PRESENT AND FUTURE: INDIVIDUALS AND HOUSEHOLDS IN A SOUTHERN ITALIAN CITY

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Abstract

The link between social and demographic phenomena concerning a population of a given territory is the representative essence of every social organism. Effectively, it is not difficult to understand why in complex societies like ours we need to get as much information as possible, which has become essential in order to make the decisions that will influence future choices. The aim of this survey is to carry out population projections of the city of Bari, by sex and age, in order to know the future demographic scenarios of Bari population and the household ones resulting from them. Concerning this, *two possible scenarios* will be shown. The *first one* by hypothesizing constant mortality and fecundity with migrations equal to zero. Obviously that means straining the reality, but it is really useful in order to evaluate the future evolution of the population due to the action of the sole natural components. The *second one*, by hypothesizing constant migrations throughout the observation period, has an effective role when we analyze the effects of migratory drift on the evolution dynamics of the population analysed in this survey.

Keywords: Bari, household, migratory drift

Introduction

The changes observed in the last decades concerning the history of households cannot prescind from the structural analysis of population and, therefore, of the reference individuals. As far as society is concerned, household's active mediation is realized towards all the individuals belonging to it, because, regardless of the different evolution theories concerning it, it is and will always be the relational net that mediate between single individuals and the community they belong to. Presently, as ever, household is the first space here everybody's life begins. In other words, it will always be a relational asset for single individuals and for society, thus becoming more and more a primary social capital (P. Donati 2003).

Nowadays, household is considered as a product of the global public system inside which we can see the realization and fusion of common and gender hierarchies, and the practices concerning marriage, household, filiation, property, hereditary transmission, as well as conjugal and intergenerational solidarity. With this outlook, the appearance of social life new rules involves the diversification of the household forms and the establishment of fresh configurations, instead of the convergence on a sole model.

The existing statistical data confirm all over the world the increasing diffusion of "new" household forms (unipersonal, nuclear and single-parent ones) with the consequent "contraction" of the household – or more exactly of its household image – into its sole basic components (father-mother-children).

Through the concept of *development cycle in domestic groups* (J. Goody, 1958; L. Berkner, 1972) scholars started their attempt to show how the structural simplification is not due to a simple historical evolution but to a complex relationship of cultural, social and parental variables which transforms the household according to the different "historical times" that it goes through. Therefore, they gave up the echo of the researches that had originated and established the commonly accepted idea of a historical evolution from complex domestic groups towards smaller and smaller and structurally simple domestic groups.

As for Italy, the social-demographic evolution in the last five decades has brought about a progressive decrease of large households and above all of complex and multiple households, i.e. those households that, besides the father-mother-children central nucleus, host also other kindred figures or even other secondary nuclei. However, such a process occurred and still occurs with non-uniform modalities in the various regional/territorial realities which are marked not only by the different ways and rhythms of the social and economic change but also by the historically determined differences of the starting household systems.

In this survey we want to give, through a basically demographic perspective, the future dynamics of Bari population, studied by sex and age, and the household scenarios that would result from them. As far as this research is concerned, we have used not only the *Istat* data but also those which were purposely taken from the General Registry Office of Bari concerning the year 2014 and contained in its computerized archives[102].

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[102] The computerized archives keep information about the resident population at a certain moment. Dead and emigrated people are not included.

The future population scenarios of the city of Bari

The analysis of the population's future evolutive and structural characteristics of the city of Bari has been limited within a lapse of time included between 1st January 2014 and 1st January 2028. They are short-term realizable scenarios and we think they can be the most dependable.

Concerning this, *two possible scenarios* will be shown. The *first one* by hypothesizing constant mortality and fecundity with migrations equal to zero. Obviously that means straining the reality, but it is really useful in order to evaluate the future evolution of the population due to the action of the sole natural components. The *second one*, by hypothesizing constant migrations throughout the observation period, in order to evaluate the effects of migratory drift on the evolution dynamics of the city of Bari.

