

The Impact of Demographics and Cultural Tourism on University Enrollments in Calabria, Italy

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The decline in the birth rate, which has been uninterrupted in Italy since the mid-1960s, has had a significant impact on many aspects of society. As far as the educational system is concerned, this phenomenon has acted like a wave, first causing a decline in the population of the first school age groups, then in the other groups, until recently affecting the 19-25 age group, which includes the majority of university students. As a result, the majority of Italian universities have seen a decline over time in both enrollments (matriculations) and student numbers (enrollments), although the situation varies from one area to another. In the *Mezzogiorno*, this trend is even more pronounced, since an increasing number of resident students tend to favor universities in the Centre-North, creating a South-Centre-North movement, which could be compared to a particular form of cultural tourism, without a similar flow in the opposite direction. Finally, the study highlights the probable consequences of the recent demographic depopulation on the future trend of university enrollment of residents aged 19-25 in the Calabria region, using the most recent demographic projections of Istat and constructing two evolutionary scenarios. In the first scenario, we have assumed that in the near future university enrollment rates remain constant throughout the period considered; in the second scenario, these rates instead experience a gradual and continuous increase. These results could be useful if further forecasts of university enrollments were to be made at the level of individual Calabrian universities.

Keywords: demographics, cultural tourism, university enrollments, Calabria region

Introduction

Demographic analysis, as a systematic historical collection of the main events affecting the population, beyond mere knowledge of the phenomena it studies, certainly stands as a necessary premise in any planning intervention. Obviously, the needs and therefore the depth of demographic analysis are quite diverse depending on the objective towards which the decision and consequent action is directed.

A special aspect and almost an obligatory outcome of population analysis is the need to “naturally” extend into the future the past succession of events and their determination experienced in the present, where the “naturally” cannot be understood merely as a given, as if it were simply the search for a regularity established as a function of time. This need finds its justification in the fact that population forecasts (such as: forecasts of school populations, forecasts of working populations and migrant populations, forecasts of particular sub-populations as ethnic-linguistic ones) provide interesting and important information for policy decisions concerning socio-economic phenomena, that is concerning choices that pass through the mediation of the needs and demands expressed by the various strata of the population regarding associated life.

While the former is called main forecasts, the latter—those concerning school population, working population, etc.—are called derived forecasts. Derived forecasts require, in addition to demographic assumptions, other assumptions proper to the phenomenon whose future size is to be estimated. Thus, wanting to make a forecast of the school population of any order and grade, assumptions about the future trend of schooling must be adopted, that is, a grid of schooling rates by school age classes. In this research on university education, we will follow this methodological approach with reference to the Calabria region.

Demographic Forecasts

Before delving into the more specific aspects of our analysis, it is not without interest to recall what the main methods of population forecasting are and how this aspect of the discipline has evolved over time. There are two methods for estimating future population: the synthetic method and the analytical or demographic component method. The synthetic method consists of choosing a mathematical function that can describe the total amount of future population when its parameters have been estimated, by means of, for example, a statistical interpolation technique. Thus, if one assumes that the population evolves according to an exponential law, given an initial population and a growth rate R , one could calculate the population at a future time by means of the well-known exponential law. In the past as a predictive tool the logistic curve was very successful, thanks to the work of R. Pearl and L. J. Reed who argued that the logistic curve could describe well the evolution of a population in the long run (Pearl & Reed, 1920). At first, the U.S. population test led to the belief that we finally had a simple tool for population forecasting. Later, however, this approach was challenged because it was based on an overly mechanistic view of population growth. It should also be emphasized that synthetic methods are also unsatisfactory because they do not allow for the calculation of the future population by sex and age, knowledge of which is undoubtedly more important than its total size, given the social and economic implications of the structural characteristics of a population. This need gave rise to the method of demographic components, which was introduced in the 1920s and consists of projecting a population by sex and age, applying to it the laws of mortality, fertility and migration with an analysis carried out previously¹. In the post-war period, after a period of skepticism due to the fact that demographic phenomena no longer followed the regular trend that had characterized previous years—remember that this was the period of the baby boom and the recovery of marriages—there was a renewed interest in population forecasts, gradually enriched with an increasingly sophisticated methodology by Istat², which now publishes population forecasts on a very regular basis.

