

ASIA'S DEMOGRAPHIC TRANSFORMATION: ECONOMIC GROWTH, LABOUR MARKETS, AND HEALTHCARE

Implications of Declining Fertility, Aging Population, and Divergent Demographic Dividends

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Abstract

Asia is experiencing a profound and asymmetric demographic transformation with far-reaching consequences for economic growth, labour markets, public finances, and social infrastructure. This paper examines the divergent demographic trajectories of seven major Asian economies — Japan, South Korea, China, India, Indonesia, Bangladesh, and Pakistan — spanning the full spectrum of demographic transition, from post-transitional fertility collapse in Northeast Asia to mid-transition population growth in South Asia. Drawing on comparative demographic data, fiscal projections, and policy evidence, the paper analyses four interconnected dimensions of this transformation: the macroeconomic consequences of fertility decline and population aging; labour market pressures and the productivity-automation-immigration policy nexus; the fiscal and infrastructural implications of rapidly aging populations for healthcare and elder-care systems; and the prospects for intra-regional labour migration as a partial equilibrating mechanism. The paper finds that South Korea's total fertility rate of 0.72 and Japan's accelerating demographic contraction represent historically unprecedented challenges for high-income economies, while China faces a structural labour force contraction that threatens its manufacturing-led growth model. Conversely, India, Indonesia, Bangladesh, and Pakistan retain significant but time-limited demographic dividends contingent on urgent investment in human capital, female labour force participation, and productive employment creation. Japan's public long-term care expenditure is projected to reach 14.5% of GDP by 2030, illustrating the fiscal trajectory confronting aging economies across the region. The paper argues that productivity gains through automation and artificial intelligence, while necessary, are insufficient to offset demographic headwinds without complementary structural reforms in immigration policy, pension architecture, and gender equity. A comparative policy framework is presented, and the paper concludes that structured intra-Asian labour mobility — linking demographically surplus southern economies with deficit northern ones — represents the highest-return underutilised policy instrument available to the region.

Keywords: Demographic transition; Total fertility rate; Demographic dividend; Population aging; Labour force contraction; Long-term care; Intra-regional migration.

Global Significance

Asia accounts for approximately 60% of global population and a third of world GDP, meaning its demographic trajectory has systemic international consequences. China's labour force contraction will accelerate global supply chain reconfiguration, reshaping manufacturing geographies, and trade flows worldwide. Japan and South Korea's aging crises offer the earliest large-scale test cases for policy responses that other economies will eventually require. India's emergence as the world's most populous nation repositions global labour markets, innovation capacity, and geopolitical influence. Demographic-driven migration pressures will intensify international negotiations over mobility, remittances, and labour rights. Collectively, Asia's demographic divergence will fundamentally reshape the 21st-century global economic order.

Local Significance

Asia's demographic transformation carries immediate consequences for domestic governance, social contracts, and economic management. Aging societies in Japan, South Korea, and China face mounting pension deficits, healthcare cost explosions, and shrinking tax bases that threaten the fiscal foundations of the welfare state. Governments must redesign labour markets, elder-care infrastructure, and immigration frameworks under significant political constraint. For South and Southeast Asian nations, failure to convert young populations into productive workers risks mass unemployment, social instability, and wasted human potential. Subnational disparities — between India's aging south and youthful north, or China's coastal and interior regions — create additional layers of internal policy complexity.

Executive Summary

Asia is undergoing a profound and asymmetric demographic transition with far-reaching implications for economic growth, labour markets, public finances, and social cohesion. Advanced economies — particularly Japan and South Korea — confront accelerating population decline and rapid aging, with Japan's fertility rate falling to 1.20 in 2023 and South Korea recording a historic low of 0.72, the lowest among OECD nations. China's decades-long one-child policy has produced a structural overhang: a shrinking working-age population that threatens its status as the world's manufacturing hub.

Meanwhile, South, and Southeast Asian nations — India, Indonesia, Bangladesh, and Pakistan — retain significant, albeit time-limited, demographic dividends. How they invest in human capital, social infrastructure, and productive employment over the next two decades will determine whether these dividends translate into sustained growth or "demographic traps" of underemployment and inequality.

This paper analyses: (i) the macroeconomic consequences of fertility decline and aging; (ii) labour market pressures and the automation-immigration policy nexus; (iii) implications for public health systems and elder-care infrastructure; and (iv) the prospects for intra-regional migration as an equilibrating mechanism. A comparative policy framework is offered to guide governments across Asia's demographic spectrum.

Key Findings

- South Korea's TFR of 0.72 is now far below replacement, representing the most extreme fertility crisis among large economies globally.
- China's labour force is projected to contract by 5.9% between 2030 and 2040, undermining its comparative advantage in manufacturing.
- India will account for an estimated 18% of global labour force growth through 2040 but faces acute structural challenges in job quality and skills.
- Japan's public health expenditure is projected to reach 14.5% of GDP by 2030, posing critical fiscal sustainability challenges.
- Regional intra-Asian migration corridors represent an underutilised policy tool that could partially offset labour imbalances.

1 Introduction: Asia's Asymmetric Demographic Landscape

The concept of demographic transition — the movement from high fertility and high mortality to low fertility and low mortality — has long underpinned development economics. Asia, home to 60% of the world's population, encapsulates the full spectrum of this transition simultaneously. Within a single continent, one can observe Japan navigating the consequences of a post-transitional "demographic winter," South Korea confronting a near-zero fertility rate, and Pakistan still in mid-transition with a total fertility rate (TFR) above 3.0.

This divergence is not merely academic. It has profound implications for the future structure of Asian economies, for regional security, for migration flows, and for the international balance of economic power. The demographic dividend — the growth bonus accruing when a large working-age cohort is not burdened by dependents — has historically explained a substantial share of East Asia's "economic miracle" (Bloom and Williamson, 1998). As that dividend fades in Northeast Asia and China, it is simultaneously opening in South Asia. Whether the latter can harvest it depends on policy choices being made today. Table 1 (Appendix A) provides a comparative snapshot of key demographic and economic indicators across the seven principal economies examined in this paper.

The table 1 (Appendix A) underscores three structural fault lines. First, the divergence in total fertility rates (TFR) between Northeast Asian economies (below 1.5) and South/Southeast Asian economies (approaching or above replacement) is striking. Second, the concentration of elderly populations in Japan (29.9% over 65) and South Korea (18.4%) — compared with under 8% in India, Indonesia, and Bangladesh — reflects fundamentally different fiscal and healthcare pressures. Third, per-capita income gaps between these groups remain large, meaning that poorer aging countries like China face the "growing old before growing rich" problem identified by Cai and Lavelly (2003).

