# Olympic Success and Gender Equality: How Media Narratives Shape Social Norms*

HENG CHEN
University of Hong Kong
QINGXU YANG
University of Hong Kong

September 2025

**Abstract**

Does female athletic achievement in the Olympic Games influence broader gender equality? We study this question in the context of China's return to the Olympics in 1984, combining comprehensive athlete records from 1984–2004 with detailed census data. Using a two-way fixed-effects design, we exploit variation in the timing of each prefecture's first female Olympic medal and differential exposure across cohorts who still could make education decisions versus those beyond that window. We find that the emergence of a hometown female medalist significantly reduces gender gaps in education and improves women's labor market outcomes. To address potential endogeneity in medal timing, we construct a Bartik-style instrument based on shifts in Soviet presence and relative strength across sports following the 1991 collapse of the Soviet Union, which generated exogenous variation in Chinese prefectures' medal opportunities. Mechanism analyses indicate that media framing—rather than coverage intensity—drives these effects: in *People's Daily*, female medalists are disproportionately portrayed through gender-equality narratives rather than national pride. Together, the results suggest that publicized female achievement can challenge entrenched gender stereotypes and foster broader gender equality.

*Keywords: Gender equality, Olympic Games, media effects, social norms*

*JEL Classification: J16, Z13, Z28, I25*

*Heng CHEN: The Faculty of Business and Economics, The University of Hong Kong, Email: hengchen@hku.hk; Qingxu YANG: The Faculty of Business and Economics, The University of Hong Kong, Email: qxyang@hku.hk.

# 1. Introduction

The Olympic Games are the world's most prominent sporting event, bringing together athletes from more than 200 nations and reaching billions of viewers worldwide. Beyond athletic competition, the Olympics provide a global platform for promoting social ideals such as unity, respect, and non-discrimination. One of the most striking transformations in modern Olympic history is the rise of women's participation. From the complete exclusion of women in 1896, the Games have progressed to near gender parity by 2024, with female athletes competing in every discipline. Yet despite this remarkable change, little is known about whether women's representation and success in the Olympics influence gender equality within countries.

A key reason for this gap is the challenge of identifying causal effects. Over time, the expansion of women's participation in the Games and broader advances in gender equality have taken place simultaneously. Female Olympic success could challenge existing perceptions of women's ability and inspire change, but it could also reflect earlier improvements in women's rights and social attitudes. For instance, Title IX of the U.S. Education Amendments of 1972 prohibited sex-based discrimination in education and school sports, sparking rapid growth in female athletic participation at all levels, including the Olympics. These intertwined developments make it difficult to determine whether women's Olympic achievements drive social change or simply reflect it.

In this paper, we use China's return to the Olympic Games in 1984 to address this identification challenge. Although the People's Republic of China was founded in 1949, political tensions during the Cold War and disputes over Taiwan's representation kept the country outside the Olympic movement for more than three decades. During this period, China was largely isolated from the international community—not only in economic exchange but also in the circulation of social ideals and cultural values. As a result, Chinese society had little exposure to the global ideals embodied in the Olympic movement. At that time, global norms promoted through the Olympics had little prior influence on Chinese society. The Games introduced an exogenous cultural and social exposure that confronted China's long-standing patriarchal gender traditions. This historical context provides a unique opportunity to credibly isolate the impact of female Olympic success on gender norms and equality.

We hypothesize that exposure to female Olympic success can challenge prevailing beliefs about gender roles and capabilities, leading to broader shifts toward gender equality in education, employment, and family life. Olympic competition offers a salient counterexample to traditional gender norms: women displaying strength, discipline, and competitive excellence in arenas historically defined by male achievement. More-

over, medal-winning performances attract extensive media coverage, public admiration, and national pride, amplifying the visibility of female athletes and the message that women can excel at the highest levels of competition.

Specifically, we examine how exposure to female Olympic medalists affects gender disparities in educational attainment, labor market outcomes, and gender attitudes in their hometowns. We focus primarily on educational attainment, both because gender gaps in education strongly reflect prevailing gender norms (Goldin 2006; Goldin 2014a) and because education fundamentally shapes downstream economic outcomes (Duflo 2012; Jayachandran 2015a). Although Olympic victories are celebrated nationwide, their impact is particularly pronounced in the athletes' hometowns, where local pride, media attention, and community identification are strongest.

Towards this end, we construct a dataset linking Chinese Olympic medalists to gender-related outcomes in their hometowns. We compile comprehensive information on all Chinese Olympic athletes from 1984 to 2004, the period beginning with China's return to the Games and ending just before the 2008 Beijing Olympics. For each athlete, we record gender, sport, competition year, medal type, and hometown prefecture. To measure gender outcomes in these prefectures, we draw on data from China's 2015 1% Population Mini-Census, which provides detailed information on roughly 13 million individuals born between 1960 and 1995, including their educational attainment and occupational status. Linking Olympic accomplishments to census records by hometown and birth cohort allows us to examine how exposure to female Olympic success affected gender disparities across regions and generations.

Our empirical strategy draws on two complementary sources of variation. First, we exploit within–prefecture variation across cohorts, comparing individuals who were still making educational decisions with those who had already completed their schooling when their hometown produced its first female Olympic medalist. Specifically, we define the *Medal Cohort* as individuals who were aged 18 or younger when their prefecture first produced a female Olympic medalist. We adopt age 18 as the cutoff because individuals younger than 18 are typically still making schooling choices and thus more responsive to external influences, whereas older cohorts have largely completed their education. This classification allows us to compare individuals from the same prefecture who experienced local female Olympic success at different stages of their educational lives.

Second, we leverage variation in the timing of each prefecture's first female Olympic medal, which differed substantially across regions between 1984 and 2004. Our analysis covers 91 prefecture–level cities that had produced at least one female Olympic medalist by 2004, allowing us to exploit substantial regional variation in the timing of

first successes. Exploiting this staggered timing, we estimate a two-way fixed effects (TWFE) model to evaluate how female Olympic success influenced gender disparities in educational attainment and related outcomes.

Using the two-way fixed effects specification, we find that exposure to female Olympic medalists is associated with measurable improvements in gender-equality outcomes. Exposure to a female medalist during the educational choice window increases women's years of schooling by approximately 0.32 relative to men, equivalent to a 3% rise and accounting for roughly half of the baseline gender gap in our sample. We also document meaningful labor market effects: exposure raises women's labor force participation, employment in high-income industries, and representation in male-dominated sectors. Notably, these effects are exclusive to female medalists; male medalist exposure does not produce comparable outcomes.

The primary identification concern is that the emergence of female medalists may not be fully exogenous. First, time-varying confounding factors could simultaneously affect both the likelihood of a region producing female Olympic medalists and its local gender equality outcomes. Second, reverse causality may occur if regions experiencing faster economic growth are both more likely to invest in women's sports and to exhibit concurrent improvements in gender-related outcomes.

To address these identification concerns, we construct an instrumental variable at the prefecture–Olympic year level that captures exogenous variation in Chinese prefectures' potential to win female Olympic medals. The instrument follows a Bartik-style approach, combining pre-determined characteristics of Chinese prefectures with external shocks generated by the dissolution of the Soviet Union. Prior to its collapse in 1991, the Soviet Union dominated women's Olympic events through a highly centralized, state-sponsored athletic system. Its sudden dissolution created a global competitive vacuum that substantially altered medal opportunities, particularly for China. Furthermore, the collapse of the Soviet Union produced heterogeneous effects across sports: in disciplines once dominated by Soviet athletes, the newly available opportunities were greater, while in sports where the Soviet presence had been weaker, the change was more limited. Consequently, the magnitude of the effect from the Soviet collapse varied across prefectures according to their pre-existing strengths in different sports.

To operationalize this idea, we measure each prefecture's pre-existing athletic specialization across sports using medalist data from China's 1983 National Games–held before the country's full Olympic reintegration. We then interact these fixed local strengths with time-varying Soviet female athlete participation rates by sport, generating predicted medal opportunities for each Chinese prefecture and Olympic year. This

instrument thus captures how the Soviet Union's collapse reshaped China's medal prospects across regions, depending on each prefecture's historical sports composition.

The key identifying assumption underlying our strategy is that changes in Soviet participation rates were exogenous to gender norm dynamics across Chinese prefectures. In other words, we interpret the Soviet collapse as an external shock that influenced China's medal opportunities but was independent of local social or cultural evolution. We evaluate this assumption through several validation exercises—including shift-share exogeneity tests, balance checks, pre-trend analyses, and a series of robustness tests using alternative specifications—all of which provide consistent support for our identification strategy.

Our IV estimates align closely with the baseline results, revealing statistically significant positive effects of female medalists on mitigating gender gaps in educational outcomes. Exposure to female Olympic success increases women's years of schooling by approximately 0.71 years relative to men, representing an effect size that is both economically meaningful and comparable with the estimates from the fixed effects model. Moreover, we construct analogous instruments for male medal exposure using the same methodology and find null effects on gender equality outcomes. This asymmetric pattern indicates that our results are driven by female–specific achievements rather than by general athletic success or broader regional developments linked to Olympic participation.

Having established a causal link between female Olympic success and gender-equality outcomes, we next explore the mechanisms underlying this relationship. We hypothesize that women's Olympic achievements challenge persistent gender stereotypes in Chinese society and signal women's capacity for high performance, thereby encouraging greater household investment in daughters' education and narrowing educational gender gaps.

If shifting gender norms is the operative mechanism, media coverage should serve as a key transmission channel. We therefore examine how Olympic medalists were portrayed in the media and how their achievements were framed. Using textual content from *People's Daily*, China's most authoritative newspaper during our study period, we quantify media coverage along two dimensions: reporting intensity and thematic framing. In particular, we distinguish between gender-equality and national-pride themes. The analysis shows that male and female medalists receive comparable total coverage, but female athletes are significantly more likely to be associated with gender-equality themes, while national-pride framing exhibits no systematic gender difference. Moreover, among female medalists, those portrayed with stronger gender-

equality framing—rather than greater coverage intensity—generate larger local impacts in gender outcomes.

We next examine changes in household behavior and social attitudes that would reflect the same mechanism. Using data from the China Household Income Project (CHIP), we find that after the emergence of hometown female medalists, parents reduce gender-biased expenditure patterns—specifically increasing education-related investment in daughters while leaving other spending categories unaffected. Complementary evidence from the Chinese General Social Survey (CGSS) shows that exposure to female medalists weakens adherence to traditional beliefs emphasizing women's domestic roles and increases stated preferences for having daughters. Together, these findings suggest that female Olympic success operates through heightened visibility and evolving perceptions of women's potential, contributing to measurable improvements in gender equality.

Our paper contributes to three strands of literature in economics. First, we provide evidence that global sporting events can reshape social norms and cultural values within individual countries. This extends prior research that primarily analyzes the economic impacts of the Olympic Games, such as growth, employment, infrastructure, and trade (Bernard and Busse 2004; Rose and Spiegel 2011; Brückner and Pappa 2015).[1] Using evidence from China, we show that female success in the Olympics produced persistent shifts in gender attitudes, contributing to a measurable narrowing of the country's gender inequality.

Second, our work advances the literature on the determinants and dynamics of gender norms by identifying exposure to celebrated female athletes as a new and salient factor shaping gender attitudes. Unlike gradual institutional or policy-driven changes, Olympic success creates brief yet highly visible moments when female achievement is publicly recognized, offering powerful examples that can challenge entrenched gender stereotypes. Prior studies have emphasized other key influences on gender attitudes, including family environments (Fernández and Fogli 2009; Autor, Figlio, Karbownik, Roth, and Wasserman 2019), educational institutions (Guiso, Monte, Sapienza, and Zingales 2008), and labor markets (Goldin 2014b), alongside broader forces such as legal reforms (Doepke and Tertilt 2009) and economic transformations (Almond, Li, and Zhang 2019).[2]

[1]Baade and Matheson (2016) review this literature and find that the Olympics typically yield limited tangible economic benefits. Related studies highlight temporary well-being or environmental improvements rather than lasting structural gains (Kavetsos and Szymanski 2010; Dolan, Kavetsos, Krekel, Mavridis, Metcalfe, Senik, Szymanski, and Ziebarth 2019; Chen, Jin, Kumar, and Shi 2013).

[2]Classical research underscores the persistence of cultural norms: Alesina, Giuliano, and Nunn (2013) link contemporary gender role differences to historical agricultural practices, while Lippmann, Georgieff, and Senik (2020) show that East Germany's gender-equal institutions produced enduring cultural legacies long after reunification. Jayachandran (2015b) provides a comprehensive review high-

Third, our paper contributes to the literature on the social influence of media, especially its role in shaping gender norms. Prior research shows that media exposure can substantially affect gender-related outcomes: television improved women's status in India (Jensen and Oster 2009), soap operas reduced fertility in Brazil (La Ferrara, Chong, and Duryea 2012), reality television lowered teen pregnancy rates in the United States (Kearney and Levine 2015), and information campaigns increased female labor force participation in Saudi Arabia (Bursztyn, González, and Yanagizawa-Drott 2020).[3] We advance this literature by shifting the focus from what content is presented to how it is presented, examining how narrative framing shapes media's influence on gender norms. While earlier studies contrast programs with differing portrayals of women (e.g., shows with versus without strong female characters), we exploit variation in how newspapers framed male and female athletes' Olympic successes, particularly in emphasizing gender equality. We show that the gender of the successful athlete interacts with media framing to produce distinct effects on gender attitudes, providing direct evidence that the way stories are told matters as much as the stories themselves in shaping social norms.

Finally, our findings are related to but conceptually distinct from the literature on role-model effects, which shows that exposure to successful individuals sharing similar characteristics, such as gender, race, or socioeconomic background, can reshape beliefs and influence academic and career choices (Dee 2004; Carrell, Page, and West 2010; Beaman, Duflo, Pande, and Topalova 2012; Porter and Serra 2020). In contrast to these individual-level identification mechanisms, our evidence points to a broader process of social norm change. It is not the personal emulation of successful athletes that drives the response, but a collective re-evaluation of women's capabilities that shifts the beliefs of parents, educators, and employers who shape opportunities for women and girls.

## 2. Institutional Background

### 2.1. The Olympic Games' Journey toward Gender Equality

The modern Olympic Games represent the world's largest international sporting event, evolving from modest beginnings in 1896 with 241 athletes from 14 countries to a

lighting the interaction between economic development and cultural norms in explaining gender inequality in developing countries.

