

TREND ANALYSIS OF GLOBAL POPULATION GROWTH

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Abstract

The human population has been growing for thousands of years, and as of 2013 there are over seven billion people on Earth. This study aims to determine the yearly population trends of the world, project the population growth in the next 50 years, and identify the factors affecting the population growth. Studies on population in the past are innermost but this study focuses on the trending of the world population in the next 50 years from date. The drift of the population growth of the world may weaken or strengthen economic concerns of the national or global development; in the same manner population of a country may imply economic and social changes. This paper uses time series analysis. The study concludes that the world population increases every year and in the next 50 years the total population of the world continually gets bigger and bigger. It is approximately 79283607 annual increases and in the next half century, the world population gets bigger. There is a definite growth that shows that the world's population has bloated and this result of the increase in population lead crises and problems such as overcrowding, poverty, crime, and rise in unemployment. The fertility and mortality affect the rise and fall of the population, but it was found out that there are more babies born everyday rather than mortality.

Key words: trend analysis, population growth, mortality, fertility

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1.0 Introduction

The human population has been growing for thousands of years, and as of 2013 there are over seven billion people on Earth(Malthus, 2013). What do you think will happen to the human population in the future? Will it continue to increase, or maybe decrease, or stay the same? This study aims to determine the yearly population trends of the world, project the population growth in the next 50 years, and identify the factors affecting the population growth.

According to Birdsall, Kelley and Sinding, in 2005, China (1.31 billion) and India (1.13 billion) were by far the largest countries, together accounting for nearly half the South's total. The top 10 include six Asian countries and only one country each in Latin America and Africa. On the other hand Cincotta(1977) points out that population affects the course of national economic development. But modern institutions such as competitive markets, flexible public policies and well-run government programs, which help economies, adjust to the rapid changes produced by population growth. Adjustment has its costs, however. According to Malthusian theory, the growth of population in the world is exponential. By the end of the century, the world's population might be as high as 17 billion or as low as 7 billion (UNFPA, 2015). (Population Matters, 2011) added that Global life expectancy at birth is estimated to have risen from 46 years in 1950–1955 to 65 years in 2000–2005; it is expected to reach 75 years in 2045–2050.

Studies on population in the past are innermost but this study focuses on the trending of the world population in the next 50 years from date. The drift of the population growth of the world may weaken or strengthen economic concerns of the national or global development; in the same manner population of a country may imply economic and social changes. Mostly of the third world countries are

overpopulated and are viewed as economically challenged such as Philippines and other Asian countries. The trending of its population yearly and the projection in the next 50 years population depict the changing economy of the country. The bloating population causes the country's challenging economic status. This study can be a good basis for policy formulation since the world is on bloating population.

Moreover, this projection on the trend of population enlargement every year or in the next 50 years may help political and economic analyst, and political leaders to plan out future development and advancement of programs for the country's progress. This realistic background of world's population may be tantamount to the real life situation of the people in the world today. Hence, the study is conceptualized.

2.0 Conceptual Framework

It is over a half century since 1960-2013 that the percentage of world's population is increasing according to World Bank data. The rapid growth of the population today is attributed to several factors which include fertility, mortality and climate. These factors may affect the country's economic development and future expansion; for some countries population growth bring economic development and for some it becomes a threat to their trade and industry status.

The population growth of the world is important to note in order to make future plans. The plans which augment economic status and social situations and set people free from suffering the ill-effect of the ballooning population of the world today. The population growth is brought about by factors such as; fertility and mortality which lead to other possible economic problems such as; overcrowding, shortage of food and poverty of men. The fertility as factor

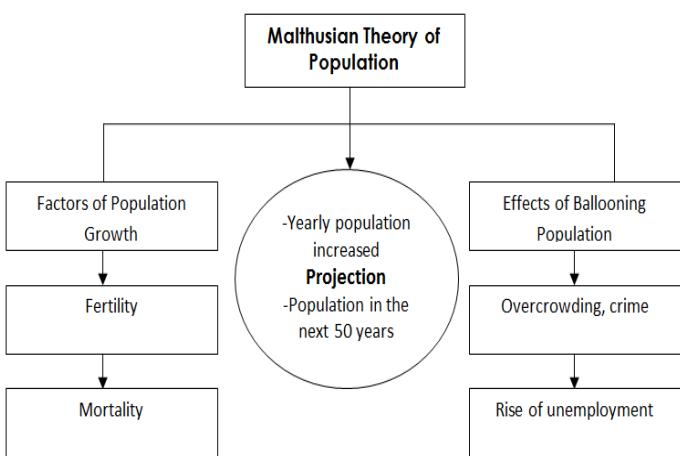


Figure 1. Conceptual framework of the study

increases the population but the mortality caused by war and poverty may decrease the total population of each country which can be attributed to the increasing and decreasing population of the world. The expansion of the population in the world in the past decade is inevitable; therefore the projection of the ballooning population of the world in the next 50 years can be predictable through the yearly population probability. The theory of Malthus on "the Principle of Population," proposes the principle that human populations grow exponentially. Hence, this study assumes that the population of the world will be more or less around 11 billion in the next 50 years.

