



Population growth dynamics: On fallacious comparisons

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Abstract

The use of ratios, rates, and percentages is prone to manipulation in demographic policy formulation. That the political and economic benefits get distributed pro rata among various communities, fuels the temptation. Democracies are ruled by the majority community; the temptation thus leads to policies adverse to minorities on false reasoning in self-interest. This brief paper illustrates such a misuse of growth rates in a community coined for the purpose.

Keywords: demography; population growth; base values; compounding growth

Introduction

Demography is a recent and upcoming area in economics with focus on population dynamics. Our very entry in this word and exit from it form part of population statistics. Change in population is continual, not only through births and deaths but also via the two-way migrations. Population dynamics brings about political and cultural transformation that often gives raise to long-run majority-minority conflict within and across nations. The church is divided between the Catholics and the Protestants, the followers of Islamic faith even more – the Shia-Sunni divide is well-known. Even the Jews have clans. Hindus have a rigid caste hierarchy; capital versus labor is an ideological divide with shades. The conflict between the races – white and black – in South Africa took centuries to finish. In the US it still continues. In Hong Kong the Chinese and the locals do not see eye to eye. Bangladesh separated from Pakistan essentially for economic reasons. Chinese made the Great Wall centuries back to keep the Mongols out. Today the Americans are doing the same thing to shun Mexicans. Pakistan fortifying its western border fearing the Afghan influx. Examples can be multiplied.

The illustration

The causes of these actions are usually complex. They are rooted in sociology, economics and politics, and vary over time and space. Our object here is not to indulge in a discussion on them. It is very limited. We aim at demonstrating how the use of population growth rates can lead to fallacious policies that hold little water. We erect a fictitious community of Whites and Blacks for this demonstration albeit the data we present below in Table 1 is real.

Table 1: Population in million

1951		2101	
White	Black	White	Black
30.01	3.621	319.8775	72.2895
P_{0w}	P_{0b}	P_{nw}	P_{nb}

The place is ruled by the White (W), The Black (B) being in minority. The Whites contend that their rate of growth is slower than the Black who would eventually exceed them in number to capture governance. The apprehension has led the Whites initiate policies backed by legislation to block the proclivity. We propose to investigate as follows.

1. Are Blacks indeed growing at a faster rate than the Whites, and
2. If yes, are they likely to overtake the White; when? We know that

$$P_n = P_0 (1+r)^n \tag{1}$$

If other values in the equation are known, we can follow r as follows.

$$P_n = P_0 (1+r)^n$$

$$(1+r)^n = \frac{P_n}{P_0}$$

Raises both sides to the power of $(1/n)$:

$$\begin{aligned} [(1+r)^n]^{\frac{1}{n}} &= \left[\frac{P_n}{P_0} \right]^{\frac{1}{n}} \\ 1+r &= \left[\frac{P_n}{P_0} \right]^{\frac{1}{n}} \\ r &= \left[\frac{P_n}{P_0} \right]^{\frac{1}{n}} - 1 \end{aligned}$$

Then, finding r is straight forward.

The projection

Using the procedure and using the data at two time-points - 1951 and 2021 - in Table 1, we find r for W and B approximately as $W = 4.8466\%$ and $B = 6.171\%$. Thus, the contention that Blacks are growing at a faster rate than the Whites is true and the difference looks substantial.

But would that growth rate difference make Blacks eventually overtake the Whites relegating them to the second position in the land as feared? For investigation, we work a fifty years population projection onwards from 2021 using equation (2) in each case.

$$P_{2050} = P_{2021} (1+r)^{50} \quad (2)$$

Based on Excel spread, we present relevant data at a 10 year interval in Table 2,

Table 2: Growing excess of Whites over Blacks for the next 50 years

Community	2101	2110	2120	2130	2140	2150
Whites W	320	490	787	1284	2029	3258
Blacks B	72	123	225	409	744	1353
W - B	248	367	562	875	1285	1905

The following Figure based on full data amply clarifies and helps nullify the apprehension of the Whites. Instead of narrowing down, the inter-community number gap would continue widening ad infinitum in their favor despite the faster growth of the Blacks. The population analysis of this paper are relevant to understand the counter claims of social groups as parties relating to distribution of things like land or incomes between the Jews and Muslims in Palestine on the return to home of the Arabs who had left or were expelled from the land after the 1967 Yume Kafor War when Israel captured the West Bank, the Gaza strip and the Golan Heights. It nullifies apprehensions in the OS of the whites that the faster growth of the blacks may reduce their share in the national political and economic pie. For the same sort of peril American are constructing a border wall to arrest migration from Mexico. It allays fears of Hindus that the Muslims would eventually overtake them because of their faster growth rate. Indeed, some states have already passed laws to arrest the alleged trend. The catch in most such arguments is the neglect of the initial numbers – the base of growth calculations. Such unfounded fears at times give rise to mistrust and divisive policies.

Concluding remarks

This paper exposes how population statistics can be as it is used at times to the disadvantage of the minority communities to benefit the ruling majority. Minorities suffer in several ways;

- They do not get a fair share in political power that constitutions grant them.
- They receive less than their dues from public welfare scheme like health, education and shelter.
- Their proportion in employment declines
- Their number in poverty groups swells.

References

1. Ben J. Wattenberg How the New Demography of Depopulation Will Shape Our Future. Chicago, 2004.
2. Indian Census Reports and surveys.
3. Tippets H. H. C. L Statistics (Home) UK, 1946.
4. United Nations Statistics Division Overview of Demographic Concepts and Methods, 2014.