



Harnessing Intergenerational Health Gains and Long-term Care Insurance for Equity Driven Ageing Policy: Evidence from the Flynn Effect in China

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BACKGROUND

- Population ageing is accelerating globally, and understanding whether later-born cohorts experience healthier ageing is essential for research and policy design.
- Cohort differences arise from distinct **socioeconomic, environmental and medical exposures** across generations, yet evidence on **multidimensional health improvements** and their **life-course determinants** in China remains limited.
- To address growing long-term care needs, **China's Long-term Care Insurance (LTCI) scheme** represents a major **equity-oriented policy innovation** aimed at reducing financial burdens among functionally disabled older adults.

OBJECTIVES

- To identify the presence of the **Flynn effect** in multiple health dimensions (**self-rated health, chronic disease, disability, and ADL limitations**) among **adults aged 45-85** in China.
- To decompose **cohort differences** and **quantify the contribution** of **early-life factors, health behaviors, and socioeconomic factors**.
- To evaluate the impact of **China's Long-term Care Insurance (LTCI) pilot scheme** on **ADL limitations**.

METHODS

Data Source and Cohort Construction

- Used five waves of **China Health and Retirement Longitudinal Study (CHARLS, 2011–2020)** data.
- Built four age-aligned comparison groups (aged 45-85), separating cohort effects from ageing effects.

Statistical Analyses

- Conducted multivariable regressions to test cohort differences in health outcomes.
- Applied Oaxaca–Blinder decomposition to identify **key drivers** of cohort gaps.

Policy Evaluation

- Used a **propensity score matching difference-in-differences (PSM-DID)** framework to estimate the effect of Long-term Care Insurance (LTCI) pilots on ADL limitations.

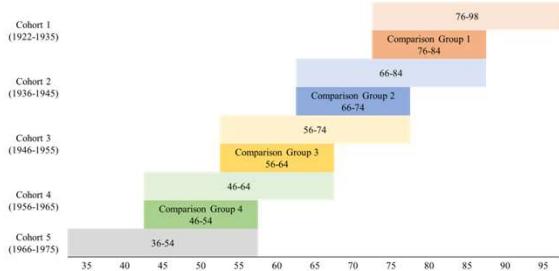


Figure. Design of Comparison Groups

RESULTS

- Flynn Effect in Health:** Later-born cohorts aged 45-85 showed better self-rated health (+0.099, +0.066, +0.134, +0.144 on five-point scale, with all $p<0.01$), fewer chronic diseases (-0.665, -0.746, -0.633, -0.427 among fourteen diseases, with all $p<0.01$), and **lower disability prevalence** (-0.117, -0.042, -0.030, -0.012 among five types of disability, with all $p<0.01$). Among adults **under 65**, they also exhibited **fewer ADL limitations** (-0.068, -0.089 for 56-64 and 46-54 years old, both $p<0.01$).

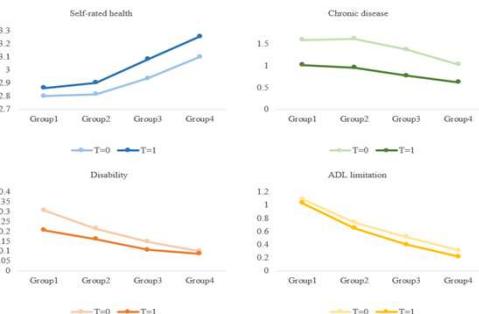


Figure. Trends of Mean Values of Multidimensional Health Index
Note: T=1 represents later-born cohorts.

- Drivers of Improvement:** Decomposition indicated that **health behaviors** (especially **sleep quality** and **internet use**) and **early-life conditions** explained a substantial portion of cohort differences.

Table. Cohort Differences in Determinants of Self-rated Health

	Group 1 (76-84)		Group 2 (66-74)		Group 3 (56-64)		Group 4 (46-54)	
	T=0	T=1	T=0	T=1	T=0	T=1	T=0	T=1
Internet	-1.030	0.010	0.543***	0.049	0.366***	0.068***	0.179***	0.013
Sleep quality	0.430***	0.431***	0.317***	0.413***	0.408***	0.486***	0.383***	0.457***
Early-life health	-0.062	0.020	0.034	0.044***	0.038**	0.067***	0.062***	0.057***
Early-life hunger	-0.063	-0.011	0.057	0.005	-0.156***	-0.112***	-0.094***	-0.188***
Early-life economic	0.022	0.079***	0.079***	0.052***	0.032	0.055***	0.050**	0.024
Early-life environment	0.013	0.086***	0.067*	0.095***	0.050**	0.080***	0.090***	0.010
Observations	361	2,099	1,198	5,448	2,390	5,664	2,170	1,871

- Impact of LTCI:** LTCI significantly reduced ADL limitations (-0.117, $p<0.01$), with stronger effects among **women** and residents in **under-resourced regions**.

Table. DID Results with Matched Samples

Variable	ADL limitation	
LTCI * Post	-0.126***	-0.117***
(0.025)		(0.025)
Control	NO	YES
Time fixed effect	YES	YES
Individual fixed effect	YES	YES
Observation	89,939	89,409

CONCLUSIONS

- Intergenerational health gains** signal long-term structural progress, creating **opportunities to leverage healthy ageing**.
- China's LTCI illustrates an effective **equity-oriented policy**, reducing functional limitations and redressing geographic and gender disparities.
- China should **prioritize early interventions of physical dysfunction, scale LTCI coverage in under-resourced regions** and **integrate life course approaches** to health promotion.
- China's strategies **offer transferable insights for low- and middle-income countries** navigating similar demographic transitions, contributing to global effort toward equitable and sustainable ageing systems.