

The Confucian Fertility Paradox: Education Competition and Ultra-Low Fertility in East Asia*

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Abstract

Total fertility rates in East Asia have fallen to levels without historical precedent, even though the region's Confucian heritage long placed extraordinary emphasis on family continuity and large families. We argue that this "Confucian Fertility Paradox" dissolves once we separate two strands of the tradition and recognize that modernization affected them very differently. The pro-natal strand, built on lineage continuity, ancestor worship, and reliance on sons for old-age support, was gradually switched off as child mortality fell, incomes rose, women entered the labor force, and state pensions replaced the family as the main source of security in old age. What survived was the second strand: the veneration of education and of status won through examination success, rooted in the imperial examination tradition. Under modern conditions this surviving strand reverses sign with respect to its effect on fertility. Where the historical examination system rewarded having many sons so that one might succeed, the modern single-ranking tournament rewards concentrating resources on one or two intensively educated children, and the quantity-quality tradeoff turns a once pro-natal culture into a powerful engine of low fertility. Drawing on recent empirical evidence from China and Korea, we show how education competition becomes the channel through which traditional values now suppress childbearing. We explain why standard pro-natalist policies, such as removing birth restrictions or offering cash subsidies, accomplish little when the underlying problem is a competitive equilibrium in parental investment, and we argue that policies aimed at the source of the distortion, such as structural reform of educational pathways, hold more promise.

Keywords: Fertility, Education Competition, Confucianism, East Asia, Status Externalities

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1. Introduction

Total fertility rates have fallen below replacement levels across much of the developed world, but no region has seen a decline as steep or as sustained as East Asia. South Korea's total fertility rate (TFR) reached a historic low of 0.72 in 2023, by far the lowest in the world. China's TFR fell to roughly 1.0 in 2024, and only 7.92 million births were recorded in 2025, close to half the number projected when the One-Child Policy was repealed in 2016.[§] Even Japan, long the standard reference for demographic aging, recorded a TFR of 1.2 in 2024, itself a record low. These figures are not merely below replacement. They describe a fertility regime qualitatively different from anything observed elsewhere, including the low-fertility societies of Southern and Northern Europe.

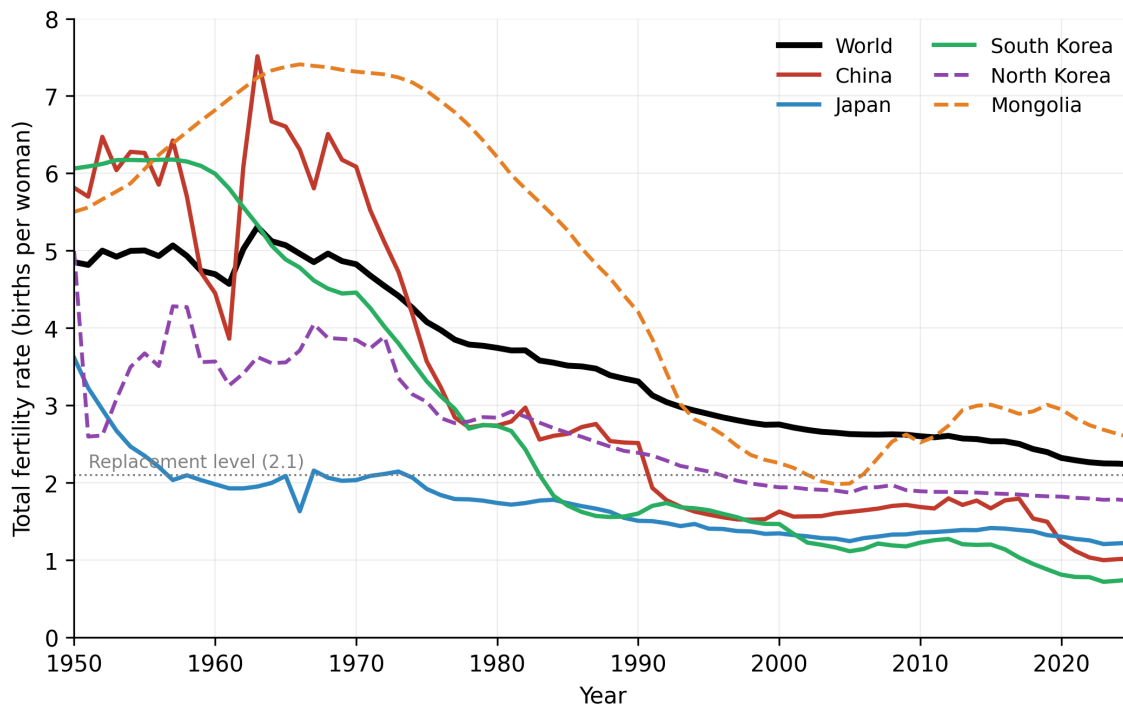


Figure 1. Total fertility rates in East Asia and the world, 1950–2025.

