

Responding to Reproduce:

China's Institutional Strategy for Population Aging

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Abstract

Labor reproduction is essential to production and accumulation, yet its deep entwinement with individual subjectivity renders it highly autonomous and dynamic. As a result, government regulation of labor reproduction often produces less predictable outcomes than interventions in the production sphere. In China, the country's large population has not only generated a substantial demographic dividend but also complicated the coordination of labor reproduction. This paper argues that China's effective management of the labor reproduction process has historically depended on the policy responsiveness of its uniquely prominent state-owned sector and its workforce, which offers valuable insights into addressing the country's current demographic challenges. As the relaxation of birth control policies has failed to stimulate fertility, the government has now announced to raise the statutory retirement age. Existing studies have noted the potential overlapping effect between these two policy areas resulting from intergenerational childrearing, while remain limited in methodological rigor and practical relevance, and have largely overlooked the critical role of the state-owned sector in regulating labor reproduction within the Chinese context. A historical analysis of two major policy domains—fertility and retirement—demonstrates that the Chinese state has sought to align labor supply with economic demand by steering labor reproduction through the state-owned sector, rather than relying on market-based financial incentives. The unified regulation of production and reproduction suggests that the goal of addressing population aging should not be a mere return to high population growth, but rather the alignment of demographic trends with the country's evolving economic structure and ensure a smooth transition during the ongoing process of transformation. Fundamentally, China's population aging challenge lies in developing a feasible alternative to the regulatory role once performed by state-owned enterprises in the realm of labor reproduction following the privatization reforms of the 1990s.

Key Words

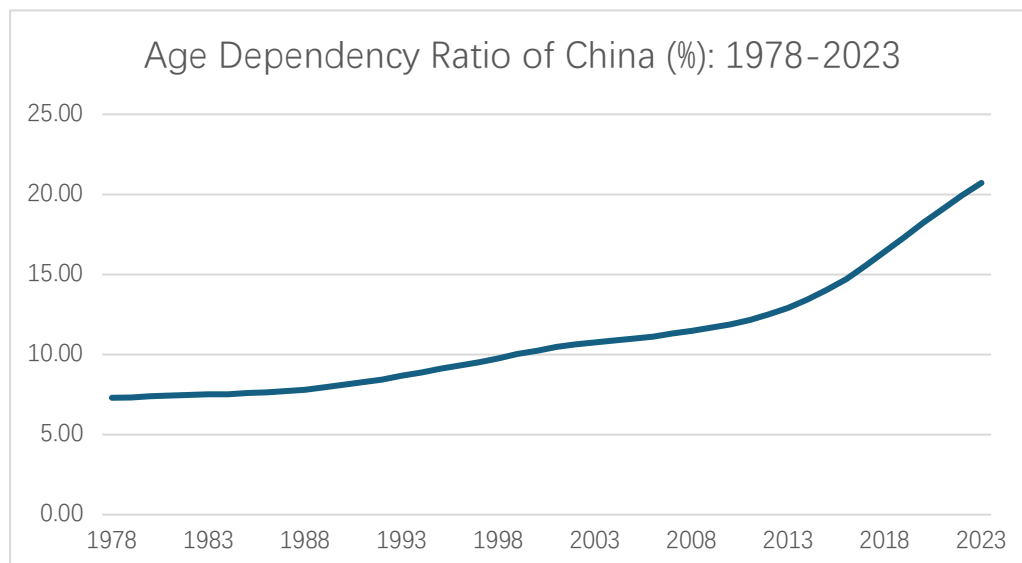
Fertility Policy, Retirement Policy, Labor Reproduction, State-Owned Sector

1. Introduction

Over the past few decades, China's remarkable economic achievements have largely relied on its demographic dividend. Whether during the post-1949 period of economic recovery and rapid industrialization, or in the construction of a modern industrial system characterized by labor-intensive industries since the reform and opening-up era, an abundant supply of labor has played a pivotal role in driving industrial upgrading and economic development. At the same time, China has also experienced one of the fastest demographic transitions in global population history (Zhang, 2024). Following the gradual decline of its first demographic dividend, low fertility rates and population aging have emerged as urgent challenges and inescapable concerns for the country's economic growth (Sun and Gao, 2025). Since 2013, the number of working-age individuals (aged 16–64) in China has been decreasing, and the national birth rate in 2022 dropped to a record low of

6.77 per thousand, which is the lowest level since 1950¹. Meanwhile, China's age dependency ratio has been rising annually (see Figure 1), reaching 20.72% in 2023.