The method used to set up the two scenarios is the well-known *cohort component model.* The basic population used to analyse the future trend has been the Istat one, calculated on 1st January 2014 and divided by sex and every year of the inhabitants' age.

We need to stress that the methodological approaches used for the forecast scenarios presentation of this survey do not have to be considered the only possible ones to be used, because *the logical and operational processes must be used according to the statistical-environmental context in which forecasts must be made*.

Used estimations

To evaluate the population's possible future trends of the city of Bari we have estimated the present levels of both the natural components and the migratory movement that are valid for the whole observation period. As far as **survivorship** is concerned, the City Hall's life tables of both sexes were not available; we have therefore determined the estimation of Bari population's survival level. Actually, according to the national statistical plan, the only available life tables having territorial details do not go further the provincial level. We used the *scaling factor* method (V. Terra Abrami 1998). By applying the dimensioning–resizing coefficient to the mortality parameters contained in the complete life table of Bari province, calculated by Istat on the basis of the year 2012, we get the Bari population's specific projective survival probabilities, useful for the population projective calculation. This method, identical for both sexes, has been applied separately to both the complete male life table and the complete female one of Bari province.

As far as **fecundity** is concerned, also in this case we took account of the fecundity trend concerning the superior hierarchical-territorial level. In short, we have directly estimated the city of Bari's specific fecundity rates by age for the year 2013 through the province fecundity tables of 2012,

always using the *scaling factor* method. By applying the resizing factor to the series of specific fecundity rates, by every year of the mother's age in Bari province, we get the same series for the city.

As regards the hypotheses about migratory movements, as this is a variable more subject to sudden variations concerning fecundity and mortality, and in order to guarantee a stable estimation of the phenomenon by using the registry office data about registrations and cancellations concerning both sexes registered in Bari City Hall during the 2009-2013 quinquennium, we have estimated, through the extrapolation of the existing trends, the net migration for the following quinquennium (2014-2018). Once the future net migration has been determined, we have divided it on the basis of the percentage composition, by sex and age, of the net migration registered in Bari City Hall in 2013 and kept constant for the whole projection period.

Projection "closed" to the migratory movements. Main results.

Let us examine now the population's future evolutive and structural characteristics of the city of Bari, supposing the natural and migratory components stabilization during the observation period.

Table 1 shows the population of the city of Bari by large age groups in January 2014 and the projected one, realized by comparing the scenario "denied" to migrations and the one "open" to migratory drift and the main structure indexes.

The first analysed scenario has been hypothesized as "closed" to migratory movements, which is a little realistic hypothesis but useful to understand the intrinsic "force" of the population net of the structural modifications caused by the migratory flows.

Disregarding migrations and considering only the natural component, for the future analysis of the city of Bari's population we can see that the population will trend downwards. It will pass from 322,751 inhabitants in 1st January 2014 to 304,139 inhabitants in 2028 (-5.8%) with a negative annual mean variation rate of 3.96‰[103]. Analysing the large age groups what is evident is a decrease of the infantile and juvenile classes. Actually, the population between 0 and 19 years old in 2014 represented 17.63% of the total population, while in 2028 their amount will decrease to 15.42%, in view of the over-sixty-fives that will be more and more numerous. If those ones were 22.32% of the total population in 2014, in 2028 they will be 28.25, thus underlying the population's progressive ageing. There will be above all

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[103] The annual mean variation rate has been calculated considering the continuous development model $P_t = P_0\, e^{rt}$, that leads to $r = \dfrac{\lg(P_t / P_0)}{t}$

a steep rise in the "very old people", i.e. those individuals over 80 years old who were 6.45% of the population in 2014, while in 2018 will pass to 9.07%. As a consequence of this inevitable ageing of the population, there is also the increase of the median age. Actually, it was 45.6 years in 2014, while it is expected to be 51.1 in 2028, thus having an increase of more than 5 years.