[3]More broadly, studies demonstrate that media exposure shapes attitudes and behaviors across diverse contexts, including political participation (Gentzkow 2006; Enikolopov, Petrova, and Zhuravskaya 2011; Yanagizawa-Drott 2014; Adena, Enikolopov, Petrova, Santarosa, and Zhuravskaya 2015), social capital formation (Olken 2009), consumption choices (Bursztyn and Cantoni 2016), and violent behavior (Dahl and DellaVigna 2009). DellaVigna and Gentzkow (2010) provide a comprehensive review.

global spectacle encompassing over 200 nations and territories. Today's Games feature more than 11,000 athletes competing across 33 sports, reaching a television audience exceeding 3 billion viewers worldwide.

The early history of the Olympic Games reflects deeply entrenched gender norms that constrained women's participation in sport. When Pierre de Coubertin revived the modern Olympics in 1896, female athletes were entirely excluded, consistent with prevailing beliefs about women's fragility and their prescribed social roles. Although women first competed in 1900, their presence was minimal—just 22 athletes across five sports—and their participation remained heavily restricted for decades. The International Olympic Committee emphasized that women's events should highlight "grace and beauty" rather than strength or endurance, leading to the inclusion of figure skating and tennis but the exclusion of track and field until 1928. As a result, female participation increased only gradually, from 2.2% in 1900 to 13% by 1960, reflecting the persistence of gendered assumptions about athletic ability.

As gender norms began to evolve within individual countries, these domestic transformations progressively reshaped the global landscape of the Olympic Games. In the United States, the enactment of Title IX of the Education Amendments of 1972, which prohibited sex discrimination in education, fundamentally expanded women's opportunities in sport. The resulting growth in female athletic participation established the United States as a dominant force in women's Olympic competition and influenced other nations to promote gender equity in athletics. These national and institutional shifts prompted the International Olympic Committee to broaden women's events dramatically, expanding from 50 in 1972 to over 150 by 2000 (Brake 2010).

Combined with broader women's rights movements, these shifts produced a rapid acceleration in female Olympic participation over the following decades. Women accounted for 23% of athletes at the 1984 Los Angeles Olympics and 34% at the 1996 Atlanta Olympics. The 2012 London Games marked a historic milestone as every participating nation included female athletes for the first time, and the 2024 Paris Olympics achieved near-complete gender parity at approximately 50%. Beyond numerical growth, the nature of participation also transformed: women entered events once considered beyond their physical capacity, including the marathon (added in 1984), weightlifting (2000), and boxing (2012).

This evolution carries implications extending far beyond sports. When women succeed at the highest levels of competition, they demonstrate female excellence in traditionally male-dominated domains and therefore challenge assumptions about gender-based limitations. In this paper, we take China as an example and demonstrates how women's Olympic success can be particularly powerful in societies with entrenched

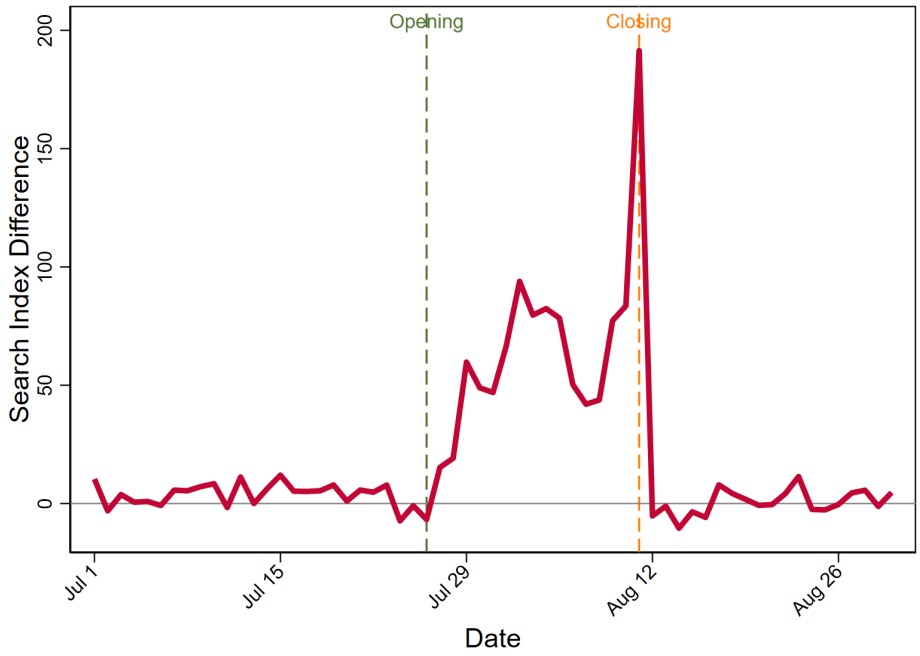



***Figure 1.*** *Difference in Baidu search index for "Olympics" between medalist and non-medalist cities during 2024 Paris Olympics. Medalist cities are those whose athletes won medals at the 2024 Paris Olympics, while non-medalist cities had no medal winners. The figure demonstrates that medalist cities experienced significantly higher search volumes for Olympic content, indicating elevated local interest and engagement with Olympic content when hometown athletes achieve success.*

traditional gender roles, systematically altering conventional gender perceptions and advancing broader gender equality.

### 2.2. China's Olympic Return

After the founding of the People's Republic of China in 1949, the country withdrew from the International Olympic Committee in 1958 amid Cold War tensions and disputes over Taiwan's representation. Olympic membership was restored in 1979, and China's participation in the 1984 Los Angeles Games marked its renewed international engagement and desire to showcase modernization through sport (Hong 2013).

China's athletic system adopted the Soviet model of state-sponsored sports development, combining centralized planning with decentralized provincial implementation. Provincial and municipal governments invested in sports development to compete for national recognition, specializing in different disciplines based on local infrastructure and geographic advantages (Li, Meng, and Wang 2009).[4] Athletes excelling in provincial competitions, particularly the National Games, were selected for the national team to represent China internationally.

[4]For example, coastal provinces such as Guangdong developed strong diving programs, Hubei and Hunan focused on gymnastics and badminton, while northern provinces like Heilongjiang specialized in winter sports.

Having remained largely isolated from Olympic competition before the reform era, China quickly embraced the Olympics as both a symbol of national progress and a tool of installing national pride. This rapid transformation created a unique cultural phenomenon in which an imported sporting institution became central to Chinese national identity, reshaping traditional values.

A key aspect of this cultural phenomenon is that Olympic athletes often become national celebrities, with their life stories, training journeys, and personal philosophies attracting broad public attention (Lu 2011). Medalists receive extensive coverage across state and local media, where their achievements are framed as expressions of national pride and personal excellence.

Olympic medalists also attract exceptional attention and recognition in their home regions. During the 2024 Paris Olympics, cities with medal-winning athletes showed substantially higher public engagement with Olympic content. As illustrated in Figure 1, these cities recorded significantly greater Baidu search volumes for "Olympics" compared with cities without medalists, suggesting that local athletic success generates strong spillover effects on community interest in international sports events.

### 2.3. The Soviet Collapse and China's Olympic Opportunity

The dissolution of the Soviet Union in December 1991 marked one of the most consequential geopolitical shifts of the late twentieth century, transforming global politics and reshaping international sport. The collapse dismantled the world's most successful state-sponsored athletic system, opening unprecedented space for new Olympic powers—most notably China.

Before 1991, the Soviet Union dominated Olympic competition through a centralized sports system established in the 1920s to serve both physical and ideological goals (Parks 2016). Designed to showcase socialist superiority, this model emphasized early talent identification, full-time professional training, and heavy state investment in scientific support and facilities. Between 1952 and 1988, Soviet athletes topped the Olympic medal tables at six of ten Games, excelling across major sports.

The Cold War further politicized Olympic contests. Following the Soviet invasion of Afghanistan, the U.S. led a boycott of the 1980 Moscow Olympics, and the Soviet Union reciprocated at Los Angeles in 1984. These actions demonstrated how Olympic performance had become an extension of global rivalry.

Soviet dissolution abruptly fractured this athletic empire. Newly independent republics lacked the resources to maintain elite training infrastructure, leading to decaying facilities, staff departures, and declining participation (O'Mahony 2006). Athlete representation fell from 481 in 1988 to 390 in 1996, a drop from 5.7% to 3.8% of total

competitors—with women's participation nearly halved. Because Olympic qualification demands strict performance benchmarks, these figures illustrate a sharp loss of competitive capacity.[5]

This collapse created a global vacuum, particularly in state-intensive sports such as gymnastics, weightlifting, and track and field. China was uniquely positioned to fill it. Its Soviet-inspired system—featuring centralized management, systematic talent scouting, and full-time training—meant that China possessed strengths precisely in the disciplines most affected (Brownell 2008).

China's gold medal count rose from five at the 1988 Seoul Olympics to twenty-eight in Sydney 2000 and thirty-two in Athens 2004, while Soviet/Russian totals declined sharply from fifty-five to twenty-seven. The United States also expanded its medal haul during this period, though its growth was far more modest. Figure 2 illustrates this pronounced reordering of Olympic dominance—one that was, at least in part, a direct consequence of the Soviet Union's collapse, which dismantled its state-sponsored athletic empire and redistributed competitive advantages. China's rapid ascent thus reflects both sustained domestic investment and the geopolitical vacuum left by the Soviet decline, marking a new era of state-engineered sporting success.

## 3. Data

### 3.1. Data and Sample

We employ multiple datasets to examine the relationship between female Olympic athletes' achievements and socioeconomic outcomes in their hometowns. Our data sources include:

*Olympic Performance Data.* We construct a comprehensive database of Chinese Summer Olympic participation from 1984 to 2016 using official records from the International Olympic Committee and supplementary sources including the Baidu Encyclopedia and Wikipedia. Our dataset contains 3,047 athlete-year-sport observations covering 2,264 unique athletes who won 782 medals. For each athlete, we collect demographic information including hometown, birth year, gender, physical characteristics, and competitive achievements such as medals and rankings.

Our main analysis focuses on six Summer Olympics from 1984 to 2004, excluding the 2008 Beijing Olympics due to home field advantage. For mechanism analysis, we additionally collect medal records and athlete information from China's participation in 12 Winter Olympics from 1980 to 2022.

[5] According to IOC and federation regulations, qualification depends on meeting event-specific performance standards or advancing through major tournaments such as World Championships.

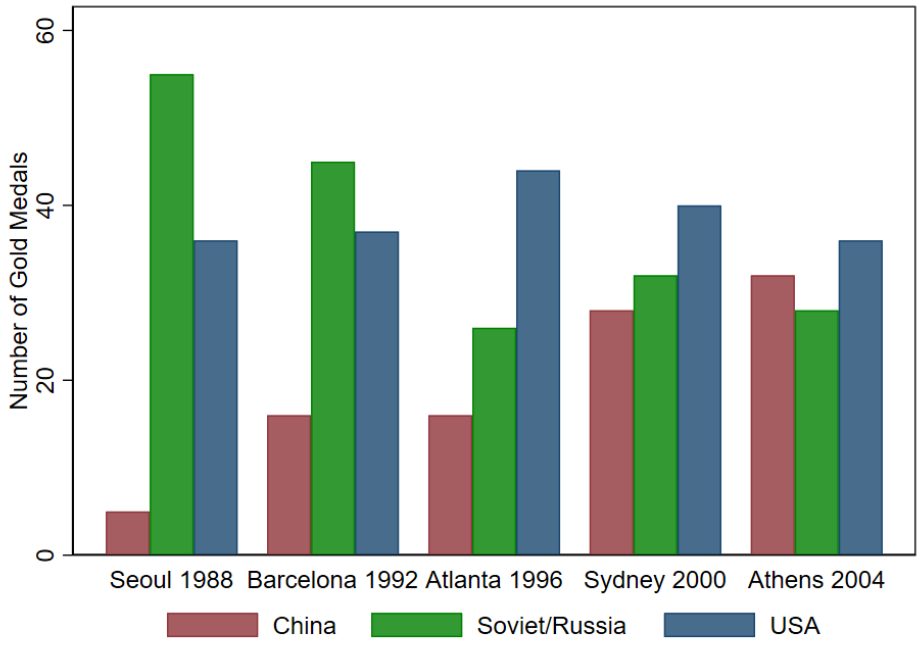



***Figure 2.*** *Olympic Gold Medal Statistics: China, Soviet Union/Russia, and USA (1988-2004). The figure shows the number of gold medals won by China, Soviet Union/Russia, and the USA across five Olympic Games from Seoul 1988 to Athens 2004. The data illustrates China's dramatic rise in Olympic performance following the Soviet collapse in 1991, while Soviet/Russian performance declined substantially after 1992.*

*Population Census.* Our primary analytical data source is China's 2015 1% Population Mini-Census, a large-scale survey containing detailed information on approximately 13 million representative individuals. The census provides individual-level data on educational attainment, employment, occupation, and demographic characteristics, enabling us to construct measures of gender gaps across cohorts and hometown regions. Additionally, we use China's 2005 1% Population Mini-Census to construct pre-treatment classifications of high-income and male-dominated industries based on average wages and gender composition.[6]

*Social Attitudes and Behavior.* We supplement census data with two nationally representative surveys. The Chinese General Social Survey (CGSS 2010) provides direct measures of gender attitudes and norms. The Chinese Household Income Project (CHIP 1988, 1995, 1999) contains detailed household expenditure data that allow us to examine differential investment in children of different genders.

*Media Coverage.* To measure Olympic coverage intensity, we analyze 52,932 Olympic-related articles from the People's Daily (1946-2004), including 14,646 that specifically mention individual medalists. As China's primary state newspaper with nationwide circulation, the People's Daily provides a comprehensive measure of official media

[6]We employ the 2005 census because it is the only wave containing detailed wage information.

attention to Olympic achievements.

*Other Complementary Datasets.* We incorporate additional sources to strengthen our analysis. From China City Statistical Yearbooks, we extract prefecture-level socioeconomic indicators including per capita GDP and population. We collect county-level gazetteer books to identify Olympic-related events recorded in local historical records and utilize Baidu Search Index data to measure regional variation in public attention to Olympic competitions. To construct our instrumental variable, we compile medal records from China's 1983 National Games using official sports history archives and Soviet/Russia athlete participation data from International Olympic Committee registration records (1952-2004).