Figure 1: Age Dependency Ratio of China²



Facing the dual challenges of a shortage of young labor and an excessive pension burden, the Chinese government has introduced a series of regulatory policies, among which reforms to fertility policy and retirement policy have attracted the greatest attention. On the one hand, China has abandoned the long-standing one-child policy, comprehensively relaxed fertility restrictions, and encouraged families to have multiple children in order to accelerate the growth of the new labor force. On the other hand, the government has moved to delay the statutory retirement age, thereby gradually extending the effective working lives of the existing labor force to alleviate pressures on labor supply. Chinese scholars have extensively debated the effectiveness of these two types of policies in addressing population aging. One particularly salient perspective concerns whether the two policy instruments generate overlapping effects (Guo et al., 2021). The essential concern is that, given the important role played by grandparents' provision of childcare within China's traditional family structure, keeping workers who are approaching retirement in the labor market may crowd out their contributions to domestic labor—especially childcare support for their adult children—thereby reducing women's fertility intentions and preventing the relaxation of fertility controls from effectively raising birth rates. This paper argues that while such discussions rightly highlight the distinctive intergenerational dynamics of the labor reproduction process in the Chinese context, they fail to capture the specificities of childrearing labor and the broader process of labor reproduction vis-à-vis ordinary market goods and services. Addressing this limitation requires a reconstruction and deepening of the analysis through a feminist analytical perspective.

Moreover, a more critical issue is that a large share of these literatures were conducted prior to the official announcement of China's delayed retirement reform and is based on projections and simulations that derived theoretically from economic and demographic models. The conclusions of

¹ Data Source: Chinese National Bureau of Statistics.

² Data Source: World Bank.

these models are internally consistent with their underlying assumptions: if delayed retirement is presumed to exert a negative effect on women's fertility motivation, then it follows almost tautologically that the longer the postponement of retirement age and the shorter the transition period for completing the reform, the stronger the predicted inhibitory effect on fertility. However, China has now formally released a detailed implementation plan for delayed retirement, and the policy design is notably cautious and gradual. As a result, even if the warnings raised by these literatures regarding the overlapping effect between fertility policy and retirement reform are well founded, the magnitude of such effects has been substantially reduced and buffered under the current policy practice. Put differently, the overlapping effect between fertility policy and retirement policy do not constitute a fundamental constraint underlying China's contemporary demographic aging dilemma. Focusing exclusively on identifying and resolving tensions between fertility and retirement reforms is therefore insufficient to capture the deeper conflicts embedded in the process of labor reproduction, particularly given that the explanatory power of such policy interactions has weakened under existing institutional arrangements and policy practices.

In this paper, we argue that China's labor reproduction process and its regulation of state should be examined from a broader historical and institutional perspective, which helps to uncover the fundamental contradictions underlying contemporary labor reproduction in China. First, under the influence of Marxist ideology, China's state governance strategy does not treat population issues as a purely Malthusian phenomenon of demographic growth. Instead, it emphasizes the incorporation of material production and labor reproduction into a unified framework of coordination, with the aim of aligning labor supply with economic growth while remaining consistent with the state's commitment to improving people's welfare. This implies that the regulation of population growth is guided by a dynamic objective that adapts to changes in the economic structure, and that assessments of the severity of population aging and the appropriate regulatory targets should be grounded in processes of structural transformation. At the same time, this implicit orientation toward productivity growth as the major target has consistently shaped both the coordination and the conflicts between production and reproduction, offering a new lens through which to understand changes in women's roles and bargaining power across these domains.

Second, China's regulation of population growth and labor supply constitutes an integral component of its broader system of state regulation. From the perspective of policy implementation, China's uniquely large state-owned sector has historically provided a crucial channel through which policies regulating the labor reproduction process have been enacted. The distinctive nature of labor reproduction implies that regulation through market and monetary mechanisms alone tends to be ineffective. China's historical capacity to rapidly and effectively shape the labor reproduction process relied to a large extent on direct interventions targeting workers in the state-owned sector, thereby enabling effective state influence over labor reproduction. A review of successive adjustments to fertility and retirement policies shows that the responses of state-owned enterprises played a dominant role in translating these policies into effective regulation of labor reproduction. From this perspective, the decline in state-owned employment following market-oriented economic reforms and the accompanying SOE reforms of the 1990s may have weakened this previously effective, non-market regulatory channel. As a result, China has become increasingly constrained by reliance on comparatively ineffective market-based mechanisms of regulation. Accordingly, a

fundamental resolution to China's current population aging dilemma lies in the need to provide a viable non-market alternative in the sphere of labor reproduction alongside the country's process of marketization.

The remainder of this paper proceeds as follows. Section 2 briefly reviews the evolution of China's fertility and retirement policies and provides a critical assessment of the existing literature on these two policy domains and their overlapping effects. Section 3 examines the role of the state-owned sector as a key institutional channel in ensuring the effectiveness of these policies in regulating the labor reproduction process, and discusses how SOE reforms are related to China's current population aging dilemma. Section 4 situates the analysis in a broader perspective by examining China's unified regulation of production and reproduction, re-examining the dynamic objectives of population growth and the role of SOEs. Finally, section 5 concludes.

