the purpose of the analysis, we use data on residence change both among Italian municipalities and from/towards other countries over the period 1995-2019. This information is annually provided by ISTAT (Institute for National Statistics) through the Survey "Registrations and cancellations on the Population Registry due to changes of residence across Italian municipalities and from and towards other nations"[1]. In particular, the Survey, which has been carried out since 1955, offers the database for all the analyses on domestic and international migration flows, and allows researchers to measure their intensity and direction. In addition, the Survey

[1] Iscrizioni e Cancellazioni all'Anagrafe per Trasferimento di Residenza tra i comuni italiani e da e per l'estero.

model (APR.4) contains data on migrants' major socio-demographic characteristics (such as gender, marital status, citizenship, age and level of education).

The observation unit is municipality, and we consider five geographical subdivisions (NUTS1): North-West, North-East, Centre, South, and Islands. We have chosen to name these broad regions *macro areas*[2] and, in order to show territorial differences, to consider the South and the Islands as a single unit, i.e., Mezzogiorno. Indeed, these two areas have always had similar historical migration paths and are often considered as a single geographical area in studies on Italian migration. Furthermore, splitting the country in different broad regions allows us to classify the movements as intra-provincial, inter-provincial, intra-macro areas and inter-macro areas according to the municipality of origin and destination. This categorization can be considered as a valid proxy for the distance of movements, so that changes of residence within provinces can be assimilated to short and medium-range movements, while those between intra macro area and between macro areas to long-range movements and to very long-range movements respectively.

Finally, since the micro-level survey on individuals who change their residence (and are de-registered because of their move to other municipalities within the country or abroad), provides information on their age and year of birth, analyses by contemporaries and by generations are allowed. Specifically, we conduct a two-steps investigation. Firstly, we carry out a descriptive analysis by comparing emigration rates. Secondly, we run a Poisson regression model, where the dependent variable is the number of emigration flows, and controlling for year, sex, macro area (North-West, North-East, Centre, South and Islands), and type of move (intra-Provinces, intra-macro areas, inter-macro areas, abroad). Also, we run the model for all emigrants as a whole and for emigrants grouped by age class (20-24, 25-29, 30-34, and 35-39).

## 3. Results

As a first step, we conduct a descriptive analysis through rate comparison. As shown in Figure 1, (internal and international) emigration rates increased during the observation period, with a peak in 2012, while gender differences reduced over the second half of 2000 and slightly recovered in the last two years.

[2] In the text, the areas corresponding to NUTS1 are also named "broad regions", "broad areas", "macro areas", "macro geographical areas", "geographical subdivisions".

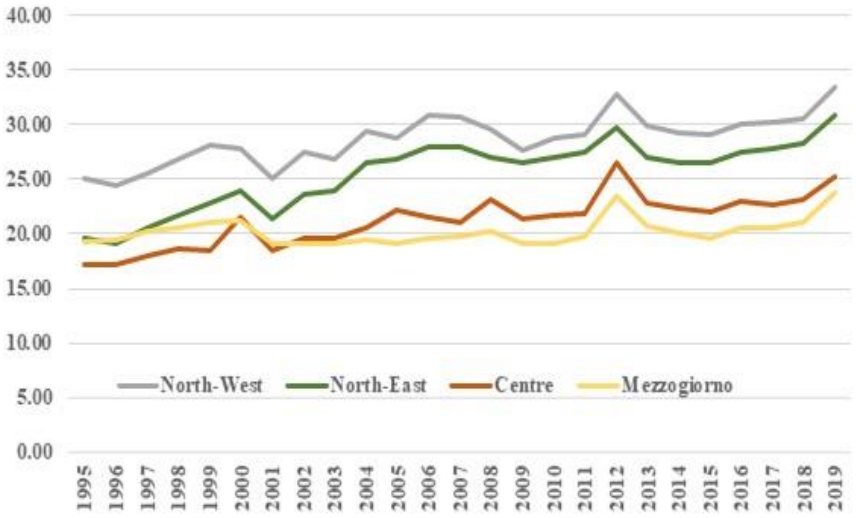
**Figure 1** – *Emigration in Italy, 1995-2019 (Rates per 1,000 inhabitants).*


*Source: Authors' elaboration on ISTAT data*.

Between 1995 and 2019, the highest emigration rates were registered in the North of the country, especially North-West (Figure 2), and changes of residence occurred above all within the same province, while emigration abroad was the least observed type of relocation (Figure 3). This type of move is driven by traditional life paths (such as marriage or leaving own family of origin and choosing a better home), and not by real migration choices. Although the lowest values were registered for emigration abroad, it has been on the rise since 2010. Such an increase may be linked to the economic crisis, that produced unemployment thus encouraging emigration abroad (Bonifazi, 2013b). This is reflected in all the four broad Italian regions, although inter-macro areas movements are higher in the southern regions than in the rest of the country (Figure 4). Inter-provincial flows are less frequent in Mezzogiorno and this shows a lower economic opportunity to improve life conditions across this area (Bonifazi, 2009). At the beginning of the observation period, emigration towards foreign countries seems to be more frequent in the South of Italy than in the other regions; in more recent years, instead, the highest increase is observed in the central north area. This seems to confirm the hypothesis that people from the most developed regions of the country have coped with the economic crisis by leaving abroad (Strozza and Tucci, 2018). Since the northern and central regions are the most developed economic areas in Italy, the higher emigration rates towards foreign nations in these areas, compared

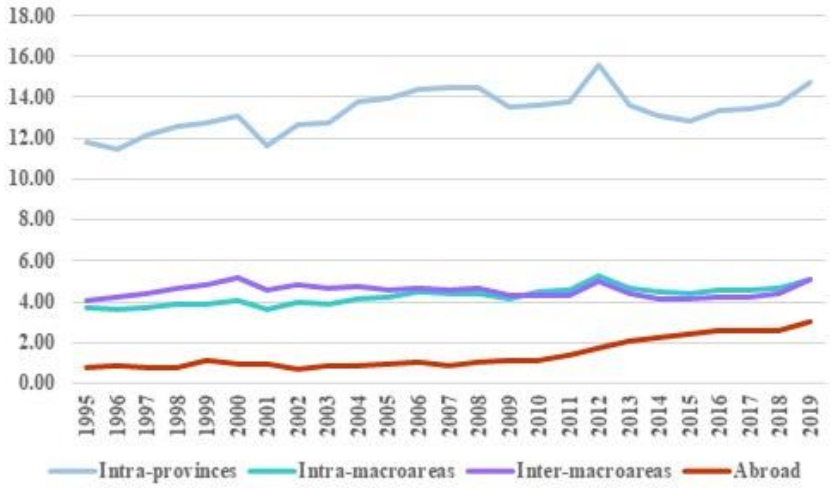
to the other macro areas, may reflect the difficulty to find better job opportunities in the rest of the country.

**Figure 2** – *Emigration by macro area in Italy, 1995-2019 (Rates per 1,000 inhabitants).*



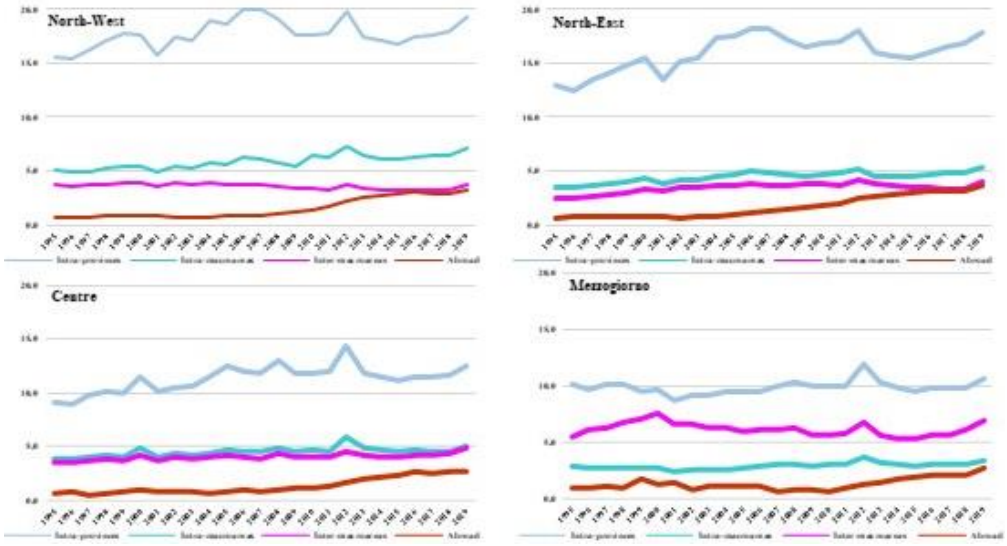

*Source: Authors' elaboration on ISTAT data.*

**Figure 3** – *Emigration by type of move in Italy, 1995-2019 (Rates per 1,000 inhabitants).*




*Source: Authors' elaboration on ISTAT data.*

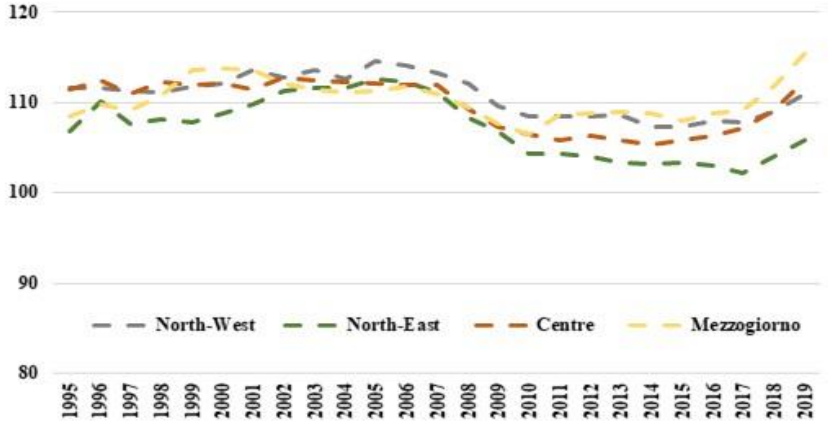
**Figure 4** – *Emigration by type of move and macro area in Italy, 1995-2019 (Rates per 1,000 inhabitants).*




*Source: Authors' elaboration on ISTAT data*.

Over the last years of observation, an increase in the gender gap in emigration is detectable in all macro areas, with the highest values registered in the region of Mezzogiorno from 2014 afterwards (Figure 5).

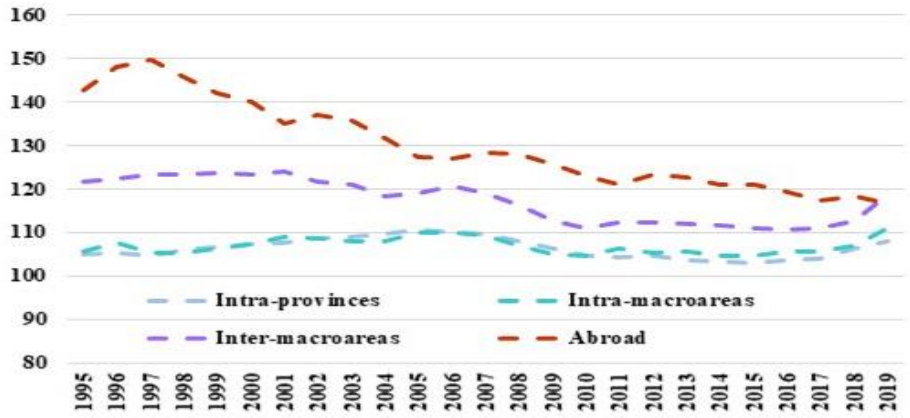
**Figure 5** – *Emigration by gender (M/F) and macro area in Italy, 1995-2019 (Rates per 1,000 inhabitants).*




*Source: Authors' elaboration on ISTAT data*.

Data show that men emigrate more than women do, and this is observed for all the different types of movements (Figure 6). Smaller gender differences are observed especially in short-distance migration, but this may be linked to the different migration reasons. Short-distance migrations, as already noted, are driven by life paths and project shared by men and women. Long-distance migration, on the other hand, is driven by job opportunities and life improvement aims: this kind of choice usually characterizes men's life pattern, still marking a big gap in gender differences in our country. However, the highest gender gap concerns migration towards other countries, although a reduction in emigration rate abroad is recorded as well (Figure 6).

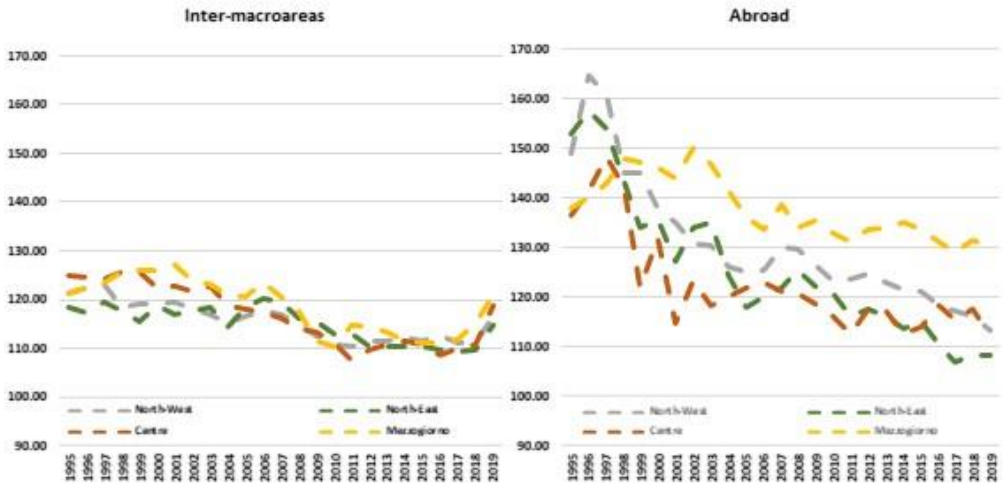
**Figure 6** – *Emigration by gender (M/F) and type of move in Italy, 1995-2019 (Rates per 1,000 inhabitants).*




*Source: Authors' elaboration on ISTAT data.*

Also, people from Mezzogiorno show a higher gender gap in both inter-macro areas movements and reallocations abroad (Figure 7). But gender differences observed in migration towards other nations are narrowing in all the considered macro areas, although the decrease in the Mezzogiorno is much smaller than in the other areas. This shows that in the Mezzogiorno, women, despite being better educated than in the past, continue to have fewer opportunities than men.

**Figure 7** – *Emigration by gender (M/F), type of move and macro area in Italy, 1995-2019 (Rates per 1,000 inhabitants).*




*Source: Authors' elaboration on ISTAT data*.

As a second step, we run a Poisson regression model to study emigration flows both for people as a whole and for those aged 20-24, 25-29, 30-34, and 35-39 (Tab. 1). Results of both models confirm the descriptive analysis.

Overall, emigration flows from Italy both intra macro area and towards other countries are increasing by year. Results show a gender gap in emigration, but considering the different age groups, we can see that for people aged 20-24, females emigrate more than males do. Also, as for the macro area of origin, compared to North-West, the analysis suggests a lower propensity to emigrate from the North-eastern and the central regions of the country, and a higher propensity to emigrate from the South and the Islands, which decreases by age (indeed, an opposite trend is observed for the flows of people aged 35-39). If we look at the type of move, instead, compared to the intra-Provinces changes of residence, flows within the same macro area and those towards other countries are less likely to have place, while reallocations among macro areas are more likely to happen, even if the analysis by age reveals opposite results for the classes 25-29, 30-34, and 35-39.

Interactions help interpreting the model output: Emigration flows of men aged 20-24 are not increasing over time.

**Table 1** – *Results from Poisson Regression Model.*

| Variable | All age groups | 20-24 | 25-29 | 30-34 | 35-39 |
|---|---|---|---|---|---|
| Intercept | -17.750*** | -33.430*** | -17.580*** | -21.880*** | -23.640*** |
| **Year** | 0.004*** | 0.015*** | 0.007*** | 0.009*** | 0.010*** |
| **Sex** (ref. Male) | | | | | |
| Female | -4.419*** | 9.736*** | -8.845*** | -13.950*** | -15.880*** |
| **Geographical area** (ref. North West) | | | | | |
| North East | -12.420*** | -10.520*** | -10.740*** | -10.150*** | -12.470*** |
| Centre | -10.560*** | -7.282*** | -0.604*** | -4.814*** | -8.342*** |
| South | 9.698*** | 33.530*** | 18.260*** | 2.735*** | -3.620*** |
| **Migration type** (ref. Intra-provinces) | | | | | |
| Intra- macro areas | -12.240*** | -9.248*** | -15.770*** | -20.880*** | -21.950*** |
| Inter- macro areas | 13.410*** | 40.020*** | -1.411*** | -10.610*** | -9.516*** |
| Abroad | -120.500*** | -131.000*** | -169.300*** | -147.000*** | -122.100*** |
| Year*sex | 0.002*** | -0.005*** | 0.005*** | 0.007*** | 0.008*** |
| Year*North-East | 0.006*** | 0.005*** | 0.005*** | 0.005*** | 0.006*** |
| Year*Centre | 0.005*** | 0.004*** | 0.000 | 0.002*** | 0.004*** |
| Year*South | -0.005*** | -0.017*** | -0.009*** | -0.002*** | 0.002*** |
| Year*Intra-macro areas | 0.006*** | 0.004*** | 0.007*** | 0.010*** | 0.010*** |
| Year*Inter-macro areas | -0.007*** | -0.020*** | 0.000 | 0.005*** | 0.004*** |
| Year*Abroad | 0.059*** | 0.064*** | 0.083*** | 0.072*** | 0.060*** |
| Sex*North-East | 0.033*** | 0.022*** | 0.039*** | 0.026*** | 0.020*** |
| Sex*Centre | 0.011*** | -0.137*** | -0.010*** | 0.035*** | 0.042*** |
| Sex*South | 0.111*** | -0.203*** | -0.101*** | -0.001 | 0.028*** |
| Sex*Intra-macro areas | -0.005*** | -0.121*** | -0.034*** | 0.013*** | -0.013*** |
| Sex*Inter-macro areas | -0.097*** | -0.473*** | -0.299*** | -0.082*** | -0.025*** |
| Sex*Abroad | -0.172*** | -0.462*** | -0.341*** | -0.160*** | -0.098*** |

*Source: Authors' elaboration on ISTAT data*

## 4. Conclusions and discussion

Gender differences in emigration are still detectable: the male propensity to emigrate is higher than the female one. However, the descriptive analysis shows that, overall, the gap sharply decreased between 2007 and 2010 while started increasing again in 2017.

Flows from the North-West have always been higher than those from the other macro areas of the country. Flows from the Mezzogiorno started being the lowest in the early 2000s; however, for both genders, an increase is observed in the last observation years.

Intra-Provinces changes of residence are the most favourite reallocations, while slight differences between intra and inter-macro areas flows are observed.

Considering the macro area of origin, instead, over the observation period, inter-macro areas change of residence are higher than intra-macro areas ones only for the Mezzogiorno for both males and females.

Overall, the regression analysis confirms that, in Italy, differences in emigration by gender, macro area of origin, and type of move still exist.

However, results suggest considering the role of age in shaping emigration flows in terms of both the different Italian macro areas of origin and the type of residence change (by gender).

Emigration keeps being a significant phenomenon with not only demographic but also economic and social implications. The investigation of emigration evolution as well as the analysis of the characteristics of those who emigrate allow policy makers to deeply understand the phenomenon thus helping them to choose and apply appropriate policies also directed to reduce the gaps that we have emphasised in this work.

## References

BONIFAZI C. 1999. *Mezzogiorno e migrazioni interne* (Vol. 10), Roma: Consiglio nazionale delle ricerche, Istituto di ricerche sulla popolazione.

BONIFAZI C. 2009. Le migrazioni interne meridionali: vecchi e nuovi ritardi, *neodemos*.

BONIFAZI C. 2013a. *L'Italia delle migrazioni*. Bologna: Il Mulino.

BONIFAZI C. 2013b. *Mobili per forza. Spostamenti di popolazione nell'Italia della crisi*. Il Mulino, 62(5), 798-805.

BONIFAZI C. 2017. Migrazioni e integrazioni nell'Italia di oggi: Realtà e prospettive, in C. Bonifazi (ed.) *Migrazioni e integrazioni nell'Italia di oggi*, Roma: CNR - IRPPS e-Publishing, Roma, 7-41.

BONIFAZI C., HEINZ F., LICARI F. TUCCI E. 2021. The regional dynamics of internal migration intensities in Italy, *Population, Space and Place*, 27/7.

GJERGJI I. 2015. Cause, mete e figure sociali della nuova emigrazione italiana, in GJERGJI I. (ed.) *La nuova emigrazione italiana. Cause, mete e figure sociali*, Venezia: Edizioni Ca'Foscari-Digital Publishing, 7-23.

IMPICCIATORE R., STROZZA S. 2016. *Lasciare il Mezzogiorno*. Il Mulino, 65(1), 125-132.

PUGLIESE E. 2018, *Tutto il mondo è paese: la nuova emigrazione italiana*. Il Mulino, 67(6), 8-23.

REYNAUD C., TUCCI E. 2014. Internal mobility in Italy: A new delay, *Stanovnistvo*, 52(2), 21-42.

SANFILIPPO M. 2017. La nuova emigrazione italiana (2000-2017): il quadro storico e storiografico, *Studi emigrazione*, 207, 359-378.

STROZZA S., TUCCI E. 2018. *I nuovi caratteri dell'emigrazione italiana*. Il Mulino, 67(6), 41-48.

## SUMMARY

In Italy, internal migration has strongly contributed to the population distribution across the country, with different types of residence change and showing an important gender gap, with men moving more than women do. In particular, emigration from the southern regions has always been an important component of Italian emigration both towards other local divisions and towards other nations. The present paper aims at investigating Italian migration in terms of flows from five macro areas towards both the rest of the country and at international level. The analysis focuses on gender differences controlling for all the sociodemographic characteristics of emigrants, both Italians and foreigners.

We use ISTAT (Institute for National Statistics) data on residence change both among Italian departments and from/towards other countries for the period 1995-2019. In particular, we collect information about residence change by considering gender, type of move across the country (intra-province, intra-macro geographical area and inter-macro geographical area) and abroad, and macro-area of origin (North-West, North-East, Centre, South and Islands).

The first step is a descriptive analysis through emigration rate comparison. As a second step, we employ a Poisson regression model to analyse emigration flows within the country (in the same province and department, as well as among different provinces and departments) and from/towards other nations, by considering both Italian and foreigners, and controlling for year, sex, macro geographical area, and type of move. Also, we consider both all the respondents as a whole and people grouped by age class (20-24, 25-29, 30-34, and 35-39).

Results show that, in Italy, differences in emigration by gender, macro area of origin, and type of move still exist. However, the analysis suggests considering the role of age in shaping emigration flows in terms of both the different Italian macro areas of origin and the type of residence change (by gender).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# INTERNATIONALS AND THEIR LEGITIMACY IN THE EYES OF THE PUBLIC

Arjeta Veshi, Rei Shehu

## 1. Background: History of Internationals from state formation until 1990

The role of internationals in the political history of the Albanian state has always been crucial. The international system is in a state of anarchy. In the classical equilibrium of powers, the actors are only the states and, for such a system to function, there must be at least five. In multipolar systems, some states - at least two or three - enjoy relative strength (Mingst, 2010). The Austro-Hungarian Empire stood by an Albanian state as a political barrier against Pan-Slavism and an empowerment of these peoples to dominate the Adriatic Sea. Despite self-proclaimed neutrality, only the intervention of two of the Great Powers of the time, the Austro-Hungarian Empire and Italy saved the new state from total disintegration, although some land borders were sacrificed throughout the process (Kalemaj, 2014).

After World War II, with the power taken by the communists, Albanian politics would be oriented towards the socialist superpowers, the Soviet Union and the People's Republic of China. This manifested itself in the form of post-war recovery and economic development; The 55million ruble loan would have an annual interest rate of 15% and would be repaid from 1980 to 1990. With this loan, during the third five years period 1961-1965, several works would be built, where what stood out was the construction of a glass factory with a capacity of 5600 tons of glass production and a factory for packaging (Boriçi, 2019).

The internal problems brought by totalitarianism, degradation and inefficiency of the centralized economy would bring about the end of the relations between Albania and China. After the fall of the dictatorship, international interest reappears and this time under the influence of the United States of America. But for realists, power is the currency of international relations. It is the means by which international actors reach out to each other (Mingst, 2010).

The great involvement of the internationals has always focused on the formation of the Albanian state as it is an element previously unknown to this population. A role that continues today, but, in post modernism, is this the real agenda or is it a feature of a personal agenda.

## 2. The role of internationals in the political reform process

The functional role of international representations in the 21. century, belongs to a crucial role for several reasons such as: maintaining the stability of the international order, economic stability, strengthening the rule of law, common security policies, geo influence, etc. While many nations used the language and symbolism of democracy as a means of increasing the legitimacy of their respective regimes, democracy, as most Westerners understand the concept, was limited to North America, Western Europe, Britain, and the old Commonwealth (Mayer, 2001). This element makes it possible for the actions of internationals to be viewed by the public under the view of a guardian who guarantees the implementation of common rules and as a control mechanism in countries with transitional democracies.