*Sample Construction.* We apply several restrictions to construct our analytical sample. We limit the sample to individuals born between 1960 and 1995, ensuring sufficient exposure to China's Olympic participation since 1984 for older cohorts while guaranteeing that younger cohorts completed their educational decisions by the 2015 census.[7] To ensure comparability across regions in our analysis, we focus on prefectures that produced at least one female Olympic medalist between 1984 and 2004, which yields a main sample of 264,190 individuals from 91 prefectures.

### 3.2. Variable Construction

*Treatment Variables* Our treatment construction precisely captures exposure to hometown Olympic success during developmentally sensitive periods. The primary treatment variable, *Medal Cohort*, is a binary indicator equal to one if an individual was aged 18 or younger when at least one female athlete from their prefecture won an Olympic medal (gold, silver, or bronze). We choose the age threshold of 18 because it represents the end of the "choice window" when educational decisions and career aspirations are most malleable.

This treatment variable enables us to compare individuals who experienced exposure to local female Olympic success during the educational choice window with those who did not. Our identification strategy leverages two sources of variation. First, across prefectures, we compare individuals from prefectures that produced female Olympic medalists to those from prefectures that did not. Second, within the same prefecture, we compare individuals who were aged 18 or younger when the medal was won to those who were older at the time of exposure. The latter group serves as a natural control since they experienced the same local Olympic achievement but after the developmental period when exposure is hypothesized to have the strongest impact on educational and career decisions.

[7] In robustness checks, we expand these sample restrictions and obtain consistent results.

*Educational Attainment Measures* To measure gender disparities across prefectures and birth cohorts, we construct several variables, with educational attainment serving as the primary outcome. We focus on educational attainment for two important reasons. First, extensive literature establishes that gender gaps in education strongly correlate with prevailing gender norms in society (Goldin 2006; Goldin 2014a). Second, education represents a fundamental determinant of numerous downstream gender disparity outcomes, with significant implications for labor market participation, occupational choices, and economic empowerment (Duflo 2012; Jayachandran 2015a).

We construct several complementary metrics from the population census data to measure educational achievement across multiple dimensions. First, we create a continuous measure of years of schooling by converting reported educational attainment into numerical values: 0 years for no formal education, 6 years for primary school, 9 years for junior high school, 12 years for high school, 15 years for associate college, 16 years for four-year university, and 19 years for graduate degrees. Second, to examine potential non-linear effects at critical educational transitions, we create binary indicators for four key thresholds. These capture individuals with junior school completion or below ($\leq$ 9 years), high school completion or above ($\geq$ 12 years), associate college completion or above ($\geq$ 15 years), and college completion or above ($\geq$ 16 years).

*Labor Market Outcomes.* To examine whether exposure to female Olympic success influences subsequent economic opportunities and occupational sorting patterns, we extend our analysis to labor market outcomes. Using census data, we construct three complementary indicators capturing distinct dimensions of labor market performance. First, we measure labor force participation with a binary indicator equal to one if an individual is currently employed or actively seeking employment. Second, we examine entry into high-income industries as a measure of occupational quality.[8] Third, we measure entry into male-dominated industries to assess occupational segregation by gender.

*Gender Attitudes.* To explore potential mechanisms underlying educational and labor market effects, we construct measures of gender attitudes and household behavior using several representative household surveys. These measures allow us to examine whether exposure to female Olympic success shifts individual attitudes toward gender equality and influences household decision-making. We draw on CGSS survey questions that capture respondents' views on gender roles in society, the appropriate division of domestic responsibilities between spouses, and the relative importance of educational investment for male and female children. Additionally, we examine

[8]Using 2005 1% Population Census data, we calculate average wages across industries and classify industries as "high-income" if their mean wage exceeds the overall cross-industry average. Appendix Figure A3 and Table A3 provide detailed industry-level statistics.

household expenditure patterns on education by child gender using CHIP data to assess whether exposure translates into differential investment behaviors.

*Control Variables.* Our incorporate controls for individual characteristics such as ethnicity (Han or minority), household registration type (urban or rural hukou), and current migration status. The inclusion of hukou status is particularly important given substantial educational disparities between urban and rural residents in China. We also incorporate prefecture-level controls to account for regional variation in economic development. From China City Statistical Yearbooks, we extract socioeconomic indicators including per capita GDP and population to control for local economic conditions that may independently influence both Olympic performance and educational outcomes.

### 3.3. Summary statistics

Table A1 presents summary statistics for our main sample of 264,190 individuals born between 1960 and 1995, drawn from China's 2015 1% Population Mini-Census. The sample is gender-balanced (49.5% female), with 11.3% being cross-prefecture migrants who moved away from their birth prefecture by 2015. Educational attainment averages 10.6 years of schooling, corresponding to completion between junior and senior high school levels. About 12.4% of individuals completed junior high school or below, 36.5% achieved senior high school or beyond, 22.1% attained associate college degrees or above, and 11.5% completed four-year university education or higher. In terms of labor market outcomes, the employment rate is 74.6%. Among employed individuals, 26.1% work in above-median income industries, and 74.5% work in male-dominated industries.

Figure A1 illustrates China's Olympic medal performance and female representation between 1984 and 2004. Total medals rose from 32 at the 1984 Los Angeles Olympics to 63 at the 2004 Athens Olympics, with particularly rapid growth after 1992 coinciding with the Soviet Union's dissolution. Notably, female athletes contributed a disproportionate share of China's Olympic success, with the female medal share rising to approximately 70% after 1992 and maintaining this high level across subsequent Olympic cycles.

Table A2 presents the top 10 Olympic sports ranked by the number of medals won by Chinese athletes between 1984 and 2004, along with the female share of medalists in each sport. Diving leads with the highest medal count, followed by gymnastics, shooting, and weightlifting, reflecting China's particular strengths in these disciplines. Examining female representation across these sports reveals substantial heterogeneity: women achieved complete dominance in certain disciplines–accounting for 100% of China's medals in swimming and judo, and over 80% in badminton and athletics–

while representing considerably smaller proportions in others, such as weightlifting (24%) and gymnastics (30%).

Figure A2 illustrates the geographic and temporal distribution of China's first female Olympic medalists across prefecture-level administrative units between 1984 and 2004. The map reveals substantial spatial heterogeneity in the timing of female Olympic success, with the darkest shaded regions representing prefectures that produced their first female medalist in 1984 and progressively lighter shades indicating later years of first achievement. This staggered emergence of first female medalists across prefectures provides the key identifying variation for our empirical analysis, generating both cross-sectional and temporal variation in treatment assignment that enables causal identification.

## 4. Empirical Strategy

### 4.1. Two-Way Fixed Effect Model

We examine whether female Olympic medalists influence gender disparities in educational outcomes by studying their effect on gender education gaps within their hometowns. While the Olympics are a national event, our assumption is that medalists exert stronger influence locally, as they receive disproportionate media attention and public recognition in their home regions, making them particularly salient in shaping community attitudes and behaviors (see Section 2.2).

Our benchmark analysis focuses on 91 prefectures that produced at least one female Olympic medalist between 1984 and 2004. Limiting the sample in this way ensures greater homogeneity and avoids bias from regions that never produced a medalist. Robustness checks including those regions yield similar results.

The empirical strategy relies on two sources of variation. First, we exploit differences in the timing of each prefecture's first female Olympic medal. Second, we compare individuals from the same prefecture but in different birth cohorts at the time of the medalist's success.

Because educational attainment is typically shaped within a specific age window, we compare individuals who were aged 18 or younger when their prefecture first achieved female Olympic success with those who were older at that time. The idea is that younger individuals–whose schooling decisions were still in progress–were more likely to be influenced by the medalist's achievement, whereas older cohorts, having largely completed their education, would be unaffected.

The key idea underlying our approach is illustrated in Figure 3. We define *Medal Cohorts* as individuals who were aged 18 or younger when their prefecture first produced

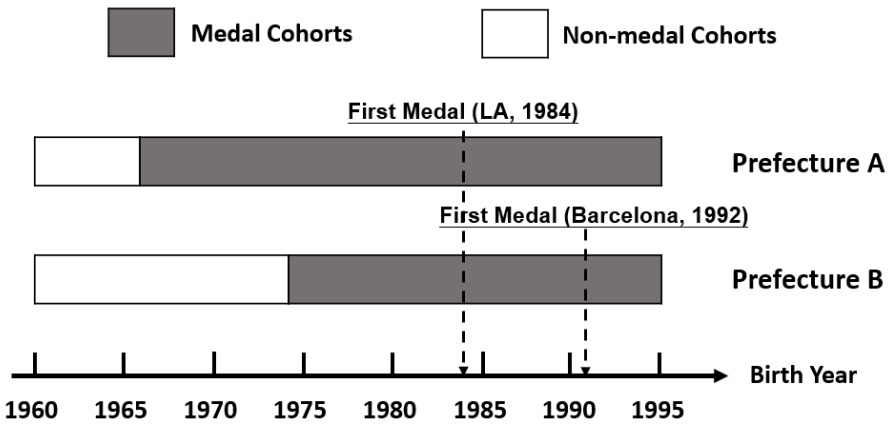



***Figure 3.*** *Example of Empirical Strategy: Staggered Timing of First Female Olympic Medalists Across Prefectures. This figure illustrates our empirical strategy, which exploits two sources of variation to estimate the effects of a prefecture's first female Olympic success on gender-related educational outcomes. First, we use cross-prefecture variation in the timing of when different regions first produced female Olympic medalists (e.g., Prefecture A in the 1984 Los Angeles Olympics vs. Prefecture B in the 1992 Barcelona Olympics). Second, within each prefecture, we compare individuals from different birth cohorts who were at different stages of their educational decisions when the first female Olympic success occurred in their hometown.*

a female Olympic medalist, and *Non-medal Cohorts* as those who were older than 18 at that time. This age cutoff reflects the period when schooling decisions are typically still being made.

Consider two prefectures with different timing. Prefecture A first celebrated a female Olympic medalist in 1984. Individuals born between 1966 and 1995 were aged 18 or younger in 1984 and are classified as Medal Cohorts, while those born before 1966 are classified as Non-medal Cohorts. Prefecture B reached this milestone eight years later, in 1992. In this case, Medal Cohorts include those born between 1974 and 1995, and Non-medal Cohorts are those born before 1974.

This timing variation enables a two-way fixed effects strategy, comparing the gender education gap between Medal and Non-medal Cohorts in prefectures that achieved female Olympic success earlier versus later. Prefecture fixed effects control for time-invariant characteristics within each region, while cohort fixed effects control for factors common to the same birth years across all regions. By accounting for these potential confounders, we isolate the effect of a prefecture's first female Olympic success on the educational outcomes of younger cohorts who were still making schooling choices.

Our baseline specification directly follows the cohort definitions described in the Prefecture A/B example. We estimate:

$$\mathrm{Y}_{icp} = \beta_0 + \beta\,\mathrm{Female}_i \times \mathrm{Medal\ Cohort}_{cp} + \delta_{cp} + \gamma_{\mathrm{Female}\times\mathrm{Post\text{-}Mao}} + X_i'\theta + \varepsilon_{icp}, \quad (1)$$

where $Y_{icp}$ denotes the educational outcome for individual $i$ born in calendar year $c$ from prefecture $p$. The indicator Medal Cohort$_{cp}$ equals one if an individual from prefecture $p$ and birth year $c$ was aged 18 or younger when their prefecture first produced a female Olympic medalist, and zero otherwise. For example, in Prefecture A, individuals born between 1966 and 1995 are coded as Medal Cohorts, while in Prefecture B the corresponding range is 1974 to 1995.

We include prefecture-by-birth year fixed effects ($\delta_{cp}$) to absorb all prefecture-specific characteristics and birth year factors shared by men and women alike. An interaction between the female indicator and a post-Mao cohort indicator ($\gamma_{\text{Female}\times\text{Post-Mao}}$) captures the influence of nationwide education reforms on gender differences, ensuring that our estimates are not confounded by this major institutional change. In addition, we include individual-level characteristics—ethnicity, hukou registration type, and migration status—to account for potential compositional differences across cohorts and prefectures. Standard errors are clustered at the prefecture level.

The coefficient $\beta$ captures the difference in educational outcomes between women and men within the same prefecture and birth cohort, comparing Medal Cohorts to Non-medal Cohorts. This corresponds to contrasting the gender gap for Medal Cohorts with that for Non-medal Cohorts, and doing so across prefectures that achieved their first female Olympic medal at different times. This specification implements the two-way fixed effects approach described above, leveraging the staggered timing of a prefecture's first female Olympic medal to estimate its impacts on gender differences of schooling decisions.

### 4.2. Instrumental Variable Strategy

While our two-way fixed effects specification accounts for time-invariant prefecture characteristics and birth cohort specific factors, it can still be the case that the timing of the first medalist may not be entirely exogenous.

On the one hand, omitted variables–such as unobserved time-varying factors at regional level–might influence both the emergence of female Olympic medalists and local gender attitudes. For example, prefectures experiencing rapid economic growth or increasing cultural openness might simultaneously produce more female medalists and experience larger reductions in gender gaps. On the other hand, reverse causality may arise if regions with improving gender equality actively promote female participation in competitive sports, thereby increasing the likelihood of athletic success and confounding our interpretation.