2 Fertility Decline: Drivers, Trajectory and Consequences

2.1 Northeast Asia: The Fertility Crisis

Japan's fertility decline commenced in the 1970s, falling below replacement in 1974. After a brief uptick in the mid-1980s, it resumed its decline, reaching a historic low of 1.20 in 2023 (Figure 1, Appendix A) (National Institute of Population and Social Security Research Japan, 2023). The causes are structural rather than cyclical: high urban housing costs, long working hours, gender inequity in domestic labour, and a cultural premium on child-rearing quality combine to make parenthood costly. The "Herbivore Generation" (soshoku-kei danshi) phenomenon — young men disengaging from romantic relationships and family formation — is emblematic of broader social atomisation (Fukasawa, 2009).

South Korea's situation is more acute. Its TFR of 0.72 in 2023 (Figure 1, Appendix A) represents a global outlier with no historical precedent among large economies (Statistics Korea, 2024). A confluence of factors is responsible: extreme educational pressure (the "education fever" or *gyoyuk yeol*), housing unaffordability in Seoul (where over 50% of the population lives), highly competitive labour markets offering precarious employment to young adults, and persistent gender pay gaps that reduce women's incentive to exit the labour force temporarily for childbearing (Eun, 2007).

South Korea's demographic trajectory is particularly alarming in its pace. The UN projects the South Korean population to fall from 51.7 million to 36.7 million by 2100 under the medium-variant scenario — a decline of 29% — with the median age reaching 60 by mid-century. This pace of demographic contraction has no modern parallel except in wartime.

2.2 China: The Legacy of the One-Child Policy

China's fertility trajectory is distinctive. The one-child policy (1980–2015) succeeded in reducing fertility from approximately 5.7 children per woman in 1960 to around 1.5 by 1993 (Figure 1, Appendix A) (Banister, 1987; Cai, 2010). However, the policy simultaneously created a demographic overhang that now threatens economic stability: a disproportionately large elderly cohort, a shrinking youth cohort, and a severe gender imbalance (120 males per 100 females at birth in 2007) resulting from sex-selective abortion (Zhu, Lu and Hesketh, 2009).

China's working-age population (15–59) peaked in 2011 at approximately 941 million and has been declining since. By 2050, it is projected to fall to under 700 million — a contraction of over 25% (Figure 2, Appendix A) (UN World Population Prospects, 2022). This structural shift undermines the labour-cost advantage that underpinned China's export-led industrialisation model since 1978. The "Lewis turning point" — when surplus rural labour is exhausted and wages begin rising — was effectively reached in the early 2010s, and demographic headwinds will accelerate this process.

The shift from a two-child policy (2015) to a three-child policy (2021) has had minimal effect on fertility, as Chinese women cite the same structural barriers as their East Asian counterparts (Guo, 2022). The pronatalist subsidies introduced at provincial level, including baby bonuses of up to CNY 10,000 per child in some cities, have been insufficient to change the calculus of family formation (Guo, 2022).

2.3 South and Southeast Asia: Narrowing Windows of Opportunity

India crossed the symbolic threshold of 1.4 billion people in 2023, surpassing China as the world's most populous nation (UN DESA, 2023). Its TFR has fallen from 5.9 in 1960 to approximately 1.91 in 2023, placing it just below replacement for the first time in national history. However, this national average conceals sharp subnational divergences. The southern states of Tamil Nadu, Kerala, and Karnataka have TFRs comparable to many European nations (1.6–1.8), while the northern "Hindi Belt" states — Uttar Pradesh, Bihar, and Rajasthan — maintain TFRs above 2.5 (Figure 1, Appendix A) (National Family Health Survey-5, 2021).

Indonesia's TFR decline, from 5.7 in the 1960s to 2.17 today, has been more uniform, reflecting the success of the national family planning programme (BKKBN) inaugurated in the 1970s. Bangladesh has achieved one of the most rapid fertility declines in history, moving from a TFR above 6.5 in the 1970s to approximately 1.98 today — near replacement — while remaining a lower-middle-income economy (Bangladesh Demographic and Health Survey, 2022). Pakistan, by contrast, maintains a TFR of 3.39 and faces the prospect of population doubling to approximately 338 million by mid-century, with corresponding pressures on education, employment, water, and food security (Figure 1, Appendix A) (Population Council Pakistan, 2022).

For these countries, the demographic dividend window — during which the working-age population is large relative to dependents — is open but not permanent. Research by Bloom, Canning and Sevilla (2003) suggests that the dividend accounts for up to one-third of the "East Asian Miracle" in growth. Countries that fail to provide productive employment, education, and healthcare to their young bulge populations risk converting dividend potential into "demographic disasters" of unemployment, social instability, and economic stagnation.

3 Labour Market Implications

3.1 Contraction in Aging Economies

Labour force contraction in Northeast Asia and China carries severe structural consequences. Standard growth accounting models indicate that labour input growth contributes meaningfully to aggregate output growth. As working-age populations shrink, sustaining GDP growth requires either productivity acceleration, capital deepening, or offsetting immigration flows — none of which can be assumed (Acemoglu and Restrepo, 2017).

Japan's labour force (ages 15–64) has been shrinking since 1995. The economy's adjustment mechanisms have included a dramatic rise in female labour force participation (LFP), reaching 54% among women in 2023 (an increase of 12 percentage points since 2012), facilitated by the "Womenomics" policy agenda of successive Abe-era administrations (Matsui, 2019). The labour force participation of those aged 65 and over has also increased, with Japan now having one of the highest rates of elderly employment globally (25.1% for ages 65–74). However, these gains have limits: as demographic headwinds intensify, they will be insufficient (Cabinet Office Japan, 2023).

South Korea faces more acute pressures. Its working-age population is projected to decline by approximately 3.1% between 2020 and 2030 and by a further 5.8% between 2030 and 2040 (Figure 3, Appendix A) (Statistics Korea, 2024). Korean chaebols and SMEs alike are reporting increasing difficulty recruiting skilled manufacturing and service workers, contributing to wage inflation that risks eroding export competitiveness.