2. Background and Critical Review

2.1 The Evolution of China's Fertility and Retirement Policy

Since the establishment of the People's Republic of China, the country's fertility policy has undergone three stages: pronatalist, strict control, and fertility support (Shi et al., 2024). In the early 1950s, Chinese policy, influenced by the Soviet model, was strongly pronatalist (Greenhalgh, 2008). On one hand, political unification and economic recovery improved living standards and healthcare, creating favorable conditions for maintaining high birth rates and sharply reducing mortality. On the other hand, the urgent need to compensate for wartime population losses and to expand the labor force to support rapid economic development prompted the government to fully encourage childbirth. At the end of 1949, China's population was only 542 million, a base insufficient relative to the country's large economy. Under the guidance of socialist ideology, the state provided a socialized welfare system encompassing childbearing and childrearing. Accordingly, prior to the 1970s, China experienced a period of high, largely unplanned population growth, marked by two population surges³. Although the government recognized potential risks of excessive population growth after the 1953 census (Zhai, 2001) and advocated for family planning, interventions were repeatedly disrupted by the Great Famine (1959–1961) and political upheavals such as the Cultural Revolution, preventing the emergence of large-scale, coercive state enforcement.

Between the 1970s and 1980s, mounting demographic pressure led China to launch a comprehensive campaign to control fertility. In 1971, the government formally proposed specific population control targets and, for the first time, integrated them into national economic development plans (Du and Qi, 2011). This was followed by a series of policies promoting late marriage and childbirth, extended birth intervals, and quality childbearing⁴. Couples were encouraged to have only one child, or at most two. Although these advocacy-based policies were broadly implemented in both urban and rural areas, they had not yet become mandatory measures.

³ The first peak of population growth occurred from 1949 to 1957, with a net increase of 105 million people; the second occurred from 1962 to 1970, with a net increase of 157 million people.

⁴ The "later-longer-fewer" (*wanxishao*) policy succinctly captured the population control measures of the time. "Later" referred to marriage at age 23 for rural women and 25 for rural men (25 and 27 in cities) and to first childbirth at age 24 or older (slightly higher in urban areas). "Longer" mandated birth intervals of at least three years in rural areas and four years in cities. The "fewer" component varied over time, generally promoting one child while strongly discouraging three or more.

Nevertheless, due to the already substantial population base, the number of net population increases remained very large. Between 1971 and 1980, China's population grew by a net total of 135 million—more than the net growth during the first baby boom. In response, the government intensified its efforts and transformed its birth advocacy into a compulsory policy. In 1980, the one-child policy was formally proposed⁵, and in 1982, the policy of family planning was written into the Constitution. Recognizing the tension between the one-child policy and prevailing social and economic conditions—especially in rural areas—China adjusted the policy in 1984 by allowing certain families meeting specific criteria to have a second child, while still prohibiting a third. Thereafter, the one-child policy remained stable for over three decades, with strict enforcement and heavy penalties for violations (Feng and Hao, 1992).

This strict control over fertility lasted more than 30 years until the 2010s, when growing concerns over population aging led to policy relaxation. Since 2010, China's fertility rate has remained below 1.3 per cent, sparking fears of falling into a low fertility trap (Lutz et al., 2006; Feng, 2021). In response, the government began gradually shifting from restrictive to more permissive and even pronatalist policies. In 2013, China introduced the “Selective Two-Child Policy,” which allowed couples to have a second child if one partner was an only child. When this policy failed to trigger a significant fertility rebound, the government moved forward with more proactive measures. In 2016, the “Universal Two-Child Policy” was adopted, removing the one-child restriction for all couples, and in 2021, the limit was further relaxed to allow three children for each couple. Nonetheless, the current pro-birth policy has yet to yield substantial effects, and the government is now seeking to stimulate fertility through broader family support programs.

Compared to the tortuous evolution of fertility policy, China's retirement system has undergone relatively little substantive change since it was first established in the 1950s and finalized in the 1970s, despite a series of supplementary regulations introduced over time (Lin, 2015). In general, China adopts a mandatory retirement system that stipulates the retirement age for ordinary male workers at 60, female cadres at 55, and female ordinary workers at 50. Although China's statutory retirement age is significantly earlier than that of most major countries, these regulations have remained remarkably stable over time. Most of the debate surrounding China's retirement system has focused on the balance between contributions and expenditures in the pension insurance fund. While this issue is indeed related to the retirement age, it had not previously generated an urgent call for reform. It was not until 2013, when the aging of the baby boom generation and the persistent decline in fertility rates began to intensify labor shortages and threaten the sustainability of the pension system, that the Chinese government started seriously considering raising the retirement age (Zhang and Zhang, 2025).

Compared to fertility policy reforms, the Chinese government has adopted a more cautious approach to modifying retirement policies. On the one hand, increasing labor supply by delaying retirement

⁵ At the Third Session of the Fifth National People's Congress held in September 1980, the State Council officially announced: “After careful study, the State Council believes that in the next two or three decades, a decisive measure must be taken on the population issue. Except for areas with sparse populations of ethnic minorities, it is necessary to universally advocate for one couple to have only one child in order to quickly control the population growth rate and ensure that the total population of the country does not exceed 1.2 billion by the end of this century.”

