TRENDS AND FACTORS INFLUENCING TIRANA'S POPULATION DENSITY

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ABSTRACT

The population density study of a city or a country is a multiple-interest problem (Bureau, U.C, 2010; Civil Engineering team, 2012). Identification of the population density is closely related to the needs for the population education as well as for the establishment of schools of different character to satisfy not only the interest of education, but also the permanent improvement of the living conditions of the younger generation and to provide education continuity and economic development of the country (Bureau, UC, 2010). Identification of the population density is an important factor for the construction industry, which in order to ensure its continuity and to ensure the best possible construction for the population, should know the state and the prospect of population density (Newling B. (1966.1969). Identification of the population density requires the combined recognition of the density of job creation and employment (Anne-Marie Meyer, 2001). Identification of the population density is an important problem for all social, health, policies etc. In this study we are focused in the population density of Tirana, the capital of Albania. We have tried to analyse the trends in the population density through the years and also to analyse the factor that have influenced this trends.

Keywords: Population, Density, Growth, Tirana, Albania.

INTRODUCTION

The population density in a city or even in different countries is determined by various factors (Civil Engineering team, 2012; Anne-Marie Meyer, 2001). Some of these factors are listed below:

a) Economic factors. This is a factor of primary importance. The city with rapid economic growth and high-level income ends to experience a rapid population growth. This population growth is mainly due to the population movement from the least developed areas to a higher economic level city (state).
b) Socio-cultural factors. These factors influence the population movement from a city with a low cultural and social life level to another city with a better cultural and social level.
c) Climate conditions of a country or area. This is an influential factor to a lower degree than the above two factors. In the climatic conditions of the 20thcentury and the beginning of the 21st century, a migratory movement from warm areas to fresh and cold areas is seen. This is due to different economic and social levels of different countries (Manali Sa, 2014). This proves that domestic and migratory flows are strongly influenced by the two above-mentioned factors, the different economic and socio-cultural factors between different areas, cities or countries (Clark C, 1951).

MATERIALS AND METHOD OF STUDY

This study is conducted in Tirana. The study will be carried out by selecting some structural units (blocks) and based on it; the population density will be calculated. The population density calculation, in addition to the calculation of the density of residential dwellings, is carried out in areas where construction is realized but studies are required for different urban and non-urban purposes. Thus, when housing densification is required, it is necessary to know the population density to determine how the typology of buildings and their density should be changed in order to realize the increase in the density of residential dwellings and the provision of housing for the population in this area.

Population density is determined for each sq.km of the surface. It can be determined for the whole country, city or certain areas of it. This will depend on the purpose of the study. This calculation does not take into account the ecological assessment of the territory (Matt Rosenberg, 2011). The most usable population density expression is hectare per person (p/ha) for narrow urban areas such as structural units (blocks). This calculation provides more detailed and interest information in the typology of construction and green areas in it (Weston Anderson (2014).

Density per person/hectare is calculated by the formula (Reale, L. 2008):
FAR = p/Ha x 25sqm = p x 25sqm/ 1Ha (10000 sqm) = b x 25 sqm / 10000 sqm = b x 400
p/Ha = FAR x 400

RESULTS AND DISCUSSION

Tirana population has a dynamic character. Graphs 1 and 2 show the dynamics of population growth for the period 1989 to 2009.