3.2 Automation and Artificial Intelligence as Substitutes

The standard economic response to labour scarcity is capital substitution — replacing labour with technology. Japan and South Korea are global leaders in industrial robotics, with Japan deploying 399 and South Korea 1,000 robots per 10,000 manufacturing workers respectively, the latter being the highest density in the world (IFR, 2023). The Republic of Korea's investment in AI, automation, and industrial robotics is explicitly framed as a demographic response strategy, with government-funded R&D exceeding USD 1.4 billion annually by 2023.

China has similarly accelerated automation in response to rising labour costs and a declining working-age population. Its "Made in China 2025" strategy explicitly targets advanced manufacturing automation (State Council PRC, 2015). Between 2015 and 2023, China went from being a net importer of industrial robots to the world's largest consumer and increasingly, producer. However, automation is not a panacea: Acemoglu and Restrepo (2019) demonstrate that automation is task-substituting rather than uniformly productivity-enhancing, and its

macroeconomic benefits depend critically on the speed of deployment relative to demographic decline and the capacity for labour reallocation to higher-value tasks.

In South and Southeast Asia, the automation calculus is different. With large pools of low-cost labour, the private sector has less immediate incentive to automate, and premature automation risks displacing workers before alternative employment exists. India's IT sector and growing gig economy demonstrate one pathway for labour absorption in the digital economy, but manufacturing employment — critical for structural transformation — remains constrained by infrastructure and skills gaps.

3.3 The Immigration Policy Nexus

Immigration offers the most direct mechanism to address demographic labour shortfalls, yet it remains politically contentious across Asia. Japan and South Korea have historically maintained among the most restrictive immigration regimes among high-income economies, rooted in ethnic nationalist conceptions of citizenship and cultural concerns about social cohesion.

Japan made incremental steps towards managed labour immigration with the 2019 revision of the Immigration Control Act, establishing "Specified Skilled Worker" visa categories that admitted 345,000 foreign workers by fiscal 2023 (Japan Immigration Services Agency, 2024). While significant, this is a fraction of what demographic projections suggest is needed. A 2020 Nippon Foundation study estimated that Japan would need to accept 350,000 additional migrants annually over the next 30 years merely to stabilise its working-age population (Nippon Foundation, 2020).

South Korea has expanded its Employment Permit System (EPS), which admits foreign workers from 16 sending countries in Asia, including Vietnam, the Philippines, and Bangladesh (Korea International Manpower Service, 2023). The programme admitted approximately 110,000 workers in 2023. However, structural barriers remain: the inability to change employers, restrictions on family reunification, and lack of pathways to permanent residence limit the programme's ability to attract and retain skilled workers.

China's immigration posture is distinctive: a country of emigration with relatively limited formal immigration infrastructure, it admits approximately 1,500 permanent residents annually — vanishingly small for an economy of its size. This will require radical recalibration if labour shortfalls materialise as projected (United Nations, 2021).

3.4 Intra-Regional Migration Dynamics

Given the scale of demographic asymmetry within Asia, intra-regional labour migration represents a potentially significant equilibrating mechanism. South and Southeast Asian workers — particularly from India, Bangladesh, Pakistan, and Vietnam — already form the backbone of Gulf Cooperation Council (GCC) labour markets. Could similar flows redirect northward and westward to aging Northeast Asian economies?

The barriers are real but not insurmountable. Language (particularly Japanese), cultural distance, and legal frameworks represent significant obstacles. However, ASEAN's Mutual Recognition Arrangements (MRAs) for skilled workers in sectors including nursing, engineering, and accountancy represent nascent institutional infrastructure (ASEAN

Secretariat, 2022). The Philippines already has structured bilateral agreements with Japan and South Korea for healthcare workers — a model that could be expanded and deepened.

For sending countries, managed emigration can be a double-edged sword. Remittances are economically vital — Bangladesh received USD 21.9 billion in remittances in 2022, equivalent to 5.5% of GDP (Bangladesh Bank, 2023) — but "brain drain" in critical sectors like healthcare can undermine domestic human capital formation. Bilateral skill-sharing frameworks and diaspora engagement programmes are critical mitigants.

4 Productivity, Growth, and the Demographic Dividend

4.1 Can Productivity Compensate for Demographic Decline?

In principle, declining labour supply can be offset by rising total factor productivity (TFP). The optimistic interpretation of Japan's stagnation is instructive: per capita GDP growth has been stable (if unspectacular), meaning that on a per-worker basis, productivity gains have been real. This pattern is consistent with the economic theory suggesting that demographic change induces labour-saving innovation (Acemoglu and Restrepo, 2017).

However, "reasonably stable" per-capita growth is insufficient given the fiscal pressures of aging. As the ratio of elderly dependants to workers rises, the tax base shrinks while public expenditure on pensions and healthcare expands. Japan's public debt already exceeds 250% of GDP — the highest in the world — and demographic pressures will continue to inflate it in the absence of structural reform (IMF, 2023). The Bank of Japan's ultra-loose monetary policy has been partly motivated by the deflationary pressures associated with a shrinking population and weak domestic demand (Figure 4, Appendix A).

South Korea faces a more acute productivity challenge, as it cannot rely on the same decades of accumulated capital stock and institutional quality. McKinsey Global Institute (2023) estimates that South Korea must increase its TFP growth rate from 0.8% to over 2.0% annually to maintain current living standards given its demographic trajectory — an ambitious target that requires transformational investment in AI, education quality, and service-sector reform.

Across Asia, digitisation and AI present the most plausible near-to-medium term productivity opportunity. China's AI development strategy — aiming for global AI leadership by 2030 — is explicitly premised on offsetting labour decline with cognitive automation (State Council PRC, 2017). India's large IT sector and growing AI capability position it uniquely: as a net labour-surplus economy, it can benefit from AI-enabled exports (particularly professional services) while its demographic dividend is still open.

4.2 Harvesting the Demographic Dividend: South and Southeast Asia

The demographic dividend is not automatic. It materialises only when a young, growing population has access to quality education, productive employment, and adequate healthcare. The East Asian experience is instructive: the "Four Tigers" (South Korea, Taiwan, Hong Kong, Singapore) achieved their demographic dividends by combining export-led industrialisation with massive investment in public education and health, creating a virtuous cycle of human capital accumulation (World Bank, 1993).