age is relatively limited in effect, especially when compared to directly raising fertility rates. On the other hand, the long-standing stability of the retirement system has shaped firm public expectations. Given the mandatory nature of the current retirement scheme, raising the retirement age implies that existing employees must extend their years of labor supply, which introduces a greater risk of social instability than merely encouraging higher fertility. Since the policy of postponing retirement age was first proposed in 2013, the government has consistently emphasized the principle of gradual implementation and has attempted to ease the reform's impact by introducing flexibility into the system. By 2024, the government had officially unveiled a concrete plan, scheduled for implementation in 2025. According to the document, the retirement age will be gradually raised over a 15-year period: the statutory retirement age for male employees will increase from 60 to 63, and for female employees from 50 (for ordinary workers) and 55 (for cadres) to 55 and 58, respectively. Additionally, the previously rigid mandatory retirement rules will be relaxed by introducing a flexible retirement mechanism. Workers who have fulfilled the minimum required years of pension contributions may opt for early retirement—up to three years before the statutory retirement age, though no earlier than the pre-reform legal threshold. Similarly, employees may also choose to delay retirement by up to three years after reaching the legal age, subject to employer consent. This design aims to create a buffer zone for the reform through a combination of gradual adjustment and greater flexibility.

2.2 Assessment and Limitations of the Overlapping Effect

Chinese society has a strong tradition of intergenerational support and kinship ties, making informal childcare from extended family—especially grandparents—an important source of childrearing assistance (Song and Dong, 2018). Some studies of fertility and retirement reforms examine the potential overlapping effects of these policies from the perspective of grandparent-provided childcare. The core argument is that extending labor force participation through delayed retirement age may reduce the availability of grandparents as caregivers, thereby lowering the fertility intentions of women of childbearing age in the household. In other words, although the Chinese government has gradually relaxed fertility restrictions from one child to two and then three, such policy liberalization can only motivate fertility if the potential number of children exceeds the previous legal limit (Sun and Gao, 2025). If delayed retirement significantly reduces the availability of grandparental childcare, it may render the relaxation of fertility controls ineffective.

Although this line of research reflects the influence of interactions within household on women's fertility decisions, it largely fails to capture the specific nature of childrearing and caregiving labor in their model construction. Most studies follow the Becker and Barro (1986) framework, representing fertility decisions as utility-maximizing outcomes based on the benefits of childbearing and the associated costs of raising children. Within this framework, the effect of delayed retirement on fertility depends on the relative magnitudes of the income effect—where extended labor participation increases grandparents' earnings, thereby providing financial support that may enhance maternal fertility intentions—and the caregiving effect—where reduced grandparental childcare lowers maternal fertility intentions (Geng and Sun, 2023). Typically, these studies construct intergenerational decision models based on the utility-maximizing behavior of women or their household and use parameter simulations to explore changes in fertility choices. The underlying logic of these models assumes a high degree of substitutability between grandparent-

provided childcare and market-based, monetary childcare. While this assumption is defensible in emphasizing that higher household income and access to paid childcare services can promote fertility, it shares a fundamental limitation that overlooks the qualitative differences between informal and paid childcare. Childrearing labor, as a form of women's care work, is difficult to value accurately in monetary terms. Theoretically, there is no consensus on how to assign a wage-equivalent value to care labor, so directly comparing the magnitudes of caregiving and income effects lacks a clear theoretical foundation. Practically and culturally, the substitutability is also questionable: when extended family childcare is unavailable, it remains uncertain whether women will compensate by purchasing paid childcare or whether their fertility intentions will decline substantially. Indeed, some studies show that women rank grandparents' assistance as the "best" and often more desirable than paid alternatives, such as childcare centers (Goh, 2009).

Another issue arising from modeling the magnitude of overlapping effects is that such assessments depend critically on the intensity of the delayed retirement reform, namely, the length of the retirement age extension and the duration over which the reform is implemented. Most studies on overlapping effects were conducted before the formal announcement of China's delayed retirement plan and rarely account for the temporal dimension of the reform. Typically, models assign seemingly plausible values to parameters based on existing studies and data, treating the length of retirement age extension as the sole variable affecting grandparental caregiving time, fertility, and other economic outcomes (Guo et al., 2021). However, as noted above, the officially announced plan is highly cautious, aiming to extend retirement by 3–5 years over a 15-year period. This implies that the initial delay for the first cohort may be only a few months, rendering the projected negative impact on fertility minimal even under previous model assumptions. Moreover, given the 15-year horizon, many model parameters should be treated as endogenous over this period, further limiting the predictive power of existing models. The introduction of flexible retirement options on top of the original mandatory retirement system adds additional uncertainty to the effect. While the reform is still in its early stages and future adjustments remain obscure, the current evidence suggests that, although earlier discussions of potential negative effects provided valuable preemptive warnings, the magnitude of any overlapping effect is insufficient to constitute a key constraint on China's current population aging. Another related critique concerns the dynamic nature of China's population growth targets. When future adjustments over the next 15 years are aligned with changes in China's economic structure, evaluations of projected fertility declines as the results of above models may change accordingly. This issue is discussed in greater detail in Section 4.