Data source: United Nations Population Division, World Population Prospects, accessed via UNdata.

The historical trajectory sharpens the puzzle. Figure 1 plots total fertility rates from 1950 to 2025 for the major East Asian societies alongside the world average. In 1950 fertility

¹ Data source: National Bureau of Statistics of China.

was high across the region, standing at 5.8 children per woman in China, 6.1 in South Korea, and 3.6 in Japan. Over the following seven decades these societies underwent a fertility decline of unprecedented speed and depth. By the mid-1970s all three had already fallen below the world average, and the decline continued without interruption thereafter. Within a few generations, the region moved from large families to the very low fertility that now defines it. This chapter seeks to explain that reversal through the lens of education competition. Two societies in the figure, North Korea and Mongolia, follow trajectories shaped by circumstances that lie outside our framework: a command economy and closed polity in the former case, and a pastoral, historically Buddhist society in the latter. We do not attempt to account for their fertility here.

What makes the East Asian case especially puzzling is the region's cultural heritage. China, Korea, and Japan all belong to the Confucian cultural sphere, a civilization shaped by centuries of Confucian ethical teaching that placed extraordinary emphasis on family continuity, filial piety, and intergenerational obligation. The Confucian dictum, attributed to Mencius, that "among three forms of unfilial conduct, the gravest is to leave no posterity" (*bu xiao you san, wu hou wei da*, in Chinese, 不孝有三, 无后为大) did more than shape rhetoric; they were built into social practice, one that motivated large families for millennia. These values were not merely preached but built into social practice: Confucian rituals of ancestor worship required descendants to perform sacrifices, and lineage organizations (*zongzu*, or in Chinese, 宗族) served as the primary institutions of social organization across much of Chinese history. Analogous family systems, the *jokbo* (in Korean, 족보) genealogical tradition in Korea and the *ie* (in Japanese, 家) household system in Japan, channeled the same Confucian values into strong pro-natal norms. If any cultural tradition should have sustained high fertility into the modern era, it is Confucianism.

Yet the opposite has occurred. The societies most deeply rooted in Confucian traditions now have the lowest fertility rates on earth. This constitutes what we call the *Confucian Fertility Paradox*: a cultural system that long demanded large families has become associated with the world's most extreme fertility collapse.

This chapter argues that the paradox is not, in fact, paradoxical once we identify the mechanism through which Confucian values interact with modern economic conditions. The key lies in a second pillar of Confucian culture, its singular emphasis on education, meritocratic achievement, and social status attained through scholarly success. This emphasis, rooted in the imperial examination systems that governed elite recruitment across the Confucian world for centuries, has evolved into intense *education competition*: a status-driven contest among families over children's academic performance. In contemporary East Asia it takes the form of heavy spending on private tutoring, extreme pressure around high-stakes entrance examinations, and a cultural expectation that parents devote overwhelming time, energy, and money to each child's schooling. The resulting costs, both financial and psychological, have made children extremely expensive to raise, not because of the direct costs of food and clothing but because of the indirect costs of competitive human capital investment.

We argue that education competition is the channel through which traditional Confucian values have been turned against fertility. The reversal is the product of two distinct developments. First, the pro-natal side of the tradition, built on lineage continuity, ancestor worship, and dependence on sons in old age, lost its material foundations as child mortality fell, incomes rose, women entered the labor force, and state pensions took over the support of the elderly. That is, these socioeconomic forces switched off the mechanisms through which Confucian culture had once encouraged large families. Second, the other side of the tradition, namely its reverence for education and for status won through examination success, reversed sign, vis-à-vis fertility, under modern conditions. Families that once had many children so that one might succeed in the examinations now concentrate their resources on one or two intensively educated children, because success today depends on relative rank rather than on clearing a fixed bar. This is not a story of cultural decline; instead it is a story of cultural continuity operating through a transformed economic environment, in which the quantity–quality tradeoff turns an old pro-natal culture into a modern engine of low fertility.