The difference between order and anarchy is more fundamental than the difference between democracy and dictatorship (Huntington, 2011). So, what the internationals are looking for, is stability and achieving the necessary parameters to maintain political stability. The largest investment to date by the United States in Albania remains the organization of the reform in justice. A colossal reform aimed at cleaning justice of corrupt elements and ensuring its independence from politics. Technically, the justice reform had to go into a deep reflection to understand and analyze the reasons for it's delay and its efficiency in implementation, meanwhile, after a decisive effort by the United States, it was decided to extend the term of the vetting members. This decision was voted by 118 out of 120 members of parliament.

Analyzing it democratically, there is no concrete reason why the mandates should be extended, on the contrary, each reform has its own timeline to be implemented. The extension of the mandates is a factor of an attempt to understand that something is lagging behind in the implementation of this reform. The reform must guarantee that it will be impossible to a prosecutor should not investigate everything accusations of corruption, while they who are corrupt to think that they will never be prosecuted. It must also guarantee that everyone, without exception, is equal before the law (Vlahutin, 2015).

It is true that a large number of members of the justice system have been fired and the Chief Prosecutor has been arrested but, when it comes to investigating politicians, this reform has not been effective, showing once again the panorama that the political caste the current still exerts a strong influence on a fundamental pillar such as the judiciary.

The main problem with Albania lies in non-recycling of the political elites and with deep problems in internal democratization. The lack of internal democracy is not seen as a problem by international representations. But referring to a January

2022 European Court of Auditors special report on EU support for the rule of law in the Western Balkans, Freedom House cites its findings that “such support and funding have had little impact on the advancement of fundamental reforms of the rule of law due to insufficient political will and lack of commitment" (Zaimi, 2022).

They follow their personal agenda. What needs to be understood today is that the real change comes from the dynamics of the domestic factor, because for internationals stability is valued, while for locals, there is the implementation of a competitive and comprehensive domestic policy, empowering to achieve state-building in those parameters in order for it to be worthily represented internationally.

The state is an autonomous actor, conditioned only by the anarchy of the international system. The state enjoys sovereignty; namely the authority to administer matters that lie within its borders and that affect its people: the economy, security and the form of government (Mingst, 2010). Sovereignty recovered several times from the constant interference of the internationals. Decisions exist on the basis of reciprocity, transparency and involvement of several actors. In the end what is worth mentioning is that the representations reflect the interest of their countries. Not necessary do their interests coincide with the interests of the host countries. Given the anarchic nature of the international system, the element that secures the weight of political decision-making is based on the power that the state has. It is the possession of power that makes it possible for the "great nations" "to overlap with the “small nations”. Democracy of small nations is a peripheral propaganda element, but in fact the interest of large nations prevails over the tendency for more power and political stability in the host countries.

External influences may lead to democratization efforts before countries reach the area or they may delay or prevent democratization in countries that have reached that level of development (Huntington, 2011). This is observed in various intergovernmental organizations operating in Albania. Political elections organized in Albania show the same problems over the years as: vote-buying, family voting, delays in the outcome, militant conflicts and tensions, result disputes from political forces to protests and even revolts. International organizations such as the OSCE / ODIHR, for example, monitor and send reports, where they express the problems of the processes and reflect the current picture, while there is no concrete step to change the problems except of an advisory nature. Internationals are ready to interact with any of the political actors who take power regardless of taking and securing power, as after all, their role is only representative of the interest of their country and should not be more than that. In international politics, talks, at a glance, are discussions between official representatives in order to reach formal agreement between their governments on an issue that may be a common concern

or a dispute between them (Berridge, 2001). It must be understood that the real political changes stem from the internal dynamics of the country, from society itself. Stability and democracy do not necessarily coincide. Stability and democracy do not necessarily coincide.

As long as internationals operate on their own personal agenda then society itself must have its own personal agenda even if the social interest prevails over the international interest. And the consensus that is really a necessary condition is the procedural consensus, being in agreement on the so-called rules of the game (Sartori, 2010).

The anarchic nature of the international order also manifests itself in the internal anarchism of small countries. A political society without a rule for resolving conflicts is a society that risks compromising any conflict: and in this case "conflict" is the correct word (Sartori, 2010). Apart from the anarchy of the system which bears consequences in the dynamics of domestic politics, another element of pressure that affects the perception of public opinion, is the empowerment of civil society. The role of these internationally funded organizations provides for the development of various factors such as the promotion of elements of society with different character such as the promotion of democracy, law enforcement, respect for human rights, youth representation, public policy, sustainable development etc. It should be noted that the mode of existence of opinion, as described above, is applicable only in a democracy. It, in fact, presupposes three conditions: freedom of thought, freedom of expression, polycentrism (Sartori, 2010).

The major objective in addition to increasing civic activism, lies in organizing and creating a mechanism to exert pressure on politics. An independent network of associations is capable of mobilizing demands and interests independent of the state and, thus, provides an antidote to the uncontrolled concentration of power. On the other hand, civil society can contribute to the effectiveness and legitimacy of the state through “stabilizing hopes” or filtering and consolidating demands (Mayer, 2001).

## 3. The crisis in the Democratic Party and the March 6, 2022 election

As mentioned earlier in this paper, the role of the United States has been and remains crucial in Albania's political process. One of the practices followed by the United States has been declaring certain individuals undesirable and banning them from entering the United States as “non grata”. With the proclamation of Berisha non grata, the great schism within this party began. The political situation of the Democratic Party is totally an internal institutional issue. The competencies of all the officials of this entity are defined in the statute of the party. The pressure

exerted by the United States with the declaration of Berisha non grata, has formed a deep crisis in the party leadership, where today he is more contested than ever.

We are dealing with the phenomenon of elections within the party, a phenomenon which recently, in both political entities aspiring to governance, both the socialist party and the democratic party, have eliminated internal competition and vote of confidence by moving to personal appointments of officials and not towards a comprehensive vote of confidence, a clear sign that both major parties are moving towards autocracy where decisions are made by the party chairman or group presidency. Article 43 / point ç stipulates that the National Assembly declares a motion of no confidence in the President but it is the National Council which dismisses him by a majority vote of 50 + 1. The statute at this point overlaps with the powers, leaving the decision open for court interpretation.

The first criterion of consolidation seems to mean that a democratic regime is consolidated when it has gained a high degree of legitimacy (wide popular acceptance). This high degree of legitimacy is enough to prevent a serious opposition to the democratic regime itself, regardless of the degree of achievement of the regime (Mayer, 2001). This is the primary reason why the parties decided to hold separate assemblies, to measure strength that who would own the majority but the problem of transparency of delegates continued to remain unclear on both sides.

At the moment when both parties declare that they claim the majority, in a democratic society, it is the court that gives the final decision. The panorama so far expresses a fragmented political party and not suitable to emerge as a competitive alternative to take power.

The USA Embassy has publicly spoken out at the start of the political campaign for the by-elections where it does not accept any candidate supported by non grata USA individuals. Former mayor Vangjush Dako, non grata from the United States, joined the campaign in Durrës. The Democratic Party re-founding group led by Sali Berisha, non grata person from the United States. The campaign in Shkodra was joined by Tom Doshi, former chairman of the Social Democrats and former member of parliament, in support of the socialist candidate for Shkodra, and this non grata from the United States. But what difference did these elections make despite the USA embassy's warning?

Through the twitter platform[1], the ambassador has made her position clear despite the fact that this is a decision which exceeds the competencies of an ambassador. It is worth mentioning that the American pressure was ignored and not taken into account at all.

The decision to expel Berisha from the parliamentary group was taken under direct pressure from the United States. The negligence shown by the current presidency, the full trust that this subject showed in the American embassy,

resulted in a catastrophic result in the local by-elections, which stands as a preparatory test for the 2023 general elections. Public opinion did not take into account the statements of the American embassy.

The by-elections ranked the Democratic Party as the third force, while Berisha's group managed to win the Shkodra municipality, a traditional political stronghold of the Democrats. During talks on politically sensitive topics, when publicity is inevitable and perhaps desirable, the issue of face is of particular interest in the "packaging" of the agreement. This implies the need to protect from extreme shame those parties which, because of the concessions they have been forced to make during the negotiations, become vulnerable and vulnerable to the anger of their supporters (Berridge, 2001).

Despite the pressure from the United States, such as a non-grata declaration or the statement from the USA Embassy calling for anti non grata, they ultimately yielded a result that directly punished the political entity that followed these instructions. The re-establishment commission's several-month-long election campaign against the passivity shown by the official democratic party, became decisive factors in the defeat of the democratic party.

The Albanian political phenomenon showed that the old roots are difficult to cut and that the guarantee of the internationals, regardless of their status, does not necessarily mean victory. The partial election campaign was conducted by non grata persons, on both the left . The USA embassy's calls were ignored by political forces because those declared non grata by the United States are influential individuals, former political officials and senior state officials with strong ties to areas where they have been active. Power is rational, as it is secured by numbers and not idealistic, especially in countries that are still in democracy transition. It still gives the same picture of the last 6 years, with a party that always wins, despite the long time in power and numerous scandals, with a divided opposition that shows internal problems, with people dissatisfied with the system where for various reasons approximately 60% do not vote due to the lack of new alternatives to ensure political change. Despite the result of these elections, since their end, there is a silence on the part of the embassy leaving this conflict as it should always be, internal where the chairman, the presidency of the party and the membership of the party show the courage and political discretion to solve their own problems.

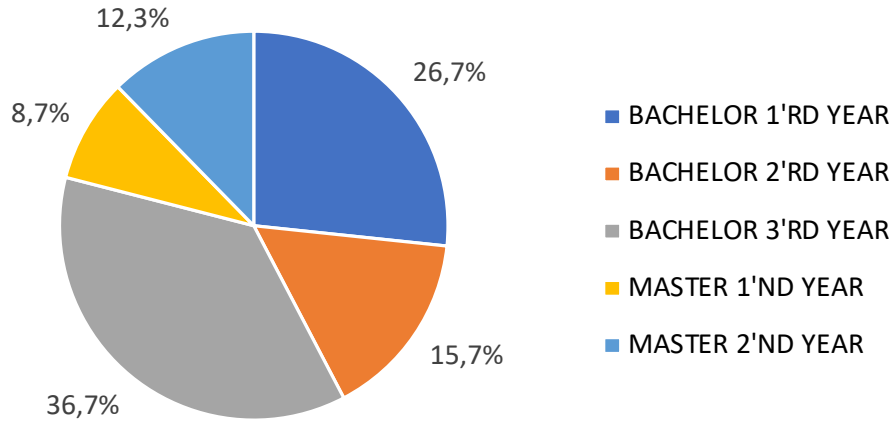
## 4. Questionnaire on international perception

A survey was carried out from February to March 2022 involving 300 students enrolled at the Mediterranean University of Albania in order to understand the opinion they carry on the role of internationals and whether their intervention

improves policy-making or affects the process of Albanian democratization. Data were analyzed using IBM SPSS. Given the methods of selecting the sample and the aims of the research, there is no probabilistic sample: therefore, the results of the research cannot be the object of inference for purposes of generalization.

In the questionnaire organized on the role of internationals in Albania, according to the result of the samples collected, 51.3% are male and 48.7% female.

**Figure 1 –** *Cycle of academic studies.*




From this survey of young university students, it is clear that the majority of students, 60.3%, understood that the intervention of internationals in the democratic party had a destabilizing effect in the country, even though 37.7% were in favor of this intervention, being influenced by the former founder of this the party was declared by the United States of America as a “non grata” person.

Regarding the good governance of the country, almost two out of three students think that the international role has been positive throughout the Albanian political transition.

**Figure 2 –** *Does international interference in the political situation of the opposition complicates or strengthens it?*

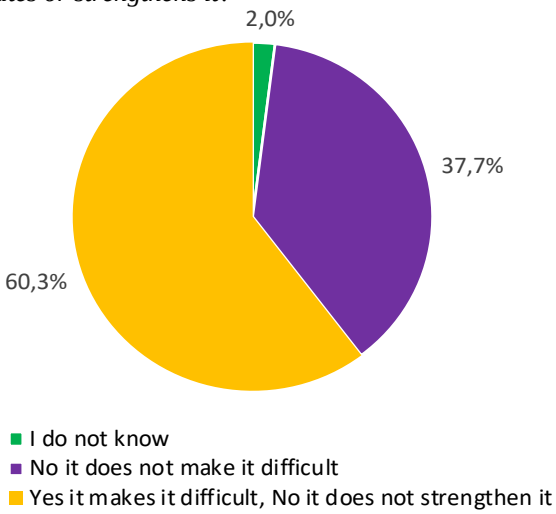
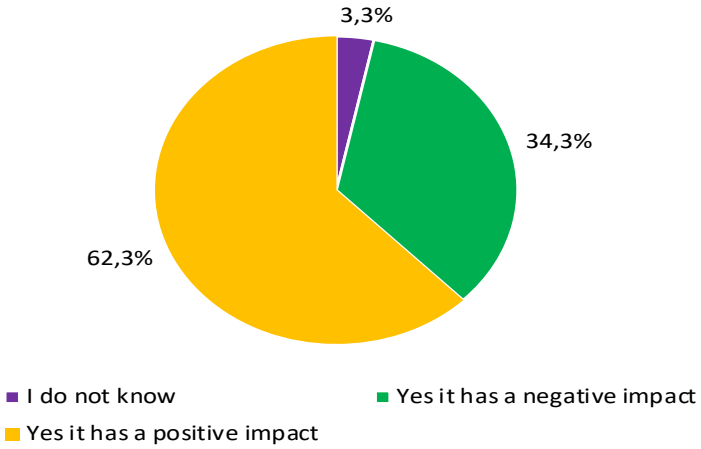
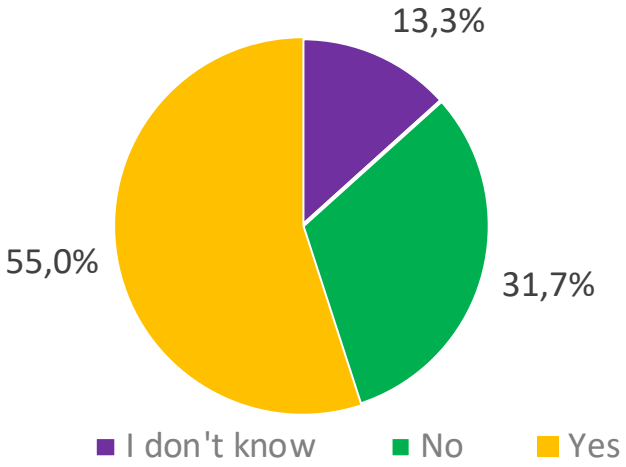



**Figure 3 –** *Give your opinion if the role of internationals has a positive or a negative influence in the democratization process in Albania.*



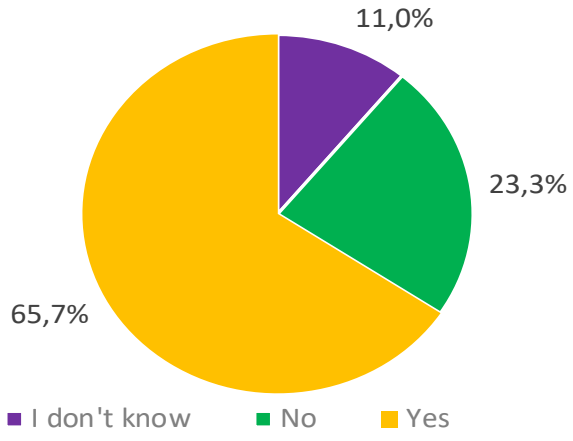

In the process of democratization of the country, 55% of respondents say that the international role in completing and implementing reforms has a positive impact on policy making.

**Figure 4 –** *Do you think that the internationals have played an important role in the good governance of your country?*




When it comes to domestic politics, over half of respondents say that the role of the US has a greater impact than that of the European Union. In particular, 65.7% of young people say that the American influence in Albania is greater than the European influence, this shows the political influence of the USA over Albania along this path of democratization, but of course there are not just a few 31.7% who think that the European perspective is that of right, even though both policies are complementary.

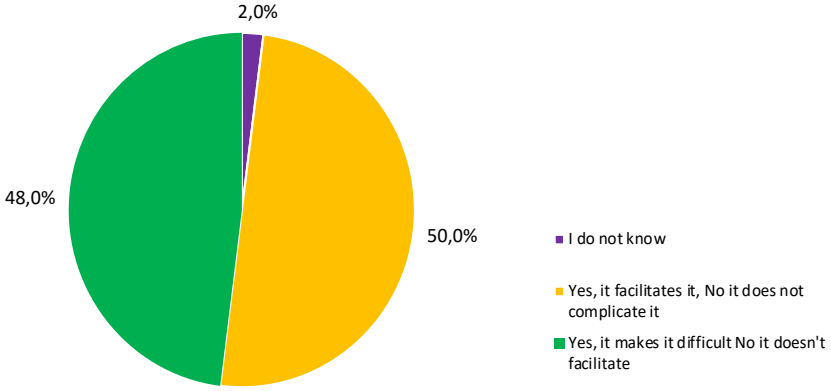
**Figure 5 –** *Do you think that USA is more influential than the European Union in Albania?*



The results of the question "International intervention in Albanian politics, does it facilitate or complicate the political process?" almost split the thoughts of young Albanians in two. The political situation that Albania is going through at the moment, has meant that almost half of the university students think, the interference of the internationals in the Albanian politics has complicated the political progress in the country, and consequently the further developments of its democratic process.

Results revealed that there are no statistical differences among the students' opinions between age groups.

**Figure 6 –** *International intervention in Albanian politics facilitates or complicates the political process?*




## 5. Conclusions

Based on the public perception realized according to the questionnaires addressed to university students, the chronology of political history, the political reforms in the transition period, the intervention in the internal politics of the political subjects, reflected a fragile policy and this was best perceived in the answers of the students, where almost half of them distanced themselves from the intervention of internationals in politics in the country as seen above in the results of this research. This phenomenon not only advances democratization, but is becoming an obstacle and brings destabilization especially to the Albanian democratic party. The role of civil society empowerment, and justice reform give an overview of the fragile Albanian reality. Given that Albania has determined its Euro-Atlantic trajectory, internationals will continue to be present in Albania non

only in a supervisory and advisory capacity, but also as a guarantor of the fulfillment of political standards, dictating healthy and necessary steps, for enabled security, political stability, social and economic developments in the country. Thus, the path to integration in the European Union will be even easier.

## References

BERRIDGE G.R. 2001. *Diplomacia Teoria dhe Praktika*. Tiranë: Instituti i Studimeve Ndërkombëtare.

BORIÇI Gj. 2019. *Kreditë Dhe Ndihmat Kineze Për Shqipërinë (1956-1975)*. Tiranë: Akademia E Studimeve Albanologjike Instituti I Historisë.

HUNTINGTON S. 2011. *Vala e Tretë, Demokratizimi në fund të shek të njëzetë*. Tiranë: Biblioteka e Marrëdhënieve Ndërkombëtare.

KALEMAJ I. 2014. *Ndryshimet Territoriale Dhe Inxhinieria E Kufijve*. Në Rastin Shqiptar: Përplasja E Elitave, Ndërhyrja Ndërkombëtare Dhe Imagjinata Kolektive (1912-1920), Tiranë: Studime Historike.

MAYER L.C. 2001. *A division of Pearson Education Prentice-Hall*, Inc.. Upper Saddle River. New Jersey. 2003. Për botimin shqip: Fondacioni Shoqëria e Haupur për Shqipërinë SOROS dhe ORA botime.

MINGST K.A. 2010. *Bazat e Marrëdhënieve Ndërkombëtare*. Tiranë: Albanian Institute for International Studies.

SARTORI G. 2010. *Ç'është Demokracia*. Tiranë: Dituria.

VLAHUTIN R. 2015. Reforma gjyqësore duhet të hyjë thellë e me saktësi kirurgjikale. Kuvendi. Nr3. ISSN 2311-8601

ZAIMI M. 2022. *Freedom House Demokracia në Shqipëri pa përparim, regjim hibrid.* VOA https://www.zeriamerikes.com/a/6536469.html

## SUMMARY

This paper brings an overview of how the international factor has influenced the progress of Albanian state formation and how this factor is seen by Albanian society.

The research questions of this study are:

• Does the role of internationals affect the sovereignty of Albania?

• Where is the international element significantly noticed and how has this factor affected?

• How has the international element influenced the democratization of Albania?

This study is divided into three parts where in the first part, the historical context at different stages of the Albanian state and the role of internationals are represented, based on the realistic theory of international relations. The second part examines specific cases of international influence after the 1990s, such as the United States and the European Union, and their role in specific elements of domestic policy: determining elements in the international role in the democratization of the country, justice reform to direct interventions in political entities. In the third part is the opinion of young Albanian people on the role of internationals: a survey was carried out from February to March 2022 involving 300 students enrolled at the Mediterranean University of Albania in order to understand the opinion they carry on the role of internationals and whether their intervention improves policy-making or affects the process of Albanian democratization. Data were analyzed using IBM SPSS.

Based on the public perception realized according to the questionnaires, the chronology of political history, political reforms during the transition period, intervention in the domestic politics of political entities, the role of empowerment of civil society, give an overview that in the Albanian reality internationals play a very influential role.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# ON NULL MODELS FOR CONTAGION EFFECTS IN MULTIDIMENSIONAL NETWORKS

Giulio Giacomo Cantone, Venera Tomaselli

## 1. Introduction

A network is a structure of entities that can be connected to each other. Each network has two distinct sets of entities: nodes (or, vertexes) and edges (or, links). Nodes represent punctual entities while edges represent the *connection* between two nodes. One can say: node *i* and node *j* are *connected*. This implies that not only *i* and *j* exist as entities in a network, but also that an edge ($i \leftrightarrow j$) exists. If the connection works only on one side but not on another, then the edge is *directed* and it is represented as ($i \rightarrow j$). The set $J_i$ of all *j*-nodes connected to *i* is the ego-network (*of first order*) of *i*. A network allowing directed edges is a directed network. A count of edges is referred as *degree*, with the letter *k*. To say that the node *i* has $k = 3$ means that *i* has 3 connections with other nodes.

Networks are represented as mathematical graphs, that are special sets:

$$G = (V, E) \tag{1}$$

where: G is the graph, V is a set of nodes, and E is a set of edges. This representation is convenient for the abstraction of structural proprieties of classes (or "ensambles", a word borrowed by Statistical Mechanics) of real networked topologies. In graph theory, G is often processed as an adjacency matrix: a square matrix where the indexes are the nodes and the elements are the edges. For simple graphs, 0 in the adjacency matrix represents absence of edge, while 1 would represent presence. In *weighted graphs*, the value of the element of the matrix can vary and the variation would indicate the difference in size, relevance, etc. of the relation, keeping 0 as the reference value for absence of relation. Matrices are notoriously fast structures for computation. This is a useful feature both for analysis and visual representation of networks. Indeed, in computationally intensive applications as in Statistical Mechanics, Bioinformatics, or Big Data, the 'networks-as-graphs' paradigm prevailed. However, as noted by Crane (2018), traditional graphical tools are not always appropriate to represent real networks and in particular social networks as networks of social actors.

The alternative representation of networks would be a relational database of 2 tables. One table has nodes as rows, the other edges as rows. In the table of the edges, one column references the first node of the pair (or for directed networks, the *sender* of the connection), and another column references the second node of the pair (or, the *receiver* node, in directed networks). Each table may have many columns, each column representing an observed attribute (a variable) of the entity.

In the literature on networks, attributes of the nodes are not particularly problematic. Indeed, as long as edges have no attributes, a network is not properly multidimensional; but if edges are nominally differentiable at least through an attribute, then the network is multidimensional. Terminology is not always established (Barrett *et al*., 2012), but a core concept is the *layer*. The layer is the subset *g* of the graph G such that all the edges of *g* ($E_g$) share a common nominal value in one attribute. All the nodes ($V_g$) connected through $E_g$ fall within sub-graph *g*, too. Since the layer is associated with a (nominal) value of an attribute of the edgeset, often the word *layer* recalls simply that value (Kivelä *et al*., 2014, Dickison *et al*., 2016).

The present manuscript is about inference on multidimensional network data. The theoretical issues of correlations among many variables are discussed referring to the approach of neutral models for statistical testing of hypotheses. In this aim, a generative technique of multidimensional networks is proposed.

## 2. Multivariate models for multidimensional networks

Mathematical representation of multidimensional networks is problematic because the adjacency matrix is insufficient to represent layers. Advanced mathematical solutions to represent layers involve the employment of tensor structures, but tensor algebra is much less known than matrix algebra. Its application could alienate researchers to pursue valid research questions involving representation of social groups as networks (demography of families, organization studies, marketing, etc.). The database representation has a benefit here: it makes easy to represent both variables (attributes) of the nodes and *layer* values of edges as additional columns of the tables. This allows to run traditional multivariate analysis models, as multilevel models, across nodes and edges (Vacca *et al*., 2019).

Multilevel models are employed in population studies as a tool to avoid ecological fallacies (Gnaldi *et al*. 2018). Multilevel models account for cases where observations are *nested* within other observation, for example: in a list of high schools, these are nested within towns, and any analysis of the variance *between* high schools needs to account for the variance *between* town. Multilevel models (or, hierarchical models) are a special class of *mixed models with fixed values*.

The application of multivariate models to networks is important for the demographic data analysis. For example, in 2022 has been completed the mapping of the whole population network of the Netherlands (van der Laan *et al*., 2022): a database of more than 14 million nodes representing people inhabiting Netherlands in 2018, connected through more than 1.4 billion edges. One attribute identifies 5 macro-layers of edges: family, household, neighbours, schools, and work. But then, for each of these layers are specified more detailed classes of relationships as additional variables in the database. For example, among the edges in the layer that are labelled as "family", are nested classes of directed relationship as "parent of", "cousin of", etc (Table 1).

