

A Comparative Study on China, Japan, and South Korea's Declining Birthrate and Aging Policies: An Analysis of Path Differences, Effect Evaluation, and Regional Collaboration

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Abstract: East Asia is undergoing the fastest and largest demographic transformation in human history, and Japan, South Korea and China, as regional core economies, are facing all-round challenges brought about by the superposition of declining birthrate and aging. Based on the theory of population transformation and the theory of productivist welfare system, this paper constructs a systematic comparative analysis framework to deeply analyze the evolution path, internal logic and practical effects of the three countries' policies. The study reveals that Japan has formed a "high welfare-high burden" model with sound laws and covering the whole life cycle in the long-term response, but it is facing the bottleneck of fiscal sustainability and social mentality change. Driven by the crisis of ultra-low fertility, South Korea has embarked on the path of "radical reform" with compulsory institutional innovation as the core, with the strongest policy but the strongest deep-seated cultural resistance. China, on the other hand, has shown the "hybrid" characteristics of top-level design and local fragmented exploration due to its national conditions of "getting old before getting rich" and rapid policy shifts. This paper further demonstrates that policy effectiveness is not only determined by economic input, but is deeply constrained by structural factors such as fiscal sustainability, gender role norms, intergenerational fairness contradictions, and especially "policy-cultural fit". Based on this, this paper innovatively puts forward the strategic concept of building an "East Asian Population Governance Community", and systematically designs a "four-dimensional collaboration" regional collaboration framework covering policy coordination, technology sharing, capital integration and service interconnection, aiming to provide solid theoretical support and feasible policy

options for solving the regional population dilemma and contributing to the "East Asian wisdom" of global population governance.

Keywords: Declining Birthrate and Aging Population; Population Policy; Comparative Research; Welfare System; Regional Collaboration; China, Japan, South Korea

1. Introduction

A definite trend in global population development in the 21st century is the declining birthrate and the continuous deepening of aging, which is profoundly reshaping the socio-economic structure, labor market, public service system and even the international competition pattern of various countries. Among them, the East Asian core circle composed of Japan, South Korea and China has become a key field for observing and understanding global population problems due to its rapid transformation, scale and deep influence. According to the World Population Prospects 2022 report released by the United Nations Department of Economic and Social Affairs, East and Southeast Asia are the fastest aging regions in the world, while the proportion of people aged 65 and over in Japan (28.7%), South Korea (16.6%), and China (13.7%) (2021 data) far exceeds the world average (9.6%), and its upward curve is extremely steep (United Nations, Department of Economic and Social Affairs, Population Division, 2022) [6]. At the same time, the total fertility rate of the three countries has been below the population replacement level for a long time (2.1), and it is difficult to extricate itself from the "low fertility trap", forming a special population age structure in which "bottom shrinkage" and "top expansion" coexist. This "new normal" of demographic structure has had a systemic impact on the economic and social development of the three countries: the inflection point of labor supply has arrived early, and the downward pressure on the potential

economic growth rate has increased; the pressure on the balance of income and expenditure of the public pension and medical insurance system has increased sharply, and the risk of government debt has accumulated; The intergenerational support function of the family is weakened, and the tension between generations in resource allocation and social burden is highlighted [2]. However, despite common challenges, The three countries have shown a rich diversity of response strategies due to significant differences in economic development stages, political systems, socio-cultural traditions, and policy legacies. As a pioneer, Japan's policy system lasted for more than 40 years and was the most systematic and mature, but the high financial investment failed to effectively reverse the downward trend of fertility and fell into a period of reflection of "high cost and low effectiveness". South Korea, on the other hand, has a more crisis-driven policy response against the backdrop of the world's lowest fertility rate, and has continuously introduced unprecedented aggressive measures in an attempt to turn the tide [3]. China, on the other hand, is in the early stages of exploration of the historic transformation from "birth control" to "encouraging childbirth" because of its unique national situation of "getting old before getting rich" (that is, encountering deep aging in the upper middle-income stage). In this context, a systematic comparative study not only has urgent practical significance, but also has important theoretical value. This study aims to answer the following core questions by constructing an integrated analytical framework: (1) What are the essential differences between the evolution path and the selection of policy tools in China, Japan, and South Korea? What are the institutional logic and cultural motivations behind these differences? (2) How to go beyond macro population indicators to objectively evaluate the implementation effect of the three countries' major policies from multiple dimensions (such as gender equality, intergenerational equity, and fiscal sustainability), and accurately identify the deep structural constraints they face? (3) Under the trend of regional economic integration and increasingly frequent population flows, can the three countries explore a new path of more resilience, efficient and fair regional governance through institutional innovation and multi-level cooperation that transcends national borders?

