RESEARCH

The Rise of the Silver Economy: Global Implications of Population Aging

WORLD ECONOMIC OUTLOOK
April 2025

Diaa Noureldin

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CEPII

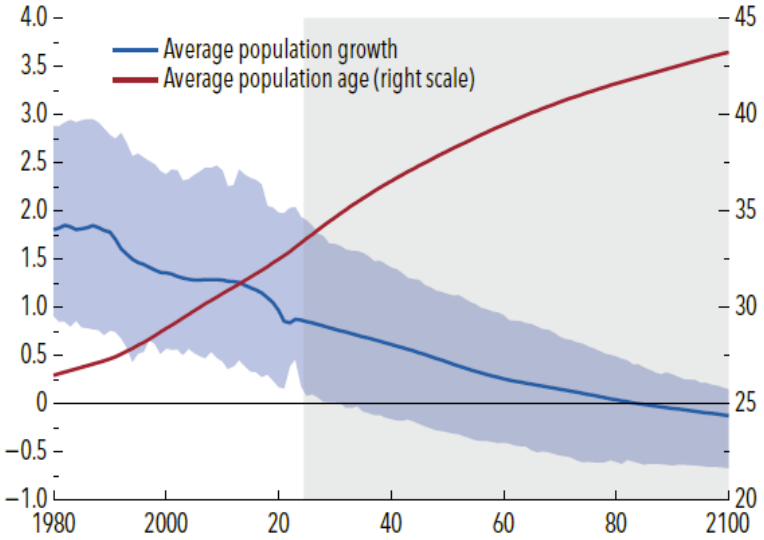
Rapid global demographic shifts, hitting all regions with uneven pace

Declining fertility is slowing down growth of the world's population

…. while the "silver economy" is rising as older populations increase everywhere.

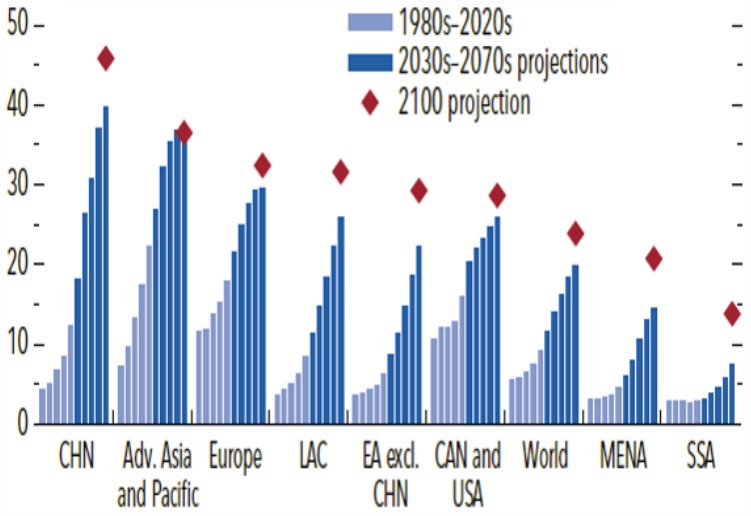
Both forces are precipitating rapid demographic shifts across the world

Global population aging
(percent, left axis; years, right axis)



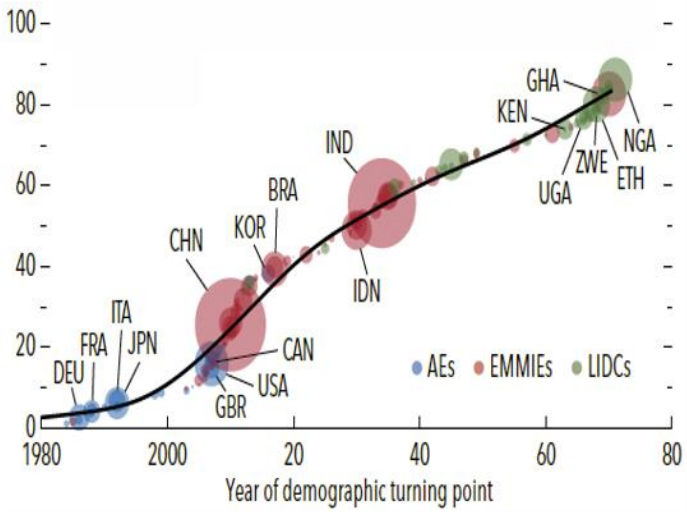
Sources: UNWPP; and IMF staff calculations.
Note: The area shaded in blue denotes the interquartile range for population growth across all countries.

Share of 65+ in total population
(percent)



Sources: UNWPP; and IMF staff calculations.
Note: The bars denote the share of the older population (ages 65 and above) in the total population by the end of the respective decade. Data labels in the figure use International Organization for Standardization (ISO) country codes. AEs = advanced economies; Adv. Asia and Pacific = advanced Asia and Pacific; EA = emerging Asia; EMMIEs = emerging market and middle-income economies; excl. = excluding; LAC = Latin America and the Caribbean; LIDCs = low-income and developing countries; MENA = Middle East and North Africa; SSA = sub-Saharan Africa.

Cumulative share of countries with declining working-age populations
(percent)



Sources: UNWPP; and IMF staff calculations.
Note: A demographic turning point marks the year when the share of the working-age population (ages 15–64) peaks and starts to decline. Bubble size indicates the country's population relative to the global population in the year of its demographic turning point.

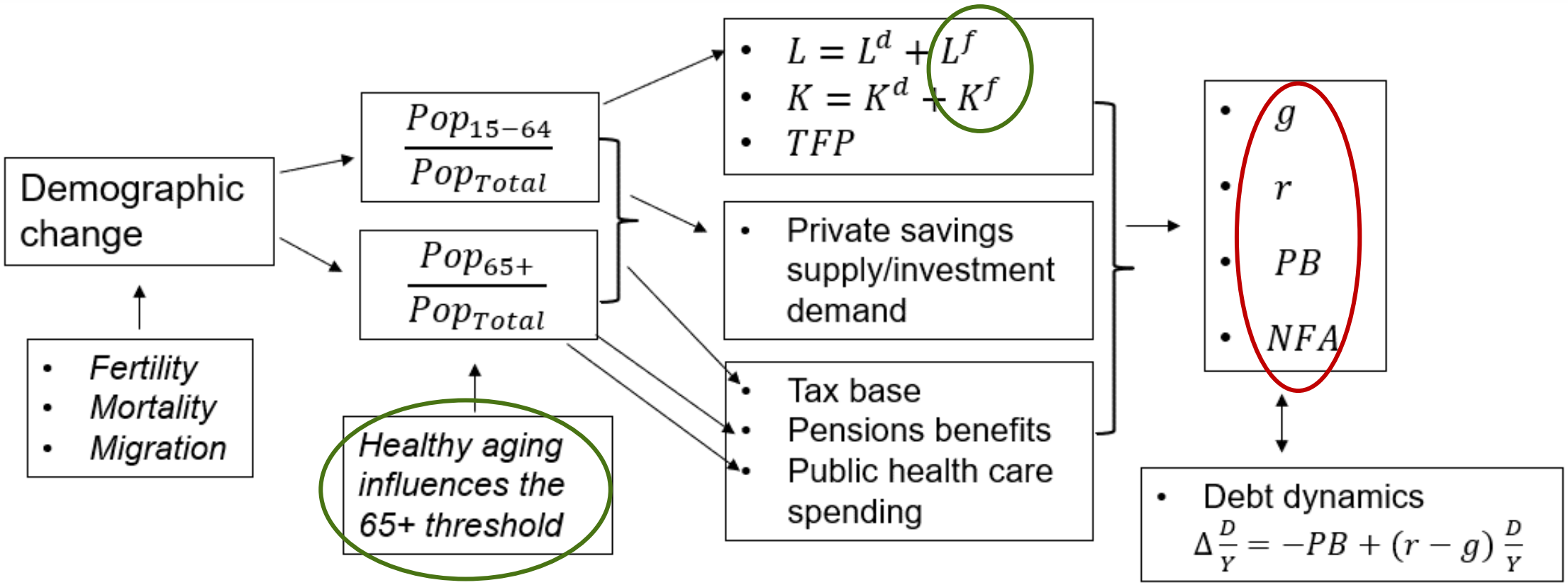
Key questions

- *Healthy aging*: Is there evidence of healthy aging alongside increasing life expectancy? How do healthy aging trends differ across countries? Has it improved labor market prospects for older individuals?