**Table 1 –** *Example of a social network represented as a relational database*.

| **Node ID** | **Name** | **Surname** | **Job** | **High School** | **…** |
|---|---|---|---|---|---|
| 1 | John | Doe | ABC Inc. | Alighieri | … |
| 2 | Mary | Smith | FinanzGroup | Cervantes | … |
| 3 | Jane | Doe | NA | Shakespear | … |
| 4 | Paul | Jones | NA | Shakespear | … |
| 5 | Peter | Taylor | ABC Inc. | Shakespear | … |
| 6 | Luke | Brown | FinanzGroup | Alighieri | … |
| … | … | … | … | … | … |
| **Edge ID** | **From** | **To** | **Macrolayer** | **Microlayer** | **…** |
| 1 | Node 1 | Node 2 | Family | Married to | … |
| 2 | Node 1 | Node 3 | Family | Parent of | … |
| 3 | Node 1 | Node 5 | Work | Manager of | … |
| 4 | Node 2 | Node 1 | Family | Married to | … |
| 5 | Node 2 | Node 3 | Family | Parent of | … |
| 6 | Node 2 | Node 6 | Work | Manager to | … |
| 7 | Node 3 | Node 1 | Family | Child of | … |
| 8 | Node 3 | Node 2 | Family | Child of | … |
| 9 | Node 3 | Node 4 | School | Classmate of | … |
| 10 | Node 4 | Node 3 | School | Classmate of | … |
| 11 | Node 5 | Node 1 | Work | Managed by | … |
| 12 | Node 6 | Node 2 | Work | Managed by | … |
| … | … | … | … | … | … |

In Table 1 microlayers are properly nested within macrolayers. Mixed models of networks data are found in recent developments of applied network analysis to Economics (Jochmans and Weidner, 2019). With mixed models, it is possible to combine co-occurrences of different layers and attributes of nodes into very rich multivariate models with fixed effects, too. An example: *i* nodes are associated to a *y* numeric value standing for body weight. The researcher is interested in correlation of *y* with the average $\bar{y}_J$ in the ego-networks $J_i$ of each *i*-node. But $\bar{y}_J$ has a strong dependency on *j* nodes being men or women, so the model must

correct the estimate for this fixed attribute of the *j*-node. Then, the researcher can observe the differences in the coefficients across layers of relationships, for example family *vs*. co-workers. These values (family, co-workers, etc.), differently than gender, are not *fixed* per *j*, since each *i* has different relationships with *j*, hence the reference to *mixed* models. Panel models are a special case of mixed models with a differentiation in time (*lagged* regression) or just with a time-point (for example, the month) as a *fixed* control variable.

## 3. Models of direct contagion in network data

The relevance of a regression model of the attribute $y_i$ of *i* (ego) on the average $\bar{y}_J$ of its $J_i$ ego-network implies that there are correlations between the value of $y_i$ and $y_j$ that are scientifically not trivial. The presence of positive correlations is also called assortativity, and negative correlations lead to disassortativity. Assortativity is also structurally tied to others indicators of correlation, like network clustering, etc. According to Christakis and Fowler (2013), assortativity has three explanations other than chance:

- *i*-egos have a preference to associate subjects with similar attributes. Sometimes this preference is called homophily, but this term is also confused with assortativity itself;
- *i*-egos and their $J_i$ ego-networks might jointly experience unobserved simultaneous exposures to common omitted variables, confounding the correlation;
- and $J_i$ ego-network induces an effect on *i*. These explanations are not mutually exclusive, but they are hard to disentangle in causal models.

Christakis and Fowler (2013) proposed an explicit model to estimate how a change over time in Y can be attributed to contagious effects:

$$g\left(E\left(Y_{i,t+1}\right)\right) = \alpha + \beta_{i,t} y_{i,t} + \beta_{J,t} \bar{y}_{J,t} + \beta_{J,t} \bar{y}_{J,t+1} + B(Z) \quad (2)$$

where:

- Y is the attribute under hypothesis of contagion
- *i* is the ego
- J is the set of its neighbours.
- *t* is a time-point, assumed as *fixed* in the model
- Z are controls variables, assumed as *fixed* in the model
- $\beta$ is the coefficient of the type regression
- B are the vectors of the coefficients of the controls.

The (2) expresses the link function $g$ in a generic form so it can be adapted for different data types (linear for continuous Y, logit for binary, etc). It is actually a *panel* model that lies on the same methodological foundations of *mixed* models. Christakis and Fowler (2013) acknowledged that (2) is still problematic if omitted variables are not controlled within the set Z. In other words, the problem of identification of spillover effects in networks is analogous to the notorious problem of ignorability of missing variables (Imai *et al*., 2010). A non-parametric approach in modelling contagion is in Aral *et al.* (2009). They propose to statistically match nodes from two groups:

- the null effect group of $i_0$ such that $i$ has less than $k_0$ ties who shifted from $y_0$ to $y_1$ between $t_0$ and $t_1$, for example these are friends who adopted a new status y=1 in $t_1$ for a binary Y;
- and the alternative effect group $i_0$ with more than $k_0$ ties.

The matching algorithm minimises the global differences in all the Z between the element $i_0$ and the element $i_0$. Aral *et al.* (2009) reached the conclusion that the coefficient of the contagion effects $\beta_{J,t}\bar{y}_{J,t}$ in (2) overestimates the effect of a factor roughly ~2.

Shalizi and Thomas (2011) generalise the issue on the origin of assortativity for multidimensional networks. The idea is that more than homophily can be driven towards more than one attribute, and the co-existence of contagion dynamics and multidimensional preferential attachment would make very hard to properly estimate contagion effect. The simple example involves the difference between:

- attribute assortativity: nodes show a tendency to cluster around values of one attribute. If this attribute is *strictly nominal* these clusters will approximate sub-graphs, few ties bridge between the clusters, and layers emerge naturally. If the attribute is ordinal or metric, nodes are attached to nodes with similar values of the attribute.
- degree assortativity: a special case of a numerical attribute assortativity. It is observed when ties of the networks grow over time and new nodes have a preference to attach themselves to the more connected old nodes.

Attribute assortativity does not imply degree assortativity but for any non-Uniform distribution of an assortative attribute, it would be observed a significant positive correlation between $k$ and $\bar{k}_J$ even in absence of a preference of new nodes to attach to old nodes. This is, hence, a *technical* value of degree assortativity, that is also the true null of the observed value, conditional to the observed value of attribute assortativity (Crawford *et al*., 2018). If the attribute that is the *true* source of assortativity is unobserved, then the technical effect on the coefficient could be confounded as misleading evidence for a mechanism of preferential attachment, in absence of both preferences and agency in the nodes. This is a simple case for one-dimensional networks. The general case for multidimensional networks assumes

that general homophily (that is, assortativity across many attributes) confounds processes of influence at agent level.

## 4. Neutral models

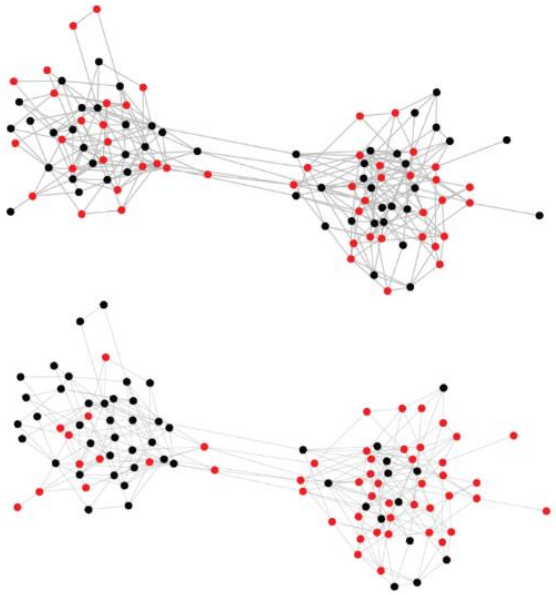
Neutral models are simulation models that include all the relevant features of complex dynamics, except one, that is suppressed (*neutered*). The absence of the neutered feature can be considered as a treatment. They were originally developed in biology to test evolutionary hypotheses. Their role in epidemiological modelling is analogous to null hypothesis in statistical testing (Gotelli and McGill, 2006).

In order to introduce the connection between proprieties of iterated simulations and null models, it is worth to mention a toy model (Figure 1) in Shalizi and Thomas (2011) because it allows to explain why pre-existing structural factors (e.g. religion) mask and confound agency (e.g. why capitalism spread?).

Figure 1 represents this argument: the nodes are cities and the red colour indicates a high concentration of factories; the edges are natural trade routes; the two clusters are a Catholic nation and a Protestant one. The network at top is observed at Year 1600, the bottom one at Year 1900. Ideally, the argument of the authors is that there is no need of a causal impact of religion to cause the polarised spread of capitalism towards Protestant (or, Catholic) cities: natural trade routes (i.e. topology) can explain it already in its neutered state. In the toy model, either of the two clusters (Protestant and Catholic nations) could experience with the same probability a global rise in factories (red nodes). Reiterating the model many times, half of the time Catholics would experience the spread of Capitalism, and the other half the Protestants. Religion would look a relevant factor for how the Capitalism spreads only because "history cannot repeat itself", or, alternatively, because trade routes are not accounted (omitted variables) in the original models of spread of industrialization. One can notice that this is the inverse case of confounding between structure and agency than the one presented in Aral *et al.* (2009).

Simulation models can use estimates of coefficients from a regression model as parameters for agency (or, contagion) in multidimensional networks, and then can differentiate parameterisation between the neutral model (null hypothesis) and the alternative parameterisation. Simulation models iterate until is possible to infer steady stochastic averages of the iterating time series. The series themselves are the result of the simulation. If results of the neutral model *vs*. the alternative show no significant differences, then it possible to conclude that the suppressed feature had a no causal role in the final output. However, if differences emerge in the time series, it is possible to characterise the causal role of the feature in the model.

**Figure 1 –** A 2-clusters network: before (top) and after (bottom) a contagion process.



*A network of 100 nodes structured in two clusters (communities). It is represented before the start (top) and after the end (bottom) of process of contagion. For 1000 iterations, a node is picked. With a probability it assumes the colour of another adjacent node. This probability is independent to the cluster of the node, hence the propensity for a node to adopt the colour of the majority of its cluster is null (neutered). Before the first iteration, there is no association between clusters and colours, but after the 1000th iteration, clusters and colours are correlated even in a neutral model. This as a by-effect of the fact the clusters exists, even in absence of a link to the probability to change colour (Shalizi and Thomas 2011, p. 24).*

Can this methodology be extended for multidimensional network? Yes, with a *caveat*. There are two general approaches for generation of a multidimensional network: formation through union of simpler networks and procedural formation. The latter implies that the network growths iteratively and new nodes, edges, and layers happen as statistical events over time, with specified probabilities. Procedural multidimensional models have issues regarding correct posterior parameterisation of homophily in neutral models (Dickison *et al*., 2016). The procedure of formation implies a micro-model of *agency* of the new nodes which have preferential attachment (whatever it is) towards old nodes. Any parameterisation of *agency* would bring *technical* alterations in the joint parameterisation of the null hypothesis, for the reasons explained in section 3. In other words, the implicit micro-model of multidimensional agency of nodes in attachment could mask and confound the model of contagion that is tested, instead. For any non-specific hypothesis on the agency in attachment, union of simpler networks is a safer choice.

## 5. Chimera networks: generating multidimensional networks as union of simpler models

We refer to generative methods for multidimensional networks as 'chimera'. The method involves a union of layers, disjointly generated before, hence truly statistically *independent*. The idea is to generate only one set of nodes, and many sets of edges. Each set of edges is a layer of the chimera edgeset. If the networks are recorded as tables, the union of the edges can be coded with commands common to all programming languages for data analysis, as *append* or *join*[1]. Layers are generated through a one-dimensional technique, that can be procedural or not. In both cases, parameters for formation of the layer as one-dimensional edgeset should be kept as an attribute in table of the nodes, as designed in section 1.

For example, a layer can be generated through a stochastic blockmodel (SBM). This is not a procedural generative model. In a SBM, each node is assigned to a block. The probabilities of two nodes to be randomly connected are parameterised through a *mixing* matrix: a square matrix mapping all the possible combinations of pairs of blocks (Faust and Wasserman, 1992, Latouche *et al.*, 2011). The information about the *block* of nodes *i* is stored as an attribute of the nodeset in the databases.

One of the benefits of the chimera method is that it allows unbiased generation (i.e. draw) of random **y** attributes (characteristic attribute of the chimera), parameterised after other **x** attributes that are inherited from the disjoint layers: one generates many layers, each is a different SBM; the nodes will be associated to a set of variables $D_X$: $X_1$, $X_2$, … $X_d$, each variable being a vector of parameters regarding a layer. It follows that:

$$f_Y(x_{1,i}, x_{2,i}, \dots x_{d,i}) = y_i \tag{3}$$

allows to model the variable Y of a *characteristic attribute* of the chimera network.

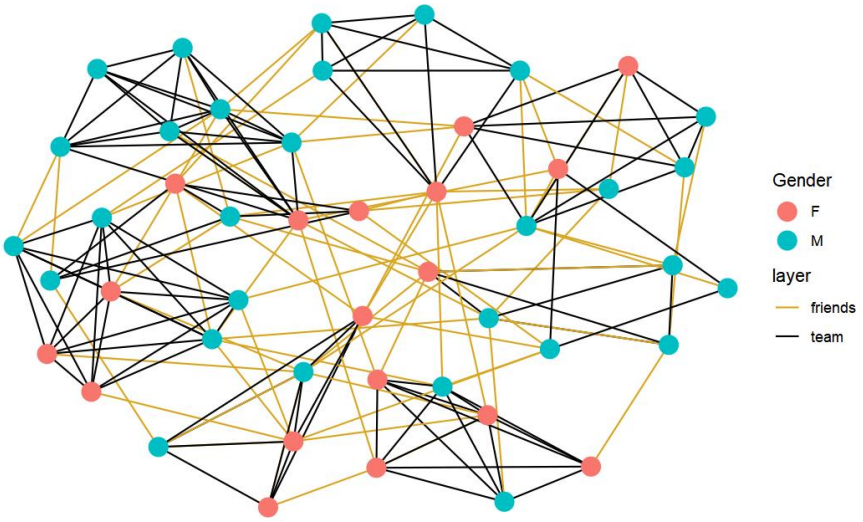
In the example (Figure 2), a multilayer toy network of 47 nodes is generated through union of layers. It represents a workplace where people are co-workers grouped in teams. Each member of a team is connected to any other member of the same team (the black edges in Figure 2). This formation is called 'archipelago'. The expected team size is distributed as

[1] Our personal suggestion is to adopt the command *tidygraph::graph_join()* in language *R*. The package *tidygraph* has been developed as a wrapper of software *iGraph*. *Tidygraph* re-arranges the structure of a mathematical graph object as a relational database.

$$Poisson(\lambda = 3) + 1 \quad (4)$$

so teams with no members are not allowed in the model.

**Figure 2 –** Chimera network: co-workers.




Nodes are then randomly split between women and men. Genders work as *blocks* for a SBM layer. The SBM layer represents friendships outside the team, and it is parameterised with an expected value of connections *per* node equal to 3. While in the toy model the average is indeed ~3, it can be noticed in Figure 2 that most of light edges (*friends* layer) connects two woman (F) nodes. This is the result of the parameterisation of the mixing matrix of the SBM, that is:

**Table 2 –** *Mixing matrix of Stochastic Blockmodel in 2-blocks*

| | **F** | **M** |
|---|---|---|
| **F** | .6 | .1 |
| **M** | .1 | .2 |

With an expectation of $\mathbf{3 \cdot 47 = 141}$ friendships, with .6 probability a uniformly random drawn woman is attached to any other uniformly random drawn woman, with .2 a uniformly random drawn man to a uniformly random drawn woman (or, *viceversa*), and with .2 a uniformly random drawn man to any other uniformly random drawn man.

A chimera allows to perform easily many neutral models. Given $D_X$ variables, one X *explanans* is selected to be tested.

Then, it is possible to randomly shuffle all and only the edges of the layer associated to X, while keeping the values $x \in X$. This operation is equivalent to generate a *null* model where the *agency* of agents does not depend on the correlation between their social topology and the social structure of the layer (e.g. airports being built near polluted areas). It is possible also to randomly shuffle the values $x \in X$. This operation keeps the topology, but assumes that there are no differences in an *explanans* (e.g. pollution, as if pollution was the same in all the areas). Furthermore the models enable neutralizing the effect $f_x(X)$ on Y altering the function in (3). This operation keeps both the topology and the feature, but re-models an alternative scenario of the impact of the feature, i.e. to test not the effect of the feature X on the outcome Y, but the sensibility of Y to the analytical choices regarding how to model $f_Y$.

## References

ARAL S., MUCHNIK L., SUNDARARAJAN A. 2009. Distinguishing influence-based contagion from homophily-driven diffusion in dynamic networks, *Proceedings of the National Academy of Sciences*, Vol. 106, No. 51, pp. 21544–21549. https://doi.org/10.1073/pnas.0908800106

BARRETT L., HENZI S.P., LUSSEAU D. 2012. Taking sociality seriously: The structure of multi-dimensional social networks as a source of information for individuals, *Philosophical Transactions of the Royal Society B: Biological Sciences*, Vol. 367, No.1599, pp. 2108–2118. https://doi.org/10.1098/rstb.2012.0113

CHRISTAKIS N., FOWLER J.H. 2013. Social contagion theory: examining dynamic social networks and human behavior, *Statistics in Medicine*, Vol. 32, No.4, pp. 556-577.

CRANE H. 2018. *Probabilistic Foundations of Statistical Network Analysis*. Oxford (UK): Chapman and Hall/CRC.

CRAWFORD F.W., ARONOW P.M., ZENG L., LI J. 2018. Identification of Homophily and Preferential Recruitment in Respondent-Driven Sampling, *American Journal of Epidemiology*, Vol. *187 No.*1, pp. 153–160. https://doi.org/10.1093/aje/kwx208

DICKISON M.E., MAGNANI M., ROSSI, L. 2016. *Multilayer Social Networks*. Cambridge (UK): Cambridge University Press.

FAUST K., WASSERMAN S. 1992. Blockmodels: Interpretation and evaluation, *Social Networks*, Vol. 14 No.1, pp. 5–61. https://doi.org/10.1016/0378-8733(92)90013-W

GNALDI M., TOMASELLI V., FORCINA A. 2018. Ecological Fallacy and Covariates: New Insights based on Multilevel Modelling of Individual Data, *International Statistical Review*, Vol. 86 No.1, pp. 119–135. https://doi.org/10.1111/insr.12244

GOTELLI N.J., MCGILL B.J. 2006. Null Versus Neutral Models: What's The Difference?, *Ecography*, Vol. 29 No.5, pp. 793–800. https://doi.org/10.1111/j.2006.0906-7590.04714.x

IMAI K., KEELE L., YAMAMOTO T. 2010. Identification, inference and sensitivity analysis for causal mediation effects, *Statistical Science*, Vol. 25, No.1, pp. 51–71. https://doi.org/10.1214/10-STS321

JOCHMANS K., WEIDNER M. 2019. Fixed-Effect Regressions on Network Data, *Econometrica*, Vol. 87 No.5, pp. 1543–1560. https://doi.org/10.3982/ECTA14605

KIVELÄ M., ARENAS A., BARTHELEMY M., GLEESON J.P., MORENO Y., PORTER, M.A. 2014. Multilayer networks, *Journal of Complex Networks*, Vol. 2 No.3, pp. 203–271. https://doi.org/10.1093/comnet/cnu016

LATOUCHE P., BIRMELÉ E., AMBROISE C. 2011. Overlapping stochastic block models with application to the French political blogosphere, *The Annals of Applied Statistics*, Vol. *5*, No.1, pp. 309–336. https://doi.org/10.1214/10-AOAS382

SHALIZI C.R., THOMAS A.C. 2011. Homophily and Contagion Are Generically Confounded in Observational Social Network Studies, *Sociological Methods & Research*, Vol. 40 No.2, pp. 211–239. https://doi.org/10.1177/0049124111404820

VACCA R., STACCIARINI J.-M.R., TRANMER M. 2019. Cross-classified Multilevel Models for Personal Networks: Detecting and Accounting for Overlapping Actors, *Sociological Methods & Research*.
https://doi.org/10.1177/0049124119882450

VAN DER LAAN J., DE JONGE E., DAS M., TE RIELE S., EMERY T. 2022. A Whole Population Network and Its Application for the Social Sciences, *European Sociological Review*. https://doi.org/10.1093/esr/jcac026

## SUMMARY

Multidimensional networks are networks where edges are differentiated with different nominal classes, called layers. Inference of contagion effects has issues both in simple networks with only one layer and in multidimensional networks. However the inherent complexity of multidimensional networks makes almost impossible, at least with traditional approached based on regression models, a reliable inference of the "contagiousness" of a feature within a network. In the first part of the manuscript are provided introductory notions to run regression models and simulation models of multidimensional networks. The approach only requires knowledge of tabular data and mixed models of regression and not of tensor algebra, so the approach should be more congenial to social scientists. In the second part, it is introduced the concept of neutral model as a peculiar case of null model for statistical inference. Finally, given the aforementioned concerns, it is discussed why methods based on union of independent layers (chimera networks) are generally better than procedural model for parameterisation of neutral models of multidimensional networks. An example of chimera as a join of two blockmodels is provided.

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# SRI LANKANS' RESIDENTIAL SEGREGATION: COMPARATIVE EVIDENCE FROM THE MAIN ITALIAN MUNICIPALITIES[1]

Federico Benassi, Francesca Bitonti, Angelo Mazza, Salvatore Strozza

## 1. Migration and urban segregation

To date, the problems relating to socio-economic segregation and inequality within urban realities have gained international relevance, so that the OECD has published an entire report focusing on the so-called "divided cities" (OECD, 2018): cities in which economic and social divisions generate exclusivity of the spaces. Inequality, and in particular the socio-economic heterogeneities within cities, hinder the integration of migrant populations within the host society. The distrust of locals and linguistic and cultural diversities often expose immigrants to the perpetuation of the inequalities that van Ham *et al.* (2018) defined as "vicious circles of segregation", according to which ethnic and social inequalities and segregation propagate in the family context, working place, and other contexts, but also from one birth cohort or first (migratory) generation to the other(s).

Several studies enrich the existing literature on residential segregation and, with regard to Europe, they have detected that in recent years the increase in urban segregation in the South has reduced its distance from the North, which generally recorded a higher level of inequality and segregation (Arapoglou, 2012; Panori *et al.*, 2019). Studies focussing on Italy are fewer than those concerning the realities of Western and Northern Europe. Still, they are constantly growing in number and highlight a North-South duality in which the North exhibits a higher proportion of foreigners but manages to maintain levels of inequality generally lower than those recorded in the South (Benassi *et al.*, 2019; Busetta *et al.*, 2015; Mazza and Punzo, 2016; Mazza *et al.*, 2018; Petsimeris and Rimoldi, 2015; Rimoldi and Terzera, 2017). In any case, studies comparing different Italian urban contexts are very few. This is quite surprising because in Italy do exist foreign communities, like Sri Lankans, that, contrary to most of the other migrants' communities residing in Italy, show peculiar residential distribution over the territory (Benassi *et al.*, 2022).

[1] Author contributions: "Migration and urban segregation" section: Benassi F., "Sri Lankans in Italy" section: Strozza S., "Materials and methods" section: Mazza A., "Results" section: Bitonti F., "Discussion and conclusions" section: Benassi F., Bitonti F., Mazza A., and Strozza S.

Based on these premises, the paper proposes an entirely original spatial analysis of residential segregation and settlement models of Sri Lankans, referring to the eight Italian municipalities hosting the highest share of this foreign community: Milan and Verona in the North, Florence and Rome in the centre, and Naples, Palermo, Messina, and Catania in the South.

## 2. Sri Lankans in Italy

Sri Lankans' presence in Italy dates back to the 1970s, and it is characterised by a particular settlement model with a double specificity (Benassi *et al.*, 2022). First of all, the Sri Lankans prefer to settle in large cities[2] and in particular those listed in Table 1, which together host almost 55% of the total amount of Sri Lankans residing in Italy at the beginning of 2021. It is interesting to notice that as regards the other foreign communities present in Italy, it would be necessary to consider hundreds of cities in order to reach a similar percentage. Secondly, conversely to the other foreign communities, Sri Lankans tend to concentrate mainly in the southern cities (Naples, Messina, Palermo, and Catania) which are rarely among the main Italian settlement municipalities for other foreign communities.