This study is not only committed to carefully sorting out and objectively evaluating the policy practices of the three countries, but also hopes to contribute a constructive "East Asia Plan" to policy optimization and regional synergy through forward-looking regional cooperation program design.

2. Literature Review and Theoretical Framework

2.1. Review of the Current Research Status at Home and Abroad

A large number of valuable research results have been formed in the domestic and foreign academic circles on the problem of declining birthrate and aging in the three countries, which has laid a solid foundation for this study.

2.1.1 Context of Japanese studies

Research in Japan is represented by the long-term, systematic follow-up of the National Institute of Social Security and Population Studies (IPSS). Its "Demographic Data Collection", "Future Population Projection" and "Basic Survey of Birth Trends" provide extremely detailed micro data support for policy formulation and evaluation. In the early stages, Japanese academic research focused on describing the trends and consequences of demographic changes, and later delved into the detailed evaluation of specific policy tools, such as analyzing the marginal impact of different forms of child allowances on fertility decisions (Ishikawa, 2022) [4], evaluating the actual effect of the long-term care insurance system in reducing the burden of family care and promoting women's employment, and continuing to pay attention to its fiscal sustainability crisis [13]. These studies generally reveal the decisive influence of non-economic factors such as work style, marriage and love concepts, and gender equality on reproductive behavior in addition to economic subsidies.

2.1.2 Korea research focus

The Korea Institute of Health and Social Studies (KIHASA)'s annual Survey on Low Fertility and Aging Society is a key text for understanding South Korea's plight. Research in Korean academia has profoundly revealed the intrinsic correlation between the ultra-low fertility rate and South Korea's highly competitive "compressed modernization" model, especially the "fertility inhibition" environment composed of expensive private education costs, unstable

employment environment (non-regular jobs), and a long working culture that is not conducive to work-family balance (Choi & Park, 2023) [2]. This makes Korean studies more focused on structural and institutional reforms rather than simple economic incentives, and critically reflected on the effects of the government's successive "Basic Plans for a Low Fertility and Aging Society" (Korea Institute for Health and Social Affairs, 2023) [5].

2.1.3 Progress in Chinese research

Research in Chinese academia (represented by the Institute of Population and Labor Economics of the Chinese Academy of Social Sciences and the Population and Development Research Center of Chinese Min University) focused on introducing and commenting on the experiences and lessons of Japan and South Korea in the early days. With the acceleration of the transformation of the Chinese population, the focus of research has shifted to analyzing the specific manifestations of the characteristics of "getting old before getting rich", the public reaction after the implementation of the "three-child policy", and the exploration and practice of local fertility support measures (Song & Zhang, 2023) [15]. An important consensus of current research is to point out that there is a serious "fragmentation" problem in China's policy system, that is, the lack of top-level design of the central government and the coexistence of local "separate governance" pilots, resulting in insufficient policy coordination and loopholes in the scope of protection (Wang, 2022) [19].

2.2 Research Gaps and Entry Points of this Paper

Although the existing research results are fruitful, there are still the following gaps, which provide an entry space for this study: First, transnational comparative research is mostly a parallel description or macro comparison of national policies, and lacks a unified and powerful theoretical framework to explain the deep institutional and cultural roots of the paths of the three countries. Secondly, the evaluation of policy effects relies more on macrodemographic data, and the "black box" analysis of policy interaction with specific sociocultural contexts (such as gender concepts and intergenerational contracts) at the implementation level is insufficient. Finally, although there have been initiatives for regional cooperation, most of them

remain at the vision level, and there is a lack of concrete, actionable and hierarchical policy tool design and implementation path planning. This study will focus on making up for the above shortcomings.

2.3 Theoretical Framework Construction

In order to systematically explain the similarities and differences between China, Japan and South Korea's policies and their effects, this study constructs an analytical framework that integrates the theory of population transition and the theory of productivist welfare system.