To address these concerns, we implement an instrumental variables strategy that exploits plausibly exogenous variation from global geopolitical shocks that affected medal

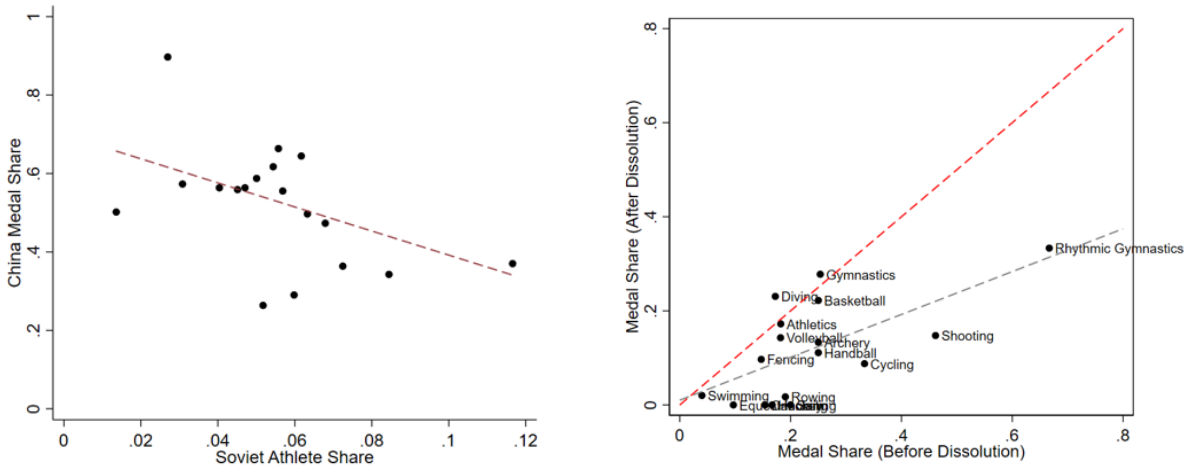
opportunities, thereby influencing the timing of the first female medalist across prefectures. Our instrument leverages the Soviet Union's historic Olympic dominance and the exogenous geopolitical events that weakened this dominance. As a leading competitor across numerous disciplines, Soviet participation–or absence–substantially reshaped medal opportunities for other countries. In China's case, geopolitical shocks such as the 1984 Soviet boycott of the Los Angeles Games and the Soviet Union's dissolution in 1991 altered medal prospects across sports in ways unrelated to local socioeconomic conditions or prevailing gender norms in Chinese prefectures. We exploit this externally induced variation in competitive opportunities as the basis for our identification strategy.

Our identification builds on a Bartik-style instrument that combines pre-determined athletic specializations of Chinese prefectures (the "shares") with exogenous changes in international competitiveness across sports disciplines driven by the Soviet Union's decline (the "shifts"). The intuition is straightforward: the collapse of the Soviet Union reshaped medal opportunities across sports in heterogeneous ways, and the extent to which each prefecture benefited depended on its historical sports composition.

The Soviet Union was historically among the most dominant competitors in the Olympic Games. However, its boycott of the 1984 Los Angeles Olympics and its dissolution after 1990 weakened this dominance and created a vacuum in the international competitive landscape. This vacuum shifted medal opportunities toward other countries, including China. Figure 4(a) provides evidence for this mechanism by examining the relationship between Soviet athlete participation and China's medal-winning probability across women's events. The binscatter plot reveals a strong negative correlation and demonstrates that events with higher Soviet participation rates were systematically associated with lower medal acquisition for Chinese athletes.

Crucially, the decline of Soviet competitiveness was uneven across disciplines. Sports in which the Soviet Union had historically invested heavily and consistently dominated experienced sharper declines in competition, whereas sports with limited Soviet presence were much less affected. Figure 4(b) illustrates this pattern by comparing Soviet medal shares in women's events before (1952-1988, on the x-axis) and after dissolution (1996-2004, on the y-axis). The gray fitted line, with its slope significantly below unity, demonstrates that sports with initially higher Soviet dominance experienced disproportionately larger competitive declines following the collapse of Soviet Union. These cross-sport differences constitute the "shifts" in our Bartik construction.

The "shares" capture each prefecture's pre-determined athletic specialization, measured by performance in China's 1983 National Games–held before China's Olympic return and subsequent geopolitical shocks. These patterns reflect historical invest-




(a) Soviet Share and China's Success

(b) Soviet Dominance Before vs After 1991

***Figure 4.*** *Soviet Collapse and Chinese Olympic Opportunities. This Figure demonstrates the empirical basis for our instrumental variable strategy. Panel (a) shows a binscatter plot of China's medal-winning probability versus Soviet athlete participation rates (excluding China) across women's events from 1984-2004, controlling for sport fixed effects. The negative correlation confirms that Soviet dominance systematically reduced Chinese medal opportunities. Panel (b) compares Soviet medal shares in women's events before (1952-1988) and after (1996-2004) dissolution. The red dashed line marks the 45-degree line, while the gray dashed line shows the fitted relationship, revealing heterogeneous declines in Soviet performance across sports following political collapse.*

ments in facilities, coaching, and training systems, as well as established local talent pipelines.

The "shifts" are measured by the proportion of Soviet female athletes (excluding China) in each sport. Because Olympic participation requires meeting strict qualifying standards–such as world rankings or minimum scores–this proportion provides a credible proxy for Soviet competitive strength. Following the Soviet Union's dissolution, prefectures specialized in formerly Soviet-dominated sports suddenly faced greater medal opportunities, while those oriented toward unaffected sports saw little change. Interacting these predetermined shares with exogenous shifts generates plausibly exogenous variation in medal opportunities across prefectures.

*Constructing IV.* We build the Bartik-style instrument in five steps. First, to measure each prefecture's pre-determined athletic specialization, we collect information on female medalists from China's 1983 National Games–held before China's 1984 Olympic return. We record each medalist's sport discipline and hometown prefecture, then aggregate these data to construct hometown prefecture-sport specialization shares.

Specifically, for prefecture $p$ in women's sport $k$, we define the specialization share:

$$\rho_{kp} = \frac{\text{Medals won by prefecture } p \text{ in women's sport } k \text{ at 1983 National Games}}{\text{Total medals in women's sport } k \text{ at 1983 National Games}}, \quad (2)$$

where higher values indicate stronger comparative advantage in sport $k$.

For example, if women's shooting produced 10 medals, with 5 medals won by athletes from Prefecture A, 3 from Prefecture B, and 2 from Prefecture C, then Prefecture A's strength in women's shooting would be 50%, Prefecture B's would be 30%, Prefecture C's would be 20%, and all other prefectures would have zero shares.

Second, we compute the *shift* variable, $s_{kt}$, capturing Soviet competitive strength in sport $k$ during Olympic year $t$ (excluding Chinese athletes):

$$s_{kt} = \frac{\text{Soviet female athletes in sport } k \text{ at Olympics } t}{\text{Total female athletes in sport } k \text{ at Olympics } t \text{ (excluding China)}}. \tag{3}$$

Larger values indicate stronger Soviet presence and correspondingly fewer medal opportunities for others.

Third, we interact each prefecture's pre-determined specialization with these exogenous shocks:

$$\theta_{pt} = \sum_{k=1}^{K} \rho_{kp} \times s_{kt}. \tag{4}$$

This Bartik aggregation captures prefecture $p$'s exposure to Soviet competition in year $t$. Lower values of $\theta_{pt}$ correspond to greater medal opportunities as Soviet dominance waned.

Fourth, we map $\theta_{pt}$ into a probability measure bounded between 0 and 1:

$$\pi_{pt} = 1 - e^{-(1-\theta_{pt})}. \tag{5}$$

This exponential mapping is motivated by interpreting medal opportunities as rare events in a Poisson process, where the rate parameter $(1 - \theta_{pt})$ reflects the intensity of competitive opportunities available to Chinese athletes from prefecture $p$ in Olympic year $t$, net of Soviet competitiveness. Higher values of $\theta_{pt}$ (stronger Soviet presence) correspond to lower values of $\pi_{pt}$, reflecting that greater Soviet dominance reduces medal opportunities available to Chinese athletes from that prefecture.

Finally, we aggregate these opportunities into a cohort-level measure. For individuals born in prefecture $p$ with birth year $c$, we define the *Predicted Medal Cohort* as cumulative exposure during ages 0-18:

$$\text{Predicted Medal Cohort}_{cp} = 1 - \prod_{j=1}^{J_c} (1 - \pi_{pt_j}), \tag{6}$$

where $t_j \in \{1984, 1988, 1992, 1996, 2000, 2004\}$ indexes Olympic years covered before age 18, and $J_c$ is the number of such years. Intuitively, this represents the probability

that an individual cohort experienced at least one medal opportunity from its home prefecture during window of choice age.

For example, a cohort born in 1979 would be exposed to the 1984, 1988, 1992, and 1996 Olympics before age 18. If the prefecture's predicted medal probabilities in these years were 0.1, 0.1, 0.2, and 0.2, respectively, then their predicted medal exposure would be $1-(1-0.1)(1-0.1)(1-0.2)(1-0.2)=0.4816$.

*2SLS Regression.* Using the predicted medal exposure, we employ a two-stage least squares estimation proceeds as follows. In the first stage, we regress the observed medal cohort exposure on the predicted exposure generated by our Bartik instrument:

$$\begin{aligned}\text{Female}_i \times \text{Medal Cohort}_{cp} = \alpha_0 + \alpha_1 \,\text{Female}_i \times \text{Predicted Medal Cohort}_{pc} \\ +\delta_{cp} + \gamma_{\text{Female}\times\text{Post-Mao}} + X_i'\phi + \nu_{icp},\end{aligned} \tag{7}$$

where Predicted Medal $\text{Cohort}_{pc}$ is constructed following Equation (6) using pre-determined prefecture athletic specialization interacted with time-varying Soviet participation rates. The coefficient $\alpha_1$ captures the strength of the instrument, with larger values indicating that exogenous shifts in medal opportunities strongly predict actual medalist emergence.

In the second stage, we estimate the causal effect of female medalist exposure on educational outcomes using the predicted values from the first stage:

$$\text{Y}_{icp} = \beta_0 + \beta\,\text{Female}_i \times \widehat{\text{Medal}}\,\text{Cohort}_{cp} + \delta_{cp} + \gamma_{\text{Female}\times\text{Post-Mao}} + X_i'\theta + \varepsilon_{icp}, \tag{8}$$

where $\text{Female}_i \times \widehat{\text{Medal}}\,\text{Cohort}_{cp}$ denotes the fitted values from Equation (7). The coefficient $\beta$ represents the local average treatment effect of exposure to female Olympic medalists on gender gaps in educational attainment, identified through exogenous variation in medal opportunities created by geopolitical shocks to international competition.

*Exclusion Restriction.* Following Borusyak, Hull, and Jaravel (2022), our Bartik IV relies on the exogeneity of the *shifts*–sports-level changes in Soviet female participation–rather than the *shares*–prefecture-level specialization patterns. The exclusion restriction requires that Soviet participation influence gender outcomes in Chinese prefectures only through its effect on medal opportunities, with no independent impact through channels such as local gender attitudes.

This assumption is plausible because Soviet participation was determined by domestic sports planning and broader geopolitical factors unrelated to gender norm evolution in China. In particular, the sudden dissolution of the Soviet Union was unexpected and orthogonal to gender dynamics across Chinese prefectures.

In Appendix C, we conduct several tests to support this identifying assumption. First, we show that the decline in Soviet strength was not systematically concentrated in sports where China posed competitive threats, and that our instrument does not predict pre-determined prefecture characteristics correlated with education.

Second, we address the concern that regional characteristics might interact with time trends to generate spurious correlations, even if baseline levels are balanced. Following Borusyak, Hull, and Jaravel (2022), we interact pre-1991 prefecture characteristics with birth cohort fixed effects and find our results remain stable.

Third, we implement a pre-trend test to verify that medal opportunities are not spuriously capturing unobserved forces driving educational trends. Using only pre-dissolution cohorts, we regress outcomes on treatment predictions constructed for post-dissolution years. The null results suggest our instrument isolates the effects of Soviet collapse rather than pre-existing differences.

Fourth, as emphasized by Borusyak, Hull, and Jaravel (2025), shift-share instruments may be biased if based on too few shifts, even if those shifts are random. To meet the "many shifts" condition, we reconstruct the instrument at the finer level of Olympic events rather than broad sport categories.

Finally, we demonstrate robustness to alternative definitions of shifts by expanding the measure of post-Soviet competitiveness beyond Russia to include other successor states such as Ukraine and Belarus.

*Placebo Test.* To further mitigate the concern that our results may simply reflect general athletic success, regional development trends, or other confounders driving educational outcomes, we implement a placebo test. We construct an IV for male medal cohorts using the same approach. If the estimated effects operate through the specific influence of female success on gender norms, exposure to male medalists should yield no comparable impact.

## 5. Empirical Results

### 5.1. Fixed Effects Estimation

Table 1 presents our baseline estimates of the effect of exposure to female Olympic success during educational choice window when individuals are still making schooling decisions, measured as years of schooling. The key coefficient of interest is the interaction term Female $\times$ Medal Cohort, which captures the differential impact of female medalist exposure on female educational outcomes relative to male.

The results reveal a consistent and statistically significant positive effect across all specifications. The key estimated coefficient ranges from 0.320 to 0.326, indicating that

***Table 1.*** *Effect of Female Olympic Medal on Gender Disparities in Years of Schooling*

| | Dependent Variable: Years of Schooling | | | |
|---|---|---|---|---|
| | Prefectures with Female Medalist | | | Also Male Medalist |
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort | 0.325*** | 0.322*** | 0.326*** | 0.320*** |
| | (0.0523) | (0.0521) | (0.0522) | (0.112) |
| Medal Cohort | -0.209*** | | | |
| | (0.0706) | | | |
| Female × Male Medal Cohort | | | | 0.0360 |
| | | | | (0.104) |
| Controls | | | Y | Y |
| HomePref FE | Y | | | |
| BirthYear FE | Y | | | |
| HomePref×BirthYear | | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| Mean | 10.62 | 10.62 | 10.62 | 11.50 |
| N | 264,190 | 264,190 | 264,190 | 113,441 |
| $R^2$ | 0.248 | 0.268 | 0.271 | 0.256 |

**Notes:** This table presents the baseline estimates of the effect of exposure to hometown female Olympic medalists on gender disparities in years of schooling. Column (1) includes prefecture fixed effects, birth year fixed effects, and the Female × Post-Mao interaction term. Column (2) adds individual-level controls including an indicator for Han ethnicity, an indicator for urban hukou status, and an indicator for migration status. Column (3) is our preferred specification, which replaces the separate prefecture and birth year fixed effects with prefecture-by-birth year fixed effects while retaining all individual-level controls from column (2). Column (4) restricts the sample to prefectures that produced both female medalist and male medalist, and includes an additional interaction term Female × Male Medal Cohort to directly compare the gender-specific effects of female versus male medalist exposure. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

females exposed to female Olympic medalists from their home prefecture during educational choice window complete approximately 0.32 additional years of schooling compared to their male peers. This represents roughly a 3% increase relative to the sample mean of 10.62 years of schooling and half of the mean gender difference, suggesting an economically meaningful impact of female medalist exposure on educational attainment.