**Table 1 –** *Sri Lankans citizens residing in the top eight Italian cities according to their numerosity at the beginning of 2012 and 2021 (absolute values in thousand and percentages).*

| Municipality (2012) | A.V. (000) | % | cum. % | % of foreigners | Municipality (2021) | A.V. (000) | % | cum. % | % of foreigners |
|---|---|---|---|---|---|---|---|---|---|
| Milan | 11,1 | 15.5 | 15.5 | 6.3 | Milan | 16,1 | 14.8 | 14.8 | 6.3 |
| Naples | 7,2 | 10.1 | 25.6 | **22.9** | Naples | 15,3 | 14.1 | 28.9 | **26.3** |
| Verona | 5,2 | 7.3 | 32.9 | 17.3 | Rome | 9,1 | 8.4 | 37.3 | 2.7 |
| Rome | 4,9 | 6.8 | 39.7 | 2.2 | Verona | 7,4 | 6.8 | 44.1 | 20.1 |
| Messina | 3,6 | 5.0 | 44.7 | **32.4** | Messina | 3,8 | 3.5 | 47.6 | **32.2** |
| Palermo | 3,3 | 4.6 | 49.3 | **16.7** | Palermo | 3,1 | 2.9 | 50.5 | **13.1** |
| Florence | 1,6 | 2.2 | 51.5 | 3.7 | Catania | 2,4 | 2.2 | 52.7 | **18.3** |
| Catania | 1,4 | 2.0 | **53.5** | **20.1** | Florence | 2,1 | 1.9 | **54.6** | 4.2 |
| Others | 33,3 | 46.5 | 100.0 | 1.0 | Others | 49,3 | 45.4 | 100.0 | 1.2 |
| Total | 71,6 | 100.0 | | 1.8 | Total | 108,6 | 100.0 | | 2.2 |

*Source: own elaboration on Istat data (Demographic Census and Municipal Population Registers).*

[2] In the present work, the nouns "city" and "municipality" are considered as synonyms to make reference to the same geographical unit: the Local Administrative Unit (LAU), as defined according to the Eurostat's Nomenclature of Territorial Units for Statistics.

## 3. Materials and methods

In this work, we have considered the eight Italian cities with the greatest presence of Sri Lankans (as reported in Table 1), representing the phenomenon in the North, Centre, and South of Italy. The data on the national and foreign population and those relating to the work dimension come from the 2011 General Population Census, while those relating to the cost of rents for residential properties were downloaded from the OMI (*Osservatorio del Mercato Immobiliare* - Real Estate Market Observatory) database of the Italian Revenue Agency and are referred to the first half of 2016.

Since the aim of the work is to draw comparisons between the different urban realities and given that the data available pertain to different geographical units, namely the census tracts (for the data on population and working conditions) and the OMI sections (for real estate data), we performed areal weighted interpolation (Prener and Revord, 2019) to make data and urban contexts homogeneous. This procedure referred all the data at hand to a uniform spatial grid with 100 by 100 meters cells. This type of grid was exploited at the European level in the Data for Integration (D4I) project, which aimed precisely at making comparisons between different urban areas (Natale *et al.*, 2019).

To globally analyse the settlement model of the Sri Lankans, we used the traditional (Duncan and Duncan, 1955) and the correct version of the Duncan dissimilarity index (DI) proposed by Mazza and Punzo (2015), which reduces the upper bias intrinsic to the traditional DI.

To assess local heterogeneities, we also calculated the location quotients (LQs) (Haig, 1926) for Sri Lankans in order to highlight the neighbourhoods with the highest concentration of the ethnic group. Finally, we calculated two local bivariate Moran's I indices (Anselin *et al.*, 2004): in the first case to relate the concentration of Sri Lankans, described by the LQs, to the socio-economic conditions of the different areas of the cities, represented by the average cost of rent per square meter; in the second case to study the concentration in relation to the Human Capital Index (HCI)[3] in the labour market dimension. To assess the statistical significance of both the bivariate Moran's I indices we used a permutation-based approach.

[3] To capture the level of human capital in the labour market we consider the average between low human capital $LHC = \left(P_{litterate} + P_{illitterate} + P_{primary\ edu}\right)/P_{6+} * 100$ and unemployment $U = P_{15+job\ seeking}/P_{15+in\ the\ labour\ force} * 100$, resulting in the Human Poverty Index $HPI = (LHC + U)/2$ , rescaled according to the min-max normalisation. The *HPI* is then reversed in its sign by taking its complement to 1 for the applications of this work, obtaining the Human Capital Index (HCI) in the labour market dimension. Hence, *HCI* taking values near to one implies high human capital, whereas *HCI* taking values near to zero implies low levels of human capital.

## 4. Results

Calculating the DI for the eight cities, we obtained the first global result. In particular, looking at Table 2, it is possible to make three considerations: a) the bias correction considerably reduced the segregation values calculated in the traditional way. The most relevant examples are Florence, Verona, and Rome; b) secondly, the different extent of the correction for the various cities has produced a different ranking compared to the one provided by the traditional DI. For instance, the city of Florence, which was in the fifth place in the ranking, fell to the last position because of the bias reduction; c) finally, it should be noted that generally, except for Messina, there is greater segregation in the Southern cities than in the Northern ones, in accordance with what has been found in the literature regarding the foreign communities present in Italy (Benassi *et al.*, 2019; Busetta *et al.*, 2015; Mazza and Punzo, 2016; Mazza *et al.*, 2018; Petsimeris and Rimoldi, 2015; Rimoldi and Terzera, 2017).

**Table 2 –** *DI, bias-corrected DI ($DI_{corr}$) for Sri Lankans and Italians in the eight Italian municipalities considered, municipalities' decreasing $DI_{corr}$ ranking, and municipalities' DI ranking variation after the bias correction, 2011, computed on 100 by 100 m cells.*

| City | DI | $DI_{corr}$ | DI - $DI_{corr}$ | Rank DI | Rank $DI_{corr}$ | Ranking variation from DI to $DI_{corr}$ |
|---|---|---|---|---|---|---|
| Palermo | 0.740 | 0.659 | 0.081 | 1 | 1 | 0 |
| Naples | 0.683 | 0.613 | 0.070 | 3 | 2 | +1 |
| Catania | 0.678 | 0.497 | 0.181 | 4 | 3 | +1 |
| Rome | 0.728 | 0.392 | 0.336 | 2 | 4 | -2 |
| Milan | 0.463 | 0.332 | 0.131 | 7 | 5 | +2 |
| Messina | 0.530 | 0.324 | 0.206 | 6 | 6 | 0 |
| Verona | 0.457 | 0.260 | 0.197 | 8 | 7 | +1 |
| Florence | 0.547 | 0.104 | 0.443 | 5 | 8 | -3 |

*Source: own elaboration on Istat data (2011 General Population and Housing Census)*

Looking at the LQs maps in Figure 1, a difference between the cities of the centre-north (Milan, Florence, and Rome) compared to those of the South emerges (Naples, Palermo, Messina, and Catania). While the highest concentration areas in the North are scattered throughout the urban areas, the Sri Lankans appear more localised in the most central neighbourhoods in Southern cities. The only exception is Verona which shows an arrangement more similar to the arrangement in the cities of the South.

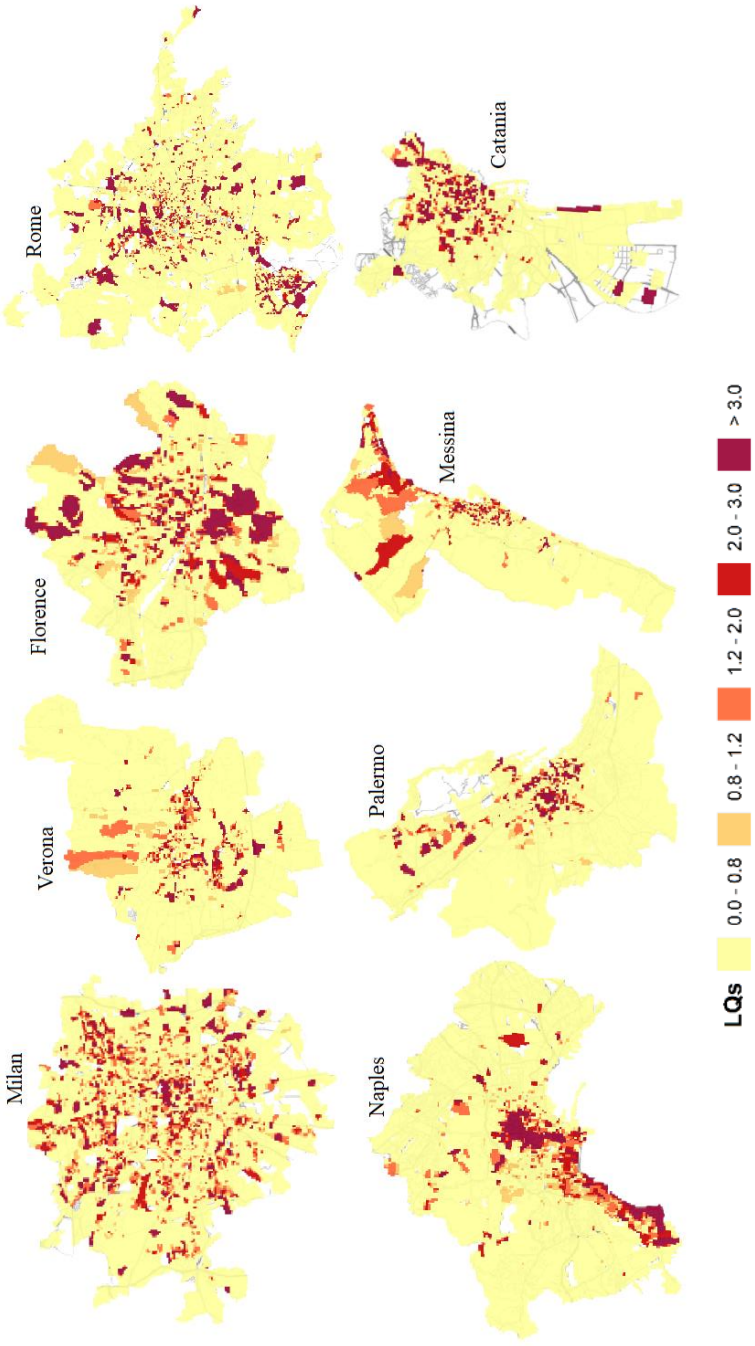
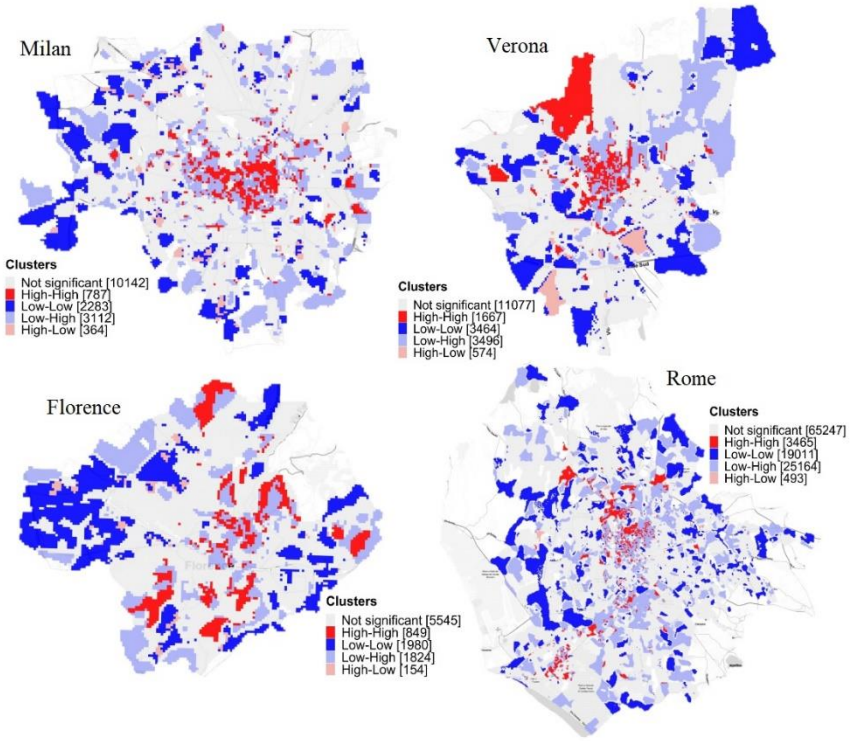
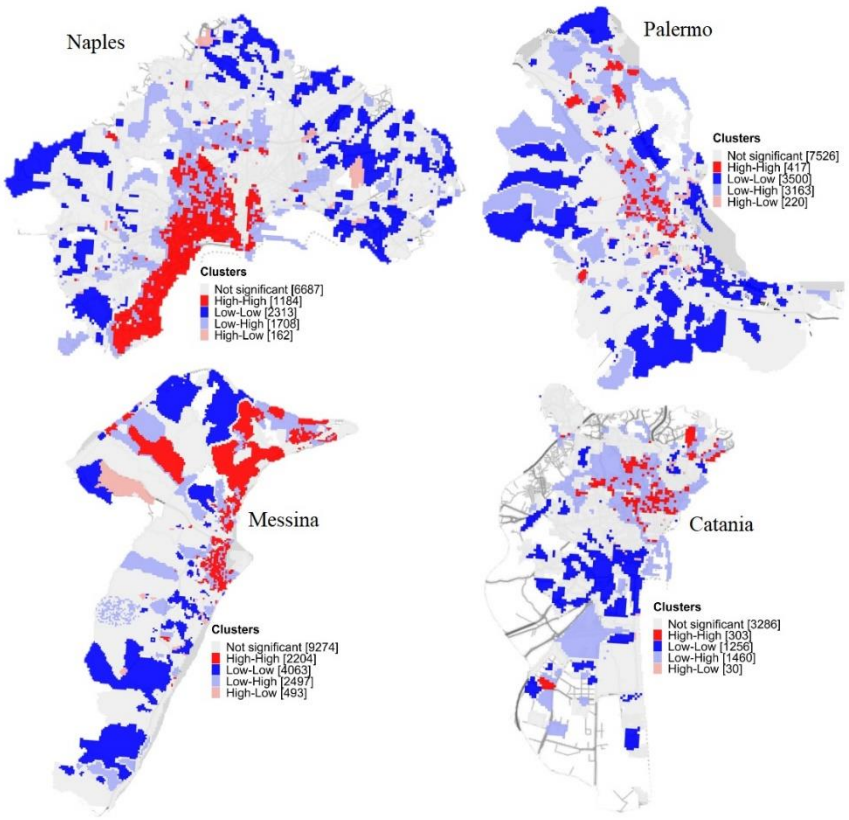



**Figure 1** –*Location quotients of Sri Lankans (ref. group: total resident population). The eight Italian municipalities hosting the majority of Sri Lankans, 2011. Spatial grid with 100 x 100 m cells. Source: own elaboration on Istat data (2011 General Population and Housing Census).*

On the other hand, analysing the relationship between the concentration of Sri Lankans and the level of human capital (HCI), it is possible to see that this ethnic minority resides mainly in areas with high human capital which are located mostly in the central districts (represented in red in Figure 2). On the contrary, there are few significant areas that correspond to a high concentration of Sri Lankans and a low level of human capital (those coloured in pink). Areas of this kind are mostly found in the centre of Palermo. On the other hand, there are numerous areas characterised by a high human capital in which the presence of Sri Lankans is low (in light blue).

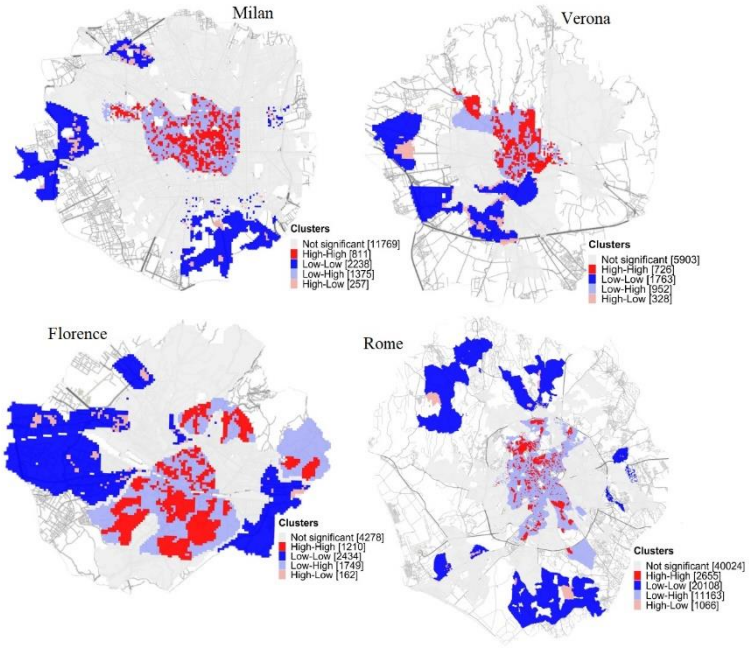
**Figure 2** – *Bivariate local Moran's I between LQs and HCI. Reference group: total resident population. Main Italian municipalities hosting Sri Lankans, 2011. Spatial grid with 100 x 100 m cells. Source: own elaboration on Istat data (2011 General Population and Housing Census).*

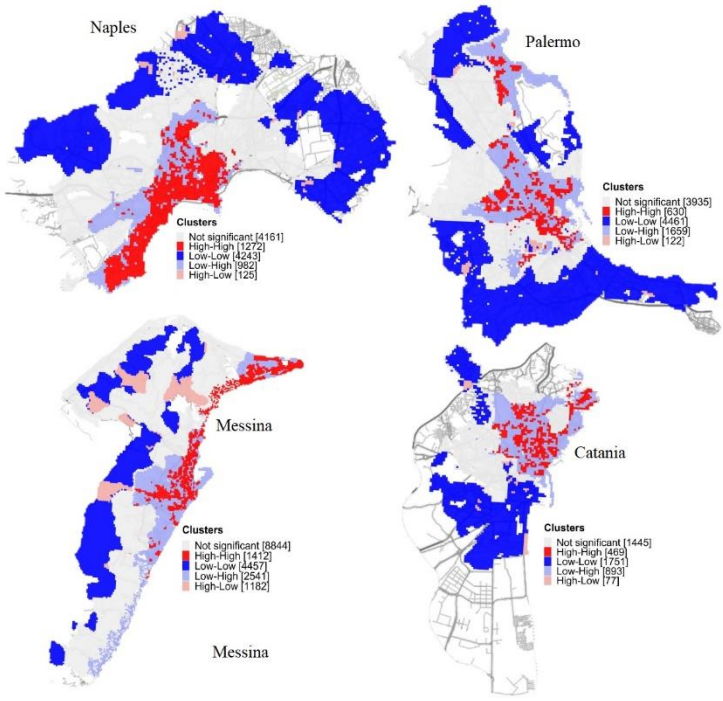





The bivariate Moran index between LQs and mean rental price (Figure 3) still confirms the high concentration of Sri Lankans in central areas where the cost of renting is high. In all cities, these areas, also called high-high, are surrounded by areas where rents remain expensive, but the presence of Sri Lankans is decreasing (in light blue). Finally, in the more peripheral areas, it is possible to identify some pockets where the cost of living is moderate, and many Sri Lankans reside (in pink).

**Figure 3** – *Bivariate local Moran's I between LQs and mean rent cost. Reference group: total resident population. Main Italian municipalities hosting Sri Lankans, 2011. Spatial grid with 100 x 100 m cells. Source: own elaboration on Istat data (2011 General Population and Housing Census) and on OMI data.*






## 5. Discussion and conclusions

Our application has led to several results on which it is possible to draw the following considerations. Firstly, the distribution of the Sri Lankan community shows a duality between the cities of the North and those of the South. LQs have highlighted that the "scattered" configuration that characterises the North is replaced by concentration in central areas in the South. This different arrangement is indeed confirmed by the DI values, which are generally higher for the cities of the South. By correlating the concentration of Sri Lankans with socio-economic variables, it was possible to observe the relationship between the presence of the foreign group and the heterogeneity in the level of advancement and well-being of the various urban areas. In particular, we have recognised that Sri Lankans tend to establish their residence in central areas where the human capital and the average rent cost are high. This phenomenon could be partly explained by the need to reside near the workplace, and for the Sri Lankans, this mostly coincides with the Italians' households where they work as assistants to the elderly or cleaners. The similarity in the spatial trend of the bivariate local Moran's I across cities (both when related to the HCI and to the mean rent cost) suggests that macro-level

dynamics prevail over the local specificities. On the one end, these are the workplace and the specialisation in particular sectors, and on the other, the presence of migratory chains that guarantee the perpetuation of stable social networks over time and space. Lastly, the strong presence of Sri Lankans in areas with a high level of well-being could lead us to believe that there are no problems relating to inequality in the community under analysis. As a matter of fact, several old towns, especially in the South, are characterised by a high degree of building heterogeneity in which ancient noble palaces are located in the immediate vicinity of abandoned buildings or buildings left in a state of decay. We, therefore, believe that the ethnic mixing that often characterises historic centres can actually reveal states of socio-economic inequality that require ad hoc interventions and consideration.

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## References

ANSELIN L., SYABRI I., SMIRNOV O. 2004. Visualising Multivariate Spatial Correlation with Dynamically Linked Windows. In: ANSELIN, L., REY, S. (Eds) Proceedings of CSISS Workshop on New Tools for Spatial Data Analysis. Santa Barbara, CA.

ARAPOGLOU V.P. 2012. Diversity, Inequality and Urban Change. *European Urban and Regional Studies*, Vol. 19, pp. 223-37.

BENASSI F., BITONTI F., MAZZA A., STROZZA S. 2022. Sri Lankans' residential segregation and spatial inequalities in Southern Italy: an empirical analysis using fine-scale data on regular lattice geographies. *Quality & Quantity*, pp. 1-20.

BENASSI F., LIPIZZI F., STROZZA S. 2019. Detecting Foreigners' Spatial Residential Patterns in Urban Contexts: Two Tales from Italy. *Applied Spatial Analysis and Policy*, Vol. 12, pp. 301-319.

BUSETTA A., MAZZA A., STRANGES M. 2015. Residential Segregation of Foreigners: An Analysis of the Italian City of Palermo. *Genus*, Vol. 71, pp. 177-98.

Data for Integration (D4I). 2021. https://knowledge4policy.ec.europa.eu/migration-demography/data-integration-d4i_en#factsheets

DUNCAN O., DUNCAN B. 1955. A Methodological Analysis of Segregation Indexes. *American Sociological Review*, Vol. 41, pp. 210-217.

HAIG R.M. 1926. Toward an Understanding of the Metropolis. *Quarterly Journal of Economics*, Vol. 40, pp. 421-433.

van HAM M., TAMMARU T., JANSSEN H. 2018. A Multilevel Model of Vicious Circles of Socioeconomic Segregation. In Divided Cities: Understanding Intra-Urban Inequalities, Paris: OECD.

MAZZA A., GABRIELLI G., STROZZA S. 2018. Residential Segregation of Foreign Immigrants in Naples. *Spatial Demography*, Vol. 6, pp. 71-87.

MAZZA A., PUNZO A. 2016. Spatial Attraction in Migrants' Settlement Patterns in the City of Catania. *Demographic Research*, Vol. 35, pp. 117-138.

MAZZA A., PUNZO A. 2015. On the Upward Bias of the Dissimilarity Index and Its Corrections. *Sociological Methods and Research*, Vol. 44, pp. 80-107

NATALE F., TINTORI G., ALESSANDRINI A. 2019. Diversity, residential segregation, concentration of migrants: a comparison across EU cities: findings from the data challenge on integration of migrants in cities (D4I), European Commission, Joint Research Centre, Publications Office

OECD. 2018. Divided Cities. Understanding Intra-Urban Inequalities. Paris

PANORI A., PSYCHARIS Y., BALLAS D. 2019. Spatial Segregation and Migration in the City of Athens: Investigating the Evolution of Urban Socio-Spatial Immigrant Structures. *Population Space and Place*, e2209

PETSIMERIS P., RIMOLDI S. 2015. Socioeconomic Divisions of Space in Milan in the Post-Fordist Era. In: TAMMARU T., VAN HAM M., MARCIŃCZAK S., MUSTERD S. (Eds) Socioeconomic Segregation in European Capital Cities. East Meets West, pp. 186-213. Routledge, Oxford

PRENER C., REVORD C. 2019. Areal: An R Package for Areal Weighted Interpolation. *Journal of Open Source Software*, Vol. 4, No. 37 https://doi.org/10.21105/joss.0122

RIMOLDI S.M.L., TERZERA L. 2017. Neighbours and Friends? Can Residential Segregation Explain Ethnic Separation? The Case of Milan (Italy). *Spatial Demography*, Vol. 5, pp. 193-214

## SUMMARY

The paper proposes an entirely original spatial analysis on residential segregation and settlement models of Sri Lankans in the eight main Italian municipalities, where the largest part of the community lives.

Objectives: The purpose of the work is twofold. First, it attempts to compare the settlement patterns and the level of residential segregation of Sri Lankans across eight urban contexts and to evaluate similarities and specificities. Second, it concentrates to detect possible spatial polarisations of Sri Lankans in specific neighbourhoods and to verify spatial correlation with other key variables that are proxy of socio-economic inequality of territories.

Methods: Traditional global andlocal measures of segregation and concentration are considered and referred to a single geographic reference grid, allowing to homogenise different areal unit arrangements and to propose comparisons between urban areas.

Results: Peculiar residential behaviour in Sri Lankans' settlement patterns is paired with economic and labour market related conditions, configuring a situation going beyond the mere centre-periphery dichotomy. The ethnic mixing that often characterises historic centres can actually reveal states of socio-economic inequality that require ad hoc interventions and consideration.



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# ONLINE COGNITIVE INTERVIEWING. A CONTRIBUTION TO DATA QUALITY

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## 1. Introduction

Survey data quality depends on the choices made in the questionnaire design: which concepts are to be measured in the population and how these concepts are translated into survey questions. Conducting a questionnaire pretest allows to identify the flaws in the design which could cause response error.