India's demographic dividend is theoretically enormous — by 2030, it will have the world's largest working-age population — but its realisation faces significant structural obstacles. India's education system suffers persistent quality deficits: the Annual Status of Education Report (ASER) consistently finds that over half of Grade 5 students cannot read a Grade 2-level text (ASER, 2023). Low female labour force participation (25–27% nationally) represents a vast under-utilisation of human capital, though this conceals substantial regional variation, with higher participation in southern states (National Sample Survey, 2023).

Indonesia presents the most successful contemporary case of demographic dividend management in Southeast Asia. Its investments in the conditional cash transfer programme (PKH), the universal health coverage system (JKN), and expanding secondary education have improved human capital metrics. The World Bank's Human Capital Index for Indonesia improved from 0.51 to 0.54 between 2018 and 2020, though this remains below the level needed for rapid productivity convergence (World Bank, 2020).

Bangladesh has achieved remarkable development outcomes at low-income levels. Its garment sector — the second-largest global exporter of readymade garments — has employed millions of women, driving female LFP and fertility decline simultaneously in a virtuous demographic feedback loop. However, Bangladesh faces growing risks from climate change, which threatens to displace millions of coastal residents, and from its dependence on a single export sector vulnerable to automation and global supply chain reconfiguration (UNDP, 2022).

5 Healthcare Implications of Population Aging

5.1 The Fiscal Arithmetic of Aging

Population aging generates inexorable upward pressure on healthcare expenditure through three channels: (i) the age-cost profile of healthcare (per-capita healthcare spending rises steeply after age 65); (ii) the epidemiological shift toward chronic non-communicable diseases (NCDs) — cardiovascular disease, dementia, diabetes, cancer — which require extended, costly management rather than acute episodic treatment; and (iii) the expansion of formal long-term care (LTC) needs as family-based informal caregiving becomes less available due to smaller family sizes and female labour force participation.

Japan's Long-Term Care Insurance (LTCI) system, introduced in 2000, represents the most comprehensive institutional response to these pressures in Asia. It provides universal entitlement to home care, community-based care, and institutional care for individuals requiring nursing care, financed by mandatory premiums from those over 40 and co-payments. By 2023, the LTCI was serving approximately 7.1 million people at a cost of JPY 14 trillion (approximately USD 100 billion), representing 2.5% of GDP (Ministry of Health, Labour and Welfare Japan, 2023). Projections suggest this will rise to 4.0% of GDP by 2040 as the last of the baby boom cohort enters the LTC-intensive age group (Figure 5, Appendix A).

South Korea has established a similar Long-Term Care Insurance system (2008), but fiscal projections are concerning. The Korea Development Institute projects that combined pension and healthcare spending will consume over 35% of GDP by 2060 (Figure 5, Appendix A) unless structural reforms are enacted (KDI, 2023). The National Pension Fund — the world's

third-largest sovereign wealth fund at approximately USD 830 billion — faces depletion risks by the 2050s if the current benefit structure is maintained (National Pension Service Korea, 2023).

5.2 Dementia and Elder Care: The Hidden Fiscal Tsunami

Dementia represents a particular and growing fiscal challenge (Table 2, Appendix A), as its prevalence rises steeply with age. Globally, dementia cost an estimated USD 1.3 trillion in 2019, with projections suggesting costs will triple to USD 2.8 trillion by 2050 (Alzheimer's Disease International, 2021). In Japan, approximately 6.02 million people were living with dementia as of 2020 — around 16% of those aged 65 and over — and this is projected to reach 7 million by 2025 (Ministry of Health, Labour and Welfare Japan, 2023). China, with its enormous aging population, faces potentially the world's largest absolute dementia burden: estimates suggest over 15 million people are currently living with dementia in China, rising to 37.5 million by 2050 (Jia et al., 2020).

The caregiving implications are severe. In the absence of sufficient formal care infrastructure, the burden falls on family members — predominantly adult daughters and daughters-in-law in East Asian cultural contexts — creating a "care economy" externality that depresses female labour force participation, reduces household savings, and impairs the human capital formation of the next generation. Japan's concept of "kaigo rishoku" (care-related labour market exit) is estimated to cause 100,000 workers annually to leave employment to provide family elder care (Cabinet Office Japan, 2023).

5.3 South Asia's Preparing for its Own Aging Transition

While India, Bangladesh, and Indonesia currently face lower elderly population shares than Northeast Asia, the absolute numbers are already large and growing. India had approximately 140 million people over 65 in 2023 — more in absolute terms than Japan's total population. As the life expectancy transition proceeds and fertility declines further, these countries will face aging transitions of their own by mid-century, but from a lower income base.

India's elderly care infrastructure remains severely underdeveloped. The Maintenance and Welfare of Parents and Senior Citizens Act (2007) mandates family-based care, reflecting a cultural presumption of filial care that may erode as urbanisation, migration, and changing family structures alter living arrangements. Government spending on healthcare was approximately 1.4% of GDP in 2021 (Table 2, Appendix A) — the lowest among major economies — and the absence of universal health insurance leaves the elderly disproportionately exposed to catastrophic out-of-pocket expenditures. Prime Minister Modi's Ayushman Bharat scheme represents a significant step toward publicly financed healthcare coverage, but implementation challenges remain substantial (Patel et al., 2018).

Indonesia's JKN (Jaminan Kesehatan Nasional) universal health coverage programme, launched in 2014, is one of the world's largest single-payer health insurance programmes by enrolment (approximately 269 million in 2023), but its actuarial sustainability and care quality remain variable across the archipelago (Agustina et al., 2019). For the rural and island-based elderly poor, physical access to healthcare facilities remains a fundamental challenge independent of insurance coverage.

6 Policy framework and Recommendations

6.1 Comparative Policy Architecture

The table 3 (Appendix A) maps policy responses across six domains for five country groupings, revealing a clear pattern of response intensity broadly correlated with the urgency of demographic pressure.

Japan and South Korea have the most active and institutionally developed policy responses across all domains — high pro-natalist transfers, cautious immigration liberalisation, ongoing pension reform (including raising retirement ages), aggressive automation, and AI investment strategies, established public long-term care insurance systems, and a shift toward quality-focused education.

China occupies a middle position. Its three-child policy and limited provincial subsidies represent a pronatalist turn, but the response remains underpowered relative to the scale of the challenge. Immigration is restricted, pension reform is underway in urban areas through a notional defined contribution system, and the state is driving AI and manufacturing automation through the Made in China 2025 and AI 2030 strategies. Elder care relies on community nursing homes rather than a comprehensive insurance model.