Most importantly, existing research largely overlooks the social context of China's state-owned sector when analyzing household fertility decisions. Among women of childbearing age, those employed in state-owned enterprises (SOEs) may exhibit greater flexibility in allocating labor between production and reproduction, and their access to fertility support, childrearing benefits, and domestic bargaining power may differ from those in the non-state-owned sector. As for the retirement cohort, SOE employees are subject to stricter retirement age regulations, making them more directly affected by delayed retirement reform compared with many informally employed workers. Consequently, the identification of overlapping effects should primarily focus on SOE employees. While existing models rarely incorporate such structural distinctions, empirical studies examining the impact of grandparental retirement on their childcare provision and household

fertility typically select samples that are covered by urban pension schemes (Feng and Han, 2017). Since SOE employees generally have higher pension coverage than non-state-owned workers (Zhao et al., 2016), this indirectly supports the notion that the state-owned sector is more sensitive to retirement policy reforms. In this paper, we will further emphasize the unique role of SOEs in regulating labor reproduction in China.

3. The Responsive Role of the State-owned Sector in the Labor Reproduction Regulation

While governments worldwide commonly use population policy to align labor supply with economic development, China's experience is distinctive due to the substantial size of its state-owned sector. The government can rapidly and effectively regulate the labor reproduction process through SOEs and the large workforce they employ. Prior to the SOE reforms of the 1990s, high employment in the state-owned sector ensured that SOEs' responses to population policies enabled the state to efficiently shape labor reproduction. Moreover, under China's socialist system, gender equality has been a prominent theme of official ideology, reflected in the influence of SOEs on women's roles in both the labor market and domestic labor reproduction. The unique regulatory role historically played by the state-owned sector offers a valuable perspective for understanding China's current population aging dilemma: the decline in state-owned sector employment after the marketization reform has deprived China of a powerful non-market mechanism for intervening in the labor reproduction process.

3.1 Respond to the Shift of Fertility Policy and Retirement Policy

The large share of the state-owned sector in the whole economy constitutes an essential structural backdrop for analyzing labor reproduction regulation in the Chinese context. During the Mao era, the government made concerted efforts to socialize care provision and alleviate the burdens of childrearing. In the urban sector, workers and their families accessed social welfare services through their work units (*danwei*) (Cook and Dong, 2017). Because welfare provisions were administered by work units, employees of state-owned enterprises (then termed "state-operated enterprises" or "enterprises owned by the whole people") could rely on their workplaces for more stable childcare support, including an entitlement to 56 days of paid maternity leave (Liu et al., 2008), on-site breastfeeding rooms in most units, and additional break time for mothers to breastfeed during the workday.

When China began to implement fertility control policies, the state-owned sector played a prominent role in rapidly achieving population planning outcomes. On the one hand, due to traditional norms and economic production realities, promoting family planning faced considerable challenges. During this period, employees of SOEs—especially Party and Communist Youth League members and cadres—were among the first to be mobilized to comply with national population policies. Chen (1990) notes that in situations where popular fertility preferences conflicted with policy goals, the exemplary leadership of Party and Youth League members, particularly at the cadre level, was crucial for advancing family planning (Chen, 1990; Zhang, 1990; Greenhalgh, 2008). The first publicly available instructions to reward couples having only one child also targeted cadres, who typically held key positions within SOEs (Greenhalgh, 2008). On the other hand, penalties for SOE employees who violated fertility policies were considerably stricter, with the costs of having additional children far exceeding those faced by non-state-owned enterprise or rural workers.

Beyond economic sanctions, non-economic factors such as social status and career advancement amplified these costs. At the time, fertility management policies included both incentives—for late marriage, late childbirth, and one-child families—and penalties for policy violations. Regarding incentives, although all one-child families received some monetary and childcare subsidy, SOE employees often enjoyed additional benefits, such as priority housing allocation, unit-level recognition, and enhanced promotion prospects. Regarding enforcement, SOE employees faced not only financial penalties but also administrative sanctions, including demotion, dismissal, or years of ineligibility for promotion (Feng and Hao, 1992). These administrative measures generally imposed stronger constraints than economic fines, creating a dual disincentive of income loss and social status decline for SOE workers who violated fertility policies.

By contrast, the employees in the non-state-owned sector and rural families, though subject to substantial fines for excess births as well, faced comparatively weaker employment-related consequences; mobile workers could change jobs or migrate to avoid penalties. China's large population and economic scale made population regulation both difficult and urgent, necessitating channels capable of rapid and effective policy transmission. The state-owned sector, as a major component of the economic system, provided such a channel. Due to the strong personal dependence inherent in labor reproduction process, direct interventions targeting SOE employees' reproductive choices often produced more effective regulatory outcomes than macro-level measures.