3.0 Research Methodology

This study uses time series analysis to determine the yearly increase of population since 1960-2013 (Source: 2013, The world bank data base) and to project the population of the world in the next 50 years. On the other hand, this study also identified the factors affecting the population growth. Minitab software is also used in projecting and determining the world population.

This study assumes that there will be a yearly increase of the world's population due to the following reasons: that birth rate is higher than death rate, the global life expectancy of people is longer and early pregnancy among teenagers contributed to the bloating population of the world.

4.0 Results and Discussion

Regression Analysis: world pop versus year

The regression equation is population = $-1.52E+11 + 79283607$ year

| Predictor | Coef | SE Coef | T | P |
|-----------|---------------|-----------|---------|-------|
| Constant | $-1.5249E+11$ | 647215122 | -235.61 | 0.000 |
| year | 79283607 | 325797 | 243.35 | 0.000 |

$$S = 37314039 \quad R-Sq = 99.9\% \quad R-Sq(adj) = 99.9\%$$

The R² value of 99.9% has strong relationship between the year and population. Hence, the model: population = $-1.52E+11 + 79283607$ is found reliable in predicting the population in the next 50 years (2014-2064).

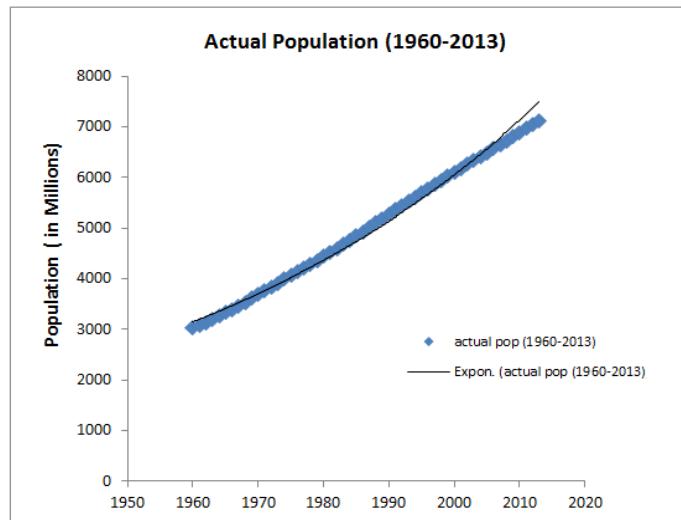


Figure 2. Graphical representation of the actual population from 1960 to 2013.

The graph above shows the yearly increase of population based on the actual data. It is presented above that slope determines the increase of population annually. It is approximately 79,283,607 million increased of population every year. Based on the world population data source unfpa.org/pds/trends, 7.2 billion in mid-2013 is projected to increase by almost one billion people within the next twelve years, according to official United Nations population estimates (medium variant, 2012 Revision).

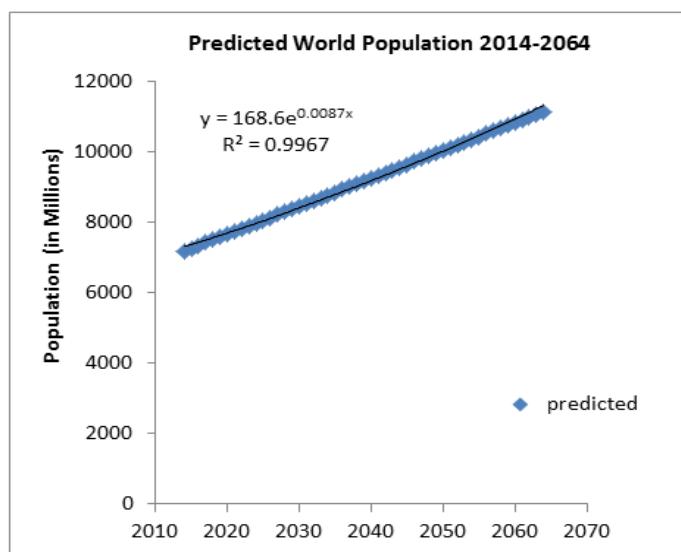


Figure 3. Predicted world population for 2014-2064.

It can be gleaned in the graph above that the data

on the population growth of the world is increasing every year. In the next 50 years from 2014-2064, the growth of the population is projected to increase at approximately 79,283,607.00 million every year and in 2064 about a half century, the world population gets bigger in as much as 11.15 billion. This data is also supported by (howmany.org/big_picture.php) that more than 7 billion people currently inhabit the planet, compared to only 3 billion in 1967. Every year about 135 million people are born and 55 million people die, adding 80 million to the global population. That's about one United States every 4 years, or 1 billion more every 12 years. Based from (UN-ESCAP, 2013) the population in Asia and the Pacific is growing at less than 1 per cent per annum.

The data imply that when population increases at the same time more problems of the world surfaced like; overcrowding, poverty, crime, and rise in unemployment. In most developing countries according to Todaro and Smith(2010) the common problems encountered by the developing countries are Low levels of living, low levels of productivity, high population growth and dependency burdens, dependence on agriculture and primary exports, imperfect markets and incomplete information and dependence and vulnerability in international relations.