This chapter proceeds as follows. Section 2 traces the evolution of Confucian attitudes toward fertility and education, from the pro-natalist foundations of the tradition, through

the imperial examination systems of China, Korea, and Japan, to the modern reversal in which the emphasis on child quality and the erosion of family-based old-age security have turned a pro-natal culture against itself. Section 3 presents education competition as the central mechanism behind ultra-low fertility, developing the logic of status externalities, reviewing the recent empirical evidence from Korea and China, and explaining why the mechanism operates more strongly in East Asia than in Europe. Section 4 discusses complementary mechanisms, including housing costs, gender norms and marriage decline, and policy legacies, that reinforce the education-competition channel. Section 5 draws out the policy implications, and Section 6 concludes.

2. Confucian Culture and Fertility: From Pro-Natalism to the Great Reversal

2.1 The Pro-Natalist Foundations of Confucian Culture

For most of recorded history, Confucian societies were among the world's most populous. The mechanisms through which Confucian culture promoted fertility were both normative and institutional.

At the normative level, Confucian ethics placed family continuity at the center of moral life. Filial piety (*xiao*, in Chinese, 孝), the supreme virtue in the Confucian hierarchy, extended beyond care for living parents to the obligation of producing descendants who would continue ancestral sacrifices. The *Classic of Filial Piety* (*Xiaojing*, in Chinese, 孝经), one of the core Confucian texts, explicitly linked the production of heirs to the fulfillment of filial duty. Mencius's dictum about the unfilial nature of childlessness was not merely a folk saying but a principle embedded in legal and ritual practice: in imperial China, a wife's failure to produce a son was recognized as legitimate grounds for divorce, and the adoption of patrilineal heirs was a well-established institution designed to ensure lineage continuity.

At the institutional level, the lineage system (*zongzu*) functioned as a powerful mechanism for sustaining high fertility. Lineages maintained collective property, including ancestral halls and communal land, operated schools, and provided mutual insurance to their

members. Larger lineages commanded greater political influence and economic resources, creating a collective incentive for demographic expansion. Ancestor worship, the ritual core of Confucian family life, required an unbroken chain of male descendants, giving religious sanction to what was already an economic and social imperative.

In Korea, the *jokbo* tradition of maintaining detailed patrilineal genealogies served analogous functions. The Joseon Dynasty (1392–1897) deepened the Confucian transformation of Korean society, establishing patrilineal descent, patrilocal marriage, and ancestor worship as the organizing principles of family life (Deuchler, 1992). Producing male heirs was a matter of family honor and social standing; a family without sons risked the extinction of its genealogical line and the cessation of ancestral rites. In Japan, the *ie* system organized households as corporate entities that persisted across generations, with the household head obligated to produce or adopt an heir to perpetuate the family line.

Across the Confucian cultural sphere, the message was consistent: producing children, and sons above all, was not merely a personal choice but a moral, social, and institutional obligation.

2.2 The Examination Tradition and the Culture of Education

Alongside its pro-natalist orientation, Confucian culture harbored a second, equally powerful value: the belief that education is the primary vehicle for individual advancement and family honor. This belief found its most consequential institutional expression in the civil service examination systems through which the Confucian world recruited its elites for centuries, and it is the pivot on which our argument turns.

China's imperial examination system (*keju*, in Chinese, 科举) took its mature form during the Tang Dynasty (618–907) and persisted until 1905. For over a millennium the *keju* offered a nominally meritocratic pathway from commoner status to the imperial bureaucracy, making scholarly achievement the supreme route to social mobility. The stakes were enormous. The salaried income of those who attained the highest qualification, the *jinshi* (in Chinese, 进士) degree, was roughly sixteen times that of a commoner (Ho, 1962). As Jia and Kung (2025) document, the system bred an “education frenzy” in which

children as young as six or seven were made to memorize more than a thousand characters from Confucian primers, driven by parents' hopes that their sons would succeed; the number of examination candidates grew from 20,000–30,000 in the early eleventh century to 400,000 by the mid-thirteenth (Chaffee, 1985). Crucially, the *keju* shaped family strategy in a way that *reinforced* pro-natalism. Because success was rare and the rewards large, families faced a gamble with convex payoffs with respect to the number of sons, and having several sons raised the odds that at least one would pass. High fertility and the family's educational ambition were complements: more children meant more chances at the examination, and success brought honor to the entire lineage.