If we examine the future structure indexes of Bari population, we will have another confirmation of the population's progressive ageing process. The old age index, which represent the weight of the over-sixty-fives compared to the population up to 14 years old, will pass from 174.4% in 2014 to 252.4 in 2028. Prospectively speaking, in 2028 Bari will have about 252 elderly people aged 65 out of 100 young persons aged up to 14. Consequently, the elderly people dependency ratio, which is the ratio between the over-sixty-fives and the 20-64 working-age population, will trend upwards as well, passing from 37.2% in 2014 to 50.1% in 2028.

As for the structure indicators of the job offer potential, but above all the turnover rate obtained from the ratio between the individuals who are going to enter the active age population, represented by the 15-19 age class, and those who are going to leave, belonging to the 60-64 age class, in 2014 it was 77.1%, while in 2028 it is expected to decrease to 50.9%. The downturn is fundamentally due to the combined effect of the population's low fecundity and high ageing rates. Also the activity index or structure index of the active population, obtained by the ratio between the 25 oldest generations (40-64-year-olds) and the 25 youngest ones (15-39-year-olds) that shows the active population's ageing degree, will trend upwards and pass from 124.5% in 2014 to 145.2% in 2028.

Table 1 – Population of the city of Bari by large age classes in 2024, projected to 2028, and structure indexes.

	Projection without migrations			Projection with migrations		
	2014	2021	2028	2014	2021	2028
Population						
0-19	56916	52057	46903	56916	64094	63616
20-59	173539	162637	146055	173539	220026	260759
60+	92296	101441	111182	92296	109851	133544
65+	72048	79393	85916	72048	83786	98999
80+	20831	24983	27584	20831	26150	30094
0+	322751	316136	304139	322751	393971	457919
Percentage incidence						
0-19	17.63	16.47	15.42	17.63	16.27	13.89
20-59	53.77	51.45	48.02	53.77	55.85	56.94
60+	28.60	32.09	36.56	28.60	27.88	29.16
65+	22.32	25.11	28.25	22.32	21.27	21.62
80+	6.45	7.90	9.07	6.45	6.64	6.57
0+	100.00	100.00	100.00	100.00	100.00	100.00
Median age	45.6	48.6	51.1	45.6	45.6	46.5

Indexes:						
old age	174.4	211.0	252.4	174.4	189.8	238.7
elderly-dependency	37.2	43.0	50.1	37.2	34.0	33.5
turnover	77.1	65.4	50.9	77.1	76.6	64.1
activity	124.5	141.2	145.2	124.5	123.1	128.6

We have decided to compare also with a chart, through the age pyramids concerning the relative ages in 2014 and 2028 (figures 1-2), the structural modifications occurred in the examined population, analysing only the natural component.

The structure by age in 2014 shows a narrow base essentially due to the low fecundity and a greater survivorship in the elderly classes, particularly in female population. On the contrary, from the 2028 projection we realize that there is a deep change in the structure by age: the narrowing of the base is even more evident, but, compared to 2014, that narrowing involves also the other classes up to the 45-49 age-class, including most of working-age population (20-64), in view of the rise in senile ages population.

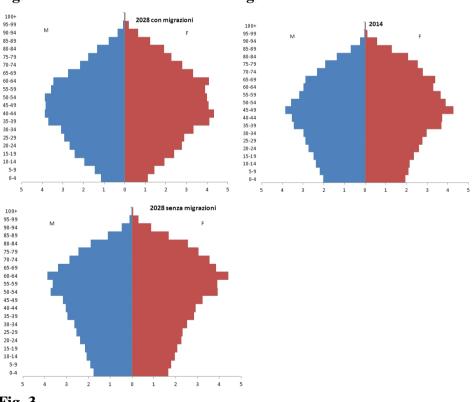**Fig. 1**   **Fig. 2**

Fig. 3

In the light of these considerations it is evident that in Bari population the generation turnover cannot sufficiently guarantee both an adequate

substitution level in the working classes and a balanced development of the population. Actually, by estimating the specific fecundity rate by age, we have obtained a TFT level of 1.31 children per woman, a value which is below the "substitution" one, thus creating a decreasing trend of the population. The value that the total fecundity rate must reach in order to keep the population's dimension basically constant is 2.1 . Actually, all that means that every woman should give birth to more than two children (males and females) on average in order to give birth to a daughter who will be the "substitute" after her mother's death. If the TFT exceeds this value, we can see that the population is growing, otherwise the population is potentially decreasing.