Consequences of Declining Birth Rate on School Age Population

In Italy, the birth rate, measured as the number of births per thousand inhabitants, has steadily declined since the mid-1960s. In 2022, there will be 6.7 births per thousand inhabitants and 393 thousand births, the lowest value since Unification. The decline in the birth rate has affected, though not uniformly, all Italian regions (Istat, 2023).

¹ Those years constitute the most fruitful period in the field of demographic projections: A. J. Bowley in 1924 highlighted the limitations of global methods by emphasizing the importance of population structure; in 1926 S. D. Wicksell was the first to use the method of “demographic components” in Swedish population forecasts; in 1928 P. K. Whelpton made the first forecasts by cohorts; and at the same time A. Sauvy began a series of demographic forecasts. In Italy, the first forecasts date from 1930-31 by C. Gini and B. De Finetti. *Calcoli sullo sviluppo della popolazione italiana. Annali di Statistica*, serial no. VI, vol. X, 1931.

² The Italian National Institute of Statistics.

As a result of the declining birth rate in 2020/2021, the school population was 8,327,187 enrolled, 130,510 less than in the previous year. Enrollment declines are mainly in kindergartens and elementary school, respectively 76,939 fewer children and 68,901 fewer pupils. A decrease is observed of enrollment in secondary schools (-20,502) while secondary schools of second grade register an increase in enrollment (+35,832) (Istat, 2022b).

The decline in enrollment in the early school orders is in line with the demographic decline in the corresponding age groups where, due to compulsory school attendance, high schooling rates are observed. Similar effects, however, are to be expected in the near future in the other grades of education as the demographic structure of the corresponding age groups is increasingly shrinking and there are no signs of a reversal of the birth trend.

Population Prediction and Consequences on the University Sector

On the basis of the median hypothesis, Istat predicts that from 2021 to 2070 Italy would lose 19.5 percent of its population: the North 11.3 percent, the Center 17.1 percent, and the South would be the hardest hit with 32 percent drop in population (see Table 1)³. These projections, if they were to come true, would have a major impact on many aspects of society and, as far as higher education is concerned, the negative impact on enrollments in universities in the South would be devastating, given the well-known low attractiveness of the university system in the South.

Table 1

Projections of Italy's Population and Its Main Geographical Subdivisions from 2021 to 2070. Istat, Median Hypothesis

Forecast years					Index numbers 2021 =100			
	North	Center	South	Italy	North	Center	South	Italy
2021	27,486,438	11,786,952	19,962,823	59,236,213	100.0	100.0	100.0	100.0
2031	27,231,989	11,597,562	18,939,336	57,768,887	99.1	98.4	94.9	97.5
2041	26,994,077	11,362,821	17,833,903	56,190,801	98.2	96.4	89.3	94.9
2051	26,439,262	10,969,929	16,471,666	53,880,858	96.2	93.1	82.5	91.0
2061	25,327,506	10,336,722	14,893,844	50,558,072	92.2	87.7	74.6	85.4
2070	24,388,812	9,767,977	13,565,502	47,722,292	88.7	82.9	68.0	80.6

Note. Source: elaboration on Istat data.

In its 2022 Report, Svimez⁴, analyzing the Italian university system, pointed out that the territorial gap in terms of matriculations has increased. In recent years, matriculations in universities in the Center-North have grown, exceeding the levels reached in the early 2000s. Much smaller, however, has been the increase in the South. Another aspect that Svimez highlights is the tendency of residents of the South to prefer universities in the Center-North, whose weight grew from 20 percent in 2010 to 27 percent in 2021; a phenomenon not offset by a similar flow of enrollments from the Center-North. The Report also shows that in the last three years of the first decade of years 2000 universities in the South experienced a 12 percent drop in

³ Istat, *Population projections—Years 2021-2070*.