Cognitive interviewing is a pretesting method for investigating sources of errors in the sequence and wording of questions, and in the structure of responses. The interview is usually face-to-face, but the spread of the Covid-19 pandemic has imposed to experiment innovative solutions.

In this paper, we report on one of the first experiences of online cognitive pretest conducted at the Italian National Institute of Statistics (Istat), which took place in 2020 for the start of a new survey.

Within the framework of a research project on discrimination at work for sexual orientation and gender identity, from December 2020 to March 2021 Istat, along with the National Office against Racial Discrimination (UNAR), has run a survey on discrimination at work against people who were or had been in civil partnership.

The aim of this survey was to provide an informative framework on the perception and the diffusion of discrimination, threats, and aggression that LGBT people in civil partnership (or who have been in the past) may have suffered in the Italian labour market.

Several aspects of the work environment were explored: job search, work activity, climate and relationships in the workplace or actions taken following any episodes of discrimination.

Since the topic was sensitive, self-completion was chosen as survey mode. The survey was therefore carried out using Computer Assisted Web Interviewing (CAWI) technique.

Due to the novelty and sensitiveness of the topic, particular attention was devoted to the questionnaire design. Subject matter experts drew the first version of the questionnaire based on the needs of data users, then survey methodologists revised it with the aim of reducing respondents burden and making it easier to fill it in. A

first phase was aimed at improving the sequence of the questions, their wording and response categories; it was followed by an accurate pretest activity to understand how people would react to the questionnaire (Balì *et al.*, 2019). Before the questionnaire was released, a cognitive test was carried out to check whether researchers and respondents shared concepts, language, and definitions (Converse and Presser, 1986).

To cope with the social distancing rules due to the health emergency from Covid-19, an innovation was introduced: the cognitive interviews were conducted online instead of face-to-face.

## 2. Cognitive interviewing practice

Cognitive interviewing is a pretesting method to identify and detecting any difficulties with the questionnaire items and the survey questions, in order to improve data quality. As Beatty states (2004, p. 45) «cognitive interviewing is the practice of administering a survey questionnaire while collecting additional verbal information about the survey responses; this additional information is used to evaluate the quality of the response or to help to determine whether the question is generating the sort of information that its author intends». In this perspective, cognitive interviewing provides questionnaire designers with significant insights about the effects of some questionnaire design decisions, the advantages and the disadvantages of asking questions in a specific way.

Two main techniques can be used to carry out a cognitive interview: think-aloud interviewing and verbal probing technique. In the first technique, respondents are requested to spontaneously verbalize all their thought processes as they answer survey questions; in the second one, survey questions are followed by a set of probe questions to understand more about respondents' thought processes. These techniques involve a different role of the interviewer. In the think-aloud interviewing the interviewer intervenes as little as possible, in order to facilitate the verbalization of the participants' thought processes. In the verbal probing technique, the interviewer «guides the interaction more proactively, generally asking additional, direct questions about the basis for responses» (Beatty and Willis, 2007).

Although the two approaches seem distant, «in practice, think-aloud and verbal probing actually fit together very naturally» (Willis, 2005, p. 57). It is appropriate to think about these techniques not as alternative but complementary and consider the possibility to adopt both methods (Conrad and Blair ,2001; Willis, 2005). In fact, not all interviewees have the same verbal ability and different questions of a same questionnaire could need to be tested in different ways. There are some questions that, by their nature, spontaneously encourage verbalizations from the respondents

(for example the questions that require the recall of past behaviours), while for others it is more difficult to follow the thinking strategy (for example the questions that detect opinions). For these reasons, it would be necessary to foresee an alternation of techniques already in the phase of the cognitive interview design because the best choice depends on the type of data that are being collected and the role of the interviewer in that process.

Furthermore, the cognitive pretesting design requires other relevant decisions involving the definition of the sampling plan, the number of interviews to be performed, the procedures for selecting and training the interviewers, the methods of administering the cognitive interviews and the analysis techniques to be adopted. Each of these decisions contributes to influence the results of the pretest and the quality of the subsequent data collection process.

Cognitive interviewing is usually conducted in person but the spread of the Covid-19 pandemic, combined with the availability of current web technologies, have encouraged the use of videoconferencing systems. Indeed, in the last times some researchers have begun to experiment the videoconferencing systems to carry out online cognitive interviews both in qualitative and in quantitative research.

## 3. The cognitive interview track

As it was mentioned earlier, in 2020 Istat engaged in remote interviewing to pretest the questionnaire on discrimination against LGBT people.

After an initial review, in which the focus was on the questions order, the standardization of the classifications and the wording of all the textual elements (i.e., questions, instructions for completion, warnings, definitions, etc.), some questions still showed some critical issues. Some of them were somewhat ambiguous, others were difficult to respond because of their structural complexity, others posed a challenge to memory processes. They were likely to lead respondents to misinterpret the question content, to underreport events or to provide careless responses. For all these reasons, these questions were selected to be tested.

The cognitive test had several aims:

- to make sure that survey questions were easily and properly understood;
- to check whether respondents and researchers shared concepts and definitions;
- to find out if survey questions contained inappropriate assumptions;
- to assess the capability of respondents to recall events and to map them onto the response categories;
- to verify whether response categories were exhaustive and mutually exclusive;

- to explore whether questions content or wording were perceived as embarrassing or too intrusive;
- to detect any other possible issues and to make sure that nothing relevant was missed.

As cognitive interviewing is based on a semi-structured in-depth interview, it is quite demanding. Thus, it is necessary to select only the questions that are considered more problematic or that are expected to be more insightful when submitted to the respondents' judgement.

To the aim of this pretest, twenty-two questions of different formats were selected: nine multiple choice, seven multi-response, three grids, and three open-ended questions. For each question, an interview track summarized the aim of the test, suggested a cognitive technique and included a number of concurrent probes.

In choosing the questions, an effort was also made to ensure a logical flow and to avoid exceeding a reasonable interview duration.

Throughout the interview we asked participants:

- to think-aloud while answering the questions;
- to explain what certain words meant to them;
- to tell how they got to answer memory questions;
- to rate the degree of confidence they had in their answer;
- to rephrase the questions in their own words.

The cognitive interview track included an introduction to explain to respondents the pretest aims and its role within the entire survey process, to obtain the participants' consent to take part in it and to explain what they were expected to do. Before starting the interview, respondents were also reassured that their identity would remain anonymous, and the information provided confidential.

## 4. Sampling and recruitment

Since the questionnaire was targeted at people entered in the Civil Union Registry, we needed to identify subjects who were representative of the target population, for which the survey questions were designed.

To reach the suitable people, we used snowballing, or chain sampling method, that is «a useful approach to implement when you need to find quite specific, or even hidden, populations» (Collins and Gray, 2015, p. 92).

We started by approaching some people in our circle of acquaintances who were in a civil union and asking them to help us with snowballing. We sent them the following WhatsApp message to explain the reason why they were contacted and how to make their contribution to the study:

*Hello,*
*The Italian institute of statistics is about to start a survey on discrimination at work. We are looking for people who are, or have been, in a civil union to take part in an online exploratory interview. If you want to make your contribution, click this link to learn more. Please, forward this message to any people who might be interested.*
*Thank you!*

The link pointed to an online screening questionnaire[1] that asked for information useful to check the eligibility of the respondents. We were looking for people of 18 years or older, who were or had been in a civil union, and who had a job in Italy or had had it in the past. The screening questions also served to ensure a diverse range of participants to the cognitive testing. As recommended by Willis, our focus should have been «on subject variation across a range of characteristics, as opposed to statistical representativeness» (2005, p. 140). The subjects to be interviewed had to reflect the heterogeneity of the target population and allow us to evaluate those survey questions targeted at employees or self-employees. Thus, the screening questionnaire also asked for the respondent's age, gender, occupational status, and geographic location (Northern, Central or Southern Italy).

Respondents found eligible were asked to provide an e-mail address or a phone number where we could reach them for further contacts. In total, the screening questionnaire was completed by twenty-seven people, four of whom were not eligible for the cognitive interview. A phone or an e-mail message was sent to the remaining twenty-three people to arrange an appointment for the cognitive interview. The e-mail provided detailed information about the study and what taking

[1] The screening questionnaire was developed using the LimeSurvey system, a tool to create online surveys.

part in it involved; those who did not enter an e-mail address got the explanation on the phone.

*Hello,*

*we are writing in replay to your application for the preliminary phase of the Survey on discrimination at work. We would like to meet you on the Whereby platform for an online interview. You don't need to download any program, just click the link that we will send you by email on the day of the interview. You will be requested to register, even with a fake name, and to click the Knock button to enter the chatroom. We suggest that you use a PC for a better view of the questions. We will have a chat of around 45 minutes about the questionnaire we are designing. Please, replay to this email to indicate days and times of the next week when you would prefer to take the interview.*

*Thank you.*

Twelve people replied, but two of them declined the invitation shortly before the cognitive interview. The recruited subjects were distributed as follows: six men and four women; aged between thirty-six and fifty-six years (average age 46.5 years); all of them had a job in Italy, seven as employees and three as self-employees; eight lived in Central Italy and two in the North.

## 5. Conducting online cognitive interview

The cognitive interviews took place on the Whereby[2] videoconferencing system. Compared to other similar systems, this tool is very easy to use because it does not require to download any software nor to sign up for an account; respondents can also connect to the chatroom just by clicking a link. These features were important in order to minimize the respondents' burden and increase their participation. Whereby also includes audio and video recording functionalities, but they were not exploited to ensure confidentiality. Furthermore, the Whereby system is GDPR-compliant.

Each interview was conducted by two researchers, with different roles:

- an interviewer, who led the conversation according to the semi-structured track;
- an observer, who managed all the technical issues.

The interviewer welcomed interviewees, gave them an idea of the research goals, explained what they would be asked to do, and then proceeded to administer the survey questions and the concurrent probes.

[2] https://whereby.com/

The observer shared the questionnaire on the screen, noted all the interviewees' answers and reactions, both verbal and non-verbal, and if necessary asked additional probes at the end of the interview (retrospective probing). The presence of the observer was very important because it allowed the interviewer to focus on the interaction, to easily grasp evidences of interviewees' difficulties and to explore them further with appropriate in-depth questions.

Four researchers joined the interviews and took turns in the roles of interviewer and observer. The interviews lasted about 40 minutes and researchers and interviewees were always visible to each other. A great effort was made to build a good relationship with participants: the objective was to make them feel comfortable and to gain their collaboration. This goal was met: all participants were relaxed and helpful, despite the topic. Therefore, every interview was a pleasant experience both for researchers and for participants.

## 6. Results

Our experience has shown that online cognitive interviewing is feasible and helpful.

As some scholars have pointed out, it can be more convenient for researchers and participants, and it could make it easier to recruit a diverse range of people. As seen before, thanks to the method used for recruiting and interviewing participants, we could reach people living throughout Italy and finish a cognitive pretest round in shorter time than usual.

Since interviewees and interviewers did not have to be in the same physical location, we managed to involve people that would have otherwise be excluded, such as one person who was on vacation and agreed to take part in the interview from the hotel lobby. The online cognitive interviewing ensures greater flexibility to respondents in choosing where and when to participate and it gives them the possibility to use their own devices (Geisen and Murphy, 2020). Even in our interviews, some of the interviewees connected via mobile phone.

In addition, the opportunity for people to participate in the study from a more natural setting improves the perception of anonymity and can facilitate discussions on sensitive topics. Our participants had no fear to provide private information about their sexual orientation and discrimination episodes in their life.

Participating from home or from another familiar place, along with the physical absence of the interviewer, seem to increase the perception of privacy. «Both the researcher and the researched are able to remain in a 'safe location' without imposing on each other's personal space. Interviewees can remain in the comfort of their home without the sense the researcher is encroaching on their personal space, while the

researcher avoids the feeling of physically imposing themselves within the participant's personal space. Thus, a neutral yet personal location is maintained for both parties throughout the process» (Hanna, 2012, p. 241).

## 7. Conclusion

In conclusion, we recommend some guidelines that can be helpful for researchers when setting up an online cognitive interview:

- the platform should require neither the registration of an account nor the download of a software;
- it can be useful, but not essential, a voice and video recording functionality;
- the screen sharing allows to monitor participants' responses to the questionnaire in real time and to probe them if necessary (Shepperd et al. 2021);
- as regards the setting of the interview, it is recommended a PC instead of a mobile, to better focus participants' attention on the cognitive task;
- a branded background could improve the perception of legitimacy and authority, in addition to remove possible source of distraction;
- although we have no control over the place where the participants are, we suggest choosing a quiet, comfortable and distraction-free environment;
- an interviewer alone is not enough to conduct an online cognitive interview; you need the help of someone who deal with the technical aspects;
- it is important to invest in building a good relationship before the interview begins and reassure the participants about the privacy and confidentiality of their answers;
- a good video connection is essential to monitor participants' reactions, facial expressions and other nonverbal responses which can reveal confusion or discomfort.

## References

BALÌ N., BARCHERINI S., FAZZI G., GRASSI D., LORÈ B., MACCHIA S. 2019. Metodologia integrata per l'ottimizzazione del disegno dei questionari di indagine. *Working Papers N. 16/2019*, Istat.

BEATTY P. 2004. The Dynamics of Cognitive Interviewing. In Presser S. *et al*. (*eds*.), *Methods for Testing and Evaluating Survey Questionnaires*, New York: John Wiley and Sons, pp. 45-66.

BEATTY P., WILLIS G.B. 2007. Research Synthesis: the practice of cognitive interviewing, *Public Opinion Quarterly*, Vol. 71, No. 2, pp. 287-311.

COLLINS D., GRAY M. 2015. Sampling and Recruitment, in Collins D. (*eds*.), *Cognitive Interviewing Practice*, London: Sage, pp. 80-100.

CONRAD F., BLAIR J. 2001. Interpreting Verbal Reports in Cognitive Interviews: Probes Matter. In *Proceedings of the Annual Meeting of the American Statistical Association*, American Statistical Association.

CONVERSE J. M., PRESSER S. 1986. *Survey questions: Handcrafting the standardized questionnaire*. Sage Publications, Inc, Quantitative Applications in the Social Sciences.

GEISEN E., MURPHY J., 2020. A Compendium of Web and Mobile Survey Pretesting Methods. In Beatty P., Collins D., Kaye L., Padilla J.L., Willis G. and Wilmot A. (Eds.) *Advances in Questionnaire Design, Development, Evaluation and Testing*, John Wiley & Sons, Inc, pp. 287-314.

HANNA P. 2012. Using internet technologies (such as Skype) as a research medium: A research note, *Qualitative Research*, Vol. 12, No. 2, pp. 239–242.

WILLIS G. B. 2005. *Cognitive Interviewing. A Tool for Improving Questionnaire Design*. Thousand Oaks: Sage.

SHEPPERD J. A., POGGE G., HUNLETH J.M., RUIZ S., WATERS E.A. 2021. Guidelines for Conducting Virtual Cognitive Interviews During a Pandemic, *Journal of medical Internet research*, Vol. 23, No. (3).

## SUMMARY

Survey data quality depends on the choices made during the questionnaire design process. Flaws in the questionnaire design can be often identified by conducting a pretest prior to the survey. Cognitive interviewing is a pretesting method useful for exploring hidden and overt problems respondents have in answering survey questions because of the sequence of questions, their wording, or the structure of responses. This interview is usually face-to-face, but the spread of the Covid-19 pandemic has imposed to find innovative solutions.
In this paper we report on one of the first experiences of online cognitive interviewing run at the Italian National Institute of Statistics, which took place in 2020 in preparation for the Survey on discrimination at work against LGBT people.

Subjects were recruited by the chain sampling method, starting from some acquaintances. They were asked to complete a screening questionnaire, sent via WhatsApp, and to invite other people to do the same. Eligible respondents were contacted by e-mail or by phone to arrange an appointment for the interview. The Whereby videoconferencing system was chosen, as it requires neither installation nor account registration, and therefore minimizes the response burden.

Based on this experience, conclusions have been drawn about the benefits of conducting online cognitive interviews. Relying on videoconferencing system allows to reach people spread throughout the territory in a short time and at low cost. In addition, it encourages the participation of those who, due to lack of time, might otherwise refuse. The freedom in choosing the time and the place of the interview, along with the physical distance from the interviewer, also foster a perception of confidentiality and can reduce the interviewees' reluctance to deal with sensitive topics. Finally, under certain setting conditions, the interaction dynamics do not seem to differ significantly from those in presence. Therefore, the spontaneity of the response process and the interviewee's ability to faithfully reconstruct the thought processes are not compromised.


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# PERSPECTIVES ON LGBT+ WORKING LIVES: STAKEHOLDERS, EMPLOYERS AND LGBT+ PEOPLE[1]

Eugenia De Rosa, Valeria de Martino, Francesca Scambia, Nadia Nur

## 1. Introduction

Knowing the condition of LGBT+ people in the labour market and investigating discrimination is an intricate issue that involves different actors and several levels of analysis. Discrimination occurs when a person is treated less favourably than other people in a comparable situation, only because they belong to or are perceived to belong to a particular group, and where such treatment cannot be objectively and reasonably justified. It is connected with social justice. So contextual aspects such as protection policies and anti-discrimination measures, as well as practices and organisational norms, relational dynamics and personal experiences should be considered. However reliable data on this topic are difficult to obtain (De Rosa, Inglese, 2018).

The Istat (National Institute of Statistics)-UNAR (National Antidiscrimination Office) project on "Labour discrimination against LGBT+ people and diversity policies implemented in enterprises", started in 2018, aims at filling this gap.

The aim of this article, based on the so far achieved results of the mentioned project, is to provide an integrated understanding of the discrimination phenomenon in the Italian labour market from different perspectives, considering the point of view of stakeholders, enterprises and LGB people in civil union or formerly in union.

The Istat-UNAR project is characterized by a mixed (quantitative-qualitative) research approach, multiple perspective approach (LGBT+ people, employers, stakeholders) and the interaction of experts and LGBT+ associations (De Rosa, Inglese, 2018). It includes the direct collection of information from LGBT+ people (first macro-area) and from employers, particularly enterprises, and the main stakeholders (second macro-area).

The first macro-area of the project aims at providing an insight on the condition of labour discrimination against LGBT+ people in Italy. The project includes three

[1] This article is the joint work of the authors, however paragraph 1, 3 and 5 are written by Eugenia De Rosa, paragraph 2 by Valeria de Martino, paragraph 4.1 by Nadia Nur, paragraph 4.2, 4.3 and 4.4. by Francesca Scambia.

CAWI surveys based on respondents' self-identification as LGBT+ people, and carried out by a web self-completed questionnaire:

a. in 2020-2021 a total survey of resident individuals (over 21,000) who, as of 1 January 2020, were or had been in civil union. The main results were published in 2022 (Istat, 2022);
b. in 2022 a survey on LGB people who have never been in civil union (completed in May 2022);
c. a focus on trans and non-binary persons which is currently in progress.

The second macro-area of the project included qualitative interviews with stakeholders belonging to different categories, such as professional associations, public administration, equality bodies, trade unions, LGBT+ associations active on the specific theme, LGBT+ workers' networks, employment services and employment mediation, observatories on the subject. Thirty-one stakeholders have been identified among the different actors, they mostly operate at a national level or provide examples of interesting policies[2]. Twenty stakeholders responded to the official invitation letter and agreed to carry out the interview. For the rest, the interview could not be concluded because of various reasons, among them the lack of information on the subject. Interviews were conducted between September 2019 and April 2020; they were recorded, transcribed, reported in pre-organised summary sheets, and synoptically analysed.

The second macro-area included also the implementation of a questionnaire addressed to enterprises with at least 50 employees in the industry and services sector on the topic of the Diversity management (DM) for LGBT+ diversities. In 2019, this questionnaire was included as an *ad hoc* module in the ISTAT surveys "Monthly survey on employment, working hours, wages and labour costs in large enterprises (OCC)" and "Quarterly survey on vacancies and hours worked (VELA)". The *ad hoc* module covered a theoretical sample of about 2000 enterprises, as defined in the design of the VELA host survey, and all the enterprises with 500 and more employees of the host survey OCC1 (about 1500 units). About 80% of all the enterprises involved in the two surveys responded. The main results of the second macro-area were published in 2020 (Istat, 2020).

[2] Stakeholders identified are: AIDP* (Associazione Italiana Direzione del Personale) CNA*, Coldiretti, Confagricoltura, Confapi, Confartigianato*, Confcommercio*, Confcooperative*, Confesercenti, Confindustria*, Confprofessioni, Legacoop, Forum Terzo Settore*, ANCI (Associazione Nazionale Comuni Italiani) RE.A.DY. (Rete Nazionale delle Pubbliche Amministrazioni Anti Discriminazioni per orientamento sessuale e identità di genere) - Servizio LGBT del Comune di Torino*, Consigliera Nazionale di parità*, Coordinatore Nazionale dei Difensori civici, CISL, Coordinamento Diritti UIL*, Ufficio Nazionale Nuovi Diritti CGIL*, BE-FRIENDLY (Banca d'Italia)*, Globe-Mae del Ministero degli esteri e della Cooperazione Internazionale*, Polis Aperta*, Edge*
Parks Liberi e uguali*, Rete Lenford*, Universitrans, Assolavoro (Ass. Nazionale di categoria delle Agenzie per il lavoro), Centri per l'impiego - ANPAL (Agenzia Nazionale Politiche Attive Lavoro), ONIG* (Osservatorio Nazionale sull'identità di genere), OSCAD* (Osservatorio per la sicurezza contro gli atti discriminatori). The asterisk indicates the stakeholders who participated in the research and underwent the interview.

In detail this study is based on the information collected by means of qualitative interviews with stakeholders, the results of the *ad hoc* module on diversity management addressed to enterprises and the results of the first survey targeted to LGBT+ people. The latter involved more than 20,000 (95.2%) people in civil union or formerly in union who live in Italy and declared a homosexual or bisexual orientation in the questionnaire. More specifically this article focuses on perceptions and characteristics of discrimination in employment in Italy; personal experiences; existing policies and tools to fight discrimination and to promote full inclusion; actions considered necessary to promote LGBT+ rights.

## 2. Perception of LGBT+ discrimination at work: stakeholder and LGBT+ people

The interviewed people conveyed a perception of the Italian context as hostile and discriminatory (Istat, 2022): 71.8% of homosexual and bisexual people in civil union or formerly in union living in Italy believe that gay and lesbian people are highly or fairly discriminated against; 22.8% believe that they are not very discriminated against. Overall, 91.1% believe that trans people or people with non-binary gender identity are highly or fairly discriminated against in Italy.

Interviews with stakeholders provided valuable insights into various aspects of discrimination in the workplace against LGBT+ people. Their perception of the issue is based on the favourable position and knowledge of specific sectors and working environments.

According to them, the working environment has remained partially protected from discrimination due to the existing provisions on the topic. However, trade unions emphasized that bargaining and contracts are hardly inclusive for LGBT+ labourers.

Under-reporting of discrimination phenomena is a reality that affects several working environments there is now a new awareness of the protection of workers against discrimination on grounds of sexual orientation, although it is still a little-known and little-used tool. The majority of the interviewed stakeholders emphasized the need of considering the less tangible aspects of discrimination (e.g. unconscious stereotypes and prejudices, non-inclusive language) as well as macroaggressions (Sue, 2010). These resulted to be very widespread but difficult to capture.

The various Italian economic sectors are quite open to change as emerged in particular during the interviews with some professional associations. The North is more open than the South, in particular in the cities, also due to the presence of young people who are more aware of LGBT+ diversity. On the contrary, in some traditional sectors the leadership of mature managers keeps an approach that creates a less inclusive work environment and as a result coming out becomes more difficult.

LGBT+ associations and Trade unions stressed that the socio-economic status and professional position affect the willingness and possibility of dealing with a dispute with the employer by a discriminated person.

Discrimination is intersectional, professional areas count but also the groups to which people belong, including intersectional discrimination as well as differences within the LGBT+ community. In particular, LGBT+ associations remarked the invisibility of lesbian and bisexual women at work, on the other hand "visibility" of trans people and the little knowledge of intersexuality and non-binarism among the employers.

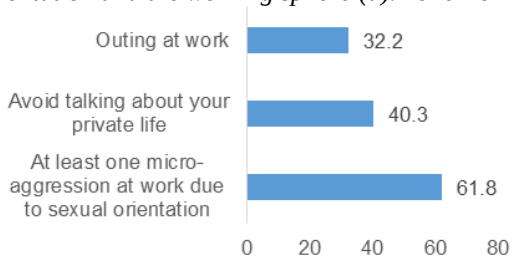
## 3. Working life experiences of LGBT+ people in union or formerly in union

The survey on labour discrimination against LGBT+ people (2020-2021) in civil union or formerly in union living in Italy collected information about their experiences in different spheres of life, focusing on the work environment.

Data show a high participation in the labour market of homosexual and bisexual people in civil union or formerly in union living in Italy (77% were employed and 22.5% have been employed in the past) and a high disclosure at work. This is also due to the profile of this population with a clear majority of men (66.9%) and a relevant share of older people (43.6% are 50 years old and over).

However, in relation to their current/last job (for employed or not employed) 32.2% stated that a person in the working environment had revealed their sexual orientation to others without their consent (Figure 1).