Korea and Japan absorbed the same examination culture through different institutional channels but arrived at strikingly similar ends. Korea adopted the civil service examination (*gwageo*) in 958 CE, directly modeled on the Chinese *keju*; during the Joseon Dynasty it became the central institution of elite recruitment, with success in the classics-based *munkwa* defining membership in the *yangban* aristocracy and genealogical records (*jokbo*) documenting each family's achievements across generations. Japan, by contrast, briefly experimented with a Chinese-style examination in the Nara period before the hereditary aristocracy reasserted control, and it lacked a formal meritocratic pathway for most of the premodern era. Yet Confucian learning still penetrated deeply: Tokugawa-era domain schools and temple schools (*terakoya*) pushed male literacy to an estimated 40–50 percent by the mid-nineteenth century, exceptional for a pre-industrial society (Dore, 1965). After their respective nineteenth-century reforms abolished the old order, both societies rechanneled the veneration of scholarly achievement into competitive entrance examinations for elite universities, producing Korea's "education fever" (*gyoyuk yeol*) and Japan's "examination hell" (*juken jigoku*) (Seth, 2002). Whether through formal examinations or cultural diffusion, the same lesson took hold across all three societies: education is the decisive route to social status.

This cultural imprint has proven remarkably durable. Chen et al. (2020) show that Chinese prefectures with higher historical *jinshi* density have significantly higher years of schooling in 2010, an effect "primarily transmitted culturally across generations." This is direct evidence that the *keju* created beliefs about the transformative power of education that

outlived the institution itself by more than a century. The modern successors to the historical systems, China's *gaokao*, Korea's *suneung*, and Japan's university entrance examinations, inherit this competitive logic but transform its structure. They are single-shot tournaments that compress years of preparation into one high-stakes moment and largely determine access to elite higher education, which in turn predicts labor market outcomes, marriage prospects, and social status. In China, over ten million students sit the *gaokao* each year, yet the enrollment rate at elite "Project 985" universities is only about two percent (Jia et al., 2025); in Korea, the *suneung* is a national event on which the stock market opens late and aircraft are grounded during the listening section. The *tournament structure* reverses the family's optimal strategy. Where the *keju* rewarded producing many sons in the hope that one would pass, an *extensive*-margin gamble, the modern examination rewards concentrating resources on one or two children to maximize each child's rank in a continuous distribution. This shift from extensive to intensive investment is the hinge of the Confucian Fertility Paradox, and Section 2.3 sets out its logic.

2.3 The Modern Reversal and the Erosion of Old-Age Security

The modern transformation of Confucian societies has inverted the historical complementarity between pro-natal norms and educational ambition, and the logic runs in two steps. The first step is subtractive. The pro-natal strand described in Section 2.1 did not persuade modern couples to keep having large families; it quietly lost its hold. Falling child mortality, rising incomes, urbanization, women's entry into paid work, and the arrival of state pensions removed the material foundations on which lineage continuity, ancestor worship, and reliance on sons for old-age support had rested. Once those foundations were gone, the traditional motives that had pushed fertility upward no longer did much work. This is the sense in which other socioeconomic forces, rather than Confucian culture itself, first brought East Asian fertility down toward, and then below, replacement.

The erosion of old-age security is the clearest and best-documented instance of the first step. The Confucian norm of "raising children to provide for old age" (*yang er fang lao*, in Chinese, 养儿防老) once made producing sons an economic necessity rather than merely a cultural preference: in the absence of formal pensions, elderly parents depended on sons for material support, physical care, and the continuation of ancestral sacrifices (Jia and

Kung, 2025). The arrangement persisted into the modern era. Zhang (2019) shows that in rural China son preference remains tied to expectations of financial support and co-residence in old age, and is associated with reluctance to enroll in rural pension programs. But the spread of modern social insurance has begun to dissolve this calculus. Japan established universal national pension coverage in 1961, Korea reached near-universal coverage in the two decades after establishing its National Pension Service in 1988, and China's New Rural Social Pension Insurance reached hundreds of millions of rural residents after 2009. Guo et al. (2025) provide causal evidence that China's new rural pension scheme reduced sons' caregiving responsibilities and narrowed sex-ratio imbalances, confirming that public pensions substitute for the family-based support system. As old-age security shifts to the state, the utilitarian motive for childbearing weakens, and the education-and-honor motive is left to operate on its own. That motive, as the historical account makes clear, now favors intensive investment in very few children. The erosion of *yang er fang lao* does not by itself produce ultra-low fertility, but it removes the traditional brake that once slowed the decline.