2.3.1 Population transition theory

This classical theory describes the general process of human society's transformation from high birth rate and high mortality rate to low birth rate and low mortality rate (Thompson, 1929) [18]. China, Japan and South Korea have completed this transformation and entered the so-called "fourth stage" or "modern demographic transition stage", which is characterized by low mortality and fertility rates, and stagnant or even negative population growth. This theory reminds us that the decline in fertility is an inevitable result of industrialization, urbanization, the spread of education (especially the improvement of women's education) and the development of contraceptive technology, which has a certain irreversibility. This constitutes a common objective background for the policy interventions of the three countries - they are all playing a game with the powerful forces of modernization.

2.3.2 Theory of productivist welfare system

In the critique and expansion of Espin-Anderson's theory of the "three worlds" of welfare capitalism, scholars (e.g., Holliday, 2000) have proposed that a unique "productivist welfare system" has been formed in East Asia. Its core characteristics are: first, economic growth is prioritized, social policies generally obey and serve the goal of rapid economic growth, and are regarded as "productive factors" rather than pure consumption or redistribution. Second, as the core welfare provider, the state plays a subsidiary role in welfare supply, and the market role is limited, and the family is defaulted as the first subject to bear welfare responsibilities such as child rearing and elderly care. Third, social rights are linked to contributions, and welfare qualifications are more linked to employment and contribution records. This theoretical framework provides the

key to understanding the initial similarities and subsequent differences in the policy responses of the three countries. The similarity is reflected in the fact that in the early stage of policy response, the three countries relied on the performance of family functions to varying degrees, and state intervention was relatively cautious, which reflects the legacy of the productivist system. The difference stems from the different time, intensity and method of revision and adjustment of this traditional system by the three countries. As the first country to encounter challenges, Japan's revision process is gradual and cumulative, gradually establishing a national welfare system with wide coverage but extremely high financial costs, which can be regarded as a "social-democratic" revision of the productivist system. South Korea's amendments are more "crisis-driven" and explosive, forcibly implanting a series of mandatory institutional arrangements aimed at changing workplace and family culture in the form of legislation under the leadership of the state, which can be regarded as a "national corporatism" radical amendment. China's amendment is in its infancy, showing the experimental characteristics of "crossing the river by feeling the stones", and exploring new state-market-family responsibility boundaries through local pilots, which can be regarded as a "progressive adaptation" amendment. The effect of the three countries' policy can be seen as the result of the collision and running-in between these different "revision models" and their respective domestic cultural norms and vested interest structures.

3. A Multi-dimensional Comparison of the Evolution Path of the Three Countries' Policies

3.1 Fertility Support Policies: A Pedigree from Economic Incentives to Institutional Restructuring

3.1.1 Japan: "full guarantee" system under legal protection

Japan's fertility support policy has evolved over decades to form a highly legalized and complex system covering the entire life cycle of individuals. Its evolution is clearly visible: from the "1.57 shock" in 1990 to the promulgation of the "Childcare and Nursing Leave Law" in 1995 to establish the basic right to parental leave, and then to the promulgation of the "Basic Law on Social Countermeasures against the Declining

Birthrate" in 2003 to elevate the response to the declining birthrate as a basic national policy. Its policy tools show the multi-dimensional characteristics of "economic support + service support + time support". Financial support: Child allowance (child allowance) is a core tool. After many expansions, its 2023 standard is: 15,000 yen per month for children aged 0~3; From the age of 3 to the completion of elementary school, the first and second children are 10,000 yen per month, and the third child and above are 15,000 yen per month. Junior high school students are set at 10,000 yen per month, and a payment ceiling is set for high-income families (Ministry of Health, Labor and Welfare of Japan, 2023a). The implementation of "free early childhood education and childcare" in 2019 has greatly reduced the direct cost of preschool education by making certified nursery schools and kindergartens completely free for children aged 3-5 years old, and free for families exempt from resident tax for children aged 0-2 (Cabinet Office of Japan, 2023) [1]. Time support: Japanese law stipulates that parents can apply for parental leave until the child turns 1 year old (it can be extended to 2 years old in special circumstances), during which they can receive an allowance equivalent to 50%-67% of their pre-leave salary. In addition, there is a "care leave" system for infants and young children who are sick. Service support: We will continue to work to solve the problem of "children on standby" (children waiting in line) by establishing "certified children's kindergartens" (integrating the functions of kindergartens and nursery schools) and expanding the number of childcare service places. Japan's model reflects its social pursuit of fine and complete governance, but high welfare expenditures also bring a heavy financial burden.