⁴ Association for the Development of Industry in Southern Italy.

enrollment, compared to the first three years of the same decade, while in those in the Center and North the university population grew by 2 percent and 8 percent, respectively (Svimez, 2023)⁵.

Enrollment Forecasts at Universities in the Calabria Region

In this section we will attempt to sketch the future trend of the Calabrian university population, following the path traced by Istat's Population Forecasts for the period 2021-2070⁶, which carried out the elaborations considering a set of parameters (gender, forecast year, various levels of uncertainty) with regional territorial detail and up to the year 2070. For our estimates of the university population, we chose the median path of these forecasts and, of course, the 19-25 age group, which is known to contain almost all students enrolled in university.

Recall that this is the first attempt to forecast the university population for Calabria. For kindergarten, primary and secondary education, a forecast of the school population for the period from 1971-72 to 2001-2002 and for the three provinces in which Calabria was divided at that time (Cosenza, Catanzaro and Reggio Calabria) was made in 1980 in the framework of a Conference on *Full Time and Experimentation*, January 23-25, 1980, organized by the University of Calabria, Department of Educational Sciences and the SNS-CGIL labor union. The aim was to assess the future consequences for the school population in Calabria of the decline in the birth rate, which at that time was already in a clear downward phase (De Bartolo, 1980).

The database of Ministry of Education—Miur provides a considerable amount of information on the characteristics of university education. With reference to the academic year 2021-2022, there were 39,582 students enrolled in the three state universities and the non-state Dante Alighieri University of Calabria (see Table 2), of which 59.2 percent enrolled at the University of Calabria, 27.5 percent at the University of Catanzaro, 12.1 percent at the University of Reggio Calabria, and finally 1.3 percent at the “Dante Alighieri” University for Foreigners in Reggio Calabria. The same database also provides other valuable information on the university education of all Calabrian residents, which is useful not only for descriptive analysis but also to capture some future trends.

Table 2

Enrollments in Calabrian Universities in Academic Years 2021-2022

	Enrolled	%	Of which foreigners	%
University of Calabria	23,416	59.2	1,118	4.8
University MG Catanzaro	10,889	27.5	208	1.9
University “Mediterranea” Reggio Calabria	4,782	12.1	103	2.2
University for Foreigners of Reggio Calabria	495	1.3	92	18.6
Total enrolled	39,582	100.0	1,521	3.8

Note. Source: open data, Miur.

Table 3 contains the distribution of Calabrian university students by region where they are studying. We observe that 61.8 percent of them are studying in Calabria, but significant attendances are in Lazio (7.5 percent), Sicily (7.3 percent), Lombardy (5.8 percent), Emilia Romagna (5.1 percent), and Tuscany (4.3 percent), which collectively accommodate 30 percent of Calabrian university students. The same table shows that the residents

⁵ <https://lnx.svimez.info/svimez/il-rapporto/>.

⁶ http://dati.istat.it/Index.aspx?DataSetCode=DCIS_PREVDEM1#.

in Calabria studying at universities in the Calabria are 37,056; the residents in Calabria enrolled in university, whatever is the location of university are 59,944 and consequently the number of Calabrians studying in a location outside the region are 22,888. This last figure is particularly important because it represents the target to which refer to for any attempt to increase enrollment in Calabrian universities, in order to temper the negative effect that could be caused in the future by demographic crisis.