The second step is where Confucian culture reappears, now with the opposite sign. Of the two strands, only the veneration of education and status survived modernization intact, because the returns to schooling did not fall with development but rose with it. That surviving strand now works through the quantity–quality tradeoff at the heart of Becker and Barro (1988) and Becker et al. (1990). When family standing depends on a child's rank in a continuous distribution rather than on clearing a fixed threshold, each additional unit of investment in a child yields diminishing but positive returns, while each additional child divides the family's finite resources. Parents who pursue exactly the goal their ancestors pursued—family honor through scholarly success—now find that the optimal strategy is to have very few, extremely well-educated children. This shift operates through the quantity–quality tradeoff rather than through any change in the culture's underlying values.

Two features of contemporary East Asia make this second step especially forceful. The first is the tournament structure itself: because payoffs reward relative rather than absolute performance, families are locked into a positional arms race in which the equilibrium level of investment is set not by the returns to education but by what other families spend, a logic

we develop in Section 3. The second is a large private tutoring industry that supplies the market infrastructure of competition. In South Korea, roughly three-quarters of students attend private institutes (*hagwon*; Kim et al., 2024). In China, the tutoring industry had grown to over 800 billion RMB by 2016, enrolling more than 137 million students and employing 7-8.5 million teachers before the 2021 crackdown (Huang et al., 2025), with families spending on average 18 percent of per capita annual income on shadow education (Guo and Qu, 2022). Japan's *juku* sector plays the same role.

3. Education Competition: The Engine of Fertility Decline

3.1 Status Externalities and the Educational Rat Race

The connection between education competition and low fertility is best understood as a problem of status externalities. In a standard model of human capital investment, families invest in their children's education up to the point where the marginal return equals the marginal cost. When status externalities are present, however, the return to education depends not only on a child's absolute human capital but also on her *relative* standing in the distribution. Because employers, marriage partners, and social networks read educational credentials as signals of quality, each family has an incentive to invest beyond the socially optimal level, and each family's investment raises the bar that everyone else must clear. The result is a rat race: all families would be better off investing less and having more children, yet no individual family can afford to disarm on its own.

Kim et al. (2024) formalize this logic in a quantitative model calibrated to South Korea, the most extreme case of the mechanism at work. In their framework, parents value their children's relative educational attainment, which generates a negative externality and produces an equilibrium of excessive education spending and suboptimal fertility. The estimates are striking: eliminating the status externality would raise the completed fertility of married Korean women by 28 percent, from 1.92 to 2.45 children, and the effect falls hardest on the poor: childlessness in the bottom income quintile would drop from 5.3 percent to under 1 percent. The model also makes sense of an anomaly: Korea's positive income–fertility gradient (elasticity 0.082), opposite to the usual developed-country pattern, emerges as a direct consequence of the externality's disproportionate burden on

poorer families. The institutional setting matches the theory. Korea has the highest per-student private tutoring spending in the OECD, with families devoting 9.2 percent of income per child to private education (Kim et al., 2024; Yang et al., 2024); teenagers attend classes as late as midnight, prompting the government curfews that the authors exploit as an instrument for education spending. This “education fever” (*gyoyuk yeol*) pervades all social classes and traces directly to the Joseon-era *gwageo* tradition (Anderson and Kohler, 2013; Seth, 2002). Against this backdrop, Korea’s TFR of 0.72 stands in a category of its own, far below even the “lowest-low” threshold of 1.3 that Kohler et al. (2002) identified as a distinctive regime.

3.2 Evidence from China’s Tutoring Ban and Fertility Reforms

The most direct causal evidence on the link between education competition and fertility comes from China’s “Double Reduction” (*shuang jian*, in Chinese, 双减) policy of 2021, which banned for-profit private tutoring in core academic subjects for compulsory-education-age students. The policy was implemented swiftly and enforced strictly. Huang et al. (2025) document that within four months online job postings at tutoring firms fell by 89 percent, firm entries halved, and exits tripled, with over three million job-posting losses nationally and at least 11 billion RMB in VAT losses over eighteen months. Meng et al. (2025) exploit this large-scale natural experiment, eliciting respondents’ fertility intentions under scenarios with and without the ban, and find that the policy raised expected total fertility by 7-8 percent, from 1.61 to 1.73 expected children, with especially large effects at the intensive margin (the probability of intending a second child rose by 42 percent and a third by 56 percent). Their decomposition is the most revealing result. The perceived reduction in *education competition* accounts for 52 percent of the explained effect, by far the largest channel, while improvements in parental health and parent–child relationships account for 26 percent, reductions in time costs for 17 percent, and direct monetary savings for only 5 percent. Education competition thus depresses fertility less through its direct financial costs than through the psychological burden it imposes: the stress of managing schedules, the anxiety over relative performance, and the erosion of family leisure.