**Figure 1 –** *Sexual orientation and the working sphere (a). 2020-2021.*




*(a) This refers to persons in a civil union or formerly in a union, who have declared themselves homosexual or bisexual, who live in Italy and either are employed in Italy or had their last job in Italy.*
*Source: Survey on Labour Discrimination towards LGBT+ People (in civil union or formerly in union).*

40.3% reported that they avoided talking about their private life in order to hide their sexual orientation, a higher incidence recorded among women (41.5% vs. 39.7% for men). In addition, six out of ten people have experienced at least one form of microaggression at work related to sexual orientation. In general, 26% of

the employed or formerly employed people say that being homosexual or bisexual has been a disadvantage during their working life.

Two main aspects emerge from the data: a strong interaction between gender and sexual orientation and specificity of young people.

As it is for the entire population, also for the homosexuals and bisexuals in civil union or formerly in union living a gender vertical and horizontal segregation in employment is a reality. Indeed women more than men are employed in services as well as in executive or unskilled positions, while men are more involved in managerial positions. Women have usually more care responsibilities and more often have cohabiting children: 19.9% among lesbians and 26% among bisexual women, against values close to 2% for men.

Lesbian and bisexual women are more often discriminated. Among them 40.8% declare having suffered at least one event of discrimination in job search, not necessarily related to sexual orientation (28.3% of men), and gender is the most common reason indicated by women (44.7%) in relation to the last event. As for the employed women, 36.8% experienced at least one event of labour discrimination (33.4% of men), more often they report receiving lower pay and jobs, being refused leave or promotion. Women were also most frequently insulted, including sexually.

Another important aspect highlighted by the data is the specific approach of young people (age 18-34), e.g. higher awareness of their rights. More than six out of ten among the youngest experienced at least a discrimination incident at school/university (46.9% is the total percentage). For more than half of them the last event of discrimination took place in the high school. Sexual orientation is the main discrimination factor (64.5%) followed by the outer appearance (30.7%), the latter reaches 40.2% among the youngest. Younger people report more discriminatory behaviours than the total population in job search. With reference to the last incident, age is the main reported factor of discrimination (21.5%). The job search is thus more reported as a critical stage for younger people, probably because they are more aware of their rights and also because short time has passed from the discrimination incidents.

## 4. Existing policies, tools and actors

### *4.1 Stakeholders*

The perspectives on existing policies and tools for LGBT+ workers' protection differ according to different types of stakeholders.

Professional associations are basically concerned about discrimination in a broad sense, less on the distinction between LGBT+ and non-LGBT+ workers. Particular attention is given to agreements between social partners. The existing

contractual agreements are considered in most cases to be sufficient since they assure equity in pay and they combat harassment and violence in the workplace, although no specific measure targeting LGBT+ workers is identified.

Also, the national and European legislative framework (e.g. the European Directive 78 2000/78/EC, n.216) does not contain explicit rules on LGBT+ discrimination, but implicitly includes the protection of these categories.

Interviews with representatives of the main Italian Labour Unions highlighted a deep concern about the lack of specific references to LGBT+ people in the existing legislative tools. General legislative tools are provided in Italy, however, there is difficulty in bearing evidence on the discrimination suffered, as it is in the case of mobbing and bullying.

It is recognized that inclusive bargaining is on the table but, in the opinion of labor unions, diversity management should develop more and adopt a more effective range of action and instruments, which can be achieved through trade union agreements. At present, bargaining is one of the means of introducing measures to protect workers against discrimination.

Thus Joint Commissions ("Commissioni paritetiche") and Equal Opportunities Committees within workplaces have an important function in preventing discrimination. However, they should be more empowered and they should target a wider range of discriminations.

The lack of knowledge of the European directive is highlighted both by trade unions and by LGBT+ associations, which also point out that the law serves to avoid discrimination, but it is fundamental to constantly work to raise awareness, starting from institutions.

The Legislative Decree 9 July 2003 is considered a safeguard for workers against discrimination based on sexual orientation, even though little known.

The Cirinnà law is a turning point on the path of LGBT+ rights, also for the sake of visibility. (e.g. a policeman, interviewed as the representative of an LGBT+ association in the armed forces, could choose to celebrate the civil union with his uniform). But for some interviewed it is necessary to go beyond the legislative basis and provide rules not covered by Cirinnà law (for example, as regards children, many companies have equated guarantees for LGBT+ and straight couples).

The law can be an effective tool to avoid collective and social discrimination, however, existing tools are not sufficient and the issue of training has emerged frequently during interviews. But few training and awareness-raising activities and initiatives are carried out by companies.

Another important point raised by associations is the lack of initiatives and measures for specific trans people, which are considered more vulnerable as they

are more visible in the workplace and they require specific attention in order to support the transition.

### *4.2 Observatories on discrimination*

At the stage of interviewing observatories on discrimination among the stakeholders, they emphasized that just a few cases and disputes on discrimination incidents are reported to judicial authorities, law enforcement agencies, associations and unions dealing with the issue. Therefore, also observatories have not a complete picture of the phenomenon. In addition to that, due to the lack of a specific law on homolesbobitransphobia, even when victims report these events to the police, the latter cannot classify them as specific crimes, as OSCAD (Observatory for security against discriminatory acts) reported. So far, in Italy incidents of violence against a person can be classified as discrimination as far as they fall in the categories considered as aggravating factors according to the Law No. 205 of June 25, 1993, the so-called "Mancino Law". There is no any specific reference to the grounds of either sexual orientation or gender identity; this has an effect also on data, because not any crime of violence can be labelled as against LGBT+ people. These type of crimes fall in the general crimes of violence, and as a result, the dimension of the phenomenon is not well known.

Misreporting and under-reporting are very well known behaviours that together with the absence of a common methodology mislead the information collected by the bodies in charge

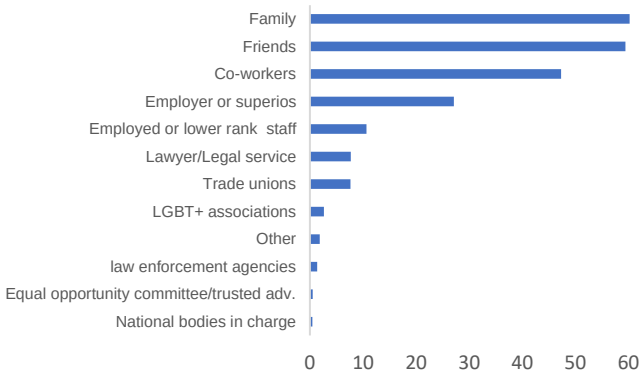
### *4.3 People in civil union and reporting discrimination*

The issue of both formal and informal reporting was one of the topics in the survey on people in union or formerly in union (Istat, 2022).

In this group, people who suffered a hostile atmosphere at work prefer, in their high majority, to talk about the suffered incidents by means of informal reporting and they talk about it either with co-workers (47.4%) or with superiors (27.1%) within the work environment, and out of it with family members (60.3%) and friends (59.5%). Family and friends are the most preferred environments where people choose to share their discrimination experience.

Formal reporting is hardly performed: Trade unions (7.7%), Law enforcement agencies (1.4%), Equal opportunity committee or trusted advisor (0.5%). These different attitudes are reported in Figure 2.

**Figure 2** – *Hostile climate and reporting by LGBT+ people in civil union (or formerly in union). 2021-2022.*




*Source: Survey on Labour Discrimination towards LGBT+ People (in civil union or formerly in union).*

### *4.3 Diversity management polices: stakeholders, employers and workers*

According to the interviewed stakeholders Diversity management policies are desirable actions when they not result in a mere formalization of principles, and enterprises themselves can be vehicles of a culture of differences only when public institutions accomplish their duty in providing the necessary framework.

Data from the *ad hoc* module show that Diversity management measures for LGBT+ diversity are still little used by enterprises, though a wide gap divides the largest (=>500 employees) from the smallest enterprises (50-499). For instance, in 2019 14.6% of the former adopted at least one extra no-mandatory measure, aimed at encouraging the inclusion of LGBT+[3] workers to 4.4% of the latter (5.1% is the total percentage).

The possibility of using toilets, changing rooms, etc. in accordance with the workers' gender identity resulted to be the most adopted measure both by the largest and smallest enterprises (7.8% and 3%).

New measures are not planned in the next future, as only 2.9% of the enterprises that have never adopted DM measures or tools for LGBT + diversity (not provided by law) planned to adopt them in the next three years. To note that training events on issues related to LGBT+ diversity involving the top management (1.3%) and workers (1.2%) are not widespread.

[3] Measures considered are training events for top management and workers on issues related to LGBT+ diversity; initiatives to promote the culture of inclusion and enhancement of LGBT+ diversity; ad hoc measures for transgender workers; permits, benefits and other specific measures for LGBT+ workers.

On the other hand, the adherence to the principles of no-discrimination and inclusion of LGBT+ workers was formalized in one or more internal documents by 15.4% of the whole interviewed enterprises, with a percentage up to 34.1% for those with 500 employees and more.

LGBT+ people are aware that written rights have no immediate effect on daily life and evidence of this was registered in the survey addressed to people in civil union or formerly in union: more than one out of ten (12,5%) stated they did not request marriage leave, even if possible, and about 1 out of three of them "Because my sexual orientation would become public knowledge" and 7% "Out of fear of consequences or threats of retaliation". It should be noticed that a high percentage was not even aware of this right.

Therefore, as stakeholders noticed, nowadays there are some good practices, but still void on rights especially on the grounds of LGBT+ families, intersex people and very few have guidelines on trans. Their opinion is that public institutions should promote networks and synergies among multiple actors. This is the way to involve also small-medium-sized enterprises in the process of a major inclusion and to work on the field.

## 5. Denied rights and actions desired by stakeholders and LGBT+ people in civil union or formerly in union

For both the interviewed stakeholders and people in civil union or formerly in union involved in the Istat-UNAR survey, training and awareness-raising towards a culture of differences, a crucial cultural change towards a more inclusive and respectful-of-differences society both for sexual orientation and gender identity are the main actions to adopt.

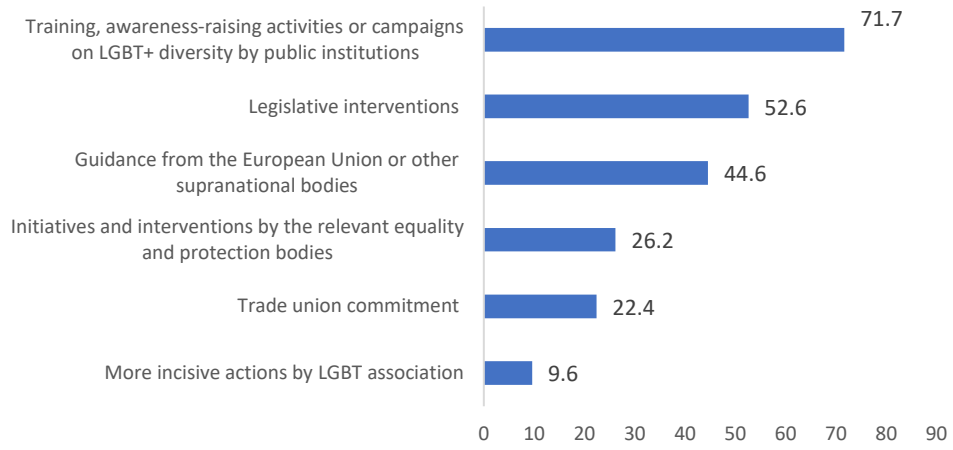
As for the desirable actions in the working environment, the vast majority of homosexual and bisexual people, in civil union or formerly in union living in Italy, believe that training, awareness-raising activities or campaigns on LGBT+ diversity by public institutions are urgently needed to foster the inclusion of LGBT+ people in the working world (71.7%). It is followed by legislative interventions (52.6%) and guidance from the European Union or other supranational bodies (44.6%) (Figure 3).

For most of the stakeholders interviewed the public institution is the main actor to promote a cultural change and they also stress the importance of networking. Some of them highlighted the potential to link the issue of harassment and discrimination to the issue of safety at work, and potentialities of tools already used to combat gender discrimination in the workplace.

For both the stakeholders and LGBT+ people interviewed legislative interventions are seen as a vehicle for a cultural change. In particular they emphasized the urgent need for a law against homolesbotransphobia. 89.1% of homosexual and bisexual people, in civil union or formerly in union were very

favourable, followed by favour of introducing the stepchild adoption, same-sex marriage, allowing same-sex couples in civil union to adopt children, and of introducing greater protection for LGBT+ people at work. This is also related to the specific surveyed group which includes people in civil union alone.

**Figure 3** – *Desirable actions in the working environment (a). 2020-2021.*




*Source: Survey on Labour Discrimination towards LGBT+ People (in civil union or formerly in union).*

However legislative interventions are desirable actions when they succeed in acting on cultural aspects; when they become practices and therefore contribute to the construction of inclusive work contexts, such as facilitating the coming out. Coherently the most frequently indicated measure in the open field of the question refers to the cultural ground and recalls the importance of carrying out education, information and awareness-raising initiatives on LGBT+ issues in schools. Another issue raised concerns the activation of support services/measures (e.g. nursing homes, family homes) for LGBT+ people in a fragile condition and the elderlies.

Open answers and remarks enabled to receive information on the less visible and under-represented groups within the LGBT+ community. Some respondents also referred to institutional discrimination and issues linked to the experience of trans people (for example, requesting a simplification of the procedure to change name without surgery and relief from health care costs), intersex people and people with a non-binary identity reporting their experience of institutional discrimination and denied queer rights.

## 6. Conclusion

Knowing the condition of LGBT+ people in the labor market and investigating discrimination requires a multi-level analysis: macro (protection policies and policies to combat discrimination), meso (measures, practices and organizational rules, personnel policies, organizational dynamics) and micro (personal experiences, behaviors and beliefs). Each individual is rooted in relational structures and groups that condition their actions and change over time. Discrimination implies relationality, processuality and subjectivity.

This article highlights potentialities of the information collected by the Istat-UNAR project and provides a first picture.

Overall, there is a partial recognition of LGBT+ rights in Italy and existing protection tools and inclusion measures are only partially satisfactory. Misreporting and under-reporting are widespread. Investing in training and awareness towards a culture of differences and strengthening the role of public institutions is necessary.

A common experience of many interviewees is having hidden their sexual identity at the workplace, as well as being the target of microaggressions based on sexual orientation. Direct and structural discriminations are real.

Gender inequalities in the labour market affect the condition of lesbians and bisexual women and their degree of visibility/invisibility in the workplace with respect to sexual orientation. More in-depth analysis should be able to distinguish between multiple, additive and intersectional discrimination (Bello, 2020).

Another relevant aspect mentioned concerns how a person is perceived by others and the action of gender norms. There is still a patriarchal, heteronormal and cisnormal culture that permeates many organizations, institutions and life contexts.

Although the individual experiences of LGBT+ people collected so far refer to a the specific group of people in civil union who for the most part have experienced their insertion into the labour market in a context different from the current one, the data show a greater and different awareness on the part of the youngest, underlining the need to integrate the picture briefly outlined here with the results of the other two surveys planned by the project, and dedicated to LGB people not in civil union and to trans people and people with non-binary gender identity.

## References

BELLO B.G., 2020. Intersezionalità. Teorie e pratiche tra diritto e società, Milano, Franco Angeli.

DE ROSA E., INGLESE F. 2018. Diseguaglianze e discriminazioni nei confronti delle persone LGBT: quale contributo della statistica ufficiale?, *Sieds - Rivista italiana di economia demografia*, LXXII 4, Ottobre-Dicembre 2018, pp. 77-88.

ISTAT. 2022. L'indagine ISTAT-UNAR sulle discriminazioni lavorative nei confronti delle persone LGBT+ (in unione civile o già in unione). Anni 2020-2021.
ISTAT. 2020. Il diversity management per le diversità LGBT+ e le azioni per rendere gli ambienti di lavoro più inclusivi. Anno 2020.
SUE. D. W. 2010). *Microaggressions in everyday life: Race, gender, and sexual orientation*. John Wiley & Sons Inc.

## SUMMARY

Knowing the condition of LGBT+ people in the labour market, defining and investigating discriminatory phenomena is a complex operation that involves different actors and several levels of analysis.

This article is aimed at providing an integrated understanding, from different perspectives, of the discrimination phenomenon in the Italian labour market, starting from the data and information produced within the project conducted by the National Institute of Statistics (Istat), in collaboration with the National Antidiscrimination Office (UNAR) on "Labour discrimination against LGBT+ people and diversity policies implemented in enterprises". The project included qualitative interviews with stakeholders belonging to categories operating mainly at national level; a questionnaire addressed to enterprises with at least 50 employees in the industry and services sector on the Diversity management (DM), three surveys dedicated to different targets of the LGBT+ population (people in civil unions, people not in civil unions, trans and non-binary persons) with the aim of capturing the individual experiences of discrimination at work and in other contexts of daily life by LGBT+ people.

This article considers the point of view of stakeholders, enterprises and LGB people in civil union in Italy on the basis of the surveys conducted so far. In detail, it focuses on perceptions and characteristics of discrimination in employment in Italy; personal experiences; existing policies and tools to fight discrimination and to promote full inclusion; actions considered necessary to promote LGBT+ rights in Italy.

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# DECREASING CONSUMPTION BECAUSE OF COVID-19? A MULTISECTORAL ASSESSMENT

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## 1. Introduction

The outbreak of Covid 19 pandemics has caused two digit decreases of GDP of all the major economies, and a wide range of interventions has been put in place by the different governments to face this unprecedented shock. In the second quarter of 2020 household expenditures decrease, on average, by more than 10% with respect to the second quarter of 2019. In addition, households are subjected to several further shocks affecting them under different viewpoints, such as job arrangements, personal health conditions and region of residence. In response to pandemics, consumer expenditure, one of the main drivers of the economic activities, collapsed in the early 2020, because of the first wave of pandemics.

Covid 19 has affected different regions and individuals in several specific ways. Consumers were forced to change behaviour in response to different region-specific economic and social frameworks. The worldwide trade of goods, after a fall of 15% in volume, between February and May 2020, starting from summer months, has rapidly recovered, reaching, at the end of the year, higher levels than the pre-crisis period. In the first quarter of 2021, the economic cycle reinforces in China and the United States, while in the euro area the activity undergoes a new moderate decrease because of the introduction of further measures against the health emergency. In Italy, household expenditure drops significantly in 2020, by about 10%; this decrease is accompanied by a weaker reduction of 3% in households' real disposable income, supported by the government package to face the spread of pandemics.

This paper aims at the detection of the size of direct and indirect effects on total output linked to the changes in households' consumption levels and composition in the years of Covid pandemics with respect to the pre Covid period. For these reasons the analysis adopts the multisectoral viewpoint that allows for the evaluation of the direct and indirect impacts of a decrease in the households' consumption expenditures on total output which represents the level of economic activities. Year 2018 has been considered as the base year of the considered time horizon 2018-2020. We apply the Leontief inverse of 2018 to the consumptions of years 2018 to 2020. In this way, a quantification of the changes in the level of activities as expressed by sectoral total

outputs caused by the changes in the households' consumption expenditures can be obtained. The analysis, then, highlights the different intensity in the decrease of productions and the difference in consumption composition. Starting from 2020, the outbreak of Covid-19 pandemics causes a sharp decrease in households' private consumption and a relevant rise in the saving rate, both in US and in Euro area. Among the European countries, Italy and Spain suffered the most relevant decrease in consumption expenditures and higher increases in the saving rate. The anti-Covid healthcare measures, to prevent the spread of pandemics, added instability to the economic process, in terms of output and job losses, both in the directly involved industries and in the whole economy, as interacting process, create relevant problems of economic instability to millions of people at a global level.

These measures seriously affected the economic activities in most of sectors, following the relative output share of each single sector. Following FRED and Eurostat observations, in Italy the household private consumption expenditure has severely decreased in 2020, of about 10%. This never happening fall has been complemented with a milder contraction of about 3% in household's disposable real income, supported by the package of administrative incentives implemented starting from the burst of pandemics. The saving rate, after the historical levels reached in spring (over the 20%) remains above the pre pandemic level by the end of 2020.

There are many reasons connected to this consumption and saving trends.

First, the decrease in disposable income and the job loss led to a reduction in households' expenditures. Secondly, households increase their savings driven by precaution reasons, because of the uncertainty on the evolution of their economic situation or because the perceived higher healthcare risk. Third, lockdown policies inhibit some typologies of expenditure (restaurants and travels), producing forced savings. Fourth, the risk of contagion hinders households from the consumption of certain kinds of goods and services involving social contacts. At present, all these factors play a role, at a different magnitude, for each expenditure class and for the different categories of households. For example, precaution reasons are more likely connected to unemployed low-income people. Independently from their income, all the individuals are treated by the healthcare risk and contagion, this particularly involves expenditure categories whose jobs are mainly connected to risk of contagion. (Guglielminetti and Rondinelli, 2021).

After this introductory chapter the paper develops along four further chapters: chapter two provides a brief literature review on the main methodological topics dealing with the observed consumption behaviours in presence of the contagious disease in various European countries; chapter three gives a suggestion for dealing with consumption expenditure in presence of pandemics through the application of the multisectoral approach. Results are illustrated in the fourth chapter, while conclusions are drawn in the last chapter.

## 2. Literature Review

Starting from the initial phases of Covid 19 pandemics, attention of researchers has been drawn by the households' private consumption tendencies. Analyzing microeconomic data on high frequency bank operations and credit cards, evidence has been found of the negative consequences of the spread of the virus leading to relevant reductions in households' expenditures. These decreases are not equally performed within all the consumption categories. The most affected nonessential goods sectors, e.g., travels accommodation and restaurants while essential goods sectors, e.g., food consumption and ICT related sectors, attest relevant increases. These reductions have been more significant than job those observed in jobs and income detected in the same period. Consumption declines emerge across all households' expenditures and income classes.

The work of Bachas *et al*., (2020) and Chetty *et al*., (2020) showed that rich US individuals widely decrease their expenditures and stimulating them at a slower pace with respect to low-income individuals. Within this context, the behaviour of consumers during Covid 19 pandemics have been affected both by economic and precaution reasons but also by restrictive policies and infection troubles. Nevertheless, it is difficult to differentiate within the last factors, since they are both nearly simultaneously driven by the diffusion of contagion.

Therefore, the size at which the expenditure in nonessential goods has been affected by lockdowns is controversial. Data on the transaction level of a non-profit company (Baker *et al*., 2020) showed that the global decrease in expenditure with the burst of Covid 19 have been approximately two times higher in countries promoting stricter lockdown. Alexander and Karger (2020) try to estimate the causal consequences of policy recommendations. The simulation has been carried out using data on consumers expenditures and mobile registrations and exploit the change in stay-at-home orders within countries. The analysis highlighted that the stay-at-home order caused a broader decrease of expenditure in related sectors against mobility, but only partially explains the behavioural response to Covid 19. By means of high frequency data on transactions, (Chetty *et al*., 2020) found that the open order of countries has a moderate impact on expenditure, suggesting that consumption has been motivated by healthcare purposes. Andersen *et. al*., (2020) compares the behaviour of consumers in Denmark and Sweden drawing the same conclusions only based on the fact that the two countries were equally exposed to pandemics but only Denmark imposed significant restrictions to the economic activity. Exploiting data from the Bank of Italy's Special Survey of Italian Households (SSIH) Guglielminetti and Rondinelli (2021) combine a micro and macro approach explain the fall without precedents of private consumption due to the outbreak of Covid 19 pandemics. The macro estimation shows that there are many factors that explain consumption dynamics in 2020, among which the worsening of economic conditions, the fear of

infection, governmental restriction and uncertainty linked to the healthcare perspectives and economy. Consistently with the macro evidence, the microeconomic analysis, based on SSIH data, confirms the relevance of these factors in relation to pandemics. The work offers some evidence on the evolution of expenditure and saving in nearby future. In Italy, expenditures in different services, as travels, cultural events, restaurants, are still widely discouraged in the first part of 2021. These limitations translate in most relevant earnings, even if there has been a shift towards other categories of consumption goods, e.g., durables. These savings have been collected in 2020 and have been employed when the pandemics is under control and with a reduced fear of contagion. The uncertainty of this situation could have long term effects and hit more fragile sectors and households.

## 3. Database and Methodology

The analysis is carried out using the multisectoral approach. The starting point has been the Italian Input Output database of year 2018 retrieved in Istat website. In addition, we use the data on the Italian households consumption expenditure by family budget (database I.Stat) for years 2018-2019-2020. For this aim we need to refer to the consumption bridge matrix. At the beginning of the 'eighties', multisectoral Input Output simulations models were progressively integrated with systems of demand equations econometrically estimated. This generated the "modern Input Output models" that preserve the idea of technical coefficients but, for final demand, rely on the econometric estimation of final demand systems of behavioural equations for each demand component (Ciaschini, 1982). The Inforum project of University of Maryland (Almon, 2016) provided a forum for national research groups that joined the project of realising a net of similar models for simulating the outcomes of a consistent set of world economy models. The interest in the topics has progressively grown leading to the construction of datasets, bridging matrices between two different data classification systems. In particular consumption by purpose (COICOP) and products by activity (CPA). While the former classification is used in household budget and expenditure surveys allowing for the estimation of a system of consumption demands, the latter represents the industry sector dimension adopted in national accounts and input–output tables, allowing for the determination of the impact of consumption demands on total outputs. The consumption bridge-table transforms the flows of consumption expenditures according to the family budgets classification into the flows of consumption demands to the producing industries. This procedure allows for the determination of the activity level in each industry in terms of total output (Cazcarro *et al*., 2022), (Cai and Vandyck, 2020), and for the evaluation of the loss of output growth caused by consumption deficits.