- *Economic implications of global population aging*: What are the likely implications of population aging for growth, interest rates, fiscal and external balances? How do they differ across countries given uneven demographic trends? To what extent can healthy aging offset the impact of population aging?

- *The role of policies*: How can policies help countries navigate the global demographic transition?

Methodological framework and contributions of the chapter



Novel contributions:

- Assessing the potential role of healthy aging.
- Global general equilibrium approach to capture the asynchronous pace of demographic trends.

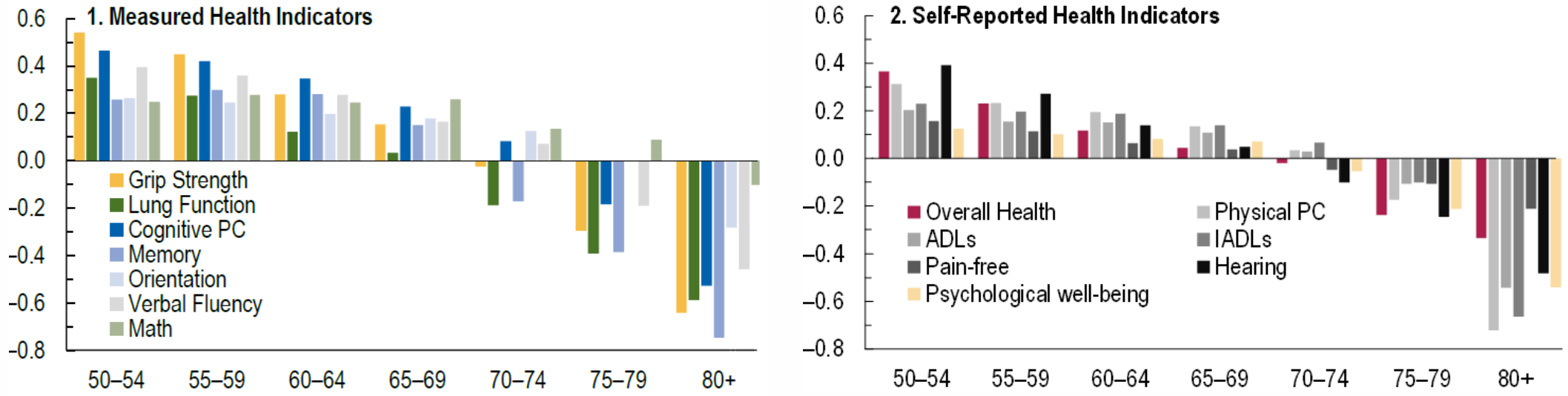
1. Healthy aging and labor market outcomes

Is there evidence of healthy aging, and does it impact labor market outcomes?

Micro survey data focused on older-age individuals (29 AEs and 12 EMs; 2000-22):

- Measured and self-reported health: Physical, cognitive, and mental health; chronic diseases; health behaviors.
- Employment: Labor force status; work hours/weeks; earnings.
- Individual socio-economic characteristics: Age; gender; rural/urban location; education; wealth.

Methodology: OLS; IV (using exogenous health shocks); AIPW.

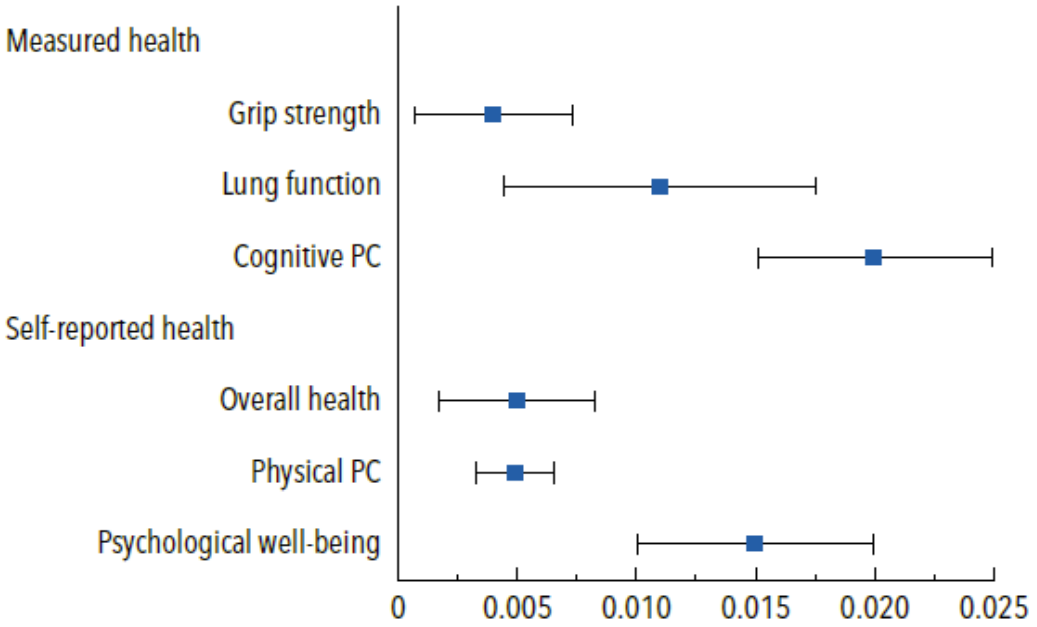


Sources: Gateway to Global Aging Data; national microdata sources; and IMF staff calculations.
Note: Health scores have been standardized to mean zero and standard deviation one and averaged across different age groups. Cognitive PC is the first principal component of the memory, orientation, verbal fluency, and math cognitive functions. Physical PC is the first principal component of activities of daily living (ADLs), instrumental activities of daily living (IADLs), pain frequency, and hearing.

We see broad-based evidence of healthy aging…

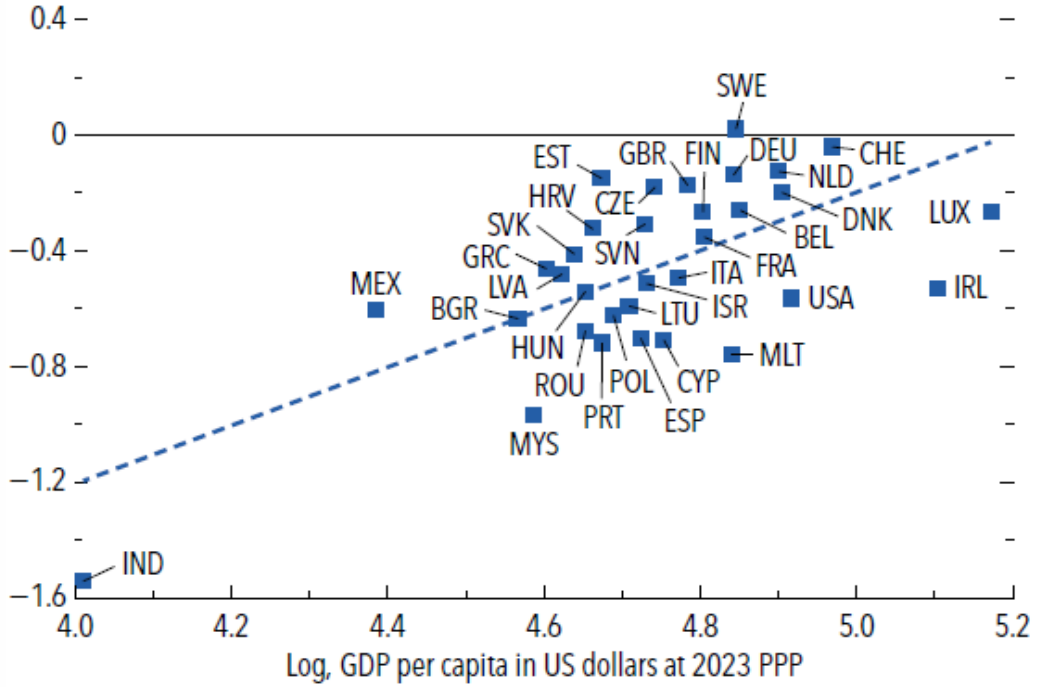
- Broad-based healthy-aging phenomenon for a range of physical, cognitive, and mental health indicators.
- Important cross-country differences.

Healthy aging trends, 2000-22
(regression estimates, trend coefficient)



Sources: Gateway to Global Aging Data; national microdata sources; and IMF staff calculations.
Note: The figure shows the coefficient from ordinary least squares regressions of health indicators of individuals ages 50 and older on the survey year, with individuals' age, gender, education, household wealth, and country fixed effects controlled for. Squares represent point estimates, whereas bars represent 90 percent confidence intervals. PC = principal component.