Prior to the recent delayed retirement reform, retirement policy in China remained relatively stable and, unlike fertility policy, was not a primary tool for adjusting labor supply. Before the 2011 pension reform, which extended coverage to all urban residents, many non-state-owned sector employees did not make regular pension contributions, and their retirement timing was therefore not strictly bound by statutory retirement ages, but rather influenced by labor contracts or market outcomes (Fan and Sun, 2025). By contrast, SOE employees' retirement behavior has historically been closely aligned with statutory retirement ages, and even during the recent delayed retirement reform period, they remained the primary group affected by these policies. SOE employees typically hold formal and stable labor contracts, enjoy higher and more regulated pension coverage, and thus their actual exit from the labor market is closely linked to the statutory retirement age. After retirement, they are able to provide substantial childcare support to their families. In contrast, the non-state-owned employees, particularly those in flexible employment, exhibit greater job mobility and instability, often retiring early, continuing to work beyond statutory retirement age, or changing jobs; their labor market exit is less strictly determined by statutory retirement age and more by individual preferences and employer negotiations.

The strong statutory constraint on SOE employees establishes relatively stable expectations regarding retirement timing and post-retirement income, enabling them to contribute both time and financial resources to domestic labor and grandchild care, which in turn may influence overall family fertility decisions. In other words, SOE employees and their families receive a stable supplemental input for labor reproduction under the retirement system. This resource, transmitted through intergenerational kinship, benefits the stability of labor reproduction as a whole. Under the decades-long one-child policy, such contributions primarily enhanced care for the sole child, improving labor quality rather than quantity, which aligned with China's broader goal of

transitioning its economy from labor-intensive to high-skill-driven growth.

3.2 Impact on Women Empowerment

The achievement of gender equality exists in the context of China's socialist system as an official ideology (Croll, 1978; Johnson, 1983), whereby guaranteeing equal rights for all people implicitly entails the realization of gender equality. In the early planned economy era, China proclaimed the liberation of women through the socialization of the means of production in the mid-1950s (Rofel, 1999), as ownership of the means of production at least created the possibility for women to escape exploitation in the productive sphere. Throughout the socialist construction period, women were emphasized as a vital human resource and widely mobilized into production (General Office of the CCP Central Committee, 1956). The work allocation system during this period largely ensured female participation in the labor market, effectively realizing the equality and liberation claimed under the socialist system.

This identification of women's liberation to a marker of regime legitimacy produced a contradictory mixture. On the one hand, women's contributions in production were officially recognized, and their strengthened position in the productive sphere enhanced their bargaining power within the household, rendering labor reproduction—including childbirth and childrearing—a recognized contribution to socialist development. On the other hand, the persistence of gender discrimination was effectively rendered invisible. Official ideology claimed that Chinese women were already empowered and liberated, implying that exploitation had been eliminated and that women's specific roles in production and reproduction no longer required policy consideration. Consequently, successive adjustments to fertility policies largely omitted discussions of potential adverse effects on women and female children (Greenhalgh, 2008).

Nonetheless, the ideological legitimacy of gender equality in China has positively empowered women in both productive and reproductive spheres, particularly those employed in the state-owned sector, who received greater support in both monetary and non-monetary forms. This effect was evident during the planned economy period and persisted for female SOE employees under the market-oriented reforms following the opening-up and 1990s SOE reform. In terms of income, prior to the 1990s reform, wages were centrally set by the state with fairness as an explicit goal, effectively limiting gender wage gaps. Even after the transition to a market economy, fairness remained a latent ideological constraint in the state-owned sector, resulting in smaller gender wage disparities compared with non-state-owned sector (Zhang, 2004; Qi and Liu, 2009). Narrower income gaps contributed to enhanced bargaining power for women within households (Lundeberg and Pollak, 1993).

Non-monetary support for female SOE employees may be even more instructive. Under the influence of gender equality ideology, All-China Women's Federation (ACWF) played a key role in protecting female rights, effectively functioning as a Chinese variant of a strengthened women's union and providing institutional support for women's rights and collective action (Yin, 2023). Honors such as the "National March 8th Red-Banner Holder" (*Sanba Hongqishou*) awarded by the ACWF to exemplary female workers, further reinforced recognition and empowerment at the state level (Shi and Ning, 2024). Additionally, as noted earlier, female workers in the state-owned sector

received substantial non-monetary support for fertility and childcare, including paid maternity leave, reliable protection against maternal penalties such as dismissal, and access to high-quality public education for children. These supports reinforced women's agency in making fertility decisions. In contrast, monetary fertility subsidies, while nominally increasing women's income, may not necessarily enhance their bargaining power within the household if the additional resources are transferred internally.

3.3 Reform of SOE and the Population Aging Dilemma

Given the crucial role of China's state-owned sector in the government's regulation of labor reproduction, a consequential question arises: does the declining share of state-owned sector employment in the overall economy following the SOE reforms in 1990s imply the loss of this key channel for regulating labor reproduction? This concern is well-founded and offers insight into China's current population aging dilemma as well as the limited responsiveness of related policies.

The SOE reforms in 1990s were part of China's broader effort to integrate market mechanisms into the overall economic system. Following the reforms, market-based rules gained greater influence over economic production, and the state-owned sector contracted across output, taxation, and employment. According to former Vice Premier Liu He, by 2018 the private economy accounted for over 80% of urban employment and 90% of new job creation and business entities⁶. As noted before, the state-owned sector had previously played a significant role in population policy implementation largely because the majority of labor in the whole economy was employed directly in SOEs, allowing the government to guide labor reproduction in a non-market manner rather than relying on indirect adjustments through income increases or marketized services.