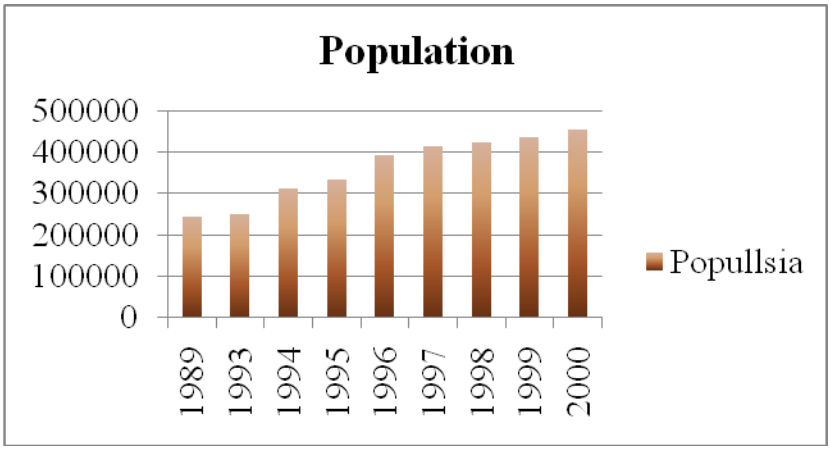

Chart 1: Tirana population dynamics in 1989-2000

Chart 1 shows Tirana population for the period 1989-2000. This chart shows that the population in 1989 was 243900 inhabitants. In1993,it was increased in 250200 inhabitants or 2.6% more than in 1989. This growth has been due to the natural increase of the population by birth for four years. In 1994, the population reached 310200 inhabitants or 24% more than in 1993. This growth was not only due to natural increase but also from the population flow from rural areas and other peripheral cities of Albania. This intense increase in immigration has continued until 1997, further the rate of growth decreases. Thus, the growth in 1998 compared to 2000 was 7.43% for two years.

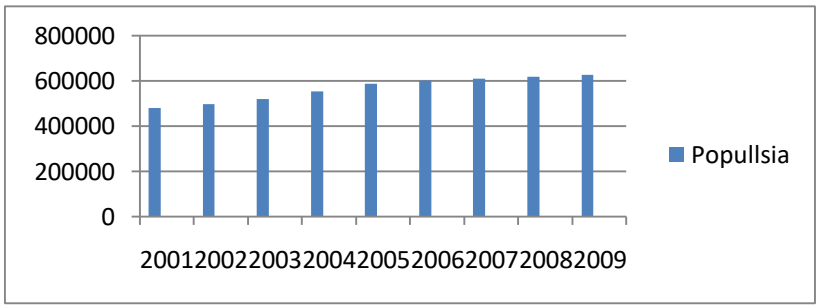

Chart 2: Tirana population dynamics for the period 2001-2009
Source: author and Selfo L

For the period 2001 to 2009, Tirana population is seen to have grown by 30.93% for 9 years, with an average of 3.43%. This population growth has come mainly from the immigration of the population to the city of Tirana and less from the natural increase of the population. This phenomenon is not only Albanian, but worldwide (Eurostat information, 2016).

Structural Unit	Gross p/Ha	Net p/Ha
II/47	624	712
II/57	440	500
V/13	1052	1248
V/9	620	992
V/31	840	2160
V/11	824	928
V/12	1020	1260
VII/8	824	1260
VII/30	520	688
VIII/3	720	840
IX/14	588	808
X/2	1572	1792
X/22	708	940
VIII/16	480	568
VIII/14	600	688
VIII/9	520	572
III/25	388	559
II/28	1028	1156

Table 1: Gross and Net Population Density, person/Ha

Table 1 shows the population density by structural units. This table gives the gross density and net population density, in person/Ha (p/Ha). The diversity of the population between the structural units is sensible. The gross population in the minimum value is in the structural unit III/25, with 388 p/Ha and in the maximum value is 1572 p/Ha, while the lowest net population is found in the structural unit III/25 with 559 p/Ha, while the maximum net population is in the X/2 structural unit with 1792 p/Ha.

	Average	STD	SEM	CV	t- difference
Gross population density	730.	171.8	40.42	18	2.58*
Net population density	994.93	233.93	50.04	55	

Table 2: Average gross and net population density value (p/ha)

The average gross population density value is 730 ± 40.42 while the average net population density value is 994.93 ± 50.04. The average difference shows that the net population density is higher than the gross population density. This difference is statistically verified (t=2.58 and P<0.05).

Linear, one-factor regression analysis between population density and FAR on the surface area of a building plot shows that the equation has very high statistical veracity and can be used for forecasting purposes

Y (Net p/Ha) = -48 + 410 FAR_2

R^2 = 0.987

pvalue = 1.47E-16 or $1.47*10^{-16}$

The equation for the gross density calculated for FAR of the gross urban area of the urban land has high statistical veracity.

Y (gross p/Ha) = -49.1 + 415 FAR_1

R^2=0.968

pvalue = $2.11*10^{-13}$

As the results shows both models are significant and the independent variables (FAR 1 and FAR2) are influencing the gross population density.

CONCLUSIONS

After this study on Tirana's population density we have come to the following conclusions:

- ✓Tirana population has grown considerably from 1989 to 2009. This growth is mainly due to the population immigration from rural areas of Albania.
- ✓Gross and net population density (p/Ha) represents variations from one structural unit to the other. The net population density is higher than the gross population density.
- ✓The statistical change of net and gross population has statistical veracity (P=0.05). Population variation is higher in net density (11.4%) than in gross density (8.9%).
- ✓Regression Equations have a high statistical veracity; therefore, they can be used for forecasting purposes.

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