These findings are robust across different model specifications. Column (1) includes basic two-way fixed effects and Post-Mao era, while columns (2) and (3) add increasingly stringent controls, including the interactions between home prefecture and birth year, as well as a comprehensive set of individual characteristics.

We also show that our findings are robust to alternative treatment definitions, sample compositions, and model specifications. Table A4 tests whether results are sensitive to the age cutoff for defining *Medal Cohort* by using thresholds of 6, 12, or 15 years instead

of 18. We also replace the binary treatment indicator with a continuous measure capturing the number of years each individual was exposed to female Olympic medalists before age 18. All alternative measures yield consistent results.

Table A5 addresses several additional concerns. First, the 1984 Los Angeles Olympics was exceptional due to the Soviet-led boycott, which fundamentally altered competitive conditions compared to subsequent Games. We exclude prefectures that produced their first female medalist in 1984 to ensure our results are not driven by this unique event. Second, we expand the sample to include all Chinese prefectures and birth cohorts to address potential sample selection problem. Third, we control for compulsory education policy reforms to account for concurrent educational expansions that may confound our estimates. Fourth, we include gender-by-prefecture fixed effects to absorb region-specific gender differences. Across all specifications, the estimated effects remain statistically significant with comparable magnitudes.

To examine whether these effects are specifically driven by female athletic achievement or reflect general Olympic success regardless of athlete gender, column (4) of Table 1 restricts the sample to prefectures that produced both female and male medalists, enabling a direct comparison of gender-specific effects. The Female $\times$ Medal Cohort effect remains robust, while the Female $\times$ Male Medal Cohort coefficient is substantially smaller and statistically insignificant. This contrast demonstrates that Olympic medalist effects are primarily driven by female medalists, as exposure to male Olympic success does not meaningfully influence women's educational decisions.

To explore potential non-linear effects and pinpoint which stages of schooling drive our results, Table 2 focuses on four educational thresholds: completing only junior school or below, completing high school or above, completing associate college or above, and completing college or above. Female medalist exposure reduces the probability that girls complete only junior school or below by 4.91 percentage points relative to boys (column (1)) and increases the probability of high school completion by 2.75 percentage points (column (2)). At higher levels, the effects taper: a modest 0.99 percentage point increase in associate college completion (column (3)) and no significant effect on university graduation (column (4)). Together, these findings show that female Olympic success predominantly influences the transition from junior to senior high school–the critical decision point where families choose whether to continue investing in daughters' education beyond the compulsory level.

Beyond educational attainment, we examine whether female medalist exposure generates broader changes in women's labor market outcomes. We construct three complementary indicators to capture distinct dimensions of labor market performance: labor force participation, employment in high-income industries, and participation in

***Table 2.*** *Effect of Female Olympic Medal on Gender Disparities in Educational Attainment*

| | Dependent Variable: | | | |
|---|---|---|---|---|
| | Junior School and Below | High School and Above | Associate College and Above | College and Above |
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort | -0.0491*** | 0.0275*** | 0.00993** | 0.000222 |
| | (0.00700) | (0.00624) | (0.00445) | (0.00368) |
| Controls | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| Mean | 0.12 | 0.37 | 0.22 | 0.11 |
| N | 264,190 | 264,190 | 264,190 | 264,190 |
| $R^2$ | 0.153 | 0.165 | 0.216 | 0.160 |

**Notes:** This table examines the effect of exposure to hometown female Olympic medalists on gender disparities across different educational attainment thresholds. The dependent variables are binary indicators for completing only junior high school or below (column (1)), completing senior high school or above (column (2)), completing associate college or above (column (3)), and completing four-year university or above (column (4)). All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

male-dominated sectors. Table 3 demonstrates that the influence of female Olympic success extends far beyond educational investment, generating substantial improvements across multiple dimensions of women's economic participation.

The baseline results in columns (1), (3), and (5) reveal consistent and positive effects across all labor market dimensions. Female medalist exposure increases women's labor force participation by 8.67 percentage points relative to men–representing a 11.6% increase from the sample mean. The occupational quality effects prove equally substantial, with exposure increasing women's likelihood of working in high-income industries by 7.2 percentage points, an 27.7% increase relative to the sample mean. Similarly, female medalist exposure reduces occupational gender segregation by increasing women's participation in male-dominated industries by 5.36 percentage points.

Remarkably, these effects remain largely robust when controlling for individual years of schooling, as shown in columns (2), (4), and (6). These results indicate that female medalist effects operate through channels beyond education alone. The persistence of substantial effects after controlling for educational attainment suggests that female athletic success may fundamentally transform local employment environments and social norms surrounding women's work participation.

***Table 3.*** *Effect of Female Olympic Medal on Gender Disparities in Occupational Choices*

| | Dependent Variable: | | | | | |
|---|---|---|---|---|---|---|
| | Labor Participation | | Whether Work in High-Income Industries | | Whether Work in Male-Dominated Industries | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Female × Medal Cohort | 0.0867*** | 0.0860*** | 0.0720*** | 0.0531*** | 0.0536 | 0.0398*** |
| | (0.0199) | (0.0197) | (0.0100) | (0.0103) | (0.00867) | (0.00822) |
| Years of Schooling | | 0.00218* | | 0.0399*** | | 0.0290*** |
| | | (0.00126) | | (0.00293) | | (0.00117) |
| Controls | Y | Y | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y | Y | Y |
| Mean | 0.75 | 0.75 | 0.26 | 0.26 | 0.75 | 0.75 |
| N | 264,190 | 264,190 | 197,127 | 197,127 | 197,127 | 197,127 |
| $R^2$ | 0.149 | 0.149 | 0.232 | 0.298 | 0.065 | 0.100 |

**Notes:** This table examines the effect of exposure to hometown female Olympic medalists on women's labor market outcomes. The dependent variables include labor force participation, employment in high-income industries defined as those with above-average wages, and employment in male-dominated industries defined as those with above-average male employment shares. Columns (1), (3), and (5) present baseline specifications, while columns (2), (4), and (6) add individual years of schooling as a control. The sample in columns (3)-(6) is restricted to employed individuals. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

### 5.2. IV Estimation

While our fixed effects model accounts for unobserved heterogeneity at the prefecture and birth-year levels, time-varying confounders may still bias the estimates. To address this, we exploit exogenous variation in medal opportunities generated by geopolitical shocks that reshaped international competition. Specifically, we construct a Bartik-style instrument that interacts pre-determined athletic specialization from China's 1983 National Games–set before full Olympic reintegration–with time-varying Soviet female athlete participation across Olympic sports. This interaction yields predicted medal probabilities for each prefecture and Olympic year, which we transform into cohort-level exposure measures.

Table 4 reports the IV estimates. We first assess instrument strength by regressing observed medal exposure on the predicted measure. The first-stage results (column (1)) show a coefficient of 0.67 with an F-statistic of 134, comfortably above weak instrument thresholds. The second-stage estimates (column (2)) indicate that medal exposure significantly narrows educational gender gaps: the coefficient of 0.858 is both statistically significant and economically meaningful.

***Table 4.*** *Bartik IV Regression: Female vs Male Medal Effects*

| Dependent Variable | Female Medal | | Male Medal | |
|---|---|---|---|---|
| | $1^{st}$ Stage | $2^{nd}$ Stage | $1^{st}$ Stage | $2^{nd}$ Stage |
| | Female×Medal Cohort | Years of Schooling | Female×Medal Cohort | Years of Schooling |
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort | | 0.707*** | | |
| | | (0.101) | | |
| Female × Predicted Medal Cohort | 0.670*** | | | |
| | (0.0578) | | | |
| Female × Male Medal Cohort | | | | 0.684 |
| | | | | (0.417) |
| Female × Predicted Male Medal Cohort | | | 0.424*** | |
| | | | (0.133) | |
| Controls | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| F-statistics | | 134.172 | | 10.105 |
| N | 264,190 | 264,190 | 113,441 | 113,441 |
| $R^2$ | 0.894 | 0.004 | 0.881 | 0.001 |

**Notes:** This table presents instrumental variable estimates using a Bartik-style instrument that interacts prefecture-level pre-determined athletic specialization with time-varying Soviet female athlete participation rates across Olympic sports. Columns (1)-(2) examine female medalist effects: column (1) shows the first-stage relationship between the instrument (Female × Predicted Medal Cohort) and actual medal exposure (Female × Medal Cohort), while column (2) presents the second-stage effect on years of schooling. Columns (3)-(4) present analogous specifications for male medalist exposure as a placebo test. The F-statistics reported are Kleibergen-Paap Wald F-statistics. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

Furthermore, as discussed in Section 5.2, we conduct a placebo test by constructing male medal cohorts and an IV for male medal cohorts using the same methodology. Columns (3) and (4) of Table 4 presents the results. The first-stage relationship for male medals (column (3)) remains strong. This result is both theoretically expected and empirically reassuring: the same geopolitical shocks and athletic specialization patterns that created opportunities for female athletes should similarly affect male athletes.

However, the second-stage results reveal a crucial asymmetry (column (4)). Male medal cohort exposure shows no significant effect on educational gender gaps. This pattern aligns with our baseline results in column (4) of Table 1, suggesting that female medallists have effects on gender inequality, rather than general athletic success.

The null result for male medalists also helps mitigate identification concerns about

prefecture-specific trends that might correlate with both Olympic success and reduction in gender disparity in education. If unobserved confounding factors were driving our results, we would expect significant effects for both genders. Instead, the contrasting pattern suggests that only female Olympic success catalyzes changing gender outcomes.

### 5.3. Robustness

Our identification relies on exogenous variation in women's sports created by the Soviet dissolution. The exclusion restriction requires that Soviet female participation affect local gender outcomes only through medal opportunities. In this section, we present several tests to assess the validity of this assumption.

*Validating Shift Exogeneity.* The key identification concern is that the Soviet retreat from women's sports may have been systematically aligned with China's emerging strengths rather than distributed quasi-randomly across disciplines. If Soviet athletes disproportionately reduced participation in sports where Chinese competitors were gaining ground, our estimated shifts would be endogenous to China's athletic specialization.

To assess this, we examine whether Soviet decline correlates with China's participation in the two Olympic Games held immediately before the dissolution. Specifically, we construct changes in the Soviet share of female athletes between 1988 and 1996 across sports and regress these on China's athlete shares in 1984 and 1988, respectively. Figure A4(a) presents results using the 1984 Los Angeles Games, while Figure A4(b) uses the 1988 Seoul Games.

Across both specifications, we find near-zero correlations, indicating that the Soviet withdrawal was not systematically concentrated in sports where China was more competitive. This supports the assumption that our shifts capture plausibly exogenous variation in competitive opportunities.

*Balance Test.* Even if shifts are exogenous at the sport level, the instrument could still violate the exclusion restriction if it systematically predicts pre-determined regional characteristics that shape gender norms or educational outcomes. To test this, Table A8 reports comprehensive prefecture-level balance checks. We assess whether predicted medal opportunities for the 1992 cohort correlate with key pre-dissolution characteristics: the 1990 sex ratio (female share of population), GDP per capita, primary and secondary industry shares, and the density of primary schools, gymnasiums, and hospitals per 1,000 residents.

Across all dimensions, we find no significant correlations. This indicates that our instrument captures variation orthogonal to regional characteristics that might other-

wise explain changes in educational outcomes.

*Controlling for Dynamics of Regional Characteristics.* A further concern is that regional characteristics influencing education may evolve over time in ways that spuriously correlate with medal opportunities, even if baseline levels are balanced. To address this, Table A9 reports results controlling for interactions between pre-1991 prefecture characteristics and birth cohort fixed effects. The stability of our main coefficients under these specifications suggests that time-varying regional heterogeneity does not drive our findings.

*Pre-trend Test.* A key concern is that regional characteristics shaping medal opportunities may also correlate with unobserved long-term factors that jointly influence educational outcomes, creating spurious effects. If this were the case, our predicted medal opportunities for the 1990s cohorts should also correlate with outcomes of earlier cohorts that were unaffected by the Soviet decline in women's sports.

To test this, Table A10 reports a placebo analysis using cohorts born in the 1960s-1980s. For each individual in these earlier cohorts (e.g., 1965), we assign the predicted medal opportunities calculated for the corresponding prefecture and year of a later 1990s cohort (e.g., 1995). The absence of significant effects in these regressions, together with weak first-stage relationships, suggests that our instrument captures the impact of the Soviet decline in international competitiveness rather than reflecting pre-existing educational trends.

*Satisfying the "Many Shifts" Requirement*. As Borusyak, Hull, and Jaravel (2025) emphasize, the exogenous shifts approach requires sufficient shifts to ensure the law of large numbers applies: if the shift number is too small, the shifts may by chance be correlated with unobservables even if they are truly random. Table A11 addresses this requirement by reconstructing our instrument using 214 detailed Olympic events rather than 29 comprehensive sport categories, substantially increasing the effective number of shifts. The consistency of our results under this finer categorization shows that our identification is less likely to suffer from the few-shifts problem.

*Using Alternative Shifts*. In the benchmark analysis, we use Russian participation as the proxy for post-Soviet competitive strength. As an alternative, we construct a proxy based on the combined participation of Russia, Ukraine, and Belarus–the only other former republics with substantial Olympic presence and medal success during our study period. Table A12 shows that coefficients remain highly similar across these specifications, indicating that our results are not sensitive to the precise definition of the shift variable.

The robustness is explained by the strong correlation in female athlete participation shares across sports when comparing Russia alone with the Russia–Ukraine–Belarus

aggregate. Figure A5 documents this close alignment, which ensures that either measure provides a comparable proxy for post-Soviet competitive strength and produces nearly identical empirical results.

## 6. Mechanism Analysis

Having established the link between female Olympic medalists and reductions in educational gender inequality, we now turn to the underlying mechanisms. Our key conjecture is that women's Olympic success helps to challenge deep-rooted gender stereotypes in Chinese society. Media coverage of these achievements may reshape beliefs about women's abilities, shifting social attitudes and encouraging greater educational investment in daughters.

### 6.1. Media Coverage

Our previous analysis reveals a striking asymmetry: female Olympic medalists significantly narrow the educational gender gap, while male medalists have no comparable effect. This gender-specific pattern suggests a mechanism rooted in the ways athletic success was framed and interpreted differently for women and men. We conjecture that the gendered narratives in media reporting likely drives this effect.