India and Bangladesh have low pronatalist priority — consistent with their still-declining fertility — and remain emigration-focused rather than immigration-receiving. Pension coverage is expanding through the Employees' Provident Fund Organisation but remains incomplete. Elder care is family-based, and education policy is at a critical inflection point with India's National Education Policy 2020.

Indonesia presents a broadly similar profile to India and Bangladesh, with modest family support programmes, limited formal immigration, a recently reformed social security system, and expanding vocational education.

Pakistan stands out for the absence or nascent state of formal policy responses across every domain — reflecting both its earlier demographic stage and its significant governance and fiscal constraints.

The overarching pattern is that policy sophistication and investment track demographic urgency in Northeast Asia, while South and Southeast Asian governments are still building the institutional architecture needed to harvest their dividends before the window closes.

6.2 Recommendations for Aging Economies (Japan, South Korea, China)

Pro-natalist Policy Reform

Current pro-natalist programmes have had limited impact primarily because they address the economic costs of childbearing but not the opportunity costs, particularly for women. Evidence from Scandinavian economies — which maintain TFRs above 1.5 despite high living costs — suggests that the critical variables are equitable sharing of domestic labour, high-quality, affordable childcare, and robust parental leave for both parents (OECD, 2023). South Korea's recent introduction of a USD 740 monthly baby bonus (2024) is unlikely to be sufficient without accompanying structural labour market and gender equity reforms.

Recommendation: Pro-natalist transfers should be complemented by enforceable gender equality mandates in the private sector, including pay equity reporting, parental leave quotas for fathers, and subsidised early childhood education from age six months.

Managed Labour Immigration

Japan and South Korea must fundamentally recalibrate their immigration frameworks. The current model of temporary worker visas without pathways to permanent residence and citizenship is unsustainable: it neither attracts the high-skilled immigrants who can drive productivity growth nor retains mid-skilled workers who provide essential services. Comparative evidence from Canada, Germany, and Australia — all of which use points-based permanent residency systems — demonstrates that structured immigration can be managed without social fragmentation when accompanied by integration support and anti-discrimination enforcement (OECD, 2019).

Recommendation: Establish transparent points-based permanent residency pathways, invest in integration infrastructure (language, civic education, credentialing), and extend citizenship to long-term residents and their children.

Pension and Healthcare Fiscal Consolidation

The long-term fiscal sustainability of aging economies requires structural pension reform — particularly increasing statutory retirement ages to align with increased life expectancy, shifting from defined-benefit to hybrid contribution structures, and expanding the contribution base through immigration and female LFP. Japan's incremental approach (optional work beyond 65, gradual benefit adjustments) may not be sufficient given the pace of demographic change.

Recommendation: Establish multi-decade pension sustainability frameworks with automatic demographic stabilisers (linking retirement ages to life expectancy indices) and expand public investment in preventative healthcare to reduce the acute care burden of an aging population.

6.3 Recommendations for Dividend Countries (India, Indonesia, Bangladesh, Pakistan)

Human Capital Investment as Priority

The demographic dividend is a function of human capital quality, not population size. Expanding school enrolment without improving learning outcomes — the pattern in many South Asian contexts — will not generate the productivity gains needed to drive growth. India's National Education Policy (2020) represents a significant architecture for reform, but implementation requires massive investment in teacher training, school infrastructure, and early childhood development.

Recommendation: Allocate a minimum of 6% of GDP to education (as mandated by India's NEP but not yet achieved), with emphasis on foundational literacy and numeracy, STEM competency, and digital skills. Address gender disparities in education access in Pakistan and north India as an economic priority, not merely a social one.

Female Labour Force Participation

In all four countries, female LFP is below what economic models predict for their income levels, representing a vast unrealised productive resource. The barriers are well-understood: lack of affordable childcare, gender-based violence and workplace harassment, restrictive

social norms, inadequate transport infrastructure, and occupational segregation. These barriers have direct demographic linkages: women with greater economic autonomy and labour market attachment tend to have fewer children, accelerating fertility transition.

Recommendation: Integrate childcare provision into universal primary health centre infrastructure; implement and enforce sexual harassment legislation; invest in public transport and safe commuting infrastructure targeted at women; and provide microcredit and business development support for female entrepreneurs in informal sectors.

Employment Infrastructure and Industrial Policy

South Asian and Southeast Asian governments face the dual challenge of creating sufficient productive employment for their youth bulges while building the infrastructure and institutions for sustainable growth. Bangladesh's success in garment exports illustrates the power of export-oriented manufacturing as a labour absorber, but its sustainability depends on moving up the value chain before automation eliminates the cost advantage. Indonesia's downstream processing requirements in nickel and minerals — its "Resource Nationalism 2.0" strategy — offers an alternative industrial policy template based on natural resource leverage (Wardhana, 2022).

Recommendation: Develop integrated Special Economic Zones with skills training components embedded in industrial policy; expand social protection programmes to cover informal workers; and negotiate bilateral labour mobility agreements with aging economies to structure managed migration corridors.

6.4 Regional Governance: Towards an Asian Demographic Framework

The demographic imbalances within Asia — surplus young populations in the south and west, deficit aging populations in the north and east — are structurally complementary. Yet there is no regional institutional architecture to facilitate the structured labour mobility that could partially equilibrate these imbalances. ASEAN's Mutual Recognition Arrangements represent a start, but their sectoral coverage is limited and enforcement is weak. A broader Asia-Pacific demographic policy framework — analogous to the European Blue Card or Australia's Pacific Labour Scheme — could create structured, rights-respecting pathways for labour mobility while generating remittance flows that amplify development in sending countries.

Recommendation: ASEAN+3 mechanisms should be expanded to encompass a Regional Labour Mobility Framework, including harmonised skills recognition, portability of social security contributions, and anti-trafficking enforcement. Sending-country governments should establish Diaspora Investment Bonds and skills-matching platforms to manage human capital outflows constructively.

7 Conclusion

Asia's demographic transformation is not a distant threat — it is an ongoing structural shift that is already reshaping labour markets, public finances, and social institutions across the continent. The challenge is not uniform: it is asymmetric, multi-speed, and politically charged. Northeast Asia and China face the acute pressures of fertility collapse and rapid aging, with fiscal and economic consequences that will intensify over the coming two decades. South and

Southeast Asia retain a narrowing window of demographic opportunity that can only be captured through deliberate, well-funded policy investment.