China’s experience with fertility-policy liberalization points the same way from the opposite direction. The Universal Two-Child policy of January 2016 produced only a

modest response, roughly 700,000 additional births per year in its first two years, about 3.8 percent of annual births (Fang and Liu, 2026). By the time China relaxed its birth restrictions, the cultural and economic forces shaping fertility desires, education competition prominent among them, had already pushed desired fertility well below the policy ceiling. The binding constraint on fertility had by then shifted from the policy quota to desired family size itself.

3.3 Why East Asia is More Extreme than Europe

Several structural features distinguish East Asian education competition from the patterns observed in low-fertility European countries, helping to explain why East Asian fertility has fallen to levels well below the European floor.

Tournament structure. East Asian educational systems are organized as single-shot tournaments. A student's score on the college entrance examination largely determines the quality of university he/she can attend and, with it, much of his/her subsequent career and social standing. European systems, by contrast, typically offer multiple pathways: vocational training, apprenticeships, polytechnic education, and university tracks coexist, and labor market returns are less sharply tied to a single examination outcome. The tournament structure of East Asian education amplifies the stakes of parental investment and intensifies the positional arms race.

Cultural legitimacy of intensive parenting. In Confucian societies, intensive parental involvement in children's education is celebrated rather than merely tolerated. The cultural archetype of the sacrifice-oriented parent who devotes everything to the child's educational success has deep historical roots in the *keju/gwageo* tradition. In contrast, many European societies maintain norms of childhood autonomy and play-based learning that impose an upper bound on the intensity of parental investment. The cultural legitimacy of intensive parenting in East Asia removes a social constraint that might otherwise moderate education competition (Doepke and Zilibotti, 2019).

Limited alternative pathways to social status. In Confucian societies, educational achievement has historically been the dominant, and often the only, legitimate pathway to social mobility. While contemporary East Asian economies offer entrepreneurial

opportunities, the cultural prestige hierarchy still heavily favors academic credentials. The underlying meritocratic beliefs remain strong: about 71 percent of Chinese respondents chose “hard work” as the most important quality to instill in children (Jia and Kung, 2025). Parents who recognize that their child is unlikely to reach an elite university nonetheless feel compelled to invest in the educational tournament, because opting out carries social stigma for both parent and child.

4. Beyond Education Competition: Complementary Mechanisms

While we argue that education competition is the key mechanism behind the Confucian Fertility Paradox, several complementary forces amplify its effects.

4.1 Housing Costs and the Material Burden of Childrearing

Rising housing costs directly increase the material cost of raising children, and this burden is especially acute in East Asian metropolitan areas. In China, residential costs accounted for 24.6 percent of per capita consumption expenditure in 2020, with substantially higher shares in first-tier cities such as Beijing, Shanghai, and Shenzhen (National Bureau of Statistics of China, 2021). Meng et al. (2023) document that housing booms reduce fertility intentions, particularly among families eligible for additional births under the two-child policy.

The housing–fertility nexus in East Asia is intimately connected to education competition. In China and Korea, school quality is closely tied to residential location, creating a “school district premium” in housing prices. Families seeking access to high-quality schools must either purchase or rent housing in expensive neighborhoods, effectively bundling the costs of housing and education competition into a single financial burden. Liu et al. (2023) further demonstrate that underdeveloped credit markets in China may suppress the positive wealth effects of house value growth on childbearing, tilting the net effect of rising housing prices toward reduced fertility.

4.2 Gender Norms, Marriage Decline, and the Motherhood Penalty

A second complementary mechanism operates through the intersection of traditional gender norms and women’s rising economic participation. Confucian societies have

historically maintained a sharp division of domestic labor, with mothers bearing primary responsibility for childcare and household management. As women's educational attainment and labor force participation have risen sharply across East Asia, this traditional division has produced an acute conflict between career aspirations and motherhood. Across high-income countries the conflict shows up as a large and persistent "child penalty": after the birth of a first child, mothers' earnings and employment fall sharply and recover only partially, while fathers' careers continue largely undisturbed (Angelov et al., 2016; Kleven et al., 2019; Cortés and Pan, 2023). Where norms assign childcare almost entirely to mothers, as in much of East Asia, this penalty is especially steep, so that the decision to have a child becomes, in effect, a decision by the mother to absorb most of its career cost.