During the study period (1980s–2000s), China lacked both widespread internet access and social media. State-controlled outlets were the dominant–and often sole–source of information, giving official coverage exceptional power in shaping public discourse. The framing of female versus male Olympic achievements was therefore critical in influencing how the public perceived athletic success, and in turn, how these perceptions translated into evolving social beliefs about gender roles.

In the next step, we analyze textual data from *People's Daily*—the most influential and authoritative newspaper in China during this period. As the official mouthpiece of the Chinese Communist Party and the organ of its Central Committee,People's Daily played a unique role in shaping public discourse. First, it achieved unmatched nationwide penetration: government agencies, state-owned enterprises, and educational institutions were required to subscribe, ensuring circulation in virtually every prefecture and making it the primary channel through which citizens accessed political and social information. Second, People's Daily set the tone for propaganda and news framing nationwide—its coverage provided the template that provincial and local outlets followed in reproducing narratives, rhetoric, and ideological emphasis. Together, these features made it the central vehicle through which official narratives reached and influenced the entire country.

We address two questions. First, did coverage of male and female medalists differ in

frequency, emphasis, or narrative framing? Second, did the impact of female medalists stem from thematic framing, particularly when reports explicitly linked their achievements to gender equality, or from the volume of coverage they received?

*Data and Measurement.* Our analysis focuses on 329 Chinese Olympic medalists from 1984-2004, comprising 228 female and 104 male athletes. We collect all People's Daily articles published during this period, yielding 52,932 Olympic-related articles. Among these, 14,646 articles mention Olympic athletes by name, forming our main datasets.

Our primary focus is to identify media narratives that frame female athletic success through the lens of gender equality—stories that link women's achievements to broader notions of capability, social status, and the breaking of gender barriers. Such coverage emphasizes women's strength and competence in traditionally male-dominated domains.

Two examples illustrate this framing. Coverage of Deng Yaping—who dominated Olympic women's table tennis by winning all women's gold medals at both the 1992 and 1996 Olympics—invoked the phrase "women have held up half the sky" to portray China's female athletes as proof of women's equal capability with men.[9] Similarly, coverage of Zhang Shan, who won the mixed-gender skeet-shooting event at the 1992 Barcelona Olympics by defeating all male and female competitors, celebrated her achievement with the phrase "women are not inferior to men".[10]

To systematically detect such gender-equality framing in *People's Daily* coverage, we employ a supervised machine-learning approach. We segment 14,646 athlete-related articles into 91,507 sentences and manually annotate a training set of 500 sentences containing gender-equality themes (e.g., "women hold up half the sky," "women are not inferior to men") and 5,000 sentences unrelated to gender equality. We then fine-tune a pre-trained RoBERTa language model on this dataset to classify each sentence as gender-equality-related or not. An article is classified as gender-equality-related if it contains at least one such sentence. The model achieves over 95 percent accuracy on held-out validation data and identifies 1,963 gender-equality sentences across 1,070 articles. Further technical details are provided in Appendix D.

As a placebo exercise, we apply the same methodology to identify national-pride discourse—articles emphasizing China's international standing, collective glory, or patriotic sentiment. The training dataset includes 500 sentences with national-pride expressions (e.g., "glory for the motherland," "national honor") and 5,000 control sentences. The fine-tuned model detects 2,348 national-pride sentences across 1,304 arti-

[9] See *People's Daily*, August 2, 1996: "Heroic women, admired by the world, have held up half the sky on China's gold medal tally..."

[10] See *People's Daily*, August 14, 1992: "On July 28, Zhang Shan, showing that women are not inferior to men, courageously won the gold medal in skeet shooting..."

***Table 5.*** *Gender Differences in Olympic Medalists' Media Coverage*

| | Dependent Variable: | | |
|---|---|---|---|
| | Number of Reports (log) | Gender Equality Share | National Pride Share |
| | (1) | (2) | (3) |
| Female Medalist | 0.0138 | 0.0982*** | 0.0154 |
| | (0.134) | (0.0192) | (0.0232) |
| Sport FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Mean | 2.33 | 0.14 | 0.19 |
| $N$ | 329 | 329 | 329 |
| $R^2$ | 0.470 | 0.488 | 0.533 |

**Notes:** This table examines gender differences in Olympic medalists' media coverage characteristics using People's Daily article data. The dependent variables are the total number of articles mentioning each athlete in logarithm (column (1)), the share of coverage containing gender equality themes identified through supervised machine learning (column (2)), and the share containing national pride themes (column (3)). All specifications include sport fixed effects and Olympic year fixed effects. Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

cles.

These classifications allow us to construct athlete-year level measures of thematic emphasis across time periods and individual athletes. We aggregate article-level data to the athlete level and construct three key coverage indicators for each medalist: coverage intensity (total number of People's Daily articles featuring the athlete following Olympic medal), gender equality content share (proportion of an athlete's coverage discussing gender equality themes), and national pride content share (proportion emphasizing national pride narratives).

*Gender Differences in Media Coverage.* We first examine whether there are significant differences between female and male medalists in coverage intensity and thematic content.

$$y_{ikt} = \alpha + \beta \cdot \text{Female Medalist}_i + \gamma_k + \delta_t + \epsilon_{ikt}. \tag{9}$$

where $y_{ikt}$ represents three measures for medalist $i$ in sport $k$ medal year $\delta_t$: coverage intensity, gender equality share, and national pride share. Female Medalist$_i$ is an indicator for female athletes, while $\gamma_k$ and $\delta_t$ capture sport and medal year fixed effects, respectively.

Table 5 presents the results. We find that female and male medalists receive comparable coverage volume, with column (1) showing no statistically significant difference in article counts. However, the content of coverage differs systematically by gender. Female medalists' coverage is significantly more likely to emphasize gender equality

themes (column (2)), with the share of such content being approximately 10 percentage points higher (equivalent to 70% of the sample mean). In contrast, national pride content shows no significant gender difference (column (3)), suggesting that both male and female medalists are equally likely to be framed in patriotic terms.

*Heterogeneity by Coverage Characteristics.* We next examine whether the impact of female medalists varies with media coverage characteristics—specifically, whether effects are driven by reporting intensity or by thematic framing. If media serve as the transmission channel for changing gender norms, larger effects should arise from athletes whose coverage stresses gender-equality themes rather than from those who simply receive more attention. In contrast, narratives centered on national pride should not exhibit similar heterogeneity, as they do not directly challenge gender stereotypes or promote women's empowerment.

We assess these predictions through subsample analysis. Athletes are divided into high- and low-coverage groups based on whether their *People's Daily* coverage exceeds the sample median for each attribute—reporting intensity, gender-equality content share, and national-pride content share. We estimate the baseline specification (Equation 1) separately for each subgroup and test differences across them by including triple interaction terms (Female $\times$ Medal Cohort $\times$ High Type), where *High Type* equals one if an athlete's coverage lies above the median for the relevant dimension.

Table 6 summarizes results along these three dimensions. Coverage intensity does not influence the estimated effects: both high- and low-coverage female medalists generate similar positive impacts, and the interaction term is small and insignificant. By contrast, thematic framing matters substantially. Female medalists whose media portrayals emphasize gender-equality themes show markedly larger effects than those with weaker gender-equality content, and the corresponding interaction term is positive and highly significant. National-pride framing, in turn, displays little heterogeneity—effects are similar across high- and low-content groups, and differences are statistically insignificant.

Together, these findings indicate that media narratives, rather than exposure volume, drive the observed local gender responses. Female Olympic success becomes socially transformative only when coverage explicitly links athletic achievement to women's broader capabilities, directly challenging prevailing stereotypes about female potential.

### 6.2. Survey Evidence of Attitude Change

Having provided evidence that media coverage may underlie the effects of female Olympic medalists on gender inequality, we further hypothesize that such media ex-

***Table 6.*** *People Daily Coverage and Female Medalist Exposure*

| Group by | Dependent Variable: Years of Schooling | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number of Reports | | | Gender Equality | | | National Pride | | |
| | High | Low | Both | High | Low | Both | High | Low | Both |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Female×Medal Cohort | 0.331*** | 0.315*** | 0.357*** | 0.422*** | 0.107 | 0.134** | 0.329*** | 0.302*** | 0.317*** |
| | (0.0625) | (0.0950) | (0.0801) | (0.0598) | (0.0803) | (0.0603) | (0.0666) | (0.0829) | (0.0791) |
| Medal Cohort×High Type | | | −0.000135 | | | −0.445*** | | | −0.0566 |
| | | | (0.141) | | | (0.0872) | | | (0.118) |
| Female×Medal Cohort×High Type | | | −0.0404 | | | 0.275*** | | | 0.00533 |
| | | | (0.0900) | | | (0.0691) | | | (0.0905) |
| Controls | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mean | 10.46 | 11.26 | 10.62 | 10.36 | 11.20 | 10.62 | 10.63 | 10.58 | 10.62 |
| *N* | 209,073 | 50,233 | 259,306 | 180,326 | 78,980 | 259,306 | 203,688 | 55,618 | 259,306 |
| $R^2$ | 0.278 | 0.210 | 0.271 | 0.272 | 0.241 | 0.272 | 0.289 | 0.200 | 0.271 |

**Notes:** This table examines heterogeneity in the effect of exposure to hometown female Olympic medalists by media coverage characteristics. The dependent variable is years of schooling. Columns (1)-(3) split the sample by coverage intensity: column (1) restricts to individuals exposed to high-coverage medalists (above median number of People's Daily articles), column (2) to low-coverage medalists (below median), and column (3) pools both groups with a triple interaction term Female × Medal Cohort × High Type. Columns (4)-(6) repeat this analysis splitting by gender equality content share in coverage, while columns (7)-(9) split by national pride content share. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

posure transformed gender attitudes and parental decision-making, leading to the observed changes. We conjecture that the underlying mechanism operates through shifts in gender norms: by reshaping societal perceptions of women's capabilities, female medalists influence both parental investment in daughters' education and individuals' attitudes toward gender roles. This mechanism differs from a role-model effect. While role models primarily inspire girls who personally identify with particular athletes, norm change affects entire communities by reshaping collective beliefs about women's potential.

To test whether female Olympic success influenced gender attitudes and parental educational decisions, we use two nationally representative surveys: the Chinese Household Income Project (CHIP) and the Chinese General Social Survey (CGSS). These data allow us to examine parental behavior through education spending and individual mindsets through gender belief measures, providing evidence for the attitude-change mechanism underlying our main results.

We first examine whether exposure to female Olympic medalists alters parents' educational investment patterns using expenditure data from the CHIP survey. Our analysis focuses on single-child households with children aged 6-18 across three survey waves spanning our study period (1988, 1995, 1999). The CHIP data provides rich house-

hold expenditure information, allowing us to construct two key spending categories: tuition fees and technical training expenditures.

To align with the gender gap outcome in our baseline specification, we examine the educational investment gap between daughters and sons. Our empirical specification exploits temporal variation in female medalist emergence across prefectures, examining whether the daughter-son gap narrows following the emergence of female Olympic medalists. We estimate the following regression:

$$\begin{aligned}\text{Expenditure}_{ipt} =& \beta_0 + \beta_1 \text{Daughter}_i + \beta_2 \text{Female Medal}_{pt} \\ &+ \beta_3 (\text{Daughter}_i \times \text{Female Medal}_{pt}) + \gamma X_i + \delta_p + \theta_t + \varepsilon_{ipt}, \quad (10)\end{aligned}$$

where $\text{Expenditure}_{ipt}$ represents household expenditure in log for household $i$ in prefecture $p$ at survey year $t$; $\text{Daughter}_i$ is an indicator for female child; $\text{Female Medal}_{pt}$ indicates whether prefecture $p$ had produced a female Olympic medalist by year $t$; $X_i$ includes comprehensive household and individual controls, including parental education levels, parental household registration status (hukou), household size, and household income (in log); $\delta_p$ and $\theta_t$ represent prefecture and survey year fixed effects, respectively. The coefficient of interest, $\beta_3$, captures differential investment in daughters' education when parents have been exposed to hometown female medalists.

Table 7 shows that the emergence of a female Olympic medalist is associated with a smaller gender gap in educational investment between daughters and sons. The pattern is consistent across two expenditure categories—tuition fees and training fees (columns (1) and (2)). These effects are economically significant: the estimated coefficients on the Daughter dummy are negative and significant in both columns, indicating that in the absence of female medalists, families invest considerably fewer educational resources in daughters than in sons. The emergence of female medalists narrows this gap, reducing the tuition disparity by 73% and the training expenditure gap by 56%.

To ensure our findings capture changes in educational investment rather than general household spending, we conduct placebo tests using non-education expenditures—housing and healthcare. As shown in columns (3) and (4), female medalists have no comparable effects on these categories, indicating that the observed shifts are specific to education. Overall, the results support our hypothesis that female Olympic success reshapes parental beliefs about daughters' potential and returns to education, reducing gender bias in household investment.

Furthermore, we investigate changes in gender attitudes using CGSS 2010 survey data. The CGSS 2010 contains comprehensive measures of gender attitudes through

***Table 7.*** *Changes in Household Educational Expenditure*

| | Dependent Variable: Yearly Household Expenditure (RMB, log) | | | |
|---|---|---|---|---|
| | Tuition Fee | Training Fee | Housing Exp. | Healthcare Exp. |
| | (1) | (2) | (3) | (4) |
| Daughter × Female Medal | 0.0452* | 0.0175* | -0.0245 | 0.0131 |
| | (0.0256) | (0.00991) | (0.0451) | (0.0312) |
| Daughter | -0.0621** | -0.0315** | 0.0416 | 0.0151 |
| | (0.0336) | (0.0167) | (0.0516) | (0.0215) |
| Female Medal | 0.00554 | 0.00529 | -0.0196 | -0.0212 |
| | (0.00661) | (0.00859) | (0.0467) | (0.0339) |
| Controls | Y | Y | Y | Y |
| Prefecture FE | Y | Y | Y | Y |
| Year FE | Y | Y | Y | Y |
| N | 32,513 | 32,513 | 32,513 | 32,513 |
| $R^2$ | 0.125 | 0.081 | 0.347 | 0.215 |

**Notes:** This table examines the effect of exposure to hometown female Olympic medalists on parental educational investment using household expenditure data from the China Household Income Project (CHIP) surveys conducted in 1988, 1995, and 1999. The dependent variables are annual household expenditures in logarithm on tuition fees (column (1)), technical training fees (column (2)), housing (column (3)), and healthcare (column (4)). The sample is restricted to single-child households with children aged 6-18. All specifications include prefecture fixed effects and survey year fixed effects. Control variables include father's years of schooling, mother's years of schooling, parental hukou status, household size, and household income in logarithm. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

questions capturing different dimensions of gender beliefs. Respondents are asked to indicate their agreement with five key statements on a 5-point scale (ranging from "strongly disagree," "somewhat disagree," "neutral," "somewhat agree," to "strongly agree"): (1) "Men should focus on career, women on family," (2) "Men are naturally stronger than women," (3) "Women are better to marry well than achieve well," (4) "During economic downturns, women should be laid off first," and (5) "Household duties should be shared equally between spouses." Additionally, the survey asks about fertility preferences, specifically whether respondents prefer sons or daughters if they could choose their child's gender.