Cross-country health differences
(cognitive health score, country fixed effects)

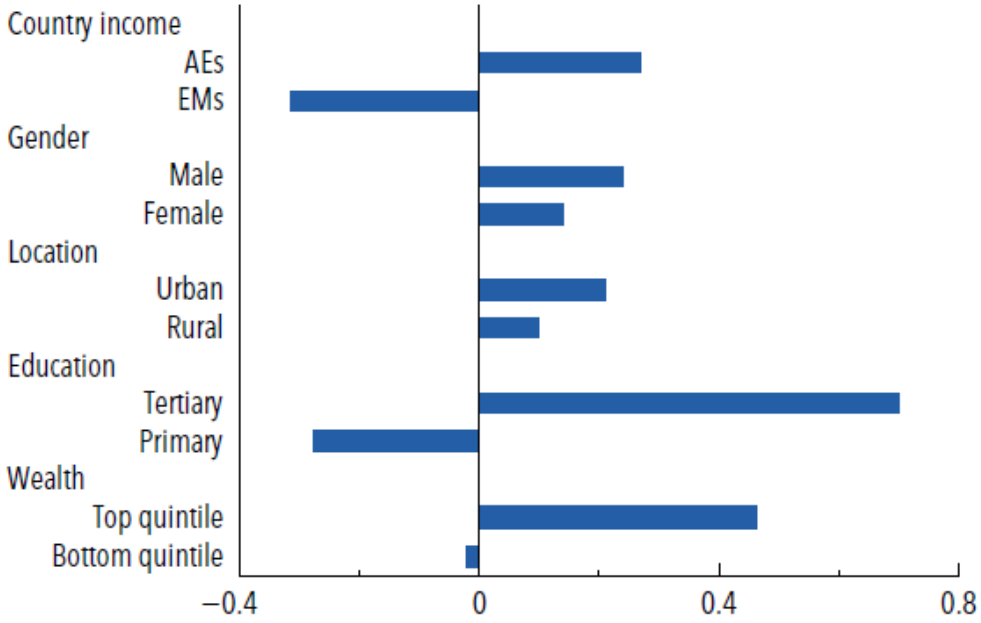


Sources: Gateway to Global Aging Data; national microdata sources; and IMF staff calculations.
Note: The vertical axis shows country fixed effects from ordinary least squares regressions of the cognitive health score of individuals ages 50 and older on the survey year, with individuals' age, gender, education, and household wealth controlled for. Cognitive health score is the first principal component of cognitive indicators, standardized to mean zero, standard deviation one. The regression sample period is 2000–22. Data labels in the figure use International Organization for Standardization (ISO) country codes. PPP = purchasing power parity.

… but wide health disparities persist

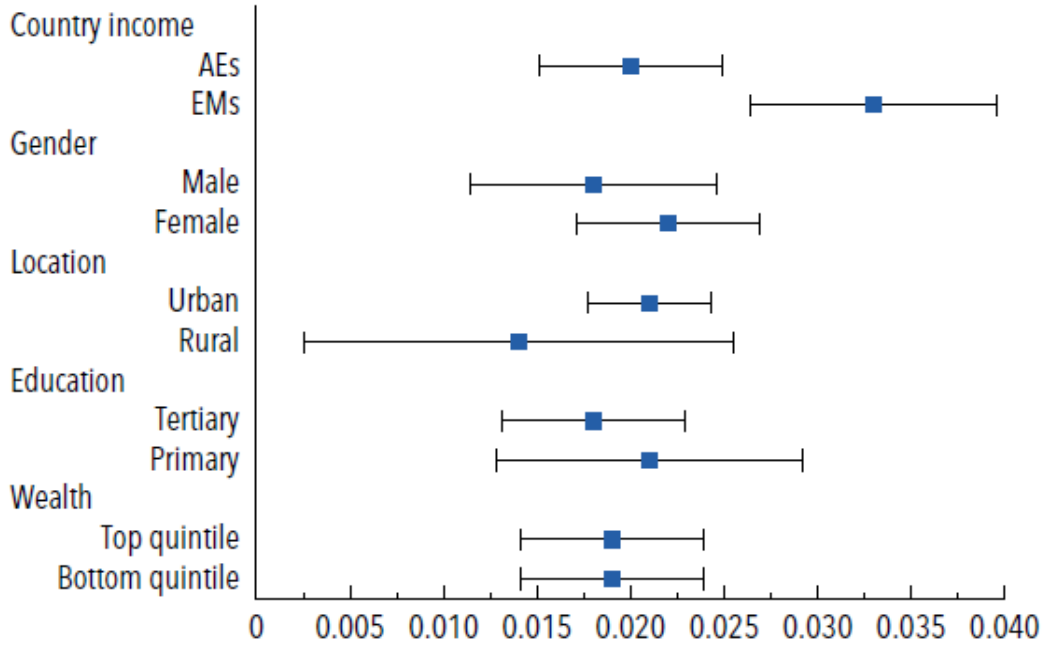
- AE-EM level gap; disparities persist with differences in socioeconomic characteristics.
- Faster pace in EMs relative to AEs; similar pace across socioeconomic characteristics.

Cognitive health inequalities
(cognitive health score, average)



Sources: Gateway to Global Aging Data; national microdata sources; and IMF staff calculations.
Note: The figure shows average health cognitive scores of individuals ages 50 and older by socioeconomic group. Cognitive health score is the first principal component of cognitive indicators, standardized to mean zero, standard deviation one. T-tests indicate that the differences in means are statistically significant for all socioeconomic categories. AEs = advanced economies; EMs = emerging markets.

Heterogeneity in cognitive health trends
(regression estimates, trend coefficient)



Sources: Gateway to Global Aging Data; national microdata sources; and IMF staff calculations.
Note: The figure shows estimates from ordinary least squares regressions of cognitive health score of individuals ages 50 and older on the survey year, by socioeconomic group, with individuals' age, gender, education, wealth, and country fixed effects controlled for. Squares represent point estimates, whereas surrounding bars represent 90 percent confidence intervals. Cognitive health score is the first principal component of cognitive indicators, standardized to mean zero, standard deviation one. AEs = advanced economies; EMs = emerging markets.

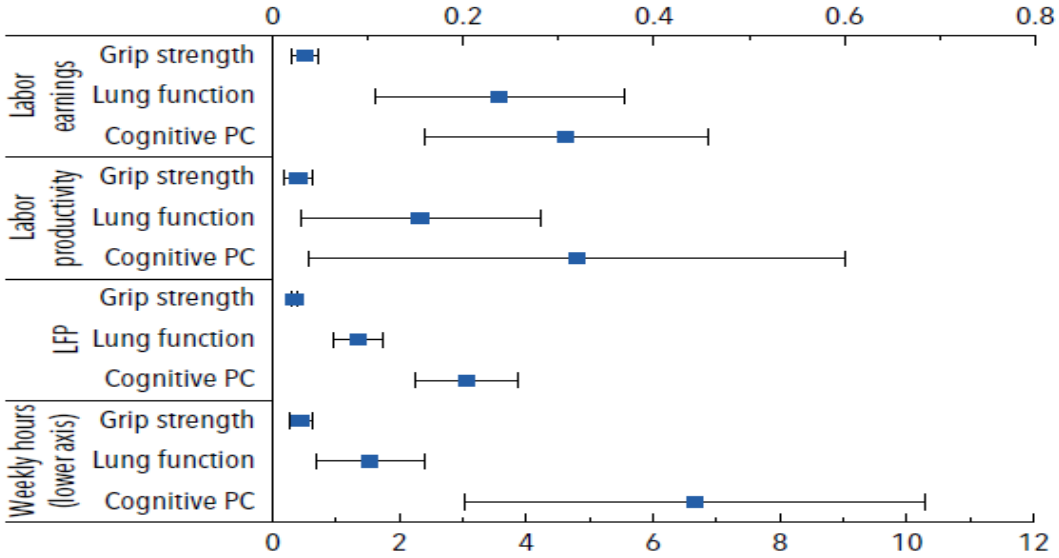
Does healthy aging improve labor market outcomes for older workers?

Better health is associated with higher:

- Labor earnings: Total earnings and labor productivity (hourly wage).
- Labor supply: Extensive margin (LFP, work, unemployment, retirement age) and intensive margin (hours/weeks worked).