Doepke and Kindermann (2019) show that fertility is most responsive to policies that reduce the childcare burden specifically for mothers, because in many couples, it is the woman who is the "reluctant" partner when it comes to having another child. In East Asian societies, this reluctance is amplified by the intensity of education competition: the "education manager" role falls disproportionately on mothers, who must coordinate tutoring schedules, supervise homework, attend school events, and manage each stage of the child's progress through the educational tournament. Myong et al. (2021) structurally estimate the fertility cost of norms that place childrearing responsibilities on mothers, and find that these norms significantly depress fertility among highly educated Korean women.

The same conflict also operates through marriage itself, because in East Asian societies childbearing outside marriage remains rare and socially stigmatized. Unlike in the Nordic countries, where non-marital births account for well over half of all births, the share in Japan, Korea, and China remains below 5 percent (OECD Family Database, SF2.4). Declining marriage rates therefore translate almost directly into declining birth rates. Brinton and Oh (2019), based on over 160 in-depth interviews with women in Japan and Korea, document how labor market structures and workplace norms create a stark either-or choice between career and family once a woman marries, leading many to delay or forgo marriage entirely. The "increasing importance of changes in nuptiality" has been identified as a key but often overlooked driver of fertility decline in low-fertility Asian societies (Tan et al., 2025).

4.3 Policy Legacies and the Intergenerational Transmission of Low Fertility

In China specifically, the legacy of the One-Child Policy (OCP) has created a unique additional mechanism for fertility decline (see Zhang, 2017, for a comprehensive overview). Chen and Gietel-Basten (2025) use a fuzzy regression discontinuity design around the 1980 introduction of the OCP to estimate the causal effect of being an only child on fertility preferences. The estimated effect is large: being an only child reduces one's ideal family size by 0.6-0.7 children. Fang and Liu (2026) find that, in the 2017 China Fertility Survey, women's desired fertility increases by 0.4 for each additional sibling they themselves have. This finding provides rare empirical support for the "low-fertility trap" hypothesis (Lutz et al., 2006), which posits that once fertility falls below a critical threshold, self-reinforcing demographic, sociological, and economic mechanisms prevent recovery.

The intergenerational transmission mechanism operates through socialization: children raised in small families come to treat the small family as the default, and this norm persists even after the policy constraints that produced it are removed, a pattern that contrasts with Europe, where the two-child ideal has remained remarkably stable even as realized fertility fell (Sobotka and Beaujouan, 2014). Guo et al. (2026) provide direct evidence for this channel, showing that China's birth-control policies lowered the fertility not only of the women they directly constrained but also of their daughters, precisely because a low-fertility norm took hold and was passed down. Rossi and Xiao (2024) document a complementary force, fertility spillovers, in which Chinese women's fertility decisions responded to the behavior of their peers, creating a social multiplier that accelerated the fertility transition. Yu et al. (2026) trace a further legacy of the policy: its uneven enforcement widened differences in family size across socioeconomic groups and, through that channel, amplified intergenerational inequality. Consistent with the same transmission mechanism, Fang and Liu (2026) find that the Universal Two-Child policy did less to raise births in cohorts and counties that had been more heavily exposed to restrictive family planning.

Taken together, these complementary mechanisms do not operate independently of education competition. Housing costs, gender norms, marriage decline, and policy legacies

form an interconnected system in which each mechanism amplifies the others. High housing costs, inflated by the school district premium, push families into smaller apartments, making additional children burdensome in space as well as in money; the gendered division of educational labor discourages women from having children they will be primarily responsible for shepherding through the educational tournament; marriage decline shrinks the pool of potential parents; and the intergenerational transmission of small-family norms lowers desired fertility remove the last utilitarian motive for having more children. The result is a comprehensive fertility-suppression system embedded in the economic and cultural structures of Confucian East Asia, one in which addressing any single mechanism in isolation is unlikely to produce meaningful recovery, because the others continue to operate.

