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# Inevitable Population Aging

**18 November 2025 (Tue)**
**16:30–18:00**

**WYL314, 3/F, Dorothy Y. L. Wong Building, Lingnan University**


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## BIOGRAPHY

Junjian Yi is a Boya Distinguished Professor of Economics at Peking University and a faculty member of the National School of Development (NSD), where he also serves as Chair of the Academic Committee. He is the Executive Editor of *China Economic Quarterly* and an Associate Editor of the *Journal of Comparative Economics*. His research interests span the economics of artificial intelligence, health economics, labor economics, development economics, econometrics, and behavioral economics. His work has been published in leading international journals across economics, management, demography, and public health, including the *Journal of Political Economy, Review of Economic Studies, Management Science, Demography, Lancet, and Proceedings of the National Academy of Sciences (PNAS)*.

## ABSTRACT


This paper develops a growth model that integrates the child quantity-quality trade-off with endogenous R&D to explain a broad array of stylized facts that characterize population aging. Technological progress affects returns to human capital, which parents treat as price signals when choosing between fertility and child human capital investment. These decisions determine population growth and human capital supply, feeding back into R&D incentives and technological progress. The equilibrium features four developmental phases--Malthusian, prosperous, aging, and potentially stagnating. A central prediction is that population aging is inevitable: Economic growth with growing population is unsustainable, as growing population accelerates technological progress, which continuously raises the returns to human capital and suppresses fertility. We analyze a constrained planner's problem that mutes price-driven quantity-quality trade-offs while preserving other model features; the economy then attains balanced growth without aging. Linking quantity-quality trade-offs with endogenous R&D through equilibrium prices yields distinctive policy insights: Well-designed population policies can simultaneously prevent aging and sustain growth, while pro-R&D industrial policies may unintentionally depress fertility and undermine long-run growth.


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