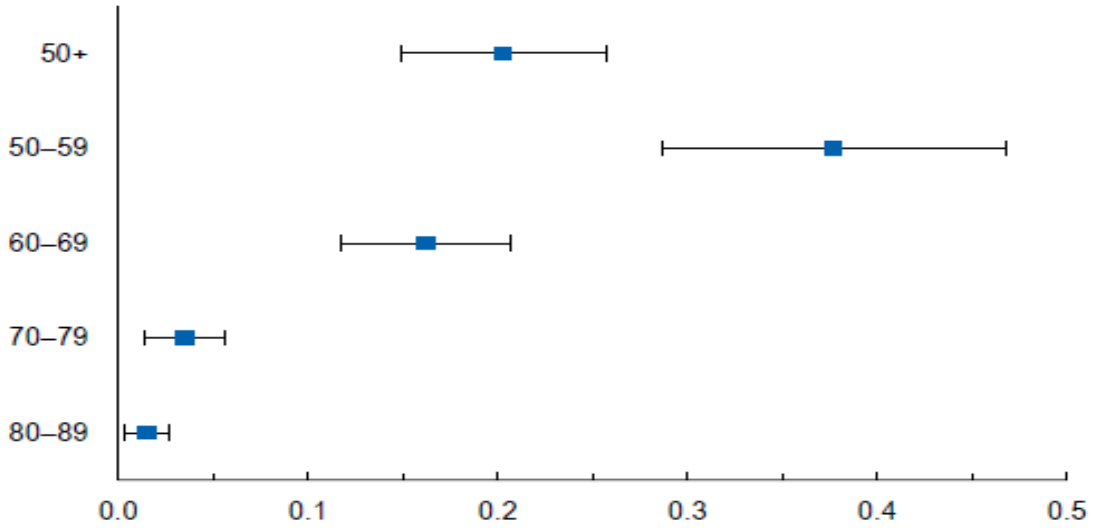
IV assumption: Some chronic diseases cases are random (controlling for health behaviors – exercise, BMI, smoking, drinking).

Effect of healthy aging on labor market outcomes
(regression coefficients)



Sources: Gateway to Global Aging Data; national microdata sources; and IMF staff calculations.
Note: The figure shows estimates from two-stage least squares regressions of labor market outcomes of individuals ages 50 and older on health indicators (one at a time, instrumented by chronic diseases), with individuals' age, gender, education, wealth, and country fixed effects controlled for. Squares represent point estimates, whereas surrounding bars represent 90 percent confidence intervals. The coefficients are rescaled to reflect the estimated impact of "healthy aging" (health trends) over 10 years. PC = principal components; LFP = labor force participation.

Heterogeneous effects of cognitive health on labor force participation, by age group
(regression coefficients)

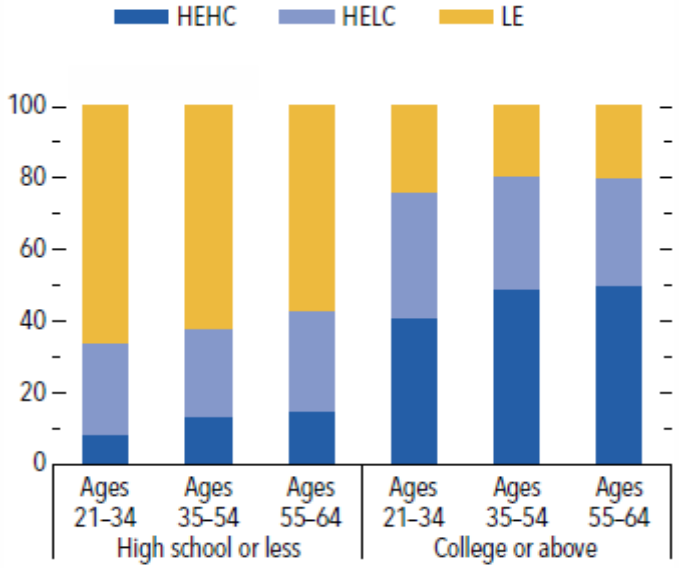


Sources: Gateway to Global Aging Data; national microdata sources; and IMF staff calculations.
Note: This figure shows the coefficient from the second stage of a two-stage least squares regression of labor force participation (dummy variable) on the first principal component of cognitive health indicators, instrumented by the incidence of chronic diseases and with individuals' socio-economic characteristics (age, gender, education, wealth), lifestyle factors (underweight, obesity, physical inactivity, smoking), the survey year, and country fixed effects controlled for. Squares represent the point estimate whereas surrounding bars represent the 90 percent confidence interval. The coefficients are re-scaled to reflect the estimated impact of 'healthy aging' (health trends) over 10 years.

Aging and AI: Evidence from the US

Impact of AI depends largely on education level, young and older workers alike.

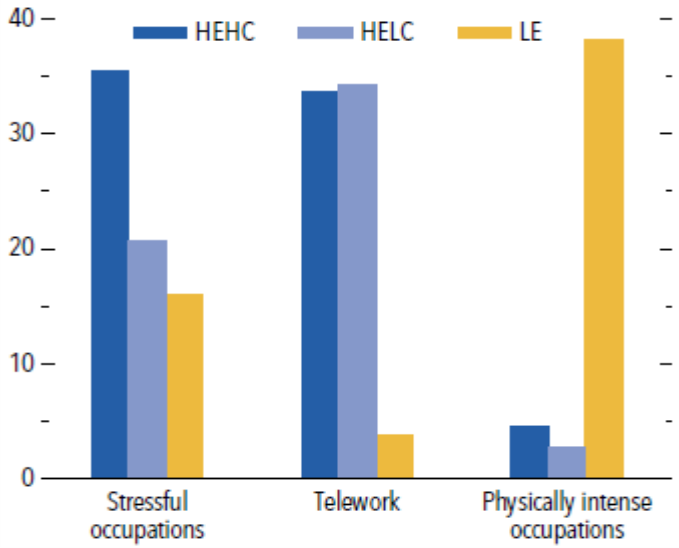
Employment shares: AI exposure and complementarity
(percent)



Sources: United States CPS; and IMF staff calculations.
Note: HEHC = high exposure, high complementarity; HELC = high exposure, low complementarity; LE = low exposure.

AI-exposed jobs compatible with telework and less physically demanding, but can be more stressful.

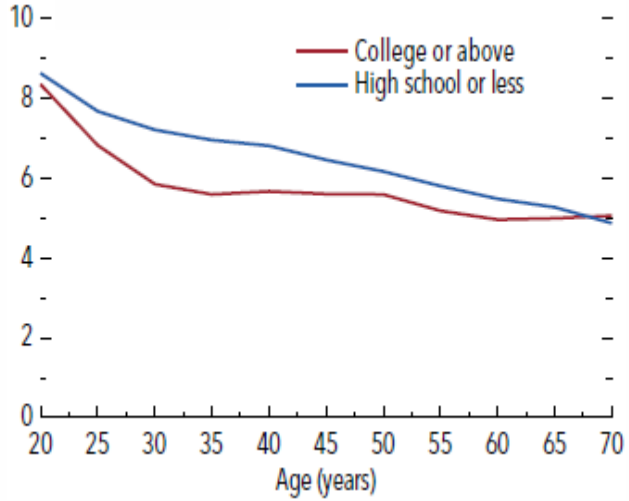
AI exposure and age friendliness, age 55+
(share of surveyed workers, percent)



Sources: United States CPS; and IMF staff calculations.
Note: The figure shows the share of workers who report their jobs having these characteristics, by occupation group. Data on working from home rely on survey data in 2023 and 2024; other variables consider the period 2010–19. HEHC = high exposure, high complementarity; HELC = high exposure, low complementarity; LE = low exposure.

Probability to switch jobs or occupations decreases with age.

Workers' probability of transition across occupations, by age
(percent)



Sources: United States CPS; and IMF staff calculations.
Note: The figure shows transitions across occupations measured using the four-digit US Census Bureau 2010 classification at a monthly frequency for the United States and the four-digit International Standard Classification of Occupations (ISCO) 2008 classification at a quarterly frequency for Brazil.