As shown in Table 2, we have attributed the 24 consumption expenditure items from the family budgets classification (COICOP) described in Table 1, (UN, 2018) to

the 63 industries classification (ATECO/ISIC) shown in Table 2 (ISTAT,2022). Lines with all zeros have been omitted.

**Table 1** – *Family Budget Items (COICOP) for households Consumption Expenditures*

| | |
|---|---|
| 1 Cereals and cereal products | 13 Clothing and footwear |
| 2 Live animals, meat and other parts of slaughtered land animals | 14 Housing, water, electricity, gas and other fuels |
| 3 Fish and other seafood | 15 Maintenance, repair and security of the dwelling |
| 4 Milk, other dairy products and eggs | 16 Imputed rentals for housing |
| 5 Oils and fats | 17 Furniture, Household textiles, Household appliances |
| 6 Fruits and nuts | 18 Health |
| 7 Vegetables, tubers, plantains, cooking bananas and pulses | 19 Transport |
| 8 Sugar, confectionery and desserts | 20 Information and communication |
| 9 Ready-made food and other food products n.e.c. | 21 Recreation, sport and culture |
| 10 Coffee and coffee substitutes | 22 Education services |
| 11 Water, Fruit and vegetable juices | 23 Restaurants and accommodation services |
| 12 Alcoholic beverages, tobacco and narcotics | 24 Other goods and services |

**Table 2** – *The consumption bridge table.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 76.45 | 98.29 | 41.22 | 59.12 | 15.93 | 42.18 | 63.45 | 19.17 | 10.99 | 14.08 | 22.66 | 46.1 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | 114.65 | | | | 3.8 | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | 20.64 | | | |
| 12 | | | | | | | | | | | | | | | | | | 53.42 | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | 11.75 | | | | | | |
| 18 | | | | | | | | | | | | | | | | | 15.28 | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | 79.21 | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | 3.98 | | | | | |
| 22 | | | | | | | | | | | | | | | | | 90.89 | | | | | | | 12.75 |
| 24 | | | | | | | | | | | | | | 117.52 | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | 34.62 | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | 11.48 | 26.51 | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | 13.17 | | | | | |
| 32 | | | | | | | | | | | | | | | | | | | 2.99 | | | | | |
| 33 | | | | | | | | | | | | | | | | | | | 8.09 | | | | | |
| 34 | | | | | | | | | | | | | | | | | | | 180.96 | | | | | |
| 35 | | | | | | | | | | | | | | | | | | | | 1.05 | | | | |
| 36 | | | | | | | | | | | | | | | | | | | | | | | 129.98 | |
| 39 | | | | | | | | | | | | | | | | | | | | 58.26 | 7.25 | | | |
| 41 | | | | | | | | | | | | | | | | | | | | | | | | 0.51 |
| 42 | | | | | | | | | | | | | | | | | | | | | | | | 69.18 |
| 44 | | | | | | | | | | | | | | 45.35 | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | 12.25 |
| 50 | | | | | | | | | | | | | | 82.68 | | 577.89 | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | 20.2 | | | |
| 54 | | | | | | | | | | | | | | | | | | | | | | 15.83 | | |
| 55 | | | | | | | | | | | | | | | | | | 53.16 | | | | | | |
| 56 | | | | | | | | | | | | | | | | | | | | | | | | 6.39 |
| 57 | | | | | | | | | | | | | | | | | | | | | 78.92 | | | |
| 61 | | | | | | | | | | | | | | | | | | | | | | | | 89.6 |
| TOTALS | 76.45 | 98.29 | 41.22 | 59.12 | 15.93 | 42.18 | 63.45 | 19.17 | 10.99 | 14.08 | 22.66 | 46.10 | 114.65 | 291.65 | 26.51 | 577.89 | 109.97 | 118.33 | 288.40 | 59.31 | 127.01 | 15.83 | 129.98 | 190.68 |

To the purpose of our application the 63 IO sectors have been then, aggregated in 29. Given a vector of consumption expenditures IO, made consistent with the features of the IO disaggregation, it is easy to determine the corresponding vector **x** of direct and indirect output requirements, through the Leontief inverse. (Leontief, 1956). In our application, vector **c** considers only the private households' consumption expenditure component of the final demand vector, which represents the consumption demand forwarded to the producing industries, no other demand component is considered. The

consumption bridge matrix, **B**, is obtained in two steps: i) by aggregation of the 63 IO sector in table 2 into the 29 considered in this application (see table 3) and calculating the coefficients by dividing each column of the resulting matrix by its total. Given a vector of final demands expressed by the behaviour of the households ($\mathbf{c}^{FB}$) the vector of final consumptions requirements to the I-O sectors, ($\mathbf{c}^{IO}$), can be determined using the bridge matrix **B** so that $\mathbf{c}^{IO} = \mathbf{B}\ \mathbf{c}^{FB}$. We will then be able to transform the consumption expenditure by family budgets, ($\mathbf{c}^{FB}$) i.e., the most recent data available on consumption expenditure, into a vector ($\mathbf{c}^{IO}$) of consumption demands to the IO industries (ATECO).

**Table 3** – *Input Output sectors (ATECO classification).*

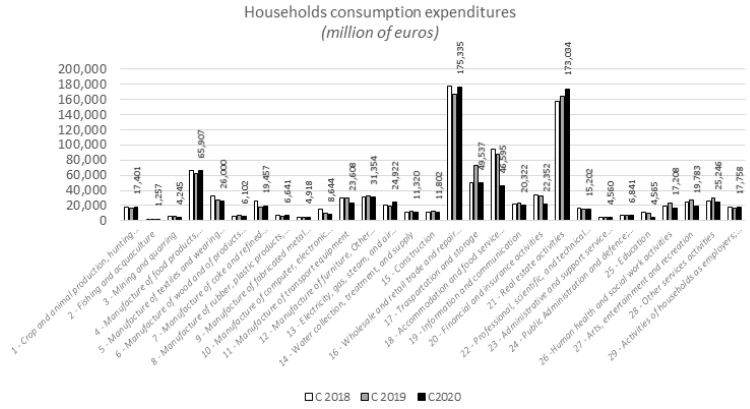
| | | |
|---|---|---|
| 1 - Crop and animal production, hunting and related service activities | 11 - Manufacture of transport equipment | 21 - Real estate activities |
| 2 - Fishing and acquaculture | 12 - Manufacture of furniture, other manufacturing Repair and installation of machinery and equipment | 22 - Professional, scientific, and technical activities |
| 3 - Mining and quarring | 13 - Electricity, gas, steam, and air conditioning supply | 23 - Administrative and support service activities |
| 4 - Manufacture of food products, beverages, and tobacco products | 14 - Water collection, treatment, and supply | 24 - Public Administration and defence; compulsory social security |
| 5 - Manufacture of textiles and wearing apparel | 15 – Construction | 25 – Education |
| 6 - Manufacture of wood and of products of wood, paper and paper products and printing | 16 - Wholesale and retail trade and repair of motor vehicles and motorcycles | 26 -Human health and social work activities |
| 7 - Manufacture of coke and refined petroleum products | 17 - Trasportation and storage | 27 - Arts, entertainment and recreation |
| 8 - Manufacture of rubber, plastic products, and other non-metallic mineral products | 18 - Accommodation and food service activities | 28 - Other services activities |
| 9 - Manufacture of fabricated metal products, except machinery and equipment | 19 - Information and communication | 29 - Activities of households as employers; undifferentiated good and services producing activities of households for own use |
| 10 - Manufacture of computer, electronic and optical products, electrical equipment machinery and equipment n.e.c. | 20 - Financial and insurance activities | |

## 4. Results

Industry total output quantifies the level of activation of each sector of the economy on which establishing the effect of the demand fall due to COVID-19 given that a (29x29) intermediate demand Matrix **A** in the base year (2018), the households demand sectors by 29 I-O sectors $\mathbf{c}^{IO}{}_t = \mathbf{B}_t\,\mathbf{c}^{FB}{}_t$ for years 2018, 2019 and 2020. The 29 sectors output vector **x** is then easily determined as: $\mathbf{x}_t = (\mathbf{I}\text{-}\mathbf{A})^{-1}\,\mathbf{B}_t\,\mathbf{c}^{FB}{}_t$, where *t = 2018, 2019, 2020*.

Figure 4 shows the values of consumption for the three years analysed. Industries *(16) Wholesale trade* and *(21) Real estate activities*, show the highest values of consumption demand to IO sectors. Sectors *(1) Agriculture, (4) Food, (13) Electricity, gas, steam, and air conditioning supply* and *(29) Activities of households as employers*, after a downturn in the previous years, seem to recover in the last year. The remaining industries consumption demands show a decrease.

**Figure 4** – *Households consumption expenditures for the three years 2018-2020.*




The aggregate result for the private consumption expenditure in the three-year period shows a decline that worsens through time. From -0,44% in the transition from 2018 to 2019, it markedly worsens to -9,05% in the transition from 2019 to 2020.

Figure 5 shows the sectoral results obtained for total output. Sectors *(13) Electricity, gas, steam, and air conditioning supply, (29) Households as employers, (21) Real Estate* and *(16) Wholesale and retail trade and repair of motor vehicles and motorcycles* for a negligible amount perform a positive growth rate. All the remaining industries suffer, at different magnitudes, the decrease in the activity levels. In evaluating the variations in the level of activities in the economy, we can refer to the industry output percentage changes between years 2018-2019 and 2019-2020 that emerge from Figures 6 and 7.

**Figure 5** – *Forecasted total output for the three-years 2018, 2019, 2021.*

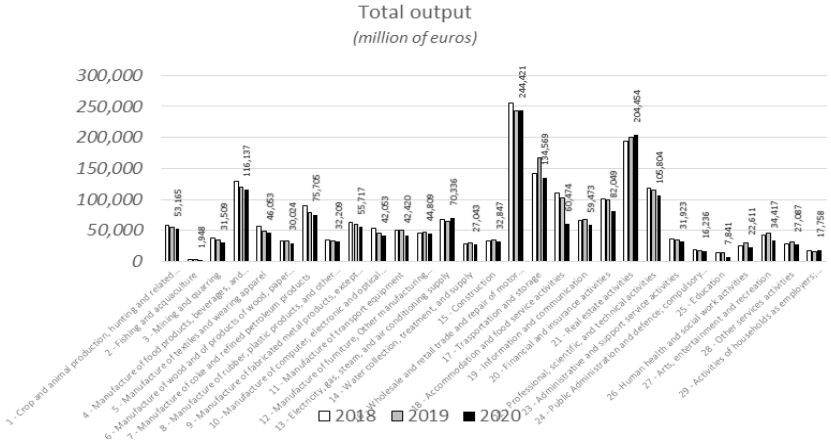
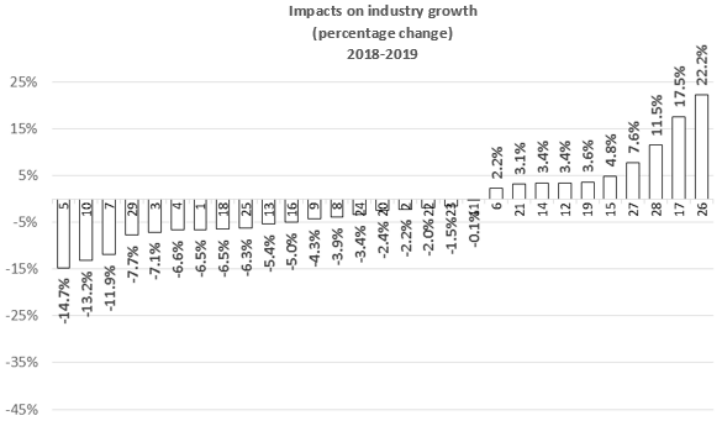



**Figure 6** – *Sectoral decline in activity levels in the pre-pandemic period. (% change years 2018-2019).*

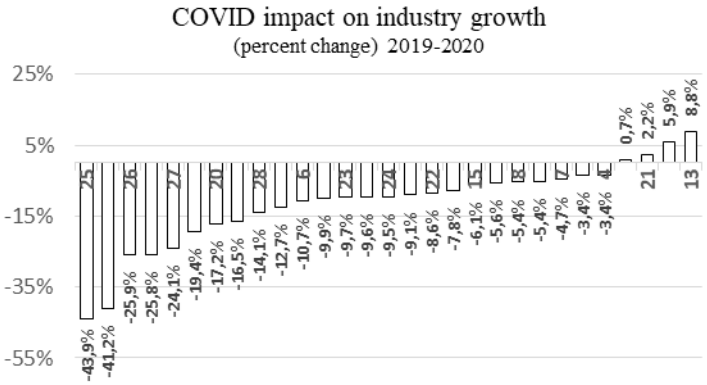



In this way, COVID-19 impacts on industry outputs can be evaluated in comparison of the percentage change in total output of the economy as a whole. Each industry reveals, in the negative case, the weakness of its performance, and its strength in the opposite case, and can be analysed with reference to the aggregate growth of the economy. The industry total output change, providing a quantification of the change in the activity level of each sector in the three years period 2018-2020, shows a decline in the industry activity levels that tends to worsen over time. The overall decline expected for years 2018-2019 amounts to 4.4%. As we show in Figure 6, a set of fourteen industries show a percent change rate of their activity level around or above

the value of aggregate rate, as absolute value, with 8 industries in decline and six industries in growth.A second set of nine industries exhibit a rate of change lower than 8% but higher than aggregate rate considered in absolute values, where eight rates are negative and only one shows a positive value. A third set, that involves higher rates of decline/growth, is given by six industries where industries *(5) Manufacture of textiles and wearing apparel, (10) Manufacture of computer, electronic and optical products, electrical equipment machinery and equipment n.e.c.* and *(7) Manufacture of coke and refined petroleum products* decline respectively at a rate of 14.7%, 13.2% and 11.9%. Industries *(28) Other services activities*, *(17) Transportation and storage* and *(26) Human health and social work activities* show relevant impacts of 11.5%, 17.5% and 22.2% respectively. Figure 7 shows how the expected percentage decline in the industry activities, due to COVID-19 pandemic in the years, 2019 and 2020, impacts on each single industry in terms of the forecasted percent change of its own total output. Here the situation appears more difficult since the overall aggregate rate of decrease moves from 4.4% to 9.05%, presumably able to threaten the resilience of the industrial structure. The majority of industries, eighteen, show a rate of change in absolute value, lower, or much lower, than the aggregate rate of change. Nevertheless, only four industries exhibit the positive sign. The vast majority of the results, 25 sectors on 29, show negative signs, which means a significant decline. Two industries emerge as

specially threatened by a substantial decline, located around 40%, (*(25) Education*, -43.9%, *(18) Accommodation and food service activities*, -42.2%).

**Figure 7** – *Decline in the industry activity levels due to COVID-19 pandemic. (% change, years 2019-2020).*




Three industries decline by one fourth (*(26) Human health and social work activities*, -25.9%, *(2) Fishing and aquaculture*, -25.8% and *(27) Arts, entertainment and recreation*, -24.1% and one by one fifth (*(17) Transportation and storage*,

19.4%.). As observed, the sectoral impacts of COVID-19 on economic growth reveals to be rather multifaceted. Its typical features are very different from those of usual recessions. On the one hand, "Contact Intensive" services, usually insensible to the economic cycle, have been the more intensively affected ones. On the other hand, sectors with a pro-cyclical evolution, e.g., experienced a milder decline but to a milder extent (*(12) Manufacture of furniture, other manufacturing Repair and installation of machinery and equipment* and *(15) Constructions*). Services sectors employing high skilled workers and strictly tied to remote works, such as *(19) Information and communication (20) Financial and insurance activities, (21) Real Estate activities* had positive impacts or suffered low negative impacts.

## 5. Conclusions

Covid 19 pandemics causes a loss in consumption expenditures that doesn't remain confined to the demand side but propagates on the growth of the general level of the economic activities as represented by total output. The type of measures of containment of the pandemics explains widely the different impacts on the various categories of consumption demands. Impact is more mitigated in the sectors where is less difficult avoiding personal contacts as using the telework as alternative to the face-to-face work and clients' interactions. The activities linked to close physical interactions both in the production and in the delivery of commodities and services have been forced to hut or limit/change the nature of their operations.

The perspective of a fast and strong recovery differs according to the sectors.

Sectors producing essential or digital commodities as food computers and electronics, have kept the demand during the crisis and experienced a relatively modest decrease in sales. Services of greater contact, as tourism, have suffered in a sharper way, while those which facilitated activities without contact, as ICT support and provision of services, have remained only partially unaffected. Policy support at both national and EU level has prevented an upsurge in unemployment so far. This is reflected by the fact that reductions in hours worked mirrored drops in economic activities across sectors while employment losses have so far been more contained. Still, by the third quarter of 2020, around 3% of employment or almost 6 million jobs had been lost in the EU since the onset of the pandemic. The hardest hit sectors were accommodation, food services and transport. The baseline scenario assumes that restrictions remain in place until April 2021, after which they are gradually phased out to reach pre-crisis levels by the end of the year. In the case of more adverse developments, the negative impact would be more pronounced in sectors as accommodation and food, and wholesale and retail trade (-5.3%). These sectors also tend to rely more on young and/or low-skilled workers than sectors that were impacted in a lower measure. Also, under the methodological viewpoint, the results presented underscore the crucial role of a neglected multisectoral tool which are the bridge

matrices of final demand components. More than a mathematical tool in multisectoral simulations, they reveal as economic tools for data analysis. The motives of the households in relation to the set of consumption commodities utilized, can be related to the technological instances of the production process activated or dis-activated. This contribution can be even more interesting in relation to investment bridge matrix which shows the relation between investment demands by branch to which it belongs and the reaction of the producing system in terms of investment according the industry that produces it in the study of technological change. The work presented depends directly on the availability of a multisectoral bridge, from the multisectoral consumption to the multisectoral output. This type of information is incorporated into the methodological economic concept of consumption bridge-matrix. It shows the relevance of the concept bridging multisectoral variables that in economic multisectoral analysis have the very same relevance, in terms of economic information contained, of the Leontief matrix also in the perspective of further developments of a somehow neglected, but relevant, procedure of economic analysis.

## References

ALEXANDER D., KARGER E. 2020. Do Stay-at-Home Orders Cause People to Stay at Home? Effects of Stay-at-Home Orders on Consumer Behavior. *Working Paper Series WP 2020-12*, Federal Reserve Bank of Chicago. URL https://ideas.repec.org/p/fip/fedhwp/87999.html.

ALMON C. 2016. Inforum models: Origin, evolution and byways avoided. Studies on Russian Economic Development. 27. 119-126. 10.1134/S1075700716020039.

ANDERSEN A.L., HANSEN E.T., JOHANNESEN N., SHERIDAN A. 2020. Pandemic, Shutdown and Consumer Spending: Lessons from Scandinavian Policy Responses to Covid-19. *Papers 2005.04630*, arXiv.org. URL https://ideas.repec.org/p/arx/papers/2005.04630.html.

BACHAS N., GANONG P., NOEL P.J., VAVRA J.S., WONG A., FARRELL D., GREIG F.E. 2020. Initial Impacts of the Pandemic on Consumer Behavior: Evidence from Linked Income, Spending, and Savings Data. *NBER Working Papers 27617*, National Bureau of Economic Research, Inc. URL https://ideas.repec.org/p/nbr/nberwo/27617.html.

BAKER S.R., FARROKHNIA R.A., MEYER S., PAGEL M., YANNELIS C. 2020. How Does Household Spending Respond to an Epidemic? Consumption During the 2020 Covid-19 Pandemic. *NBER Working Papers 26949*, National Bureau of Economic Research, Inc. URL https://ideas.repec.org/p/nbr/nberwo/26949. html

CAI M., VANDYCK, T 2020. Bridging between economy-wide activity and household-level consumption data: Matrices for European countries, *Data in brief*, Vol. 30, 105395.

CAZCARRO I., AMORES A.F., ARTO I., KRATENA K. (2022). Linking multisectoral economic models and consumption surveys for the European Union, *Economic Systems Research*,Vol. 34, No. 1, pp. 22-40.

CHETTY R., FRIEDMAN J.N., HENDREN N., STEPNER M. 2020. The Economic Impacts of Covid-19: Evidence from a New Public Database Built Using Private Sector Data. *Working Paper 27431*, National Bureau of Economic Research. URL http://www.nber.org/papers/w27431

CIASCHINI M. 1982. Modern Input Output models as simulation tools for policy September CP-82-56 IIASA Austria https://pure.iiasa.ac.at/id/eprint/2062/

GUGLIELMINETTI E., RONDINELLI C. 2021. Consumption and saving patterns in Italy during Covid-19. *Bank of Italy Occasional Paper*, No. 620.

ISTAT. 2022. Classificazione delle attività economiche Ateco versione 2007, aggiornamento 2022.

LEONTIEF W. 1956. Factor proportions and the structure of American trade: further theoretical and empirical analysis.The Review of Economics and Statistics, 386-407.

UN. 2018. Classification of Individual Consumption According to Purpose (COICOP) 2018.

## SUMMARY

This paper aims at the detection of the magnitude of direct and indirect effects on total output connected to the changes in households' consumption levels and composition in the years of Covid 19 pandemics with respect to the pre Covid period. The study applies the multisectoral viewpoint that allows for the evaluation of the direct and indirect impacts of a decrease in the households' consumption expenditures on total output which represents the level of economic activities. Year 2018 represents the benchmark year of the analysed time span ered (2018-2020). We apply the Leontief inverse of 2018 to the consumptions of years 2018 to 2020. In this way, a quantification of the changes in the level of activities as expressed by sectoral total outputs caused by the changes in the households' consumption expenditures can be obtained.

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# AN EXPLORATORY SURVEY OF CUSTOMER SATISFACTION WITH PARTICULAR REFERENCE TO THE SERVICES PROVIDED BY THE MARITIME, AIR AND BORDER HEALTH OFFICES (USMAF) AND HEALTH CARE SERVICES FOR NAVIGATING, MARITIME AND CIVIL AVIATION PERSONNEL (SASN)

Vincenzo Marinello, Chiara Di Puma

## 1. Introduction

The topic of Customer Satisfaction relevant to Public Administration and the related detection and evaluation systems has been the subject of political and economic debates for years. Researchers, rulers and the public administration itself have tried to determine those factors that assume a crucial role in the planning and development of systems capable of perfecting and optimising the productive levels of work and the effectiveness of its action, with the aim of achieving a high level of citizen-user satisfaction. Customer satisfaction is pertinent to any business reality, it follows that in recent years its significance has also grown in the public sector. Public institutions have historically had a predominantly bureaucratic-administrative character, accompanied by a lack of aptitude in terms of effectiveness, efficiency and quality, which has contributed to penalising the image of the entire sector. However, the public sector has long been considered unproductive and inefficient, probably due to the lack of a policy based on a culture capable of introducing management tools and techniques characterised by a high level of innovation.

The situation, however, showed signs of change and improvement from the mid-1980s onwards, a period in which the first real attempts were made to break out of the deficit circuit in which the public system was now embedded. This was made possible by a gradual implementation of management plans, innovative operating models and tools closer to a marketing-oriented logic.

Certainly, the radical evolutions and multiple regulatory changes that have taken place over the last fifteen years have been able to bring about an essential change in the modus operandi of the Public Administration. First of all, the relationship between the State and the citizen has changed; where the administration is at the service of the entire community, which is obliged to guarantee services that meet the expectations of citizens, who show themselves to be particularly attentive and demanding with regard to the activities carried out by the public sector. In conjunction with what has just been asserted, starting in the

2000s, the way was taken in Italy to change and modernise the Public Administration by issuing the "Directive on the detection of quality perceived by citizens", aimed at perfecting and strengthening communication and the relationship between administration and citizens. The aforementioned directive has placed very precise recommendations in favour of the institutional set-up to ensure that Customer Satisfaction can lend itself to "defining new ways of providing services or interventions to improve existing ones, sizing their technical characteristics to the actual needs of citizens and businesses" and to "favour the involvement and participation of the user in the phases of access, use and evaluation of the service, so as to strengthen the relationship of trust between administration and citizen".

## 2. The conceptualization of Customer Satisfaction in the duality of cognitive and affective characters, a holistic and prospective view

The etymology of the term "satisfaction" derives from the Latin: satis (enough) facio (to do); a word intended to interpret that effort made to be able to fulfil something and thus achieve something adequate (Tjiptono and Gregorius, 2011). In logical continuity of what has just been asserted, some authors claim that satisfaction is the ability to meet customers' needs (Wijaya, 2011); (Yang and Fang, 2004); (Au *et al.*, 2008). Satisfaction is that process of evaluation by the user (Bitner as quoted in Akbar and Parvez, 2009) whereby perceptions, liking or dissatisfaction (Kotler and Keller 2006) can be compared with the expectation expected by customers to use goods or enjoy services (Parasuraman as quoted in Dib and Alnazer, 2013).

Although theoretical studies on the subject have attempted to provide various definitions of the concept of customer satisfaction, to date there has not been one notion that shows an unambiguous and agreed explanation (Mok *et al.*, 2017). Reviewing the literature, the construct of Customer Satisfaction appears to be a multidimensional concept, which is why it is analysed from both a marketing, psychological and behavioural perspective. Lin (2019) defines consumer satisfaction with a psychological state resulting from the experience related to purchase and/or consumption. Yakhlef (2015) asserts that the customer experience plays a significant role in determining a high level of satisfaction as well as business success since the customer will continue to choose the same service offered. It follows that the company will maximise its efforts to increase product quality in order to make the customer satisfied. Thus, the level of satisfaction will influence the consumer's future choices (Chen and Lin, 2015).