This mode of regulation aligns closely with the inherently personal nature of labor reproduction. The distinctiveness of labor reproduction lies in the fact that it does not occur in a vacuum or as a freely traded commodity; it is deeply embedded in institutional and cultural contexts and intimately connected to women and their households. Specifically, fertility and childrearing decisions cannot be linearly adjusted through income alone. The labor required for childcare, particularly for children under three, cannot be fully substituted by paid services, even without considering service quality or household income constraints. Thus, although the planned economy period in China faced many inefficiencies in production, it provided a unique empirical case in which labor reproduction could be directly organized and better regulated in a non-market manner with effective outcomes.

As market-oriented reforms deepened, the growing share of non-state-owned sector in the economy has inevitably led the labor reproduction process for workers to adopt more marketized and monetary forms. Although the fundamental features of China's socialist system still provide relatively high social welfare in education, healthcare, and pensions, the regulation of labor reproduction increasingly reflects market-oriented approaches. In response to the current population aging dilemma, the government has sought to enhance fertility incentives through a range of

⁶ Source: Xinhua Net. 2018. "Liu He, Member of the Political Bureau of the CPC Central Committee and Vice Premier of the State Council, was Interviewed on Current Economic and Financial Hot Issues" [*Zhonggongzhongyangzhengzhiwei Weiyuan Guowuyuan Fuzongli Liu He Jiu Dangqian Jingji Jinrong Redian Wenti Jieshou Caifang*]. *Xinhua Net* (October 19). http://www.xinhuanet.com/politics/2018-10/19/c_1123583752.htm.

pronatalist measures following the relaxation of birth restrictions. Most of these measures focus on financial incentives, such as subsidies for childbirth, exemptions from medical expenses, and direct payments to families with newborns, alongside efforts to expand the quantity and quality of market-based childcare services. However, in practice, these measures have shown limited effectiveness. Existing studies indicate that current efforts to reduce childcare costs have only a marginal impact on fertility incentives (Chen et al., 2022; Sun and Gao, 2025).

In other words, if the inherent characteristics of labor reproduction make monetized interventions suboptimal, and the non-monetary regulatory mechanisms once provided by SOEs have weakened after the 1990s reform, it is unsurprising that fertility intentions remain low despite the relaxation of birth restrictions, and that market-based incentives such as income increases or reduced childcare costs have limited effect. The policy implication is that addressing China's aging population should not rely solely on increasing fertility subsidies, but rather explore new channels capable of providing non-monetary support for childbirth and childrearing, effectively replacing the essential role previously played by the state-owned sector.

4. Discussion: China's Unified Regulation of Production and Reproduction

When we analyze China's regulation of labor reproduction process, it is helpful to examine the relationship between the regulation of production and reproduction, as these processes are always closely intertwined in the Chinese context. China's unified regulation of production and reproduction is rooted in the ideological foundation of Marxism. Karl Marx, Malthus's critic and the intellectual forebear of the Chinese Communist movement, argued that population issues are not universal or absolute, but relative to the mode of production. Consequently, population regulation, together with other forms of guidance for economic and social development, constitutes an integral part of the state's overall development planning and regulatory system. When family planning was first introduced, its core significance lay in aligning the production of human beings with the production of material goods under state planning (Greenhalgh, 2008). This approach—coordinating material production with labor reproduction—has persisted over several decades and, in practice, has been implemented as a production-centered strategy that regulates labor reproduction to better meet the needs of the productive process.

On one hand, this policy approach, which is largely driven by a Marxist perspective, has to some extent resulted in an incomplete gender analysis and appears insufficient for resolving conflicts between production and reproduction. Under the imperatives of socialist justice, the elimination of gender inequality was often interpreted in practice as ensuring that all people can share with social development outcomes, with a focus on improving social welfare and living standards at a general level. Consequently, the domestic labor contributed by women in the reproduction process was therefore rendered more invisible. For instance, Greenhalgh (2008) notes that discussions of potential adverse effects during the formulation of the one-child policy largely overlooked harms to rural women and girls. Although in the 1950s and 1960s birth planning was closely linked to maternal and child health, the benefits to health were framed primarily in terms of their contribution to socialist construction. Subsequent policy development even presented a decisive shift from individual health toward national economic objectives as the central rationale for state-directed birth

planning⁷. This production-priority orientation treated labor reproduction largely in terms of the quantity—and to some extent the quality—of labor it could supply to production. As a result, the concrete process of labor reproduction and the roles women played within it were often neglected. This partly explains why, in the most recent round of fertility policy adjustments, most pronatalist measures lack gender-sensitive structural design and are largely limited to indiscriminate sharing of household fertility costs, with minimal attention to the specific processes of childbirth and childrearing.