2. Economic implications of global population aging

Model baseline: The impact of aging within and across economies

Global OLG Model (Auclert and others 2024):

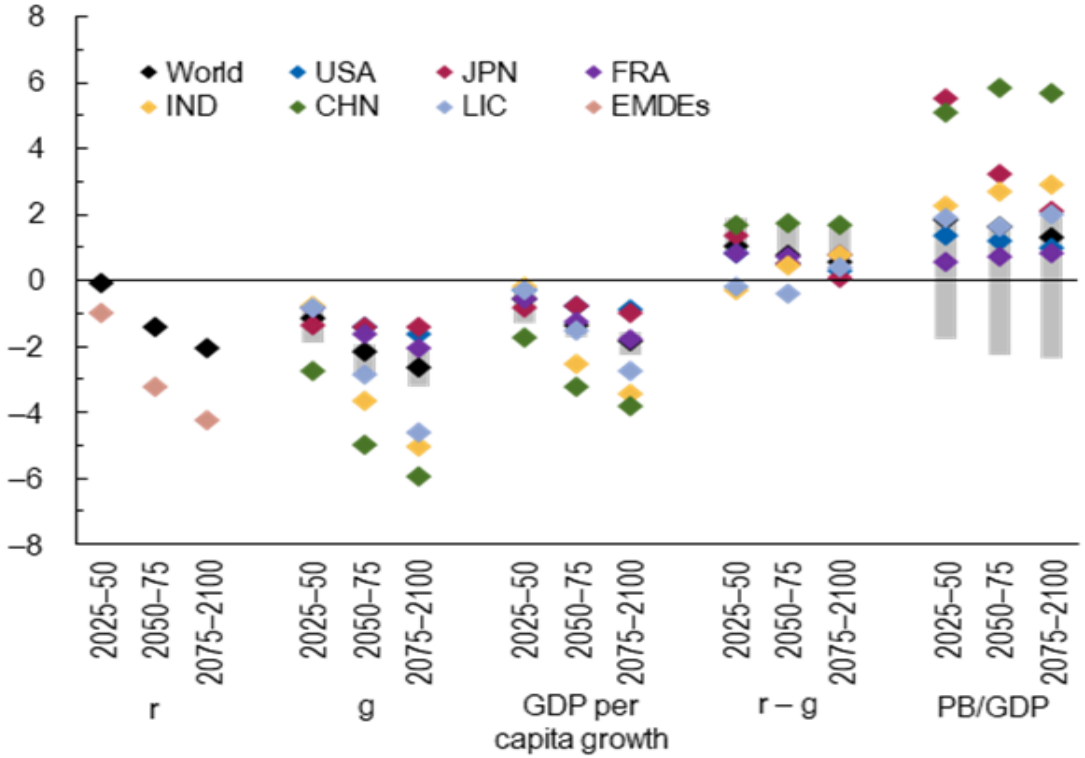
- 25 economies including the world's largest (EMs: China, India, Hungary and Poland).
- 26th block: LICs with demographic turning point after 2040.
- Country-specific demographic, income-by-age and wealth-by-age profiles.
- Policy variables: Retirement age; social security spending; other fiscal spending; labor taxes.
- Model extended to allow for:
  - Age-productivity profiles that incorporate *healthy aging* trends—informed by empirical analysis.
  - Country-specific, time-varying TFP profiles incorporating *convergence dynamics*, and the impact of younger populations on TFP via additional channels (*innovation*, *entrepreneurship*, …etc.).
  - Imperfect integration of *China*, *India* and *LIC bloc* in global capital markets (*interest rate wedge*).

Baseline:

- Simulations under baseline demographic assumptions (UNWPP) for fertility and migration flows.
- Tracking outcome variables: Growth, interest rates, primary balance, and net foreign assets.

Growth is expected to slow down, with higher fiscal pressures

Baseline Projections: Growth, Interest Rates, and Primary Balances
(Deviation from 2016–18 average, percentage points)



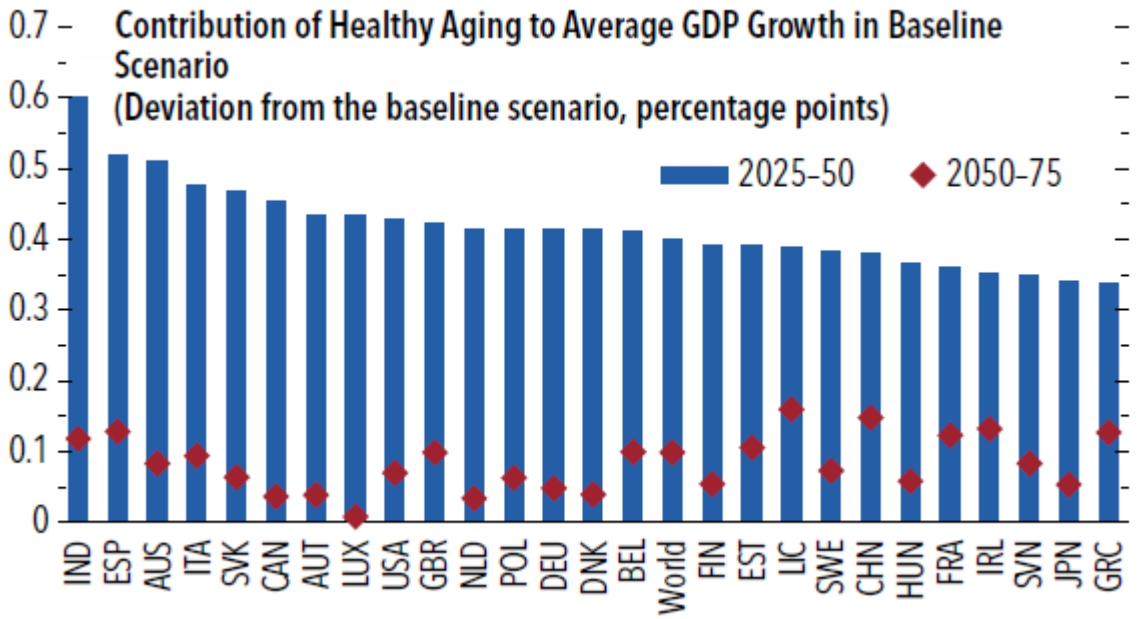
Source: IMF staff calculations.
Note: Diamonds mark the annual average over the reported periods. Grey bars denote interquartile ranges. A positive value for PB/GDP indicates a country would need a higher primary balance in the reported period than it had, on average, in 2016–18 to keep its debt ratio stable beyond 2029. The values for "World" denote averages for the economies included in the model while the values for "EMDEs" denote averages for China, India, and the LIC bloc. Data labels in the figure use International Organization for Standardization (ISO) country codes. EMDEs = emerging market and developing economies; g = GDP growth rate; LIC = bloc of low-income countries; PB = primary balance; r = interest rate.

- Projected *growth* decline, with significant cross-country heterogeneity.
- Demographics-induced downward pressure on *interest rates* expected to continue going forward.
- Projected upward movement in *r-g* …
- … requiring more fiscal effort in about half of the model economies, including the world's largest.

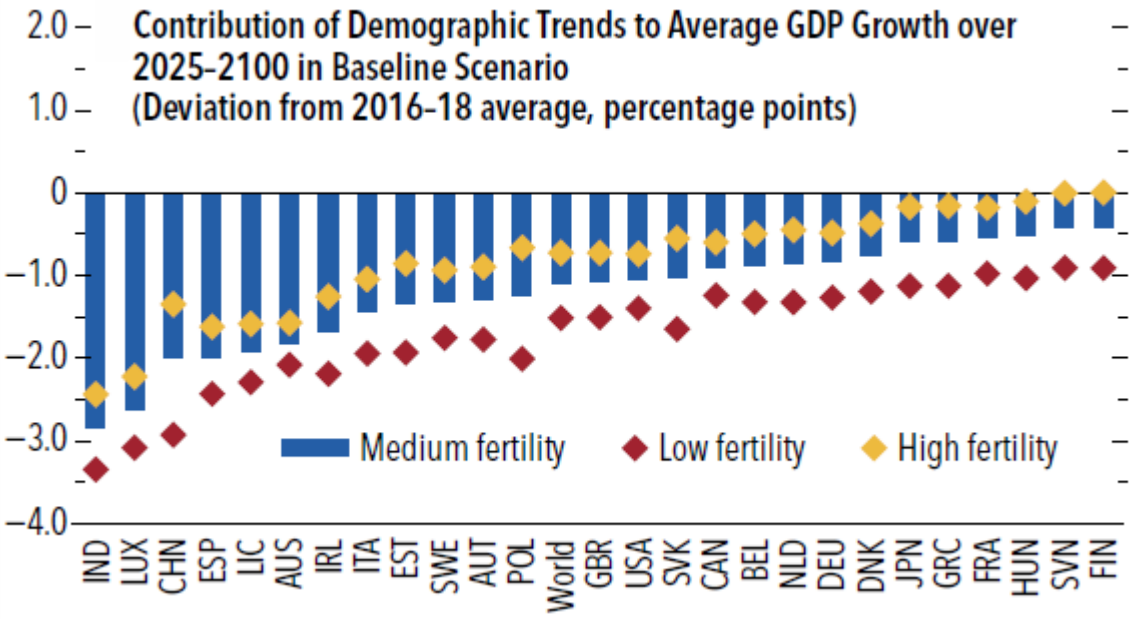
The role of health aging and demographics in the baseline

- Contributions to growth from healthy aging sizable, especially over 2025-50.
- Demographic forces alone explain about 1/2 of the projected decline in global GDP growth.