Based on these survey questions, we construct six indicators reflecting gender attitudes. For the first five measures, we construct dummy variables based on agreement with the above statements, defining the variable as 1 when respondents choose "somewhat agree" or "strongly agree," and 0 otherwise. The sixth indicator measures whether respondents prefer daughters when choosing their child's gender. To examine how exposure to hometown female Olympic medalists affects these gender attitudes, we employ the same specification as in Equation (1) with the six gender attitude metrics as outcome variables.

***Table 8.*** *Changes in Gender Attitudes*

| | Dependent Variable: | | | | | |
|---|---|---|---|---|---|---|
| | Career | Capacity | Marriage | Layoff | Housework | Daughter |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Female × Medal Cohort | -0.0756** | -0.0202 | -0.000548 | -0.00974 | 0.0948** | 0.0572** |
| | (0.0303) | (0.0245) | (0.0175) | (0.00957) | (0.0408) | (0.0271) |
| Controls | Y | Y | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y | Y | Y |
| Mean | 0.60 | 0.39 | 0.43 | 0.11 | 0.73 | 0.88 |
| N | 5,173 | 5,163 | 5,163 | 5,144 | 5,174 | 5,190 |
| $R^2$ | 0.341 | 0.298 | 0.271 | 0.247 | 0.311 | 0.269 |

**Notes:** This table examines the effect of exposure to hometown female Olympic medalists on gender attitudes using data from the Chinese General Social Survey (CGSS) 2010. The dependent variables are binary indicators based on whether respondents strongly agree with the following statements: "Men should focus on career, women on family" (column (1)), "Men are naturally stronger than women" (column (2)), "Women are better to marry well than achieve well" (column (3)), "During economic downturns, women should be laid off first" (column (4)), "Household duties should be shared equally between spouses" (column (5)), and preference for daughters when choosing child's gender (column (6)). All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

Table 8 presents the results, providing compelling evidence that female Olympic success fundamentally reshapes gender differences in beliefs about gender roles. Most notably, females exposed to female medalists are significantly less likely than males to endorse traditional gender stereotypes regarding career and family responsibilities (columns (1) and (5)), demonstrating a substantial shift toward more egalitarian views of gender roles in professional and domestic spheres. While the other three attitude measures are not statistically significant (columns (2), (3), and (4)), their coefficients are consistently negative and economically meaningful relative to their sample means, aligning with our predictions.

Furthermore, exposure to female medalists significantly increases preferences for having daughters, directly challenging the traditional Chinese cultural preference for sons (column (6)). These attitudinal changes provide direct evidence that female Olympic success transforms deep-seated gender beliefs that subsequently influence educational and occupational outcomes.

### 6.3. Alternative Explanation: Role Model Effects

While our analysis supports a mechanism operating through media-driven norm change, an alternative explanation warrants consideration: the "role model" effect. Role model effects occur when exposure to successful individuals sharing similar characteristics–

such as gender, race, or socioeconomic background–influences observers' beliefs about their own capabilities and alters their subsequent decisions. This mechanism operates primarily through individual identification: seeing someone "like me" succeed in a particular domain can expand perceived possibilities and strengthen motivation to pursue similar paths (Dee 2004; Carrell, Page, and West 2010; Beaman, Duflo, Pande, and Topalova 2012; Porter and Serra 2020).[11]

Under this interpretation, female Olympic medalists serve as inspirational figures who directly influence girls' aspirations and educational choices, rather than transforming broader societal attitudes about gender roles. This mechanism would operate through individual identification with successful female athletes, motivating girls to pursue higher education by demonstrating that women can achieve excellence in competitive domains.

The role model explanation differs from our proposed social norm mechanism in both scope and targeting. Role model effects primarily influence individuals who directly identify with the successful figure – in this case, young girls who see female medalists as relatable exemplars of female achievement. In contrast, social norm change affects entire communities by shifting collective beliefs about women's capabilities, influencing not only girls themselves but also parents, teachers, and other decision-makers who shape educational opportunities.

We conduct several tests to distinguish between these competing explanations. First, if role model effects drive our findings, we should observe stronger impacts on sport-related career choices, as athletic role models would be particularly likely to inspire careers in sports or related fields. Table A7 examines occupational choices across four sports-related categories: professional athletes, sports agents, sports retail workers, and all sports-related occupations combined. Across all categories, the coefficients are small and statistically insignificant, providing no evidence that female medalists inspire greater participation in athletic careers.

Second, the role model explanation struggles to account for our key finding that only female medalists generate effects, while male medalists do not. Male Olympic champions should serve as equally inspiring role models for boys, potentially encouraging greater educational investment by demonstrating the value of achievement and perseverance. The asymmetric gender pattern we observe is more consistent with female

[11]The literature identifies several mechanisms through which role models influence behavior and outcomes. First, they provide information about previously unknown opportunities, requirements, and potential returns in specific fields (Jensen 2010; Nguyen 2008). Second, observing successful individuals with similar backgrounds updates beliefs about one's own ability to succeed in those fields (Beaman, Duflo, Pande, and Topalova 2012). Third, they disrupt stereotypes by demonstrating that success is possible for underrepresented groups, thereby reducing psychological barriers to entry (Carrell, Page, and West 2010; Porter and Serra 2020).

medalists specifically challenging gender stereotypes than with a general inspirational mechanism.

While role model effects may contribute to individual cases of inspiration, our empirical evidence consistently points toward a broader mechanism operating through social norm change. Female Olympic success becomes transformative not because individual girls identify with specific athletes, but because media coverage of these achievements challenges societal beliefs about women's capabilities and reshapes community attitudes toward gender equality.

## 7. Conclusion

This paper examines whether and how female Olympic success advances gender equality. Exploiting China's return to the Olympics in 1984, we find that prefectures with female medalists experience significant reductions in gender gaps in education and improvements in women's labor market outcomes. To address potential endogeneity in the timing of the first local female Olympic success, we instrument for exposure to female medalists using variation stemming from the Soviet Union's historical presence and relative strength across sporting disciplines, which exogenously shaped Chinese prefectures' medal opportunities over time. We provide evidence that these effects operate through the framing of media narratives—specifically, female Olympic achievements were often portrayed as evidence of gender equality and women's capabilities.

Our findings raise two broader questions for future research. First, through what mechanisms do these norm shifts permeate society? Do they shape parental expectations, children's aspirations, or employers' beliefs about women's capabilities in competitive settings? Understanding these channels would clarify how brief exposure to counter-stereotypical exemplars yields lasting belief change. Second, our results underscore the role of public media in diffusing progressive values. Future work could assess whether similar narrative channels reinforce other forms of social progress beyond gender equality.

## References


Adena, M., R. Enikolopov, M. Petrova, V. Santarosa, and E. Zhuravskaya (2015). Radio and the rise of the nazis in prewar germany. *The Quarterly Journal of Economics 130*(4), 1885–1939.

Alesina, A., P. Giuliano, and N. Nunn (2013). On the origins of gender roles: Women and the plough. *The Quarterly Journal of Economics 128*(2), 469–530.

Almond, D., H. Li, and S. Zhang (2019). Land reform and sex selection in china. *Journal of Political Economy 127*(2), 560–585.

Autor, D., D. Figlio, K. Karbownik, J. Roth, and M. Wasserman (2019). Family disadvantage and the gender gap in behavioral and educational outcomes. *American Economic Journal: Applied Economics 11*(3), 338–381.

Baade, R. A. and V. A. Matheson (2016). Going for the gold: The economics of the olympics. *Journal of Economic Perspectives 30*(2), 201–218.

Beaman, L., E. Duflo, R. Pande, and P. Topalova (2012). Female leadership raises aspirations and educational attainment for girls: A policy experiment in india. *Science 335*(6068), 582–586.

Bernard, A. B. and M. R. Busse (2004). Who wins the olympic games: Economic resources and medal totals. *The Review of Economics and Statistics 86*(1), 413–417.

Borusyak, K., P. Hull, and X. Jaravel (2022). Quasi-experimental shift-share research designs. *The Review of economic studies 89*(1), 181–213.

Borusyak, K., P. Hull, and X. Jaravel (2025). A practical guide to shift-share instruments. *Journal of Economic Perspectives 39*(1), 181–204.

Brake, D. L. (2010). *Getting in the game: Title IX and the women's sports revolution*, Volume 51. NYU Press.

Brownell, S. (2008). *Beijing's Games: What the Olympics Mean to China*. Lanham: Rowman & Littlefield.

Brückner, M. and E. Pappa (2015). News shocks in the data: Olympic games and their macroeconomic effects. *Journal of Money, Credit and Banking 47*(7), 1339–1367.

Bursztyn, L. and D. Cantoni (2016). A tear in the iron curtain: The impact of western television on consumption behavior. *The Review of Economics and Statistics 98*(1), 25–41.

Bursztyn, L., A. L. González, and D. Yanagizawa-Drott (2020). Misperceived social norms: Women working outside the home in saudi arabia. *American Economic Review 110*(10), 2997–3029.

Carrell, S. E., M. E. Page, and J. E. West (2010). Sex and science: How professor gender perpetuates the gender gap. *The Quarterly Journal of Economics 125*(3), 1101–1144.

Chen, Y., G. Z. Jin, N. Kumar, and G. Shi (2013). The promise of beijing: Evaluating the impact of the 2008 olympic games on air quality. *Journal of Environmental Economics and Management 66*(3), 424–443.

Dahl, G. B. and S. DellaVigna (2009). Does movie violence increase violent crime? *The Quarterly Journal of Economics 124*(2), 677–734.

Dee, T. S. (2004). Teachers, race, and student achievement in a randomized experiment. *Review of Economics and Statistics 86*(1), 195–210.

DellaVigna, S. and M. Gentzkow (2010). Persuasion: Empirical evidence. *Annual Review of Economics 2*, 643–669.

Doepke, M. and M. Tertilt (2009). Women's liberation: What's in it for men? *The Quarterly Journal of Economics 124*(4), 1541–1591.

Dolan, P., G. Kavetsos, C. Krekel, D. Mavridis, R. Metcalfe, C. Senik, S. Szymanski, and N. R. Ziebarth (2019). Quantifying the intangible impact of the olympics using subjective well-being data. *Journal of Public Economics 177*, 104043.

Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic literature 50*(4), 1051–1079.

Enikolopov, R., M. Petrova, and E. Zhuravskaya (2011). Media and political persuasion: Evidence from russia. *American Economic Review 101*(7), 3253–3285.

Fernández, R. and A. Fogli (2009). Culture: An empirical investigation of beliefs, work, and fertility. *American Economic Journal: Macroeconomics 1*(1), 146–177.

Gentzkow, M. (2006). Television and voter turnout. *The Quarterly Journal of Economics 121*(3), 931–972.

Goldin, C. (2006). The quiet revolution that transformed women's employment, education, and family. *American economic review 96*(2), 1–21.

Goldin, C. (2014a). A grand gender convergence: Its last chapter. *American economic review 104*(4), 1091–1119.

Goldin, C. (2014b). A grand gender convergence: Its last chapter. *American Economic Review 104*(4), 1091–1119.

Guiso, L., F. Monte, P. Sapienza, and L. Zingales (2008). Culture, gender, and math. *Science 320*(5880), 1164–1165.

Hong, F. (2013). *Sport, Nationalism and Orientalism: The Asian Games*. London: Routledge.

Jayachandran, S. (2015a). The roots of gender inequality in developing countries. *Annual review of economics 7*(1), 63–88.

Jayachandran, S. (2015b). The roots of gender inequality in developing countries. *Annual Review of Economics 7*, 63–88.

Jensen, R. (2010). The (perceived) returns to education and the demand for schooling. *The Quarterly Journal of Economics 125*(2), 515–548.

Jensen, R. and E. Oster (2009). The power of tv: Cable television and women's status in india. *The Quarterly Journal of Economics 124*(3), 1057–1094.

Kavetsos, G. and S. Szymanski (2010). National well-being and international sports events. *Journal of Economic Psychology 31*(2), 158–171.

Kearney, M. S. and P. B. Levine (2015). Media influences on social outcomes: The impact of mtv's 16 and pregnant on teen childbearing. *American Economic Review 105*(12), 3597–3632.

La Ferrara, E., A. Chong, and S. Duryea (2012). Soap operas and fertility: Evidence from brazil. *American Economic Journal: Applied Economics 4*(4), 1–31.

Li, H., L. Meng, and Q. Wang (2009). The government's role in china's olympic glory. *Applied Economics 41*(25), 3313–3318.

Lippmann, Q., A. Georgieff, and C. Senik (2020). Undoing gender with institutions: Lessons from the german division and reunification. *The Economic Journal 130*(629), 1445–1470.

Lu, Z. (2011). Sport, nationalism and the building of the modern chinese nation state (1912–49). *The International Journal of the History of Sport 28*(7), 1030–1054.

Nguyen, T. (2008). Information, role models and perceived returns to education: Experimental evidence from madagascar. Unpublished manuscript, MIT.

Olken, B. A. (2009). Do television and radio destroy social capital? evidence from indonesian villages. *American Economic Journal: Applied Economics 1*(4), 1–33.

O'Mahony, M. (2006). *Sport in the USSR: Physical Culture–Visual Culture*. Reaktion Books.

Parks, J. (2016). *The Olympic Games, the Soviet sports bureaucracy, and the Cold War: Red sport, red tape*. Lexington Books.

Porter, C. and D. Serra (2020). Gender differences in the choice of major: The importance of female role models. *American Economic Journal: Applied Economics 12*(3), 226–254.

Rose, A. K. and M. M. Spiegel (2011). The olympic effect. *The Economic Journal 121*(553), 652–677.