3.1.2 South Korea: "Compulsory institutional innovation" driven by the crisis

In the face of the grim situation of the world's lowest total fertility rate, the South Korean government's policies show a strong crisis response color and interventionist tendencies, and its core logic is to reshape the workplace culture and the division of labor within the family through legislation and coercive measures. Generous Time Support and Financial Incentives: South Korea's paid parental leave system is generous worldwide. Both parents can share a leave of up to 12 months, during which the government provides a monthly allowance of up

to 3 million won (about 16,000 yuan, 2023 standard) to protect family income (Ministry of Health and Welfare, Korea, 2023) [7]. In order to strongly promote father involvement, paternity leave for male employees has been extended from 10 days in 2019 to 20 days in 2023. According to Statistics Korea, these measures have begun to bear fruit, with the use of parental leave by men in South Korea increasing significantly from about 2% in 2011 to 21.5% in 2023 (Statistics Korea, 2023a) [16], although the absolute percentage is still not high, but the growth rate is significant. Comprehensive childcare services: The South Korean government has vigorously expanded public childcare services, with the goal of achieving full free childcare for 5-year-olds and providing high subsidies for younger children to liberate the family workforce, especially women. Targeted cash subsidies: providing subsidies for infertility treatment and distributing "newborn congratulatory money" to newborn families constitute a supplement to economic incentives. South Korea's policy combination is unprecedented, but it remains to be seen whether its effects will be sustained and ultimately reverse the entrenched culture of low fertility.

3.1.3 China: "Locally-led fragmentation exploration" in the transition period

After China's historic transformation from "one-child" to "three-child policy" in 2021, the construction of its fertility support system is still in its "initial stage", and the biggest feature is the lack of top-level design of the central government and the active exploration of local autonomy. Local pilot of economic subsidies: Panzhihua City, Sichuan Province, set a precedent in the country, announcing in 2022 that families with two or three children will receive a monthly childcare subsidy of 500 yuan per child until the child is 3 years old (Office of the People's Government of Panzhihua City, Sichuan Province, 2022) [14]. Changsha City, Hunan Province, Yunnan Province and other places have also introduced one-time or monthly subsidy policies for two and three children. These explorations are of ice-breaking significance, but the subsidy standards, coverage, and payment period vary greatly from place to place. Tax, housing and education support: Some regions have tried to support them by increasing the special additional deduction standard for individual income tax on infant and young child care expenses, giving preferential or preferential

lottery to families with many children, and increasing preschool education degrees. Structural dilemma: This "local-led" model has led to serious policy fragmentation and synergy failure. First of all, the central and local powers and financial powers are not matched, and economically underdeveloped areas have policy will but lack financial capacity, resulting in a widening welfare gap between regions. Secondly, the restrictions of the household registration system make the large-scale floating population often excluded from the welfare protection of the place of residence, forming a "subsidy island". Finally, policies involving more than ten departments such as education, health, housing and construction, finance and taxation lack a strong high-level coordinating agency to coordinate, resulting in insufficient policy synergy and limited overall effectiveness.

3.2 Pension Security System: Structural Reform in Response to the Silver Tsunami

3.2.1 Japan: Creation of long-term care insurance system and financial difficulties

Japan's Long-Term Care Insurance Act, implemented in 2000, is a landmark institutional innovation that addresses the global demand for aging care. It adopts a social insurance model that makes it mandatory for citizens over 40 years old to participate in insurance, funded by insurance contributions (50%) and public funds (taxes, 50%). Operation and effectiveness: After being identified as needing care, the insured can choose home services, community services or institutional services, and the cost is mainly paid by the insurance fund (10%-30% borne by the individual). According to the Ministry of Health, Labor and Welfare's 2023 Long-Term Care Insurance Business Status Report, there are more than 6.5 million service users. Empirical studies have shown that it significantly reduces the care burden of families (especially female members), reduces the average daily care time by about 2 hours, and contributes significantly to the improvement of middle-aged women's labor force participation rate (about 8 percentage points) (Ministry of Health, Labor and Welfare of Japan, 2023b) [9]. Challenges and reforms: However, as the "lump generation" (post-war baby boom) entered its advanced age, the financial pressure on long-term care insurance was unmatched. Total expenditure in fiscal 2023 has exceeded 11 trillion yen, accounting for a continuous increase in GDP. In order to keep the

system running, the Japanese government has had to continue to raise the consumption tax (currently up to 10%) and constantly adjust insurance premiums and personal out-of-pocket ratios. How to control costs without reducing service quality is a long-term problem facing Japan.