Healthy aging



Demographic trends



Source: IMF staff calculations.
Note: The bars and diamonds denote annual averages over the reported periods. The values for "World" denote averages for the economies included in the model. Data labels in the figure use International Organization for Standardization (ISO) country codes. LIC = bloc of low-income countries.

UNWPP: Revisions to fertility rate projections

Online Annex Table 2.3.1. Fertility Rates in the 2019 and 2024 Vintages of the UNWPP

(Live births per woman)

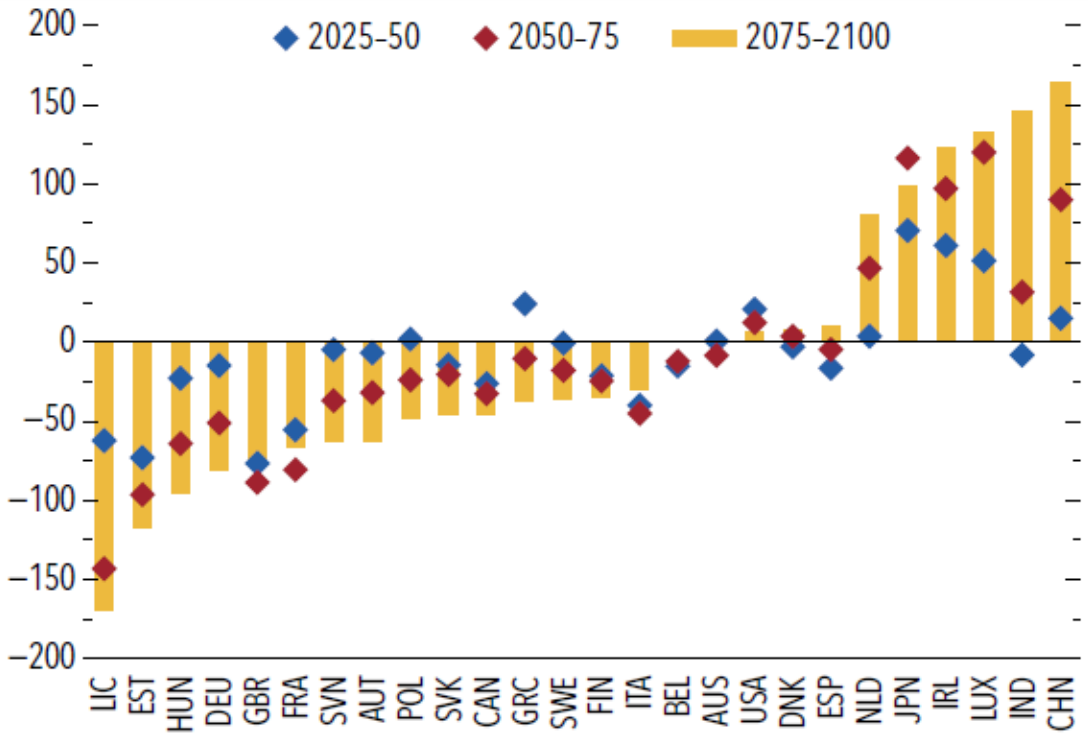
Country	UNWPP 2019			UNWPP 2024		
	2025	2050	2075	2025	2050	2075
Australia	1.8	1.7	1.7	1.6	1.6	1.6
Austria	1.6	1.7	1.7	1.3	1.4	1.5
Belgium	1.7	1.8	1.8	1.4	1.5	1.5
Canada	1.5	1.6	1.7	1.3	1.4	1.5
China	1.7	1.8	1.8	1.0	1.2	1.3
Denmark	1.8	1.8	1.8	1.5	1.6	1.6
Estonia	1.7	1.7	1.8	1.4	1.5	1.5
Finland	1.4	1.6	1.7	1.3	1.4	1.5
France	1.8	1.8	1.8	1.6	1.6	1.7
Germany	1.6	1.7	1.7	1.5	1.5	1.6
Greece	1.3	1.5	1.6	1.3	1.4	1.5
Hungary	1.6	1.7	1.7	1.5	1.6	1.6
India	2.1	1.8	1.7	1.9	1.8	1.7
Ireland	1.8	1.7	1.7	1.6	1.6	1.6
Italy	1.3	1.5	1.6	1.2	1.3	1.4
Japan	1.4	1.6	1.6	1.2	1.3	1.4
LIC Bloc	3.9	2.9	2.4	3.9	2.7	2.2
Luxembourg	1.4	1.6	1.7	1.4	1.5	1.5
Netherlands	1.7	1.7	1.8	1.4	1.5	1.5
Poland	1.5	1.6	1.7	1.3	1.4	1.5
Slovak Republic	1.6	1.7	1.7	1.6	1.6	1.6
Slovenia	1.7	1.7	1.8	1.6	1.6	1.6
Spain	1.4	1.6	1.7	1.2	1.4	1.4
Sweden	1.8	1.8	1.8	1.4	1.5	1.6
United Kingdom	1.8	1.8	1.8	1.5	1.5	1.6
United States	1.8	1.8	1.8	1.6	1.6	1.6

Sources: United Nations World Population Prospects; and IMF staff calculations.

Note: LIC = low-income countries.

Capital flows and net foreign asset positions are also expected to adjust

Baseline Projections: Net Foreign Assets
(Deviation from 2016–18 average, percent of GDP)



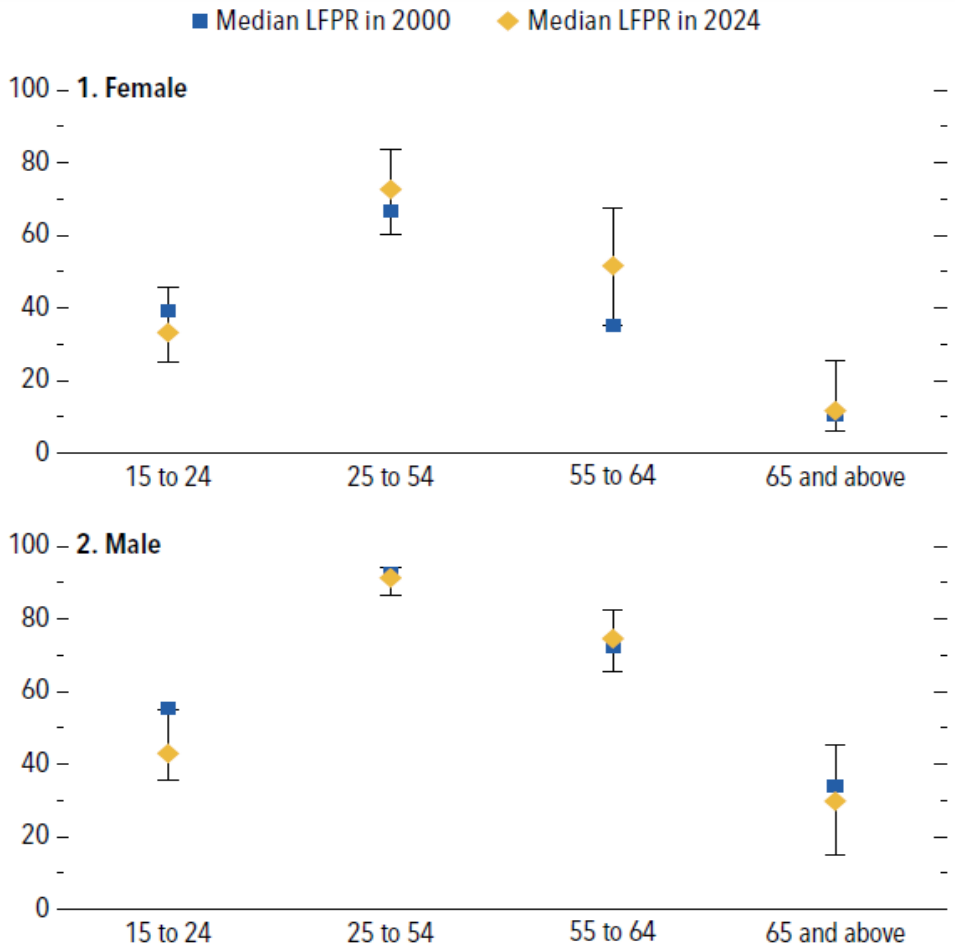
Source: IMF staff calculations.
Note: The bars and diamonds denote annual averages over the reported periods. Data labels in the figure use International Organization for Standardization (ISO) country codes. LIC = bloc of low-income countries.

