



Demographic Transition Theory – Balancing Births and Deaths

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When considering UN demographic statistics, there are several things one must keep in mind. One is the so-called “demographic transition theory,” which is often cited by the uninitiated as a reason not to be concerned about the size of the human population. Actually, it’s not much of a theory – more simply the observation that, initially in Europe, industrializing nations had declines in death rates which were followed by declines in birth rates. The declines in death rates was primarily due to public health measures – soap and water, mosquito screens, purer water supplies. The fall in birth rates is partly credited to a reduction in the value of children for farm labor as urbanization progressed. The basic picture is a 2-phase transition from a high-mortality, high-fertility regime to one of low mortality and low fertility. A similar, but much more rapid process occurred in many Asian nations in the second half of the twentieth century.

Many questions have been raised about the factors involved and whether the model will fit as well in Africa as it did in Europe and Asia, but from our viewpoint one of the most interesting questions is whether birth and death rates will naturally balance in the future. The answer is clearly “no.” First, there is no obvious reason why they should. In the past, people certainly had more children when the chances of their survival to adulthood were low, but no known society has ever had its birth rate just balance the death rate for a substantial period and thus achieve a steady-state (“stationary”) population. Furthermore, while some rich nations have achieved low enough fertility to begin a highly beneficial *decline* in population size, deliberate attempts of some of those societies to increase birth rates with child payments have, in some cases proven sadly successful.

For instance, in France by paying people to have children, politicians and economists have recently managed to move their nation even further from sustainability, increasing its total fertility rate – TFR -- (roughly completed family size of the average woman) from 1.75 children in 2000 to 2.08 in 2013. Both TFRs would eventually lead to a population decline (ignoring possible net immigration), since the “replacement level” TFR in a rich nation like France would be ~2.1. But a rate of 2.08 would likely lead to a very slow shrinkage, much slower than

desirable. Replacement rates must figure in mortality of children before they reach reproductive age, so in many poor countries replacement fertility would be ~2.3 kids. In vastly overpopulated Japan, where the TFR has long been at a healthy low around 1.4 and recently dipped to ~1.2, has recently rebounded to about 1.4. Healthy as this demographic situation is, it is one that terrifies politicians in Japan, just as in France.

Demographers making projections generally pay much less attention to death rates than to birth rates. One reason is that studying most of the factors influencing birth rates -- economic value of children, cultural norms, the human tendency to imitate, etc.— tend to fall within familiar areas of social science. In contrast, while death rates also are influenced by economic factors (e.g., inability to buy food in time of famine) they are also heavily subject to factors not within the ken of social scientists: plague, climate disruption, crop diseases, ecological consequences of conflict, and so on. Death rates can be influenced socially, as the adoption of sanitation and other public health measures long ago showed in lowering them and wars and genocides sadly have demonstrated in raising them. But they are more difficult to project than birth rates, and demographers have generally assumed that the long-term global trend of gradual death-rate reduction will continue. For instance, while Egypt clearly does not have the arable land to feed itself and today is virtually broke and having difficulty importing the wheat it needs, demographers assume that its population will increase from 85 million to over 100 million by 2030. That assumes, I hope correctly, that neither disease nor food riots will lead to a dramatic rise in the death rate. Much will depend on the impacts of climate disruption – itself heavily influenced by population growth.

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