3.2.2 South Korea: Rapid expansion of long-term care insurance and financial pressures
 South Korea established a long-term care insurance system in 2008 based on Japan's experience. System design: Covering all citizens over 65 years old or suffering from specific geriatric diseases, funded by insurance contributions (about 60%), government finances (about 20%), and personal out-of-pocket payments (about 20%) [12]. The system also provides a variety of service options, from home to institutions. Challenges: Similar to Japan, long-term care insurance in South Korea faces financial sustainability challenges due to the surge in demand for services. Insurance premiums have been raised year after year, bringing a growing payment burden to insured people, especially the younger generation and low- and middle-income families. At the same time, regional differences in service quality and shortage of professional care manpower are becoming increasingly prominent.

3.2.3 China: Breaking the ice for the pilot of national pension coordination and long-term care
 China's pension security system is in the deep waters of arduous reform. Pension reform: In order to cope with the risk of pension funds bottoming out in some provinces, the gradual delay of retirement age plan has been in the making for many years and has entered the substantive policy formulation stage. What is more far-reaching is the promotion of the national overall reform of pensions. According to the China Pension Development Report 2023, on the basis of realizing the provincial unified revenue and expenditure of the basic pension insurance fund for enterprise employees, the central adjustment fund system has transitioned to national coordination, which is crucial for alleviating the extreme imbalance between regions such as Heilongjiang Province (where the employee pension dependency ratio was as low as 1:1.5) and Guangdong Province (the dependency ratio was as high as 1:8) and enhancing the overall risk resistance of the system (Zheng, 2023) [20]. Exploration of long-term care insurance: China has not yet

established a national long-term care insurance system, but pilot work has been carried out in more than 49 cities since 2016. These pilot cores explore the "combination of medical and nursing care" model, that is, integrating medical and health and elderly care service resources to provide continuous care for the disabled elderly. The pilot has accumulated valuable local experience in financing mechanisms, service supply, and demand assessment standards, but there is still a long way to go before building a unified, fair and sustainable national system.

3.2.4 The germ of regional collaboration: Cross-border elderly care

At the regional level, cross-border elderly care practices in the Guangdong-Hong Kong China-Macao China Greater Bay Area provide interesting examples. With geographical and cultural similarities and differences in cost of living, tens of thousands of Hong Kong China elderly people have chosen to retire in Guangzhou, Shenzhen, Zhongshan, Jiangmen and other cities in Guangdong. Through policy innovations such as the "Hong Kong China and Macao China Medical Device Connect" and the "Bay Area Social Security Connect" (exploring cross-border settlement), attempts are being made to break down the geographical barriers of public services. This provides preliminary local practical experience for China, Japan and South Korea to carry out pension cooperation on a larger scale in the future.

3.3 Technological Innovation Application: Differentiated Choice of Empowerment Path

All three countries attach great importance to using technological innovation to address demographic challenges, but the focus is different.

3.3.1 Japan: The refinement of age-appropriate technology is deepened. Japan has positioned robotics and artificial intelligence as strategic directions to address the labor shortage in the elderly care sector. Key research and development directions include: nursing robots (such as lifting robots, excretory assistance robots, companion robots), telemedicine and health monitoring systems, and digital games and software for dementia prevention and training. Panasonic, Toyota and other large companies are the main R&D forces. The application of these technologies in institutions has effectively reduced labor costs by about 20%-30%, but their popularity in ordinary

households is still limited by high prices and operational complexity.

3.3.2 South Korea: Systematic solutions for smart childcare. South Korea is investing more in the field of fertility support. For example, the "AI kindergarten security system" is promoted in cities such as Seoul to improve child safety and infectious disease prevention and control through facial recognition access control, real-time body temperature and abnormal behavior monitoring. Large conglomerates (such as Hyundai and Samsung) have reported a significant decrease in the turnover rate of female employees as a benefit to attract and retain female employees of childbearing age as a benefit to attract and retain female employees of childbearing age.