Chahal and Dutta, (2015) emphasise that user satisfaction can be defined as that judgement or evaluation pertaining to a given service and the relative cost incurred to enjoy it, as well as the customer's perception of pleasure or disappointment resulting from the evaluation of their expectations and perceived performance (Leninkumar, 2019). From this perspective, expectations take the form of those guidelines by which the customer evaluates the product, which is why the level of satisfaction is not merely dependent on the good or service itself, but is also conditioned by previous experience. Therefore, it should be emphasised that the level of satisfaction is not limited to the mere evaluation of the product, but rather includes the sacrifices the consumer has made in order to benefit from a given good or service and the associated expectations of it. In addition, the literature analysis carried out shows that satisfaction is described as a cognitive construct, i.e. as that outcome produced by an evaluation process in which reason has a conspicuous predominance.

Based on the approach of Angelova and Zekiri (2011); Ali *et al.* (2015), argue that service quality is a key element in determining the level of customer satisfaction. Therefore, Gupta (2014) states that in order for a high level of customer satisfaction to be achieved, any private or public organisation must provide services that are characterised by a high level of quality. Oliver's (2010) studies suggest that goods and services can be conceived as "satisfactory" if they are able to meet users' expectations.

## 3. Analysis of the Context of the Study

The aim of this research work is to examine the level of satisfaction actually perceived by users of the services provided by the Offices of Maritime, Air and Frontier Health (USMAF) and Services for the Health Care of Seagoing, Maritime and Civil Aviation Personnel (SASN). The survey has moved within the context of the Ministry of Health; the latter, in order to fulfil its functions of public health protection, benefits from the operational contribution of the various decentralised structures, which, operating according to their own technical specificities, carry out significant activities on the national territory aimed at the supervision and control of the various sectors of competence.

In 2015, following the issuance of the Ministry of Health Decree of 8 April 2015, a different and renewed division of the competences and relative functions of the central and peripheral Offices was achieved. The Offices of Maritime, Air and Frontier Health (USMAF), which were previously managed from a technical point of view by the General Directorate for Health Prevention, following this decree have been merged with the General Directorate for Health Professions and Human

Resources of the National Health Service, thus arriving at a new name, i.e. Offices of Maritime, Air and Frontier Health and Territorial Services for the Health Care of Seagoing Personnel (USMAF-SASN). It is necessary to specify that in addition to the merging of responsibilities, a new territorial structure of the USMAF-SASN has been designed, with a reduction in the number of Management Offices from 15 to 8. The new entity USMAF-SASN therefore exercises all the health, medico-legal and welfare functions previously entrusted to the two separate peripheral offices of the Ministry of Health. The Ministry of Health, through the Territorial Services for the Health Care of Seagoing, Maritime and Civil Aviation Personnel (SASN), guarantees health care, in Italy and abroad, to both seagoing personnel, in navigation or boarding activities, if they are ashore for the relevant rest or compensatory rest periods, or in the case of leave of absence from boarding, provided that they are employed by the ship-owner. The healthcare services provided include general and specialist medicine, as well as pharmaceutical assistance. In addition to examinations, clinical examinations of instrumental diagnostics and, in certain circumstances, minor surgical operations are carried out in the SASN. Assistance to seafarers also includes rehabilitation, dental examinations and therapies, hydrothermal cures, phonetic rehabilitation, and eyeglasses; these services are mainly provided through third-party health facilities that have an agreement with the Ministry of Health. The USMAFs, located throughout the national territory, operate mainly in the main ports, airports and border points and perform tasks related to international prophylaxis and the supervision and control of passengers, goods and vehicles crossing the border. However, some services are also directed at citizens and travellers who can use the USMAF outpatient clinics in order to obtain certifications, obtain general indications on travel medicine and specific information on preventive vaccinations.

## 4. The framework of the survey and methodological approach: the survey and analysis of results

The Customer Satisfaction surveys carried out in this research followed a logical-temporal flow articulated in various phases, which were anticipated by several focus groups within the various offices located throughout the Sicilian regional territory (Augusta, Catania, Mazzara del Vallo, Messina, Siracusa, Trapani, Palermo and Porto Empedocle). The purpose of the focus groups was to take stock of the organization and services offered and to allow the definition of the company organization chart. Secondly, these meetings made it possible to define in detail the satisfaction factors to be detected and analyzed for the purposes of the survey. The empirical analysis was carried out by means of a questionnaire, using

the face-to-face interview method. The satisfaction questionnaire was filled in by the user immediately after he/she had used the service. This made it possible to arrive at a perceptive assessment and at the same time reduce the time required for data collection. The act preparatory to the administration of the questionnaire was the obtaining of consent to the processing of data, pointing out the regulations of the GDPR - General Data Protection Regulation, (EU/2016/679). This act made it possible to receive consent and process the data as well as eliminate the bias effect associated with a nominative analysis. The questionnaire that was adopted for the Customer Satisfaction survey of the USMAF-SASN offices was structured in accordance with the Servqual methodology (Parasuraman *et al.*, 1988, 1991), regarding each individual aspect of the service to be examined. The questions were structured in a fairly simple and elementary form, precisely for this purpose specific, concise, unambiguous phrases were used and the use of double negatives was avoided. This made it possible to minimize misinterpretation of the question by the respondent. Therefore, the estimated average time for the complete completion of the questionnaire was approximately 10 minutes.

The survey concerning the analysis of the quality of services provided by the USMAF-SASN offices and the relative level of user satisfaction was carried out from July 2020 to July 2021, where 1,500 questionnaires were administered in the various Sicilian offices. The response rate was 65%, for a total of 55% usable questionnaires. In turn, these were made valid through a completeness and consistency check in accordance with the Servqual model. In detail, questionnaires that were complete or had 80% of valid answers were considered valid for the survey. A total of 585 were considered validly completed. The sampling criterion provided for the administration of the questionnaires to a number of users equal to 10% of the average turnout for the time span of Q2 2021 (April-June). Specifically, 160 questionnaires were administered in Augusta, 230 and 150 in Catania and Mazara del Vallo respectively; 170, 190 and 200 questionnaires were administered in Messina, Syracuse and Trapani, depending on the number of users in the period under consideration. In Palermo and Porto Empedocle, 250 and 150 users were interviewed respectively. The total number of questionnaires administered was highly significant, as it made it possible to carry out a general study on all the services. They were broken down as shown in Table 1.

Figure 1 is the result obtained in the first question of the questionnaire, in which respondents were asked about their level of satisfaction regarding waiting times, in terms of days or hours elapsing between the request for a service and its performance. Again, with reference to the territorial breakdown, it was found that waiting times were very satisfactory for users. Observing the Figure in detail, it can be seen that a higher percentage of satisfaction derives from the users who used the services provided in the districts of Palermo and Syracuse with a percentage of

58% and 57% respectively, where the respondents attributed a maximum score of 5. Again, within the aforementioned territorial districts, the users who expressed a rating of 4 were 37% and 40%, with only 2% and 3% declaring that they were "not very satisfied" with this characteristic. In detail, in the questionnaires administered in Palermo, 2% did not answer this question. Catania, Trapani and Porto Empedocle, according to the number of questionnaires administered, 55%; 52% and 50% of users indicated that they were “very satisfied” with the waiting time, and 35%, 40% and 43% stated that they were “satisfied” for this reason in the questionnaire they gave a score of 4.

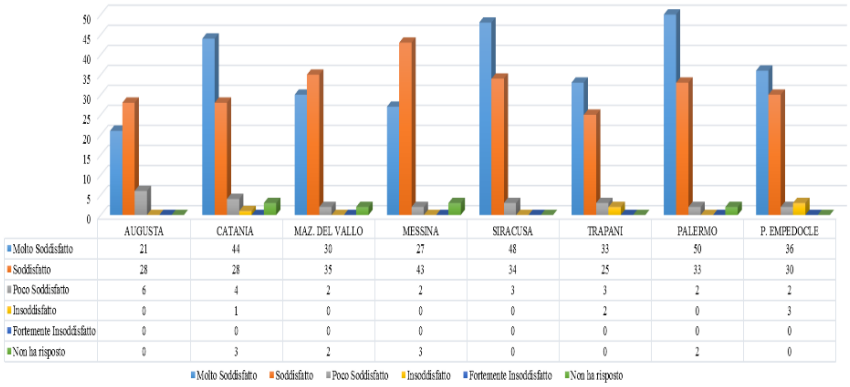
**Table 1 -** *Questionnaires submitted referring to the territorial district.*

| *Site* | *N. questionnaires* | *N. of answered questionnaires* | *N. of validity questionnaires* |
|---|---|---|---|
| *Augusta* | *160* | *88* | *55* |
| *Catania* | *230* | *128* | *80* |
| *Mazara del Vallo* | *150* | *111* | *69* |
| *Messina* | *170* | *114* | *75* |
| *Siracusa* | *190* | *110* | *85* |
| *Trapani* | *200* | *126* | *63* |
| *Palermo* | *250* | *190* | *87* |
| *Porto Empedocle* | *150* | *108* | *71* |
| ***Total*** | *1500* | *975* | *585* |

*Source: own elaboration*

Compared to the territorial units of Palermo and Syracuse, in the offices of Catania, Trapani and Porto Empedocle there was a higher percentage of users who assigned a score of 3, i.e. 5.5%, 4% and 3% expressed that they were "not very satisfied" with this factor. Of the respondents from the Catania offices, 3% did not answer this question. With regard to the efficiency times in the districts of Mazara del Vallo, Augusta and Messina from Chart 4.5 it can be seen that in the aforementioned workplaces there is a lower percentage of users who claimed to be “very satisfied”, with a percentage of 43.5%, 38% and 36%. Compared to Catania and Palermo, in Mazara del Vallo, Augusta and Messina, there is a greater number of respondents who gave a rating of 4. In percentage terms, they represent 57%, 52% and 50% of the sample surveyed. Analysing the data in percentage terms with regard to non-respondents, it was deduced that Messina and Mazara del Vallo recorded higher percentages compared to the other territorial units with values corresponding to 4.2% and 3.7%. Concerning the level of satisfaction related to the quality of timing, a percentage of 1%, 3% and 4% of users complaining about this aspect was found, attributing a score of 2.

***Figure 1** - Ask ed about the level of satisfaction due to the waiting time of the service.*



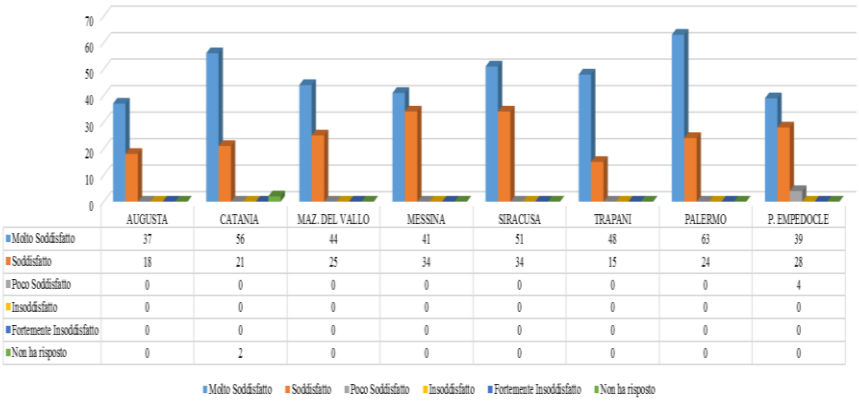

| | AUGUSTA | CATANIA | MAZ. DEL VALLO | MESSINA | SIRACUSA | TRAPANI | PALERMO | P. EMPEDOCLE |
|---|---|---|---|---|---|---|---|---|
| Molto Soddisfatto | 21 | 44 | 30 | 27 | 48 | 33 | 50 | 36 |
| Soddisfatto | 28 | 28 | 35 | 43 | 34 | 25 | 33 | 30 |
| Poco Soddisfatto | 6 | 4 | 2 | 2 | 3 | 3 | 2 | 2 |
| Insoddisfatto | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 3 |
| Fortemente Insoddisfatto | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Non ha risposto | 0 | 3 | 2 | 3 | 0 | 0 | 2 | 0 |

*Source: own elaboration.*

The second question of the questionnaire was aimed at finding out the level of satisfaction of the users regarding the professionalism of the employees. Figure 2 shows overall that there was a greater preponderance of users who expressed that they were “very satisfied” compared to the first question. Of the total number of respondents (585), 64.7%, or 379 of them gave the maximum score of 5 concerning the professionalism of the staff. 34%, or 199 of the respondents gave this characteristic a score of 4 out of 5 indicating that they were “satisfied”. Only a small percentage of the overall total, i.e., 0.68% registered in Porto Empedocle, stated that they were “not very satisfied”. With regard to the above-mentioned district, out of 71 respondents, only 4 out of 71, i.e., 5%, gave a rating of 3 out of 5, while 0.51% of respondents gave no rating in the Catania district. It can be seen from Figure 4.6 that there were no respondents who stated that they were “dissatisfied” with this aspect. Analysing the data at a territorial level and in proportion to the number of questionnaires administered, a higher percentage of “very satisfied” users was found in the districts of Trapani and Palermo, which had 75% and 72% respectively, while 25% and 28% of the respondents in the same territorial offices declared that they were 'satisfied'. It was also noted that none of the respondents in the aforementioned territorial units refused to answer this question. The other territorial units recorded lower but still very positive percentages. In terms of percentages, Catania, Augusta, Mazara del Vallo and Syracuse recorded percentages that differed little from each other, again depending on the number of users interviewed per territorial unit. 69%, 67%, 63% and 61% of the above-mentioned geographical areas stated that they were “very satisfied” with the professionalism of the personnel in charge, lower percentages emerged from Messina and Porto Empedocle, which recorded the same percentage of 55%. In

absolute terms, the highest score on the metric scale used in the questionnaire was obtained in the offices of Messina and Porto Empedocle with values of 41 and 39 respectively.

**Figure 2 –** *Asked regarding satisfaction with the professionalism of the employees.*



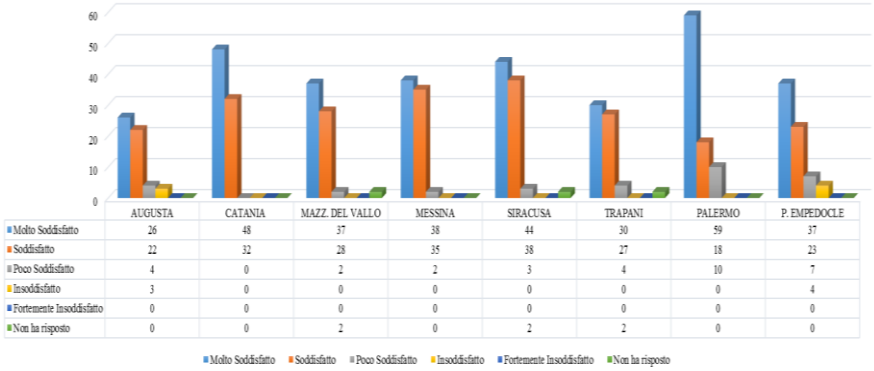

| | AUGUSTA | CATANIA | MAZ. DEL VALLO | MESSINA | SIRACUSA | TRAPANI | PALERMO | P. EMPEDOCLE |
|---|---|---|---|---|---|---|---|---|
| Molto Soddisfatto | 37 | 56 | 44 | 41 | 51 | 48 | 63 | 39 |
| Soddisfatto | 18 | 21 | 25 | 34 | 34 | 15 | 24 | 28 |
| Poco Soddisfatto | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Insoddisfatto | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fortemente Insoddisfatto | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Non ha risposto | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

*Source: own elaboration.*

Respondents were asked to indicate their level of satisfaction in relation to different aspects of the quality of the information obtained. Specifically, they were asked to rate the ease with which they obtained the information, their degree of clarity and the accuracy of the information received. The respondents who were "very satisfied" with this requirement, out of a total of 585 valid questionnaires, amounted to 54.52%, or 319 users; while 38.11% gave a rating of 4 out of 5.

Figure 3 shows a percentage of users equal to 1.19% out of the overall total, who complained of a low level of satisfaction with the quality of the information received; but we also note a higher percentage of individuals who chose not to answer this question. The district that showed a higher number of users who declared to be "very satisfied" with the quality of the information received was mainly Palermo followed by Catania and Mazara del Vallo, with percentage values of 67%, 59% and 53% respectively. This was followed by Porto Empedocle, Messina; Syracuse and Trapani with 52%, 51% and 47%. It was noted that Palermo was the territorial unit that also recorded the highest number of "dissatisfied" users, totalling 10 out of 71, while Porto Empedocle and Augusta showed users who declared to be "dissatisfied", in detail 3 out of 55 for Augusta and 4 out of 71 for Porto Empedocle.

**Figure 3 –** *Ask about satisfaction with the quality of the information obtained.*

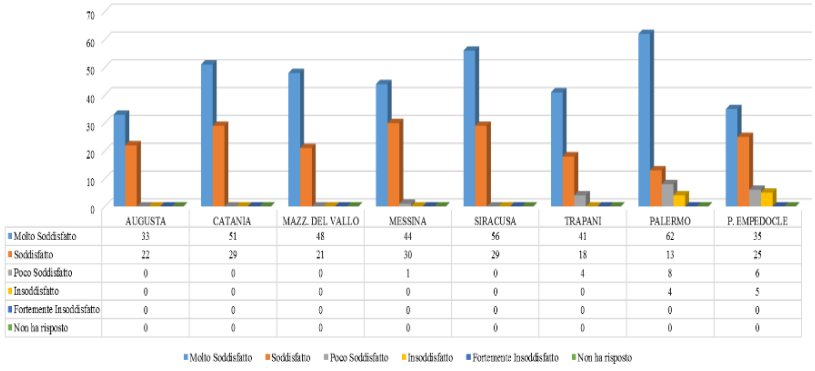



| | AUGUSTA | CATANIA | MAZZ. DEL VALLO | MESSINA | SIRACUSA | TRAPANI | PALERMO | P. EMPEDOCLE |
|---|---|---|---|---|---|---|---|---|
| Molto Soddisfatto | 26 | 48 | 37 | 38 | 44 | 30 | 59 | 37 |
| Soddisfatto | 22 | 32 | 28 | 35 | 38 | 27 | 18 | 23 |
| Poco Soddisfatto | 4 | 0 | 2 | 2 | 3 | 4 | 10 | 7 |
| Insoddisfatto | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Fortemente Insoddisfatto | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Non ha risposto | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 0 |

*Source: own elaboration.*

The fourth item of the questionnaire was aimed at surveying the courtesy of the staff in charge. In detail, users were asked to rate the helpfulness of the staff members. By helpfulness, we mean the ways and manners in which the staff members related to users, their ability and attitude to understand the needs of citizens and empathy. To this question, the answers of the interviewees registered fairly high percentages both on the overall total and also at the level of the various territorial articulations. It is possible to observe how the different judgements attributed to this feature of the service were predominantly positive in all the territorial districts. The evaluations of this dimension were observed individually and it was found that the judgements on it did not deviate much from the overall percentage distribution. The variations, in turn minimal, relate to the weighting of the answers corresponding to the different grades of the metric scale used, i.e. from "very satisfied" to "satisfied".

**Figure 4 –** *Level of satisfaction depending on the degree of courtesy of the staff.*




| | AUGUSTA | CATANIA | MAZZ. DEL VALLO | MESSINA | SIRACUSA | TRAPANI | PALERMO | P. EMPEDOCLE |
|---|---|---|---|---|---|---|---|---|
| Molto Soddisfatto | 33 | 51 | 48 | 44 | 56 | 41 | 62 | 35 |
| Soddisfatto | 22 | 29 | 21 | 30 | 29 | 18 | 13 | 25 |
| Poco Soddisfatto | 0 | 0 | 0 | 1 | 0 | 4 | 8 | 6 |
| Insoddisfatto | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 |
| Fortemente Insoddisfatto | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Non ha risposto | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Source: own elaboration.*

## 5. Conclusion

After careful analysis of the data, it was found that the issue of waiting times is generally considered by citizens to be the main problem in the public health service. It is evident that this has emerged as one of the most salient aspects in the process of assessing user satisfaction, the interpretation of which will make it possible to define possible corrective actions and improvement interventions, which can be implemented by healthcare institutions and managers in order to refine and enhance their respective relationship with the user from a satisfaction perspective derived from the healthcare service. Specifically, being able to identify and address the emotions of the users of health services related to the characteristic of waiting time, for the USMAF-SASN department is configured as an important opportunity to create added value to the service experience, thus increasing satisfaction and perception of quality, with a view to safeguarding the rights to health, solidarity, equal access and adequacy of the services rendered. The results that emerged from the survey can be translated into meaningful and useful information for managers in a continuous improvement perspective. The results of this survey offered different and new research perspectives on several fronts. In fact, in order for the survey of service quality and the relative satisfaction of the citizen-user to give rise to a truly useful and effective flow of information, it is appropriate to repeat this type of survey over time within the same public health organisation. In this way, it will be possible to monitor the evolution of the level of quality and perceived satisfaction or its variations resulting from changes in the services offered.

## References

AKBAR M. M., PARVEZ N., 2009. Impact of service quality, trust, and customer satisfaction on customer loyalty, *ABAC Journal*, Vol. 29, No. 1, pp.24–38.

ALI M. I., BASHIR M. A., BASHER M. A., 2015. Measuring customer satisfaction of embanking in Bangladesh, *Development Compilation*, Vol. 11, No. 1, pp. 104-116.

ANGELOVA B., ZEKIRI J., 2011. Measuring customer satisfaction with service quality using American Customer Satisfaction Model (ACSI Model), *International Journal of Academic Research in Business and Social Sciences*, Vol. 1, No. 3, pp. 232-258.

AU N., NGAI E. W., CHENG T. E., 2008. Extending the understanding of end user information systems satisfaction formation: An equitable needs fulfilment model approach, *MIS quarterly*, Vol. 32, No. 1, pp. 43-66.

CHAHAL H., DUTTA K. 2015. Measurement and impact of customer experience in banking sector, *SpringerLink*, Vol. 42, No. 1, pp. 57–70.

CHEN S.C., LIN C. P., 2015. The impact of customer experience and perceived value on sustainable social relationship in blogs: An empirical study, *Technological Forecasting and Social Change*, Vol. 96, pp. 40-50.

DIB H., ALNAZER M., 2013. The Impact of Service Quality on Student Satisfaction and Behavioural Consequences in Higher Education Services, *International Journal of Economy, Management and Social Sciences*, Vol. 2, No. 6, pp. 285-290.

GUPTA M.C.N.L. 2014. Examining the attributes of customer experience and assessing the impact of customer experience on customer satisfaction: an empirical study of banking industry, *International Journal of Services Sciences*, Vol. 5, No. 2, pp. 154–167.

KOTLER P., KELLER K.L.; 2006. Marketing Management", Pearson, Milano.

LENINKUMAR V., 2019. "Antecedents of customer satisfaction, *Archives of Business Research*, Vol. 7, No. 6, pp. 62–76.

LIN M.T.Y. 2019. Effects of experiential marketing on experience value and customer satisfaction in ecotourism, *Ekoloji Dergisi*, Vol. 28, No. 107, pp. 3151-3156.

MOK J. Y., JAMES O., VAN RYZIN G.G. 2017. Expectations and Satisfaction with Public Services. In James O., Jilke S. and Van Ryzin G.G. (Eds.) *Experiments in Public Management Research: Challenges and Contributions*, Cambridge: Cambridge University Press.

OLIVER R.L. 2010. *Satisfaction: A behavioural perspective on the consumer* (2nd ed.). New York: Routledge.

PARASURAMAN A., ZEITHAML V.A., BERRY L.L., 1991. Refinement and reassessment of the SERVQUAL scale, *Journal of Retailing*, Vol. 67, No. 4, pp. 420-450.

PARASURAMAN A., ZEITHAML V.A., BERRY LL., 1998. Servqual: A multiple-item scale for measuring consumer perceptions of service quality, *Journal of Retailing*, Vol. 64, No. 1, pp. 12-40.

TJIPTONO F., GREGORIUS C. 2011. *Service, Quality and Satisfaction*. Yogyakarta: CV ANDI OFFSET.

WIJAYA T. 2011. *Manajemen Kualitas Jasa.* Jakarta: PT. Indeks.

YAKHLEF A. 2015. Customer experience within retail environments an embodied, spatial approach, *Marketing Theor*y, Vol. 15, No. 4, pp. 545-564.

YANG Z., FANG X. 2004. Online service quality dimensions and their relationships with satisfaction: A content analysis of customer reviews of securities brokerage services, *International Journal of Service Industry Management*, Vol. 15, No. 3, pp. 302-326.

## SUMMARY

The analysis of Customer Satisfaction as permitted to determine and monitor the perceptions of users, to identify the quality of service and health care provided by the Offices of USMAF-SASN of the Sicily region and finally to determine the strengths and weaknesses of the department under study. The paper sets out the survey carried out at the different territorial districts present within the said region. This research was conducted from July 2020 to July 2021 through the administration of a special questionnaire through the face-to-face to a random sample of 1500 users. The aspects analysed were: waiting times, the professionalism of the staff, the quality of the information received and the courtesy of the operators. The survey recorded a generally high level of user satisfaction, noting in more detail that the professionalism and courtesy of staff were indicated as the drivers of the level of quality of services rendered by this department, while waiting times and quality of information had lower averages than those related to the above dimensions.

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