China's unified regulation of production and reproduction makes the government define population issues as imbalances or “contradictions” between population growth and socio-economic development⁸, implying that the goals of demographic regulation will adjust in response to changes in the economic structure. From this perspective, the objectives of China's population aging policies should be re-examined dynamically. In the long term, the ideal growth rate of the labor supply should align with the economy's structural demand for labor. In other words, the government's regulatory goal is not necessarily to elevate labor supply growth to the high levels characteristic of labor-intensive industrial periods, but rather to provide sufficient time for the structural transformation and upgrading of the Chinese economy, ensuring that population growth is compatible with China's future economic structure.

Globally, transitions from agrarian to industrial societies often rely on relatively high population growth, whereas in post-industrial societies, technological progress and rapid improvements in labor productivity can largely compensate for reductions in the labor force (Zhang, 2024). Accordingly, as China gradually reduces dependence on labor-intensive industries and completes comprehensive economic upgrading, the economy's demand for labor supply growth may correspondingly decline. This partly explains the emphasis in China's recent delayed retirement policy on a long implementation period and gradual increases in retirement age: even if delayed retirement exerts some negative crowding-out effect on fertility, its gradual implementation allows possibility to coordinate between labor supply growth and industrial transformation. At the same time, this also raises a question for future research: assessing the goals and effectiveness of any channels for regulating labor reproduction must consider changes in the mode of production, which makes the overall analysis more complex.

Furthermore, the role of the state-owned sector in China's unified regulation of production and reproduction is mutually reinforcing. The stabilizing and regulatory functions of SOEs in the production sphere have been widely documented. In recent years, due to the strong performance of SOEs in innovation, efficiency, and profitability, much of the economic literature has shifted from criticizing SOEs for inefficiency to emphasizing their role as stabilizers within the market system (Bai et al., 2000; Guo and Ma, 2019). Qi and Kotz (2020) note that a key contribution of SOEs to

⁷ In June 1970 Zhou told a Ministry of Health meeting: “Birth planning belongs to the sphere of national planning; it is not a health problem, it is a planning problem. If you can't even plan population, what kind of state plan is it?” (Sun Muhan 1987: 143, cited by Greenhalgh 2008).

⁸ In 1974, when Chinese scholars began to get rid of the pronatalist idea from Soviet and establish the population theory from Marxist perspective, Liu Zheng and his colleagues, who is the most influential professional group in the population issues at that time, defined China's population problem as one of serious imbalance or “contradictions” between population growth, on the one hand, and social and economic development, on the other (Greenhalgh 2008).

the Chinese economy is providing workers with a living wage to sustain labor reproduction, a provision rarely found in the private sector. These conditions, which facilitate human capital accumulation, along with the various forms of support for women's labor reproduction in SOEs as we discussed earlier, rely on the state-owned sector maintaining its healthy operations and sustainable profitability, which enable it to subsidize the reproduction process and thus stabilize the overall production–reproduction system. However, as the economy demands higher-quality labor, the costs of labor reproduction rise, and the share of the state-owned sector declines, the leverage of SOEs alone may no longer suffice to sustain this support and stabilizing functions. Just as the macro-stabilizing role of SOEs in production sacrifices some micro-level efficiency, their regulatory role in reproduction is not indefinitely sustainable. In light of China's current population aging dilemma, the most pressing challenge appears to be identifying another alternative and sustainable mechanism for regulating the reproduction process.

5. Conclusion

As an economy that once benefited from a substantial demographic dividend, China now faces a significant challenge in population aging, and the limited effectiveness of related policies even make this situation more perplexing. In this paper, we focus on China's two major policy domains, which is fertility and retirement. We first respond to the discussions on the potential overlapping effects of these policies, arguing that while grandparent-provided childcare plays an important role in the Chinese context, which grounds the existence of potential overlapping effect, the prudent design of the current delayed retirement reform limits the magnitude of this effect, making it insufficient to become the major constraint on the recovery of labor supply. The ineffectiveness of interventions under China's current demographic adjustment largely stems from the reliance on purely market-based mechanisms to regulate labor reproduction following the country's market-oriented transformation. As a socialist state, China's uniquely large state-owned sector has historically provided a powerful channel for shaping labor reproduction. Workers employed in SOEs are more responsive to policy adjustments, and direct interventions in the state-owned sector often achieve more effective regulation of labor reproduction than market-mediated, monetary mechanisms. This helps explain why China was able to rapidly implement the one-child policy and successfully shift its population growth trajectory.

Following the reform and opening-up, China integrated market mechanisms within the traditional socialist framework, enhancing economic vitality and efficiency but raising concerns about potential capitalist distortions. From a labor reproduction perspective, the abandonment of the former public welfare system has shifted certain reproduction functions, including childcare, to the market. The declining share of SOEs in the economy has weakened their regulatory impact on labor reproduction. Therefore, addressing China's current population aging dilemma requires identifying alternative regulatory mechanisms rather than simply increasing fertility subsidies. The inherent crisis of labor reproduction under capitalist systems underscores the inadequacy of relying on market-based solutions alone. China should explore approaches that leverage its institutional characteristics to mitigate labor reproduction challenges through certain non-monetary, non-market methods.

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