3.3.3 China: Large-scale attempts at platform-based services. China's practice benefits from its large Internet user base and strong platform companies. For example, Zhejiang Province's "Zhejiang Liyang" platform integrates the province's elderly care institutions, community daycare centers, and housekeeping service resources to provide online queries, appointments, and payments. Shenzhen explores "blockchain parenting points", giving points to families who give birth according to policies, which can be exchanged for public services or physical goods such as education and medical care to digitally encourage fertility behavior. However, this model also faces the challenge of the digital divide between urban and rural areas, with the coverage of smart devices in rural areas and the digital literacy of the elderly being much lower than those in cities, which risks exacerbating the inequality of public services.

4. Policy Effect Evaluation and Deep Challenge Analysis

4.1 Multi-dimensional Evaluation and Reflection of Policy Effectiveness

Despite the huge political and financial resources invested by the governments of the three countries, the policy effects presented a complex and unoptimistic picture from the perspective of core population indicators and structural impacts.

4.1.1 Fertility level: the failure of incentives and the resilience of culture. South Korea's aggressive intervention has yet to reverse its ultra-low fertility rate. According to the preliminary results of the 2023 Birth and Death

Statistics of the Statistics Office of Korea, its total fertility rate has further dropped to 0.72, ranking at the bottom of the world for many years (Statistics Korea, 2024) [17]. This strongly suggests that when the cost of childbirth (including opportunity cost, education cost, and housing cost) is high to a certain extent, and is deeply integrated with social competitive pressure and individualistic values, simple policy incentives (even if strong) may have "diminishing marginal utility" or even "failure". Japan's total fertility rate has been hovering at a low level for a long time, at 1.26 in 2022 (Ministry of Health, Labor and Welfare of Japan, 2023c) [10], and its high, full-cycle economic subsidies have not effectively hedged the alienation and economic insecurity of young people from marriage and childbearing in the context of a "low-desire society". After the implementation of the "three-child policy" in China, the effect of the policy has shown a marginal decline, with 9.02 million births in 2023 and a decline in the birth rate for many years (National Bureau of Statistics, 2024) [11], reflecting that the effect of simply relaxing the number of births is very limited before the cost of "three educations" (birth, parenting, and education) is systematically reduced.

4.1.2 Pension burden: The achievement of the system and the sustainability crisis. Japan's long-term care insurance system has made achievements in improving the quality of life of the elderly, promoting the industrialization of care services, and liberating the family labor force. But its fiscal system's reliance on continued tax increases and debt poses long-term political and economic risks and sparks intergenerational debates about burden equity. Although China's national pension coordination has made technological progress, how to balance the interests of different provinces and achieve true national mutual aid is still a serious governance challenge, and there is uncertainty about the acceptance of parametric reforms such as delayed retirement age at the social level.

4.1.3 Technology applications: efficiency improvement and the equity divide. The application of technology in specific scenarios (such as Japanese pension institutions and large Korean enterprises) has indeed improved efficiency and reduced costs. But their adoption, however, faces common obstacles: high initial inputs, barriers to access (especially unfriendly to older people), and inadequate coverage among

SMEs, rural areas, and low-income households, which could lead to new social injustices.

4.2 An In-depth Analysis of Structural Dilemmas and Cultural Constraints

The three countries are facing a number of deep-seated structural dilemmas, which constitute an insurmountable "ceiling" for policy.

4.2.1 The specter of fiscal unsustainability

The contradiction between the promise of high welfare and slowing economic growth is becoming increasingly acute. The balance of Japan's central government's public debt as a percentage of GDP has long ranked first in the world, exceeding 250%. South Korea's national debt has also risen rapidly in response to the pandemic and welfare spending. The long-term sustainability of this "high burden" model is a concern against the backdrop of continued demographic deterioration.

4.2.2 Stubborn gender role division and inequality

The traditional concept of "male domination outside and female domination" in East Asian society remains deeply entrenched, leaving the responsibility of childcare and care within the family still falling unequally on women's shoulders. According to OECD data, Japanese men spend only 41 minutes a day on unpaid housework and childcare, while in South Korea it is 45 minutes, which is much lower than in Nordic countries (such as Sweden, which is more than 150 minutes) (OECD, 2023) [13]. This has greatly undermined the effectiveness of parental leave policies aimed at promoting gender equality, especially male quotas, and has led to a "motherhood penalty" for women, i.e., the loss of their careers, income, and opportunities for advancement due to childbirth.