Projection "open" to the migratory movements. Main results.
        Now we need to understand what the "picture" of Bari population will be, if we consider the migratory drift. As the population has a fecundity rate well below the generation substitution level, thus being in a natural decrease regime, it is important to see whether the migratory component will be a factor of the demographic development, thus being able **to oppose the demographic regression**, or it will be an irrelevant variable on the population structure and will therefore help in **stressing the population's ageing**.
        Actually, the analysis of Table 1 data, represented in Fig.3, shows that in the future the migratory component could become a demographic development factor able to neutralize the present demographic regression and drive the population to achieving a new balance.
        By comparing the two presented scenarios through the data of Table 1 and Figures 2 and 3, the action of the positive net migration is evident. In the first scenario "closed" to migratory movements, in consequence of a decreasing natural component force, the structure of the population splits in two parts: in the lower part of the ages pyramid, in the future, there will be a population decrease (age-classes 0-19 and 20-59) caused by low fecundity rates, while in the upper part of the ages pyramid there will be a population increase (age-classes 60+, 65+ and 80+) due to population ageing. In the second scenario "open" to the migratory movements, instead, the entry of immigrants will cause a population increase in the active and reproductive classes (20-59-year-olds) and will mitigate the population ageing process. This effect of immigration in the city of Bari is highlighted also by the lowering of the median age, thus passing from a "closed" scenario to an "open" one. If there were the outlined hypotheses, in the first scenario of the 2014-2028 period, the population would decrease of about 6% and would lose about 18,000 units, while in the second scenario they would increase of 41%, thus getting about 135,000 new units.

Estimation of Bari households on 01.01.2028

A large number of phenomena concerning behaviours and choices made by single individuals are also influenced by the system of relationships they singly have, particularly by the household group they belong to.

Hence the importance of adding the elaboration of evolutive scenarios concerning households to the traditional population forecasts which are widespread all over the developed countries. The application developed in the household forecast field are also internationally widespread, thus witnessing the great interest that this matter arouses. More specifically, the evolutive trend of the different household typologies is very important to forecast some forms of consumption, to plan houses and forecast the following demand for them; moreover it is also useful in a lot of other aspects concerning the social and welfare policies of a specific territorial context.   In this paragraph we will deal with the amount evolution of Bari resident households classified by sex through the use of the basic demographic projections results about Bari population in 2028 obtained thanks to the above mentioned elaborations.

Different methods can be used to estimate the future total number of households, but the first one we used in this study is a ***synthetic approach*** tied to the population growth rate which, in the observed period, is supposed to be equal to the household amount. This somewhat easy procedure consists in assuming that both the amount of subjects living in a household and the mean household dimension keep constant.

The second method we used is an **analytic** one, i.e. the ***headship rate method*** (*UNO 1973*) which requires the calculation of the household heads incidence rates (obtained as a ratio between household heads, differentiated by age classes and sex, and the corresponding population) through which it is possible to pass from the forecasted population to the corresponding households forecast.

Synthetic Method

The estimation of Bari households amount in 2028 is shown in Table 2, by hypothesizing that during the observation period the amount of the households has the same population growth rate. Consequently, the mean number of the members is unchanged at both dates. It is clearly evident that the study of the households total number with this methodology is carried out through summarizing values that can be instantly read thanks to the calculations of the following table:

Table 2 – Total estimation of households in the city of Bari in 2028.

	Scenario without migrations	Scenario with migrations
Observed population in 2014	322751	322751
Forecasted population in 2028	304139	457919
Resident households in 2014	135650	135650
Population variation rate (2014-2028)	-3.96‰	23.32‰
Forecasted households in 2028	**127828**	**192460**
Mean number of components	**2.38**	**2.38**

Source: our elaborations on Istat data and registry data of Bari City Hall

If we consider the scenario without migration, the households number will pass to 127,828, with a decrease of 5.8% compared to the number in 2014. Next to it, the scenario "open" to migrations shows an increase of the households number, always in the same year, of about 42%.

