

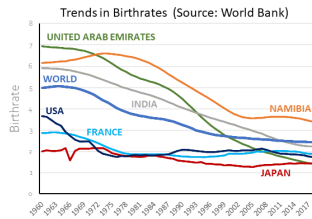
Abstract

Low birthrates and increased longevity are critical social problems. This study approaches the issue from a **biological perspective**. By analyzing such public statistical data as census information, we found that in Japan, **some areas, which have high population densities, also tend to have low fertility rates and extended longevity**. This idea may reflect the fact that in highly competitive situations, the number of children will be reduced to allow greater investment for child to increase the chance for success. Declining birthrates are often discussed in terms of childbirth and childcare systems, employment, and economic conditions. Perhaps this phenomenon should be studied from **multifaceted perspectives to gain basic knowledge for planning essential solutions**.

Low Birthrate and Longevity

Low birthrates and greater longevity are occurring worldwide.

Since this happens even in such different social situations as politics, economics, and culture, we assume some factors are shared by all humans.



This research focuses on human beings as **living organisms**.

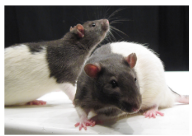
Since low birthrates and greater longevity are complex social issues, they must be examined from a variety of perspectives and their solutions must be widely discussed. This research focuses on biological perspectives as basic knowledge.

Life History Strategies: Fast and Slow

Life history strategy (LHS):

an evolutionary biological theory that studies how organisms allocate their time and resources in reproduction and growth.

Fast LHS



- High birth and death rates
- Less nurturing
- Early maturation
- Small body
- Short life

These species reproduce often and quickly, although available resources for each baby are reduced. Unfortunately, fewer will **succeed**.

Slow LHS



- Low birth and death rates
- More nurturing
- Slow maturation
- Big body
- Long life

These species limit their offspring and give more resources to each one. Higher chance of **success** per offspring.

Low birth rates and longer longevity

Variance exists between people who have fast/slow life history strategies.

A greater survival risk suggests a faster LHS. This idea can be interpreted as a faster LHS, since child mortality was higher when medical care was more primitive.

Low birthrates and extended longevity may be caused by people changing to a slower life history.

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"Mother and child" by hBandara is licensed with CC BY 2.0

Dense Prefectures have SLOW LHS

Parents must consider the potential competition faced by their children.

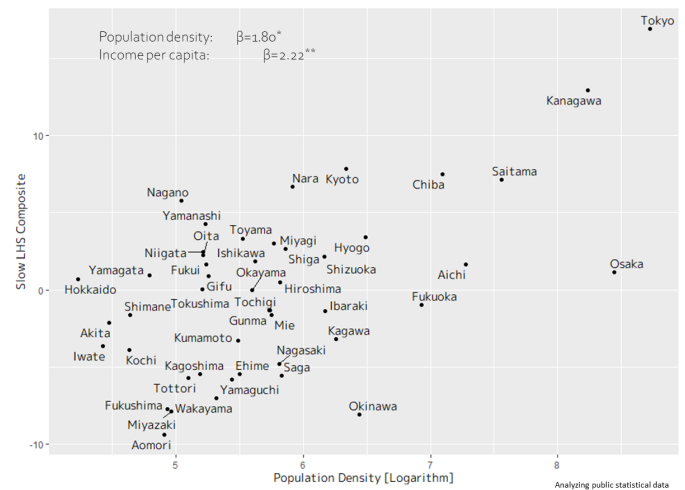
Where competition is intense, a greater nurturing investment is required to ensure a child's success. The number of children will decrease in response to increased investment per child.

Intensity of competition can be approximated by population density.

The more people in a region, the more competition they will experience.

The more densely populated the prefecture, the **slower its life history**.

This idea is consistent with Sng et al. (2017) who analyzed countries and regions around the world and the 50 U.S. states. Effect of population density remained--even after adjusting for income per capita.



Toward the Future

Today, declining birthrates are often attributed to such social economic situations as childbirth/childcare assistance, employment, and economic conditions. Perhaps these are not the only causes. Future human societies must investigate essential causes and devise solutions through multidimensional analysis.

References

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Contact

Masafumi Matsuda / Interaction Research Group, Innovative Communication Laboratory
 Email: cs-openhouse-ml@hco.ntt.co.jp