4.2.3 Explicit intergenerational equity conflict

The current pay-as-you-go pension system, under the trend of inverted pyramidization of population structure, means that the dwindling number of young workers needs to support a large number of retirees. This not only exacerbates the payment burden on the younger generation, but also sparks a widespread intergenerational debate about resource allocation and social contract, and the younger generation's pessimism about the future may further dampen their willingness to have children.

4.2.4 At the cultural level, informal social norms profoundly affect policy effectiveness

China's cultural paradigm of "Intensive Parenting", which pursues the maximization of children's educational achievements and requires parents (especially mothers) to invest a lot of time, energy and money, has greatly pushed up the cost of parenting for families. Before the introduction of the "double reduction" policy, the total expenditure on extracurricular training in primary and secondary schools accounted for 28% of total household income (according to Peking University's 2021 China Education Finance Family Survey), which made the government's limited maternity subsidies a drop in the bucket in the face of huge investment in education. This highlights the deep tension between economic incentives and strong cultural models and social competitive pressures.

5. Regional Collaboration and Innovation Program: Building an East Asian Population Governance Community

In the face of these systemic challenges that go beyond the governance capacity of a single country, piecemeal, intra-country adjustments may no longer be enough. This paper proposes a strategic concept of building an "East Asian Population Governance Community" and designs a four-dimensional collaborative governance framework to explore the feasible path of regional cooperation.

5.1 Policy Coordination Mechanism

Propose the establishment of a regular China-Japan-ROK Ministerial Conference on Declining Birthrate and Aging as the highest-level platform for regional policy dialog, information sharing and standards coordination. In the early stage, priority can be given to promoting standard docking and mutual recognition in three areas:

Cross-border accumulation and realization of parental leave rights: Explore the establishment of a mechanism for accumulating rights and interests based on the length of residence, for example, cross-border workers who have worked and lived in a country for more than 6 months can enjoy part of the local maternity or childcare subsidy for their children.

Cross-border connection of pension security rights: Negotiate the establishment of a segmented calculation and combined payment mechanism for pension rights and interests to solve the pension receipt problem of the elderly who have work experience in all three countries.

Mutual recognition of the professional qualifications of caregivers: Promote the establishment of a framework for mutual recognition of the qualifications of caregivers and elderly care workers in the three countries, promote the rational flow of professionals in the region, and alleviate the manpower shortage faced by all countries.

5.2 Technology Sharing Platform

Jointly set up the East Asia Joint R&D Center for Age-appropriate Science and Technology to concentrate intellectual and financial resources to tackle technical bottlenecks with regional commonality. Key R&D directions can include: Natural language processing and voice interaction technology that supports Chinese, Japanese and Korean trilinguals are applied to multilingual nursing robots to solve the communication problems between foreign nurses and local elderly people.

Build a secure, credible, and privacy-preserving cross-border electronic health record (EHR) exchange platform based on blockchain technology to facilitate the continuity of medical services for cross-border elderly people.

Cooperate in research on fertility preservation technology and ethical regulations in response to the increasingly prominent trend of late marriage.

5.3 Capital Integration Path

Promote the establishment of an Asian population transition investment fund. The fund can be initially injected by the three countries' finance ministries, the Asian Development Bank and sovereign wealth funds on a pro-rata basis, and actively attract global private capital participation. Investments should focus on areas of long-term strategic significance but insufficient commercial capital involvement, such as:

Construction of a network of inclusive childcare facilities in the depopulated areas of central and western China and northeast China.

Japan's silver human resource redevelopment project systematically trains healthy young people to become community childcare consultants and care support workers.

South Korea's mature smart childcare overall solution will be exported and technology transferred to emerging markets such as Southeast Asia.

5.4 Service Network Interconnection

Upgrade and expand the practical experience of "cross-border elderly care" in the Guangdong-Hong Kong-Macao Greater Bay Area to key urban areas at the level of the three countries, and pilot the construction of the "Tokyo-Seoul-Qingdao Elderly Care Cooperation Belt". Under this framework, the issuance of the "East Asian Pension Passport" can be explored, so that the elderly in the three countries who hold the passport can enjoy standardized services and equivalent preferential policies in the certified elderly care institutions in the cooperation belt. This can not only alleviate the pressure on the elderly care facilities in Japan and South Korea, but also promote the development and quality improvement of the elderly care industry in relevant regions of China, and gradually realize the regional sharing and optimal allocation of high-quality elderly care resources.