The evidence does not support pessimism, but it demands urgency. Japan's managed adjustment — combining female LFP increases, eldercare insurance, and cautious immigration liberalisation — has enabled economic stability despite severe demographic headwinds. South Korea's challenge is more acute and requires more radical structural reform. China's trajectory depends critically on the speed with which it can shift its growth model from labour-intensive manufacturing to productivity-intensive services and technology.

For India, Bangladesh, Indonesia, and Pakistan, the opportunity is real but not guaranteed. Education quality, female empowerment, job creation, and social protection are not merely desirable social goals: they are the infrastructure of economic competitiveness in a demographically constrained future. The demographic dividend cannot be assumed; it must be built.

At the regional level, structured, rights-respecting labour mobility between demographically surplus and deficit economies represents the highest-return, lowest-cost policy intervention available. It requires political will and institutional investment, but it would simultaneously address labour shortfalls in aging economies, generate remittances in sending economies, and build the human capital and institutional connections that underpin deeper regional integration.

The demographic transformations underway in Asia are irreversible in the short and medium term. The population structures of 2040 are already determined by the births and deaths of today. What remains within policy reach is the quality of human capital, the design of institutions, and the architecture of regional cooperation that will determine whether these transformations produce contraction and conflict, or managed adaptation and shared prosperity.

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Appendix A: Tables and Figure

Table 1: Key Demographic and Economic Indicators, Selected Asian Economies, 2023

Country	TFR 2023	Pop. 2023 (mn)	Proj. Pop. 2050 (mn)	Median Age 2023	% Pop. 65+ 2023	Old-age dep. ratio 2023	LFP Rate (%) 2023	GDP/capita 2023 (USD)
Japan	1.20	123.3	104.1	49.0	29.9%	50.2	62.3%	33,800
South Korea	0.72	51.7	46.7	43.7	18.4%	23.6	63.8%	32,400
China	1.09	1,409	1,317	39.0	14.0%	17.8	68.2%	12,720
India	1.91	1,428	1,670	28.7	7.1%	9.9	55.2%	2,390
Indonesia	2.17	277.5	317.0	30.0	6.7%	11.5	67.4%	4,940
Bangladesh	1.98	173.0	195.0	28.2	5.6%	8.4	58.3%	2,860
Pakistan	3.39	231.4	338.0	22.0	4.4%	7.0	52.1%	1,590

Sources: United Nations (2023); World Bank (2023); IMF World Economic Outlook (2023).

Note: Projected populations from UN World Population Prospects 2022 medium variant.

Table 2: Healthcare Fiscal Projections and Aging Risk Assessment

Country	Health Spend % GDP 2023	Projected % GDP 2040	Incremental GDP pts	% 65+ 2023	% 65+ 2040	Fiscal Risk
Japan	11.5%	14.5%	+3.0	29.9%	35.1%	CRITICAL
South Korea	8.4%	11.2%	+2.8	18.4%	30.2%	VERY HIGH
China	5.7%	7.8%	+2.1	14.0%	22.5%	HIGH
India	3.3%	4.5%	+1.2	7.1%	11.4%	MODERATE
Indonesia	3.1%	4.3%	+1.2	6.7%	10.2%	MODERATE

Sources: WHO Global Health Expenditure Database (2023); IMF Fiscal Monitor (2023); World Bank (2023).

Note: Projected figures assume current policy baselines without structural reform.

Table 3: Comparative Policy Response Matrix Across Asia's Demographic Spectrum

Policy Domain	Japan / Korea	China	India / Bangladesh	Indonesia	Pakistan
Pro-natalist Transfers	High (baby bonuses, parental leave)	3-child policy; limited subsidies	Low priority	Modest family support	Non-formal
Immigration Policy	Cautious liberalisation	Restricted	Emigration-focused	Limited inflows	Limited
Pension Reform	Ongoing; raising retirement age	Urban NDC reform underway	Expanding EPFO coverage	JHT reform 2023	Nascent
Automation / AI Investment	Aggressive public strategy	State-led AI 2030 plan	IT sector, UPI integration	Growing digital economy	Early stage
Elder Care Infrastructure	Public LTCI system (Japan 2000)	Community nursing homes	Largely family-based	Limited formal	Family-based
Education Investment	Quality over quantity	STEM prioritisation	NEP 2020; high youth pop.	Expanding vocational	Critical gap

Source: Authors' compilation from national government sources, OECD Policy Notes, and World Bank Country Reports.

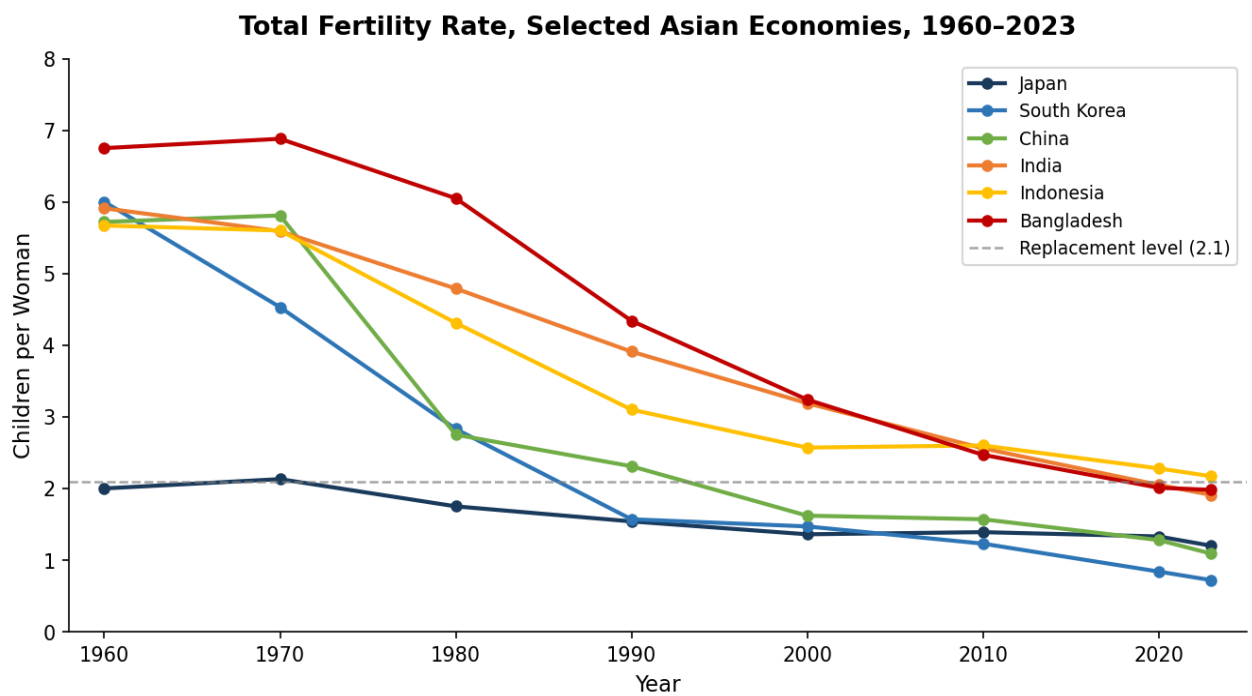


Figure 1: Total Fertility Rate, Selected Asian Economies, 1960–2023. *Source:* World Bank World Development Indicators (2023); UN Population Division (2023).