Table 3

Number of Residents in Calabria Enrolled in Italian Universities by Regions. Academic Year 2021-2022

Regions	Number enrolled	%
Liguria	64	0.11
Lombardia	3,451	5.76
Piemonte	1,505	2.51
Trentino Alto Adige	32	0.05
Veneto	371	0.62
Friuli Venezia Giulia	33	0.06
Emilia-Romagna	3,055	5.10
Toscana	2,583	4.31
Umbria	752	1.25
Marche	220	0.37
Lazio	4,488	7.49
Abruzzo	504	0.84
Molise	8	0.01
Campania	992	1.65
Puglia	384	0.64
Basilicata	50	0.08
Calabria	37,056	61.82
Sicilia	4,375	7.30
Sardegna	21	0.04
Total number of Calabrian students enrolled in a university, regardless of location	59,944	100.00
Calabrian university students studying in locations outside Calabria region	22,888	

Note. Source: elaboration on open data, Miur.

Table 4 contains a summary of the results of the Calabrian population forecast obtained again adopting the median assumption of the Miur forecast. These data clearly show what could be the impact of demographics on the numerosity of the Calabrian university population in the next 50 years. In fact, in 2070 compared to 2021 the 19-25 age group would be reduced by as much as 41 percent.

Table 4

Projected Calabrian Population in the 19-25 Age Group. Median Hypothesis

Years	Age group 19-25 years	Indices 2021 = 100
2021	137,866	100.0
2025	133,717	97.9
2030	128,346	93.1
2035	119,884	87.0
2040	110,683	80.3
2045	97,988	71.1

Table 4 to be continued

2050	93,442	67.8
2055	89,576	65.0
2060	87,153	63.2
2065	84,834	61.5
2070	81,188	59.0

Note. Source: Istat forecasts 2021-2070.

To forecast enrollment, one must necessarily make an assumption about university enrollment rate for the forecast period. With the available data, it is possible to calculate a grid of enrollment rates to be used as a reference in this forecasting exercise (see Table 5).

Table 5

Statistics of University Enrollments in Calabria and Italy. Absolute Values and Specific Rates. Academic Year 2021-2022

	Absolute values and rates
Total number of Calabrian students enrolled in a university, regardless of location	59,944
Population residing in Calabria enrolled in universities in Calabria	37,056
Calabrian university students studying in locations outside Calabria region	22,088
Population resident in Calabria between 19 and 25 years old	137,866
Specific university enrollment rate of Calabria residents, %	43.5
Specific rate of population resident in Calabria enrolled in the universities of Calabria, %	26.9
Students enrolled in Italian universities	1,822,141
Resident population in Italy aged 19-25	4,122,803
Specific rate of enrollment in universities in Italy, %	44.2

Note. Source: elaborations on Istat and Miur data.

In this note we focused moreover our attention on the forecast of enrollment in Calabrian universities by residents in the region by constructing two scenarios. In the first we assumed that throughout the forecast period the enrollment rate remains unchanged and equal to that recorded in the 2021-2022 academic year (26.9 percent). In the second scenario, on the other hand, we assumed that the enrollment rate grows linearly over time until it reaches a value of 40 percent in 2070⁷.

As can be seen from the data in Table 6, but especially from Figure 1, which highlights both the decline in enrollment over the past decade and the results of the two forecast scenarios, increasing the enrollment rate over time would significantly mitigate the negative effect attributable to the likely future population decline. Moreover, if one assumes, as an exercise, that the relative weights of universities throughout the forecast period remain unchanged, that is, that future enrollments regarding individual universities have the same trend as regional enrollments, it is possible to easily distribute the total number of enrollments among Calabrian universities. Thus, in 2040, not to go far in time, each of the four Calabria universities could lose about 20 percent of enrollment in the first scenario and only 4.5 percent in the second scenario⁸.

⁷ That is, close to both the enrollment rate of Calabrians whatever their university place of study (43.5%, see Table 5) and the enrollment rate at universities in Italy as a whole (44.2%, see Table 5).

⁸ Elaborations regarding the latter results have not been reported here but are available upon request.