Analytic method

To obtain the future estimation of Bari households through the analytic approach we need the creation of the specific rates by sex and age of the household heads incidence (***headship rate***), obtained as a ratio between the household heads number (by sex and age class) and the corresponding population.

Analytically, the *propensity to be household head by age*, is given by:

$$_t t_x^m = \frac{_t Cf_x^m}{_t P_x^m} \quad _t t_x^f = \frac{_t Cf_x^f}{_t P_x^f}$$

where $_t t_x^m$ and $_t t_x^f$ represent the male and female household heads rates at age x in time t respectively.

Afterwards, by applying the household heads incidence specific rates by sex and age to the population amount in the forecasted single age classes, we obtain, as far as the chosen year is concerned, an estimation of the household heads and therefore, indirectly, also the estimation of the households number. The used relation is the following one:

$$Fam_{t+n} = \sum {_t t_x^m} \cdot {_{t+n} P_x^m} + \sum {_t t_x^f} \cdot {_{t+n} P_x^f}$$

This is a static method, therefore the main limit it finds is that it does not consider the inner components (divorces, marriages between previously married people, etc.) which could modify the households number in the course of time. However, in the contexts where these changes are not rapid or when we want to estimate the households numbers in a fairly short forecast period, this method can give satisfying results, because it is often the only usable approach to get an immediate information availability. With this method the basic population is the one observed in 2014, while the following one of 2018 is the result of population forecast previously described. The

chosen age classes are by decades except the last one (85+). From the analysis of the tables data shown below, we realize that the households total number in the city of Bari, on the basis of the hypothesis of "closed" population, is destined to decrease. Conversely, if we consider the "open" scenario, the household total number will trend upwards. In 2014 there were 135,640[104] households. Hypothesizing a scenario "closed" to migrations we expect a decrease of the households number (130,765) equal to 3.6% (see Table 3), while, considering the scenario "open" to migrations, the forecasted households number might pass to 200,238 with a percentage increase of 47.6%, compared to the year 2014 (Table 4).

On the other hand, if we analyse the distribution of the household heads estimations by sex, we can see that male household heads number in the "closed" scenario will pass from 90,512 in 2014 to 87,934 in 2028, thus stressing a decrease of 2.8%. Conversely, if we consider the "open" scenario", the number will pass to 133,091 in 2028 with an increase of 47.0%.

Also the number of female households heads is destined to decrease of 5.1% in the "closed" scenario where we expect 42,831 households compared to the present 45,128. On the contrary, an increase of 48.8% is expected in the "open" scenario.

Table 3 – Estimation of the households number in 2028. 1st scenario "closed" to migrations.

Age classes	Household heads in 2014		Observed population in 2014		Household heads rates		Forecasted population in 2028		Forecasted household heads in 2028		
	males	females	males	females	males	females	males	females	males	females	total
15-24	778	512	16832	15997	46.2	32.0	13814	13162	639	421	1060
25-34	6405	3463	18889	18535	339.1	186.8	15793	14738	5355	2754	8109
35-44	15147	6378	22591	23869	670.5	267.2	18213	17524	12212	4683	16894
45-54	20133	7149	24023	26325	838.1	271.6	20958	21743	17564	5905	23469
55-64	18640	6542	19912	22426	936.1	291.7	22886	25354	21424	7396	28820
65-74	16160	7297	16794	19956	962.2	365.7	19036	22523	18317	8236	26553
75-84	10214	8745	10663	14911	957.9	586.5	13230	17073	12673	10013	22686
85+	3035	5042	3258	6466	931,6	779,8	5245	8809	4886	6869	11755
Total	90512	45128	132962	148485	680,7	303,9	129175	140926	87934	42831	130765

Source: our elaborations on Istat data and registry data of Bari City Hall

[104]The households number does not coincide with the one shown in Table 2, because we have not considered the household heads younger than 15 years old, a datum which is considered unremarkable.