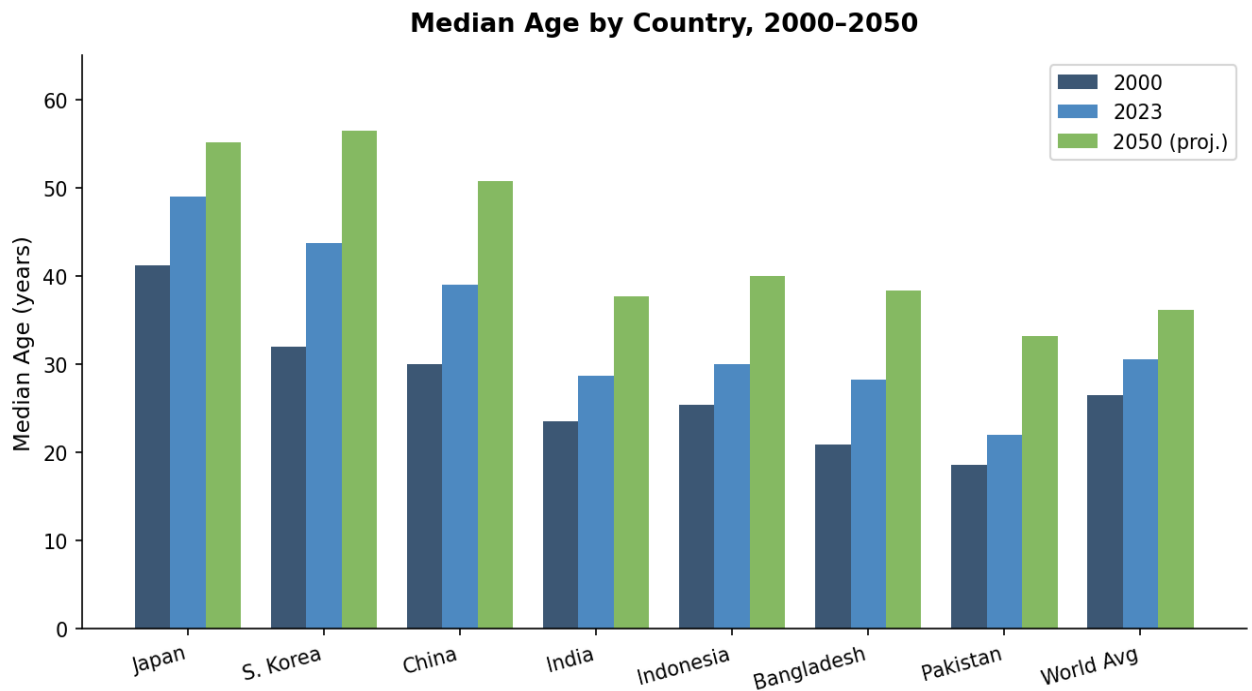


Figure 2: Median Age by Country, 2000–2050 (projected). *Source:* UN World Population Prospects (2022); World Bank (2023).

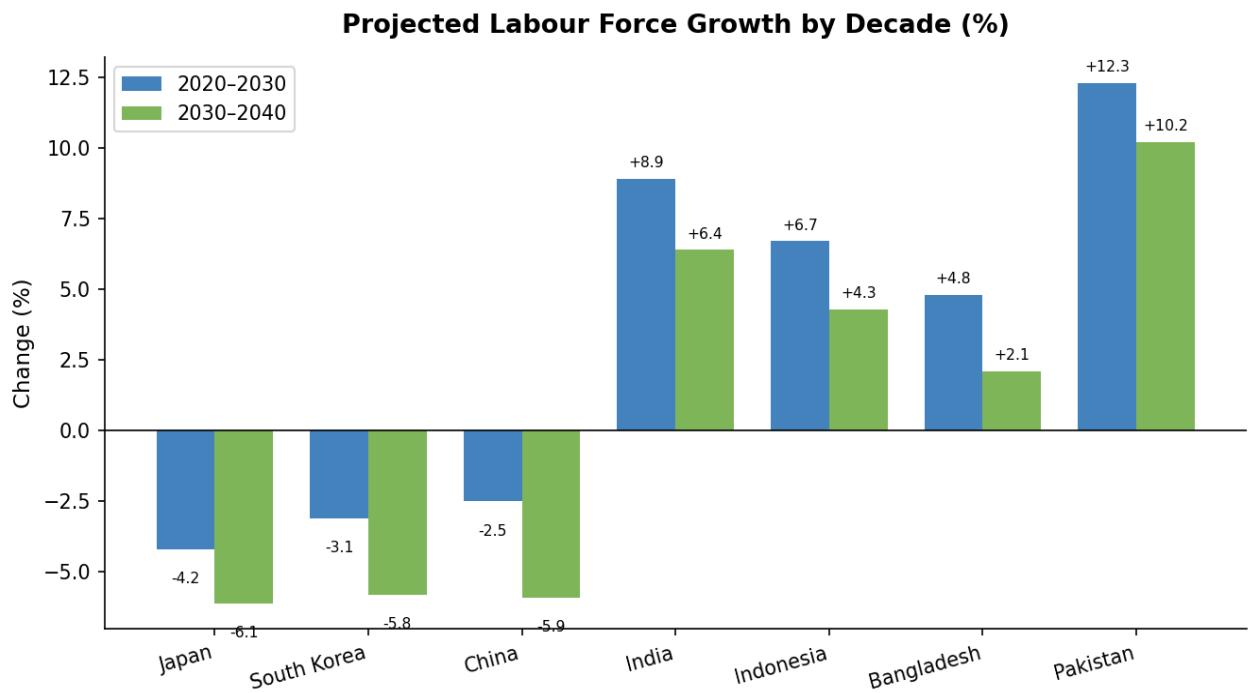


Figure 3: Projected Labour Force Growth (%) by Decade, Selected Asian Economies. *Source:* ILO Labour Force Projections (2023); UN World Population Prospects (2022).