5. Policy Implications: Why Standard Pro-Natalist Policies Fail

The two standard tools of pro-natalist policy, relaxing birth restrictions and offering cash subsidies, both fail for the same reason. China's experience shows that relaxing quotas cannot reverse fertility decline once desired fertility has fallen below the ceiling: the Universal Two-Child policy raised births by only 0.023 per eligible woman in 2016–2017, concentrated among women who already wanted two or more children, while women with low fertility desires were essentially unresponsive (Fang and Liu, 2026). More generally, Engle et al. (2025) document “asymmetric fertility elasticities,” in which fertility responds more strongly to restrictive than to permissive policies, precisely because restrictions can prevent births but permissions cannot compel them once families have adapted their desires to the prevailing cost structure. Cash transfers fare no better. In 2020 alone, South Korea spent about 37 billion USD, or 2.1 percent of GDP, on policies to boost fertility, with no discernible effect on its declining TFR (Kim et al., 2024). The reason is that children are not too expensive in absolute terms but too expensive *relative to the equilibrium investment other families make*. A subsidy that lowers the absolute cost of a child leaves the relative ranking untouched, and by loosening every family's budget constraint it can even *intensify* the arms race. Such policies treat the symptom (high child costs) rather than the disease (status externalities in education).

If education competition is the core driver, effective policy must target the competitive equilibrium itself. Kim et al. (2024) show that a Pigouvian tax of roughly 22 percent on private education spending, paired with moderate pro-natal transfers of about 62 USD per child per month, maximizes welfare by correcting the externality; the tax raises fertility by 10.8 percent and cuts education spending by 39 percent, working precisely because it lets all families disarm without losing relative standing. China’s 2021 “Double Reduction” ban on for-profit tutoring is a real-world approximation of such a tax, and Meng et al. (2025) find the positive fertility effects it predicts, though Huang et al. (2025) document its substantial economic costs, and questions remain about enforcement, black-market substitution, and durability. More structural approaches would address the tournament character of the system directly, by diversifying educational pathways along the lines of Germany’s dual vocational system and reducing the weight of single high-stakes examinations. Policies that redistribute the gendered “education manager” burden through paternity leave and workplace flexibility work on the complementary mechanism described in Section 4.2; Japan’s male parental-leave take-up rose from 2.65 percent in 2015 to 30.1 percent in 2023, a promising if still insufficient step (Ministry of Health, Labour and Welfare, 2024).

6. Conclusion

The Confucian Fertility Paradox has a coherent resolution once we identify education competition as the channel through which traditional values meet modern economic conditions. Confucian culture did not simply erode under modernization, leaving a vacuum that low fertility filled; rather, its two strands were pulled apart. The pro-natal strand, resting on lineage continuity, ancestor worship, and dependence on sons in old age, lost its material foundations as mortality fell, incomes rose, women entered the labor force, and state pensions replaced the family as the source of old-age security; the other strand, the reverence for educational achievement and for status won through it, not only survived but reversed direction. In the pre-modern equilibrium, educational ambition and fertility were complements: more children meant more chances at examination success. In the modern equilibrium they are substitutes: intensive investment in each child makes additional children prohibitively expensive. The same culture that once counseled large families now

counsels small ones, and it does so through the quantity–quality tradeoff rather than through any change in its underlying values.

Seen this way, the paradox carries a clear and uncomfortable implication. Because the force now holding fertility down is not a shortage of income or an excess of birth restrictions but a competitive equilibrium in parental investment, it will not unwind on its own, and it does not yield to the instruments governments reach for first. Removing birth quotas cannot lift fertility that families have already chosen to keep low, and cash subsidies that reduce the absolute cost of a child leave untouched the relative rankings that drive the arms race. The behavior is rational for each family and self-defeating for society as a whole, which is why only policies aimed at the *competition itself*, rather than at its symptoms, have much prospect of changing the outcome. The high-stakes, tournament-style educational competition system, as expertly described in Jia et al. (2025), which was inherited from the imperial dynasties centuries ago, may need to be structurally reformed for any pro-natalist policies to have a better chance of success.

The East Asian experience is better read as a preview than as an exception. As Kearney and Levine (2025), Doepke et al. (2023), Mahler et al. (2025), and Nakakuni et al. (2026) document, intensive-parenting norms and education competition are spreading across high-income countries with no Confucian past, from the United States to Western Europe, in milder but recognizable form. The “tiger mother” style of intensive, achievement-focused parenting, popularized by Amy Chua’s memoir (Chua, 2011) and hotly debated in the American press (Brooks, 2011), suggests that the anxieties driving East Asian fertility decline are not sealed off within Confucian societies. If East Asia is the leading edge of a broader trend, the mechanisms traced in this chapter will move closer to the center of fertility policy everywhere. Whether a reverence for education that has outlasted the fall of dynasties, the abolition of the examinations, and a century of upheaval can be reconciled with the reproduction of the societies that hold it remains an open and pressing question.

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