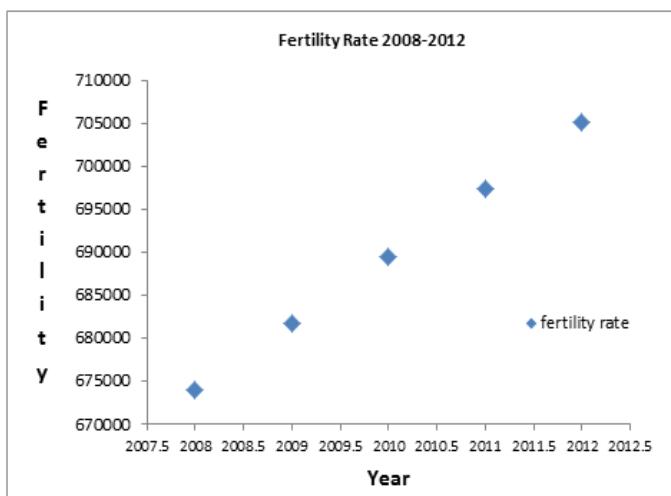


Figure 3. Fertility rate from 2008-2012

The graph above shows the fertility rate from 2008-2012. It shows the linearity of the data, which depicts the increasing fertility rate which causes the population growth of the world today. The decline of fertility for countries with large families are still prevalent as well as a slight increase of fertility in several countries with fewer than two children per woman on average (unfpa.org). This means that fertility is a factor which determines the corresponding increased of the population. According to Ehrlich, the need for women in every country to equal rights and opportunities with men, and every sexually active human being should be given access to excellent birth control methods to control rapidly growing

population.

(Population Matters, 2011) World average fertility during the 2005-2010 period was 2.5 children per woman; this had halved from the 1950-1955 level of almost 5 children per woman. The high fertility of those countries will lead to rapid population growth. Population increase in every country varies as pointed out by (UN, 2005) that in most developed regions population has declined, however; in least developed regions population has increased significantly.

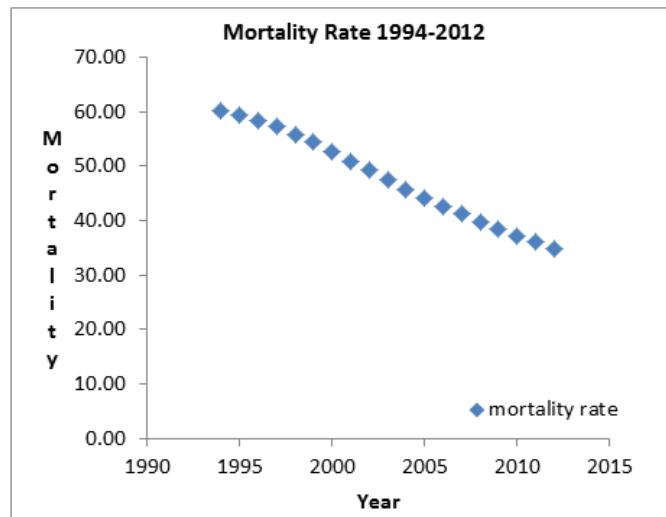


Figure 4. Mortality rate from 1994 to 2012

The graph shows the mortality rate of the people in the world. It explains that mortality rate of man decreases; this is a factor which contributes to the decreasing or increasing growth rate of the population. This data imply that the population is likely to increase because there is only few mortality compare to the babies born every day. This is a very big factor which contributed to the bloating population. It is about 6,390 deaths per hour. 153,000 deaths per day. 56.0 million Deaths per year. 3.9 billion deaths which smaller in number compared to the babies born every minute and contributed to the world population. This is supported by statistics that in 2007, that there are 255 babies born every minute and in 2010, 361481 babies born every day.

Mortality has tended to stagnate or even to increase in certain countries, the causes for the slowdown or reversal of the transition to low mortality are multiple and complex, but they have no doubt been exacerbated by the momentous social and economic transformations resulting from the political changes taking place (UN, 2005).

Nevertheless, mortality has declined more rapidly than expected in a number of developed countries, so that the possibility of further medical and technological breakthroughs that may increase the human lifespan cannot be ruled out, opening up the prospect of a future where expectations of life at birth of above 85 or 90

years.

5.0 Conclusion

The study concludes that the world population increases every year and in the next 50 years the total population of the world continually gets bigger and bigger. It is approximately 79283607 annual increases and in the next half century, the world population gets bigger in as much as 11,152,356,797.44. There is a definite growth that shows that the world's population has bloated and this result of the increase in population lead crises and problems such as overcrowding, poverty, crime, and rise in unemployment. The fertility and mortality affect the rise and fall of the population, but it was found out that there are more babies born everyday rather than mortality. Due to the ballooning population of the world, the study recommends the following: (1) strengthen population control programs and projects of the government (2) develop policies for population control worldwide (3) address global issues on high birth rate and teenage pregnancy.

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