Mode and tempo of promoter evolution in the Paramecium aurelia species complex

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Abstract

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Introduction

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Demographic structure

More words here

Subsection 1

Subsection 2

Paragraph header

1) Item 1
2) Item 2
3) Item 3

- Consider a fall in population induced by a decline in the number of births in the economy, taking as given mortality and migration.
- It is well known that a lower population growth raises the capital–labor ratio in the Solow–Swan growth model.
- The same property holds in Diamond's (1965) overlapping generations model, and it enhances welfare as long as the economy is dynamically efficient; i.e., when the interest rate exceeds the population growth rate.

A similar trend is observed in the United States and advanced European countries (Gustafsson and Kalwij, 2006), and also in Canada, Australia, and New Zealand (Sardon, 2006). Interestingly, as pointed out by Bongaarts and Feeney (1998), even when the cohort's lifetime fertility rate (the number of children a mother has in her lifetime) does not fall, the delayed childbearing alone leads to a decline in the number of childbirths, measured by the total period fertility rates (TPFRs).

Article

Model

Demographic structure

i.e.:

$$\lambda_t = \begin{cases} 0, \, t < 0, \\ \lambda, \, t \geq 0. \end{cases} \tag{1}$$

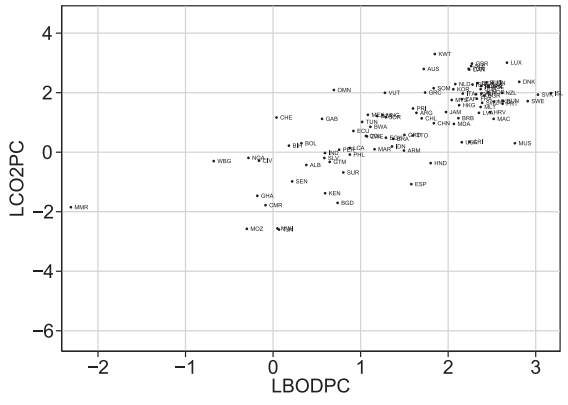

FIG. 1. Fluctuations in Cohort Size N_t over Generations.

Table 1. SH test results on nuclear and mitochondrial phylogenetic trees

Sequence data	Tree	$-\ln L$	SH test P-value
mtDNA	mtDNA	−109219.5	0.5
mtDNA	Nuclear	−61720.8	<0.00001
Nuclear	mtDNA	−113033.1	<0.00001
Nuclear	Nuclear	−60699.9	0.5

where C is a constant term defined as $C \equiv \beta \log \beta - (1+\beta)\log(1+\beta) + \beta \log A\alpha + (1+\beta)\log A(1-\alpha)$. Similarly, long-term welfare in the benchmark economy ($\lambda = 0$) can be written as:

$$U^* = (1+\beta)\log[A\alpha(k^*)^{2\alpha-1} + (k^*)^{\alpha}] - \beta(1-\alpha)\log k^* + C. \quad (2)$$

Supplementary Material

Supplementary tables S1?S7 and figures S1?S11 are available at Molecular Biology and Evolution online (http://www.mbe.oxfordjournals.org/).

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References