Table 4 – Estimation of the households number in 2028. 2nd scenario "open" to migrations.

Age classes	Household heads in 2014		Observed population in 2014		Household heads rates		Forecasted population in 2028		Forecasted household heads in 2028		
	males	females	males	females	males	females	males	females	males	females	total
15-24	778	512	16832	15997	46.2	32.0	23439	23683	1083	758	1841
25-34	6405	3463	18889	18535	339.1	186.8	27522	28438	9332	5313	14646
35-44	15147	6378	22591	23869	670.5	267.2	34732	38626	23287	10321	33609
45-54	20133	7149	24023	26325	838.1	271.6	35279	36917	29566	10025	39592
55-64	18640	6542	19912	22426	936.1	291.7	32227	36584	30168	10672	40840
65-74	16160	7297	16794	19956	962.2	365.7	22484	27970	21635	10227	31863
75-84	10214	8745	10663	14911	957.9	586.5	14232	19052	13633	11174	24806
85+	3035	5042	3258	6466	931.6	779.8	5596	9664	5213	7536	12749
Total	**90512**	**45128**	**132962**	**148485**	**680.7**	**303.9**	**195511**	**220934**	**133091**	**67147**	**200238**

Source: our elaborations on Istat data and registry data of Bari City Hall

Final considerations

Finally , we try to summarize the results obtained by the analysis of the future alternative scenarios presented here, namely the *what-if-projections* which lead us to opportune remarks.   Fundamentally,   the trend of both the households total and the distribution of the household heads estimations by sex and age follows the evolution of the forecasted population structure in 2028. The effects of social and demographic changes, characterized by the acceleration of the population ageing process and the changes of the households structure, show the numerous critical elements of our population: we live longer and longer but the propensity to have children is still low. The migratory component shows instead a possible development factor useful to mitigate the present demographic regression. Actually, between the two supposed scenarios there are shades more than remarkable differences concerning the unstoppable increase of elderly population.

Without drawing up a classification of the important and obvious effects that would result from the rejuvenation of the population, we would like to say a few words in order to underline the importance of this process which, as an alternative to such a low fecundity rate[105] like Bari's one (below the national rate), could occur only through the entry of immigrants. All that will cause a population increase in the active and reproductive classes (20-59-year-olds) and the obvious mitigation of the ageing process. Actually, the loss of balance towards more elderly classes determines a contraction of the

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[105] In the life of a human being, to ensure the society's survival, the most essential aspect of the individual behaviour is an adequate fecundity. The birth determinants are a key component of the social change which does not affect only demography. Actually, on the one hand birth is the result of a complicated network of casual factors concerning both the biologic field and the sociocultural, economic and environmental one; on the other hand, it causes very important effects in the vicissitudes of the population and of the units composing it. At aggregate level, the changes in the procreative behaviour directly influence the society transformations.

participation in the job market, thus creating great strain in public balance sheets because of the increasing pension and health expenditure. Consequently, what will also tend to increase will be the socio-economic charges concerning the health care and social security for elderly people, thus causing the so-called "*longevity shock*" (*International Monetary Fund, April 2012*).

For this reason, the local and national communities should commit themselves, in a common effort, to bringing about convenient social policies that suit the demographic reality of the 21st century. Only through an effective verification of the changes made in the daily life of individuals and households, and above all in their ability, in the course of time, to cope with the challenges that every transition issues, we will be able to plan in a thoughtful way, thus leaving out the "many words" without any meaningful content.

Several scholars talk about a real Italian "demographic suicide". Actually, the public policies are characterized by minimal intervention in favour of households. The government intervenes only in cases of poverty risks, extreme need, discomforts and malfunction. However, if we consider the households ageing trend and their fragmentation caused above all by the increase of the so-called unipersonal families mainly composed of elderly people, it is evident that in the next few years Italian households will be less and less able to perform as a social security cushion. Therefore, the most serious consequence will be the promotion of an involutional cycle concerning the population that will be characterized by an increasing household fragmentation, an increase of elderly households and a missed generation turnover, only partially balanced by immigration.

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