Challenges and Policy Directions for Sustaining Economic Growth and Enhancing Productivity in an Aging Society

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Summary

Economic Challenges of Aging
Aging populations threaten economic growth by reducing labor supply and productivity.

Intangible Asset Investment
While technologies such as AI and robotics can boost productivity, their benefits require complementary investments in human capital, organizational reform, and supportive infrastructure.

Policy recommendations
To ensure sustainable growth, aging societies must improve productivity through better policy design, enhanced data infrastructure, and regional digital cooperation.

Agenda Overview

- Introduction
- Can AI and robotics boost productivity?
- Is investment in new technologies sufficient?
- Policy recommendations for aging societies

Introduction

Challenges to Economic Growth Posed by Population Aging

Labor Supply Reduction

- The shrinking workforce limits labor supply.

Aging Population Effects

- lower individual productivity due to deteriorating physical and cognitive abilities.
- Negatively affect the demand side: consume less and invest less; increased healthcare costs.
- Weaken entrepreneurship and overall economic dynamism.

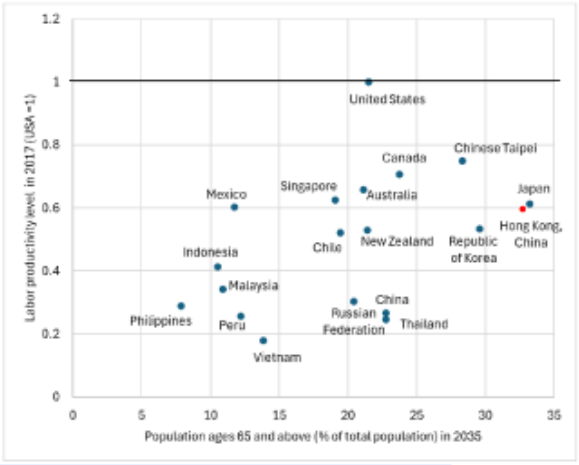
→ Directly lower GDP growth rate

Secondary consequences

- Pressures on the sustainability of social security systems.
- Reduced access to public services and potential declines in overall living standards.

→ Given shrinking labor input, increasing output will require either greater capital input or productivity improvements!

Figure 1. Projected aging rates and labor productivity levels for APEC members



- Extremely high projected aging rate for Japan, Hong Kong China, Republic of Korea, and Chinese Taipei
  - ✓ Productivity levels remain around 60% of that of the US.
- For China and Thailand, the projected aging rate is higher than that for the US, but the current productivity levels are less than 30% of that of the US.

➢ Advancing aging combined with stagnant productivity could lead to a rapid contraction in economic scale.

➢ Necessary to improve productivity by leveraging digital technologies such as ICT and AI.

Can AI and robotics boost productivity?

Can AI and Robotics Boost Productivity?

- Technologies such as AI, robotics, and ICT enhance productivity (e.g., Acemoglu and Restrepo 2017).
- Benefits of new technologies are unevenly distributed across industries, firms, and workers. Adoption of automation and ICT was widened wage disparities.
- It may take time for the new technologies to translated into actual productivity gains (Brynjolfsson et al. 2018).
- The productivity-enhancing effects of AI may not be very large at the macro level (Acemoglu 2025).

→ Complementary investments (workforce training, organizational restructuring to the development of supportive infrastructure) are vital!

Is investment in new technologies sufficient?

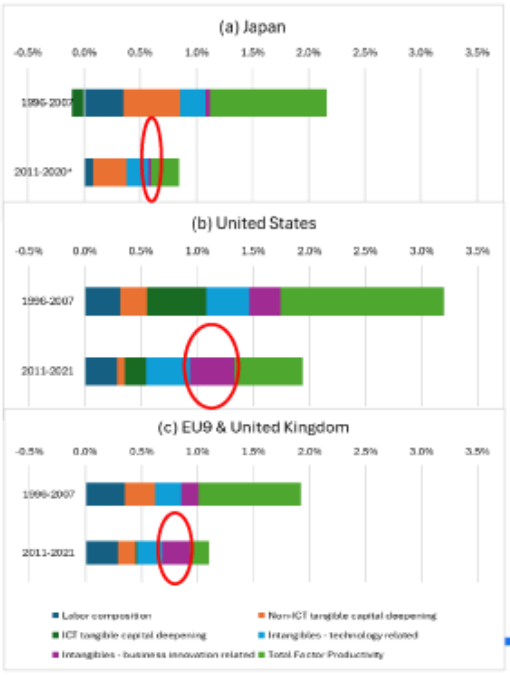
Growth Accounting Model Adopted by the EUKLEMS & INTANProd Projects