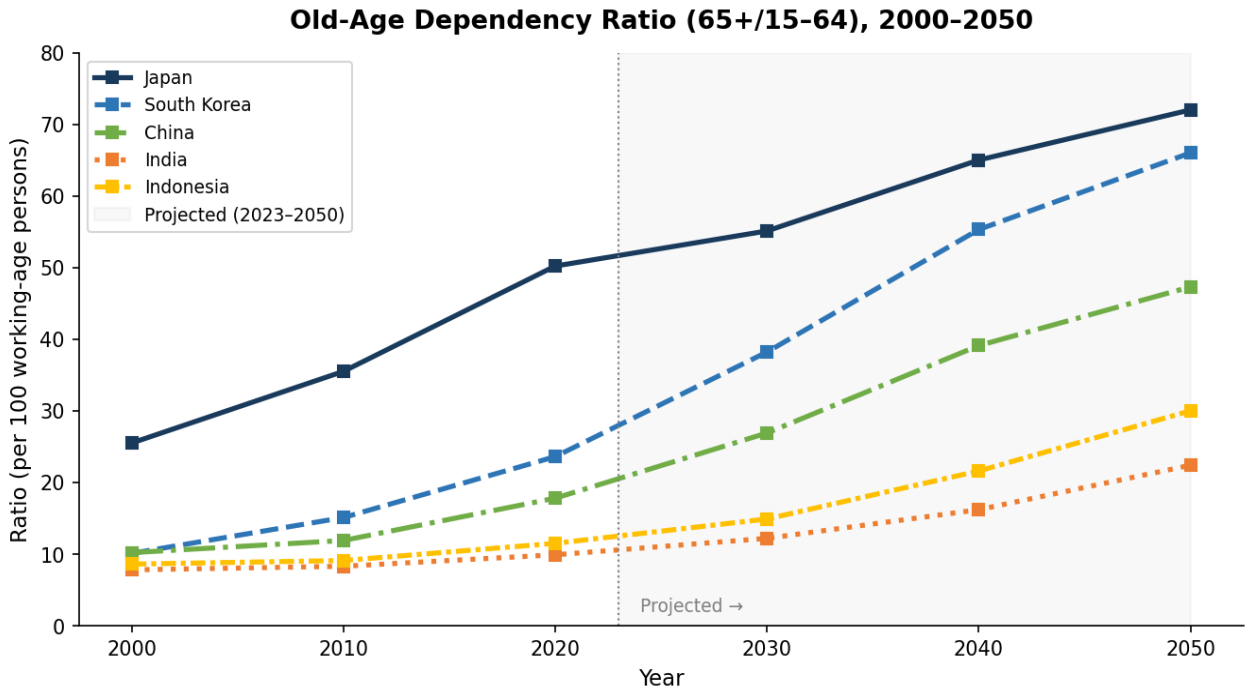


Figure 4: Old-Age Dependency Ratio (per 100 working-age persons), 2000–2050 (projected). *Source:* UN World Population Prospects (2022); ILO (2023).

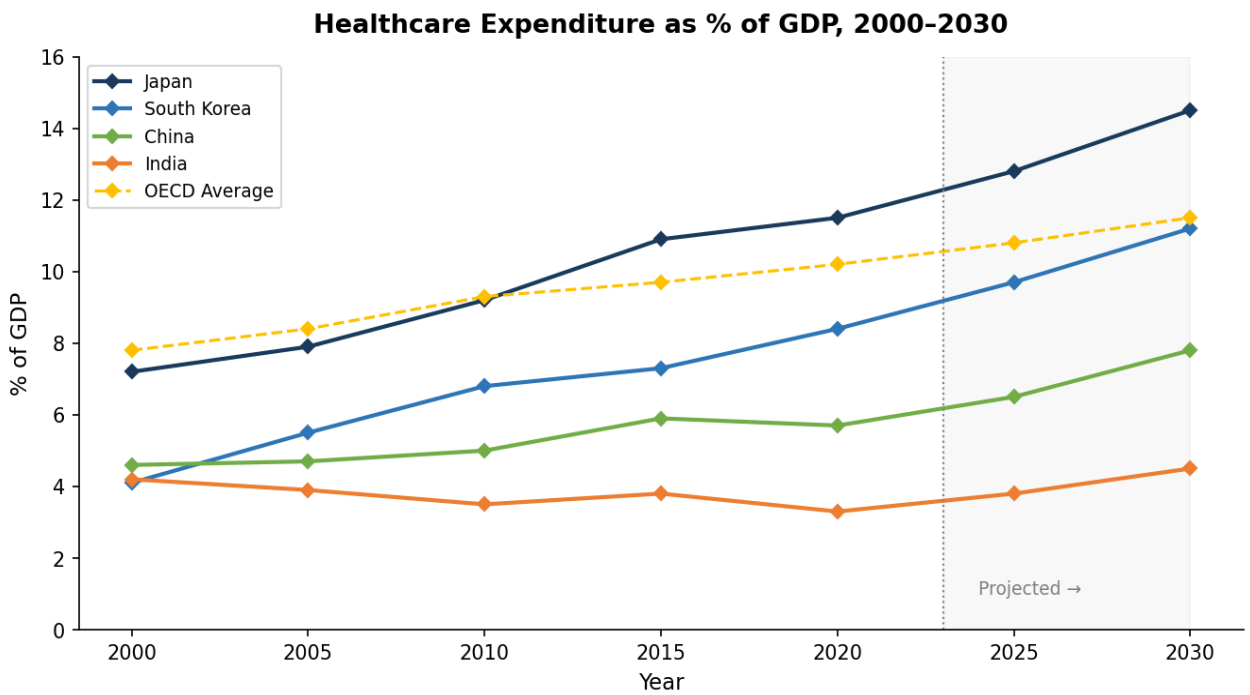


Figure 5: Healthcare Expenditure as % of GDP, Selected Asian Economies, 2000–2030 (projected). *Source:* WHO Global Health Expenditure Database (2023); IMF Fiscal Monitor (2023).