Table 6

Projected Enrollments in Calabrian Universities Concerning Calabrian Residents

Years	With the assumption that the enrollment rate will be constant at 26.9%	With the assumption that the enrollment rate will be increasing from 26.9% to 40.0%
2021	37,056	37,056
2025	35,941	37,373
2030	34,497	37,590
2035	32,223	36,717
2040	29,750	35,381
2045	26,337	32,635
2050	25,115	32,372
2055	24,077	32,232
2060	23,425	32,527
2065	22,802	32,798
2070	21,822	32,475

Note. Source: elaborations on Istat and Miur data.

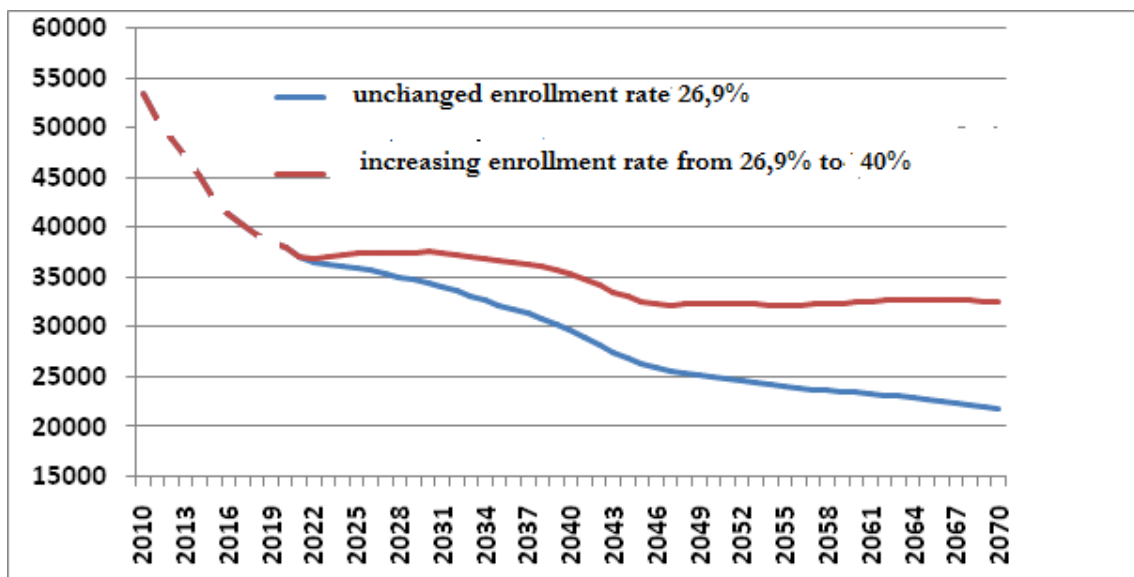


Figure 1. Past trend and projected enrollments in Calabrian universities (2010-2021-2070).

Conclusions

In Italy, the decline in the birth rate is having a significant impact on various aspects of society. When considering the education system, the declining birth rate has acted as a wave, initially reducing the population in the first school age groups and subsequently affecting other age groups. Recently, this has impacted the 19-25 age group, which includes a significant proportion of those enrolled in university. This research elucidates the impact of depopulation dynamics on prospective university enrollment among residents of the Calabria region. It employs Istat's most recent demographic forecasts and assumes both the constancy of the university enrollment rate over time and a gradual growth of this index. The first and second hypotheses, respectively, would result in the near future in significant reductions and smaller decreases in enrollment. The latter result, which is more favorable and desirable, could be achieved even in a context of economic and social

crisis, such as the current one, with a policy that attracts more foreign students and aims to reduce the number of Calabrians studying outside the region, number that is currently 22,888 of residents, over a total of 59,944 university students. A policy that could attract students from other regions, particularly from the other regions of the South. A policy that could offer a broader range of high-quality courses; a policy that could enhance the efficacy of incoming orientation activities, and facilitate the expansion of postgraduate programs in specific research areas. Finally, other positive results could be achieved with a new educational offering for the ever-increasing adult age groups.

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