- Uneven demographic trends would influence future capital flows …
- … and contribute to divergent NFA positions around the world.
- Large EMs would accumulate foreign assets (2050-2100), while many AEs would be decumulating assets.
- With a young population, LICs would attract capital flows (worsening NFA position), a trend that reverses around 2070.

3. The role of labor supply policies

Labor supply policies crucial in an aging world

Labor Force Participation by Age Group
(*Percent*)



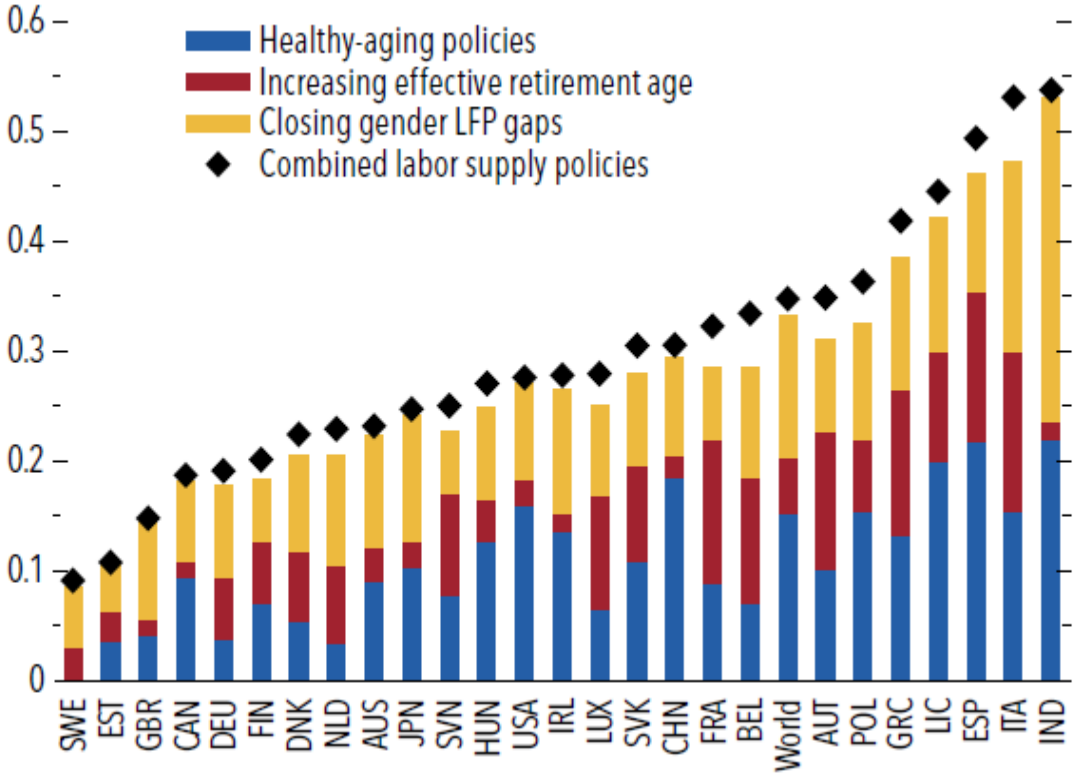
Sources: ILO; UNWPP; and IMF staff calculations.
Note: The whiskers indicate 2024 interquartile ranges across countries. LFPR = labor force participation rate.

Three margins through which labor supply policies could help:

1. Health policies to support healthy aging.
2. Increases in *effective* retirement age.
3. Closing gender gaps in labor force participation.

Labor supply policies could mitigate demography's drag on growth…

Average Impact of Labor Supply Policies on GDP Growth over 2025–2100
(*Deviation from the baseline scenario, percentage points*)



Source: IMF staff calculations.
Note: The bars (markers) represent the deviations from the baseline scenario when each labor policy is implemented in isolation (all labor policies are implemented together). The sum of the values for the individual policies does not necessarily coincide with the value for the combined policy scenario because of interactions between the policies. The value for "World" denotes the average for the economies included in the model. Data labels in the figure use International Organization for Standardization (ISO) country codes. LFP = labor force participation; LIC = bloc of low-income countries.

Policy scenarios:

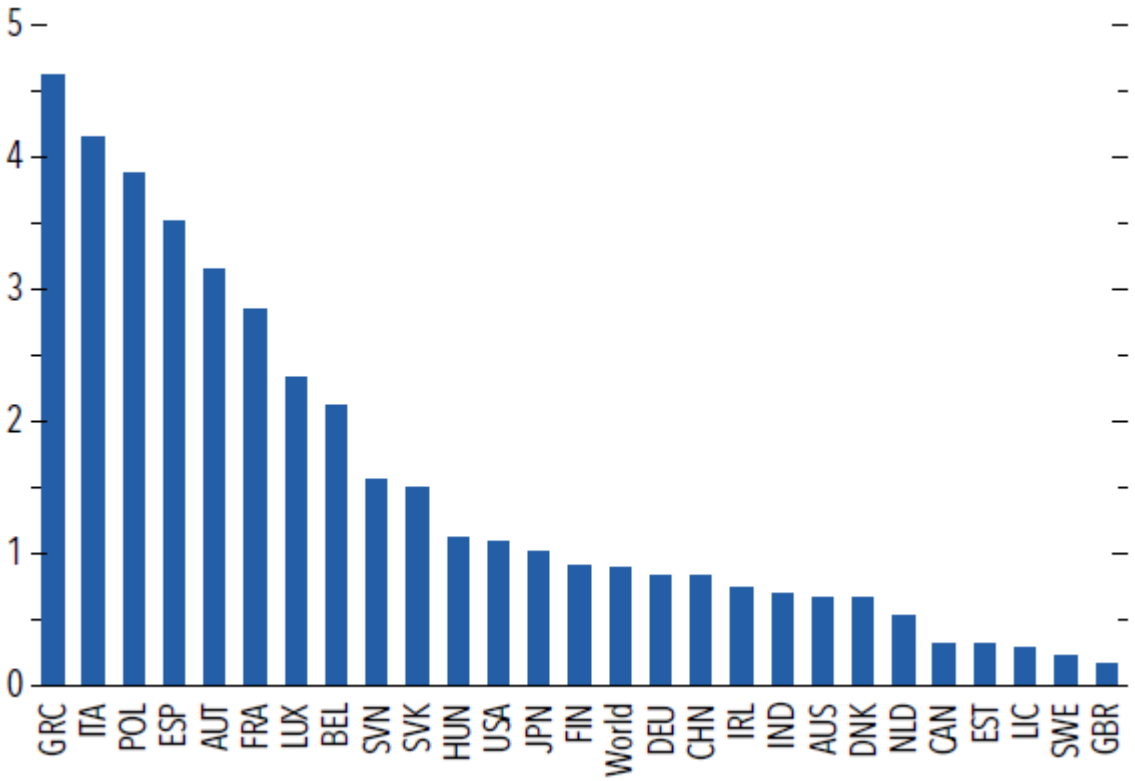
1. Assumes health policies would reduce cross-country differences with respect to the frontier by one-fourth.

2. Assumes faster increases in *effective* retirement age, relative to the baseline. Further alignment with prospective olde-age thresholds (Sanderson and Scherbov 2010; Kotschy and Bloom 2023).