Value added growth is decomposed into the contribution of:

- growth of labor services
- growth of capital
  - Non-ICT tangible capital
  - ICT tangible capital
  - Intangibles –technology related (software, database, R&D, mineral exploration, artistic, entertainment and literary originals)
  - Intangibles –business innovation related (Industrial designs, financial product development, market research and branding, operation models, platforms, supply chains, distribution networks, employer-provided training)
- Total Factor Productivity growth

Figure 2. Decomposition of labor productivity in market economies, 1996–2007 and 2011–2021

- Significant contribution of ICT tangible capital deepening in the US.
- Technology-related intangibles contributed to labor productivity growth in Japan, the US, and Europe.
- For Japan, the contribution of business innovation-related intangibles (purple part) is very small. ← Necessity to Enhance labor productivity through both ICT-related tangible and business-related intangible investments
- Lack of data for many APEC economies



Policy recommendations for aging societies

1. Promote Complementary Investment and Avoid Misaligned Incentives

Investments in AI-enabled robotics and other ICT-related assets are necessary.

- Investments in such "tangible assets" are not sufficient.

Complementary "intangible" investment in human capital and organizational reform is critical.

- Such investments remain limited, especially among SMEs that lack financial and human resources.

Policy support should target SMEs actively investing in growth and innovation.

- SME policy targets firms that are smaller than a certain threshold. → Make it advantageous to remain small
- Important to design policies that provide incentives for firms to expand in size.

2. Support Labor Mobility and Upskilling

Introduction of AI and robotics will displace workers in certain occupations.

- Inequality could widen between workers who benefit from technology and those whose jobs are at risk.

Governments should strengthen education and training systems and support smoother labor mobility across sectors and firms.

Support programs should be designed to incentivize workers to acquire new skills and transition quickly into more productive roles.

- The Japanese government is promoting the reskilling of workers.
- However, for such policies to lead to real skill improvement:
  - Workers' enhanced abilities must be properly recognized within firms and in the labor market.
  - Systems must be in place to facilitate their transition to higher-skilled and better-paying jobs.

3. Expand Regional Cooperation and Digital Collaboration

Accepting more immigrants and foreign workers is one way to mitigate labor shortages in the short term.

- Facilitating labor mobility within the Asia-Pacific region.
- Sudden inflows of foreign workers may trigger social tensions.
- Intensified competition for talent among Asian economies

Regional cooperation in technology and innovation may offer sustainable long-term solutions.

- Accelerate the adoption of new technologies more efficiently and effectively
  - e.g., Asia Digital Transformation (ADX) Promotion Program launched by JETRO in 2020 supports collaboration between Japanese and ASEAN firms.
- Many APEC economies possess advanced digital infrastructure and talent.
  - IMD World Digital Competitiveness Ranking 2024: Singapore (1), USA (4), Korea (6), Chinese Taipei (9), HK China (7), PRC (14), and Australia (15), etc. c.f. Japan (31)
- Challenges: establishment common digital trade rules, wage disparities, geopolitical tensions
- First step: initiating smaller-scale collaborative programs

4. Build Better Data for Better Policy

The development of relevant statistics is essential.

- Better and more accurate assessment of the impact of new technologies
- Evaluation of the effectiveness of complementary investment and policy intervensions

Lack of detailed internationally-comparable data on productivity and investment trends for the APEC economies.

- A major barrier to formulating evidence-based policies and promoting regional collaboration
- Data development has been progressing in Europe.

→ APEC economies should prioritize improving data infrastructure and collaborate to ensure better comparability and more effective use of data in policymaking.

Conclusion

- Despite demographic challenges, aging economies can still achieve sustainable growth by improving productivity through the adoption of new technologies.
- Just introducing AI and/or robotics is not sufficient: Complementary investments in human capital, organizational reform, and better policy design are required.
- APEC economies should address data infrastructure gaps and pursue close regional cooperation.
- With thoughtful investment, evidence-based policy, and international collaboration, aging societies can maintain economic dynamism and improve living standards.

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Thank you for your attention!