6. Conclusions and Policy Recommendations

Through systematic comparative analysis, three core conclusions are drawn:

First, the differences in the evolution paths of the policies of the three countries profoundly reflect their different choices and path dependence when revising the tradition of the "productivist welfare system": Japan has formed a systematic and high-cost "welfare state" revision model; South Korea has chosen a crisis-driven, mandatory "national corporatism" radical revision model; China is in the stage of "gradual adaptation" exploration to find a new balance between state-family-market responsibilities through local experiments. This differentiation of paths determines the preferences of policy tools, the intensity of interventions, and the unique dilemmas faced by the three countries.

Second, the policy effect is not simply directly proportional to fiscal investment, but is significantly adjusted by policy-cultural adaptation. Long-term effectiveness may be higher when policy designs (e.g., mandatory paternity leave in South Korea) can challenge and gradually change deep-seated cultural norms (e.g., gender role division); When policies (such as Japan's high cash subsidies) only compensate at the economic level and fail to address cultural structural barriers, their marginal benefits diminish rapidly. China's culture of "fine parenting" may offset the effects of economic subsidies, requiring policies to confront systemic

reforms such as education.

Third, technological innovation (such as AI, blockchain) plays an important "enabler" role in responding to the demographic crisis, but it is instrumental in nature. The successful application and scale effect of technology ultimately depend on the corresponding institutional reforms, legal and regulatory adjustments, and social acceptance, that is, they must be embedded in larger systemic changes. Otherwise, technology may only serve minority groups and even exacerbate the digital divide and social inequality.

Based on the above findings, this paper puts forward the following targeted and actionable policy suggestions.

6.1 For Japan: "Three Major Strategic Transformations" should be Promoted

From cash subsidies to restructuring the work system (such as legislating to guarantee the "right to disconnect" and promoting the four-day work system) to fundamentally improve the work-life balance; shift from focusing on the supply of later care services to strengthening preventive health management (especially dementia prevention) throughout the life cycle to reduce the time of disability in old age and reduce the total cost of care; shift from a relatively closed domestic system to active regional cooperation, including piloting agreements in specific areas to introduce Southeast Asian nursing talents, and promoting mature elderly care standards and technologies in the country to "go global".

6.2 For South Korea, Efforts Need to be Made to Achieve "Three Key Balances"

Balance the radicality and continuity of policies, establish cross-party consensus through legislation, and ensure that core strategies such as the Basic Law on Low Fertility are not interrupted or reversed by government changes; Balance technology investment and social inclusion, set up special funds to ensure that smart childcare and age-appropriate technology can benefit low-income families and small and medium-sized enterprises, and prevent the technological divide from exacerbating social inequality. Balance economic efficiency orientation with substantive gender equality, link indicators such as the proportion of female promotions, gender diversity of executives, and gender pay gap in enterprises with the tax

incentives and public procurement qualifications they enjoy, and systematically break the "workplace fertility penalty".

6.3 For China: The Top Priority is to Build a "Three-tier Integration System"

At the national level, set up a high-standard, powerful and accountable coordinating agency for dealing with the declining birthrate and aging directly under the State Council, end the current decentralized governance pattern of "multiple governments" and "Kowloon water control", and be responsible for formulating national strategies, unifying policy standards and coordinating the actions of ministries and commissions. At the regional level, we will systematically summarize and promote the collaborative governance experience of cross-border elderly care in the Guangdong-Hong Kong-Macao Greater Bay Area, explore the establishment of a transnational demonstration zone integrating production and elderly care, and advance the development of the China-Japan-South Korea Free Trade Area. At the community level, vigorously advocate and develop "elderly care integration centers", integrate community childcare stations and day care centers in space and function, encourage social interaction and mutual assistance between generations, and rebuild community support networks.

In short, the declining birthrate and aging population is one of the most severe long-term challenges faced by China, Japan and South Korea in the 21st century, and it also provides a historic opportunity for the three countries to transcend national borders and jointly explore a more resilient and inclusive regional governance model through mutual policy learning, technological synergy and institutional innovation. By working together to build the "East Asian Population Governance Community", the three countries will not only be able to more effectively alleviate their own demographic pressure, but also contribute unique "East Asian wisdom" and solutions to the global response to demographic transformation, and finally realize the ideal picture of social development of "the elderly are supported, the young are nurtured, and intergenerational harmony is realized".

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