3. Narrowing country-specific gender gaps in LFP by three-fourths by 2040.

… and create come fiscal space

Additional Fiscal Space in Combined Policy Scenario
(*Deviation from the baseline scenario, percentage points of GDP*)



Source: IMF staff calculations.
Note: The figure shows the fiscal gains under the combined policy scenario due to higher effective labor supply and improved old-age dependency ratio relative to the baseline; see Online Annex 2.3.3 for further details. Because the magnitude of the gains varies over the transition, the figure reports the average gain over 2025–2100. The value for "World" denotes the average for the economies included in the model. Data labels in the figure use International Organization for Standardization (ISO) country codes. LIC = bloc of low-income countries.

Fiscal impact:

1. Direct impact on *PB*.
2. Indirect impact through *r-g*.

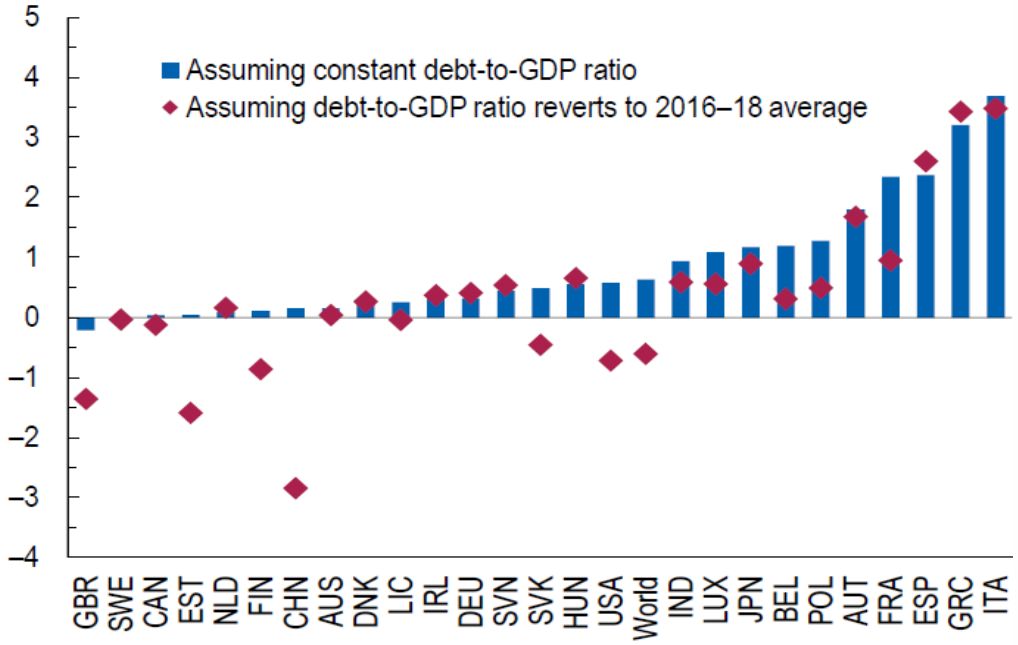
Additional fiscal space:

- Heterogenous effects across economies.
- Net fiscal gains likely smaller due to direct budgetary cost of some policy measures.

Additional fiscal space: Further results

Online Annex Figure 2.3.4. Additional Fiscal Space over 2025–40, Combined-Policy Scenario

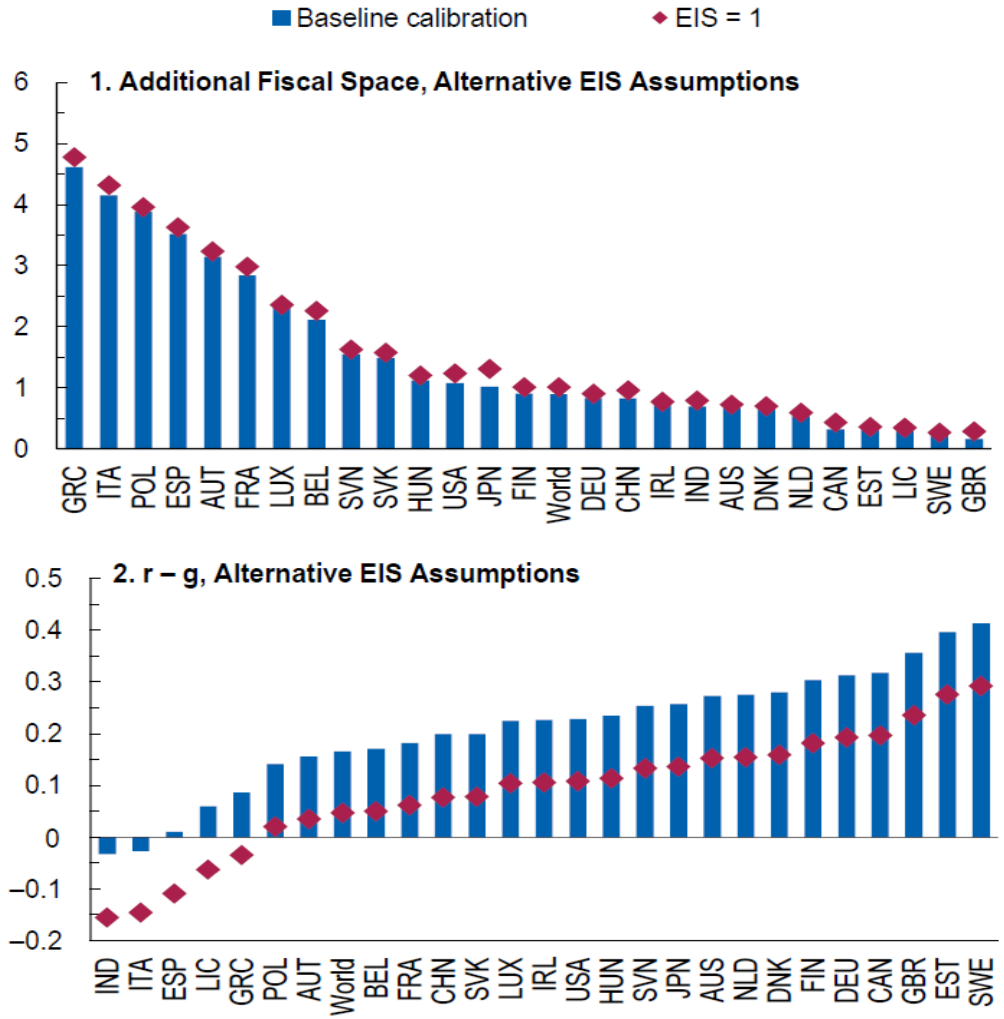
(Deviation from the baseline scenario, percent of GDP)



Source: IMF staff calculations.
Note: The figure shows the fiscal gains under the combined-policy scenario due to higher effective labor supply and improved old-age dependency ratio relative to the baseline. Because the magnitude of the gains varies over the transition, the figure reports the average gain over 2025–2040. The values for "World" denote averages for the economies included in the model. Data labels in the figure use International Organization for Standardization (ISO) country codes. LIC = bloc of low-income countries.

Online Annex Figure 2.3.6. Additional Fiscal Space and r – g under Combined-Policy Scenario, Average over 2025–2100

(Deviation from the baseline scenario, percentage points)



4. Summary of findings and policy implications

Summary and policy implications

- **Rapid global demographic transition amid declining birth rates and increasing life expectancy**. Sharp change in the age structure of economies happening at asynchronous pace.
- **Functional capacity of older individuals has improved over time, yet disparities persist .** Healthy aging is associated with improved labor market prospects for older workers (labor supply and earnings).
- **Under current policies, population aging is expected to depress global economic growth and strain public finances.**
  - Healthy aging partly offsets demography's drag on growth.
  - The impact will vary significantly across countries amid uneven pace of aging, with continued divergence in NFA positions.
  - Despite lower interest rates, many countries will need larger fiscal effort to stabilize debt levels.
- **A host of policies would help mitigate the impact of global population aging:**
  - ***Policies to improve human capital and labor outcomes of older workers****:* Preventive health policies, throughout lifecycle; training and skill development; flexible work arrangements and workplace adaptation to foster 'age-friendly' jobs; incentives to gradually increase effective retirement age.
  - ***Policies to reduce labor participation gaps****:* Foster female labor force participation (without further discouraging fertility); improve integration of foreign-born migrant workers.
  - ***Enhanced global integration***: Easing frictions to capital flows and fostering investment in human capital are key to support growth in younger economies.
- Still, **fiscal adjustment** will be needed in some countries to offset the effect of aging on debt. Early, gradual, and sustained effort key for intergenerational fairness.

World Economic Outlook
April 2025

THANK YOU!