Yanagizawa-Drott, D. (2014). Propaganda and conflict: Evidence from the rwandan genocide. *The Quarterly Journal of Economics 129*(4), 1947–1994.

# Online Appendix

## A. Supplementary Figures

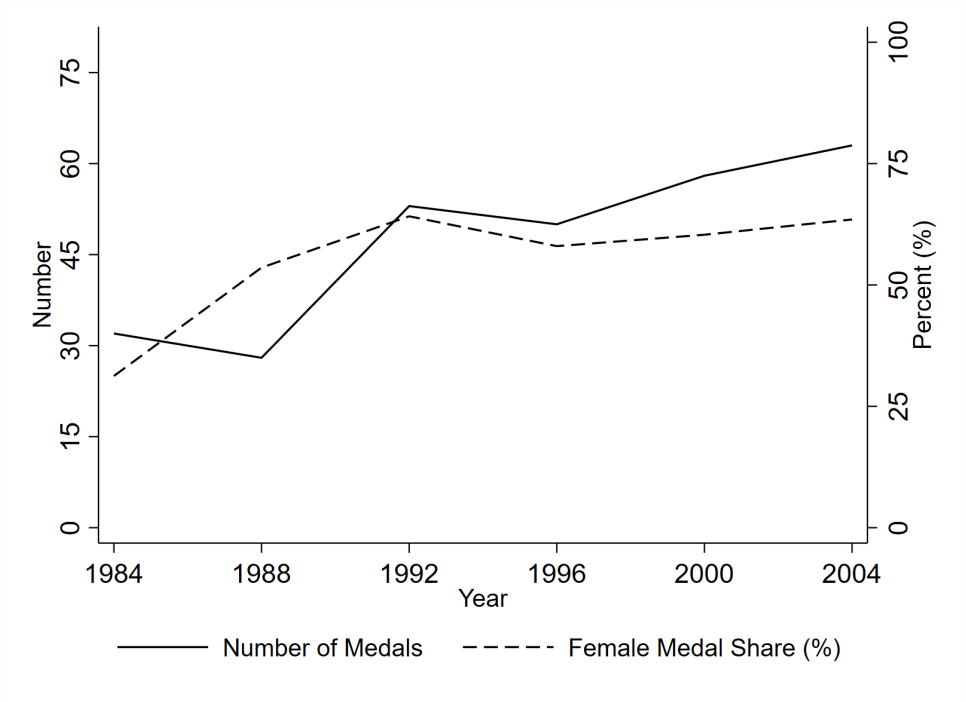



***Figure A1.*** *Chinese Olympic Medals and Female Representation Over Time (1984-2004). This figure illustrates China's Olympic medal performance and female representation across six Summer Olympics from Los Angeles 1984 to Athens 2004. The solid line (left axis) shows the total number of medals won by Chinese athletes at each Olympic Games. The dashed line (right axis) represents the percentage of medals won by female athletes.*

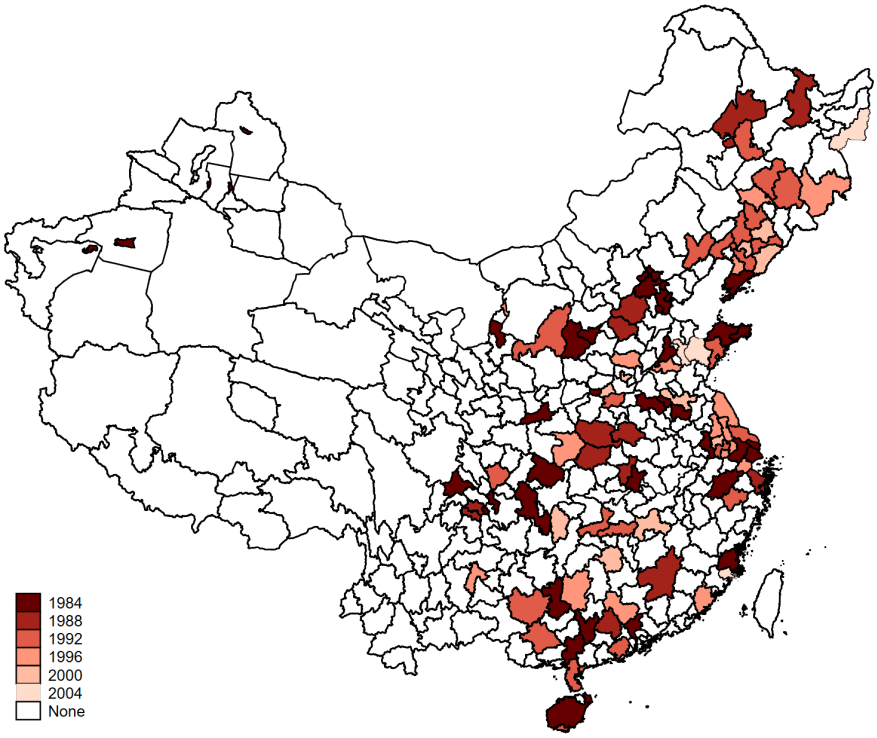



***Figure A2.*** *Year of First Female Olympic Medalist by Hometown Prefecture (1984-2004). This map illustrates the geographic and temporal distribution of China's first female Olympic medalists across prefecture-level administrative units between 1984 and 2004.*

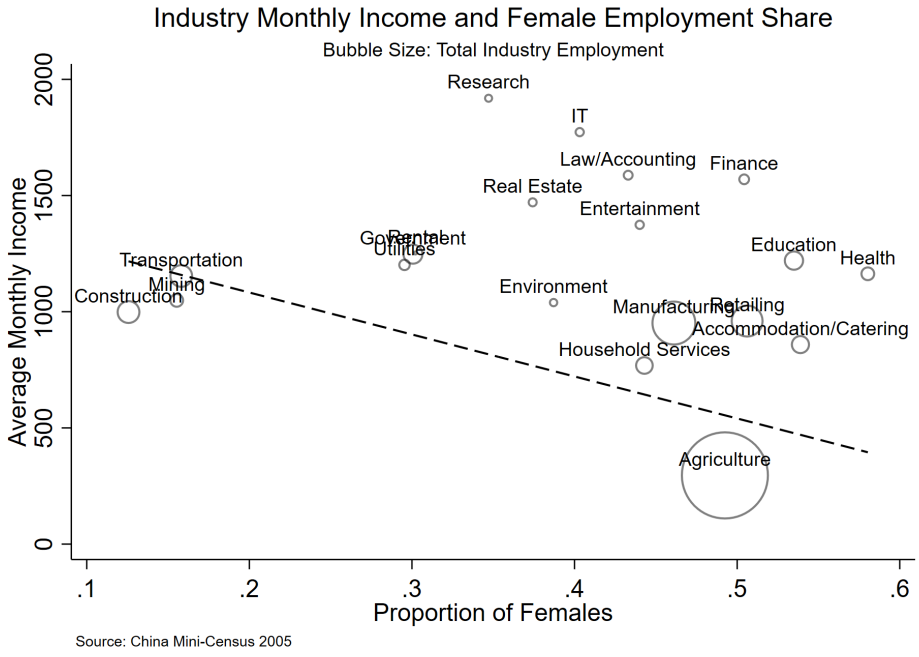



***Figure A3.*** *Female Share versus Average Income. This figure presents a binscatter plot examining the relationship between the female share of employment (x-axis) and average income levels (y-axis) across 20 industries in China, using data from the 2005 1% Population Census. Each point represents one industry, with the size of the marker proportional to the industry's total employment. The vertical dashed line marks the cross-industry average female employment share, while the horizontal dashed line indicates the cross-industry average income level.*

# B. Supplementary Tables

***Table A1.*** *Summary Statistics*

| Variable | Obs | Mean | Std. dev. | Min | Max |
|---|---|---|---|---|---|
| *Panel A: Demographic Characteristics* | | | | | |
| Female | 264,190 | 0.495 | 0.500 | 0 | 1 |
| Birth year | 264,190 | 1977.023 | 10.132 | 1960 | 1995 |
| Han ethnic | 264,190 | 0.944 | 0.230 | 0 | 1 |
| Household hukou | 264,190 | 0.966 | 0.181 | 0 | 1 |
| Migrant | 264,190 | 0.113 | 0.316 | 0 | 1 |
| *Panel B: Educational Attainment* | | | | | |
| Years of schooling | 264,190 | 10.615 | 3.364 | 0 | 19 |
| Junior and below | 264,190 | 0.124 | 0.330 | 0 | 1 |
| Junior high school | 264,190 | 0.863 | 0.344 | 0 | 1 |
| High school and above | 264,190 | 0.365 | 0.482 | 0 | 1 |
| Associate college and above | 264,190 | 0.221 | 0.415 | 0 | 1 |
| College and above | 264,190 | 0.115 | 0.319 | 0 | 1 |
| *Panel C: Labor Market Outcomes* | | | | | |
| Work | 264,190 | 0.746 | 0.435 | 0 | 1 |
| High income industry (if work) | 197,129 | 0.261 | 0.439 | 0 | 1 |
| High male industry (if work) | 197,129 | 0.745 | 0.436 | 0 | 1 |

**Notes:** This table presents summary statistics for the main analytical sample drawn from China's 2015 1% Population Mini-Census. The sample includes 264,190 individuals born between 1960 and 1995 from 91 prefectures that produced at least one female Olympic medalist between 1984 and 2004.

***Table A2.*** *Top 10 Olympic Sport Events by Medal Count (1984-2004)*

| Sport | Proportion (%) | Female Share (%) |
|---|---|---|
| Diving | 13.57 | 47.37 |
| Gymnastics | 13.21 | 29.73 |
| Shooting | 12.14 | 38.24 |
| Weightlifting | 12.14 | 23.53 |
| Table Tennis | 11.79 | 57.58 |
| Swimming | 7.50 | 100.00 |
| Badminton | 7.50 | 80.95 |
| Judo | 5.00 | 100.00 |
| Athletics | 4.64 | 84.62 |
| Fencing | 2.50 | 57.14 |
| Other | 10.00 | 82.14 |

**Notes:** This table presents the top 10 Olympic sport events ranked by the number of medals won by Chinese athletes between 1984 and 2004, based on official records from the International Olympic Database."Other" includes all remaining sports not listed in the top 10.

***Table A3.*** *Summary Statistics for Industry Composition*

| Industry | Female (%) | Income | Empl (%) | Industry | Female (%) | Income | Empl (%) |
|---|---|---|---|---|---|---|---|
| Health | 58.0 | 1163 | 1.2 | IT | 40.3 | 1773 | 0.5 |
| Accom. | 53.9 | 859 | 2.1 | Environment | 38.7 | 1039 | 0.4 |
| Education | 53.5 | 1220 | 2.4 | Real Estate | 37.4 | 1471 | 0.5 |
| Retailing | 50.6 | 960 | 7.2 | Research | 34.7 | 1919 | 0.3 |
| Finance | 50.4 | 1570 | 0.7 | Rental | 30.2 | 1253 | 0.1 |
| Agriculture | 49.3 | 296 | 56.5 | Government | 30.1 | 1248 | 2.6 |
| Manufact. | 46.1 | 951 | 13.8 | Utilities | 29.5 | 1202 | 0.8 |
| Housework | 44.3 | 769 | 2.0 | Transport. | 15.8 | 1154 | 3.5 |
| Entertain. | 44.0 | 1374 | 0.5 | Mining | 15.5 | 1049 | 1.2 |
| Law&Acc. | 43.3 | 1588 | 0.5 | Construct. | 12.6 | 999 | 3.5 |

**Notes:** This table presents summary statistics on industry composition and gender representation using data from China's 2005 1% Population Census. For each industry, we report the female share of employment (Female %), average annual income in yuan (Income), and the industry's share of total employment (Empl %).

***Table A4.*** *Robustness Checks: Alternative Treatment Definitions*

| | Dependent Variable: Years of Schooling | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort at 6 | 0.232*** | | | |
| | (0.0519) | | | |
| Female × Medal Cohort at 12 | | 0.322*** | | |
| | | (0.0503) | | |
| Female × Medal Cohort at 15 | | | 0.344*** | |
| | | | (0.0494) | |
| Female × Exposure Duration | | | | 0.0323*** |
| | | | | (0.00491) |
| Controls | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| N | 264,190 | 264,190 | 264,190 | 264,190 |
| $R^2$ | 0.270 | 0.270 | 0.271 | 0.271 |

**Notes:** This table presents robustness checks using alternative definitions of treatment exposure. The dependent variable is years of schooling in all columns. Column (1) defines Medal Cohort as individuals aged 6 or younger when their prefecture first produced a female Olympic medalist. Column (2) uses age 12 as the cutoff. Column (3) uses age 15 as the cutoff. Column (4) uses a continuous treatment variable measuring the number of years individuals were exposed to female Olympic medalists before age 18. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

***Table A5.*** *Robustness Checks: Using Alternative Samples and Specifications*

| | Dependent Variable: Years of Schooling | | | |
|---|---|---|---|---|
| | Exclude 1984 Medal Pref | Expand Sample Cohorts | Control Compulsory Education | Control Gender-Pref FE |
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort | 0.352*** | 0.523*** | 0.312*** | 0.329*** |
| | (0.0666) | (0.0482) | (0.0524) | (0.0398) |
| Controls | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| Female×HomePref | | | | Y |
| N | 188,957 | 349,959 | 264,190 | 288,152 |
| $R^2$ | 0.217 | 0.318 | 0.271 | 0.275 |

**Notes:** This table presents robustness checks for the baseline estimates. The dependent variable is years of schooling in all columns. Column (1) excludes prefectures that produced their first female medalist in 1984. Column (2) expands the sample to include all 336 prefectures in China and all birth cohorts from 1946 to 2000. Column (3) adds controls for prefecture-level compulsory education policy implementation interacted with birth cohort. Column (4) includes gender-by-prefecture fixed effects. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

***Table A6.*** *Soviet/Russian Female Athletes Participation by Sport (1988 vs 1996)*

| | 1988 Soviet | | 1996 Russia | |
|---|---|---|---|---|
| Sport | #Athletes | Proportion (%) | #Athletes | Proportion (%) |
| Athletics | 44 | 8.35 | 47 | 6.37 |
| Rowing | 23 | 12.57 | 6 | 3.06 |
| Handball | 15 | 15.15 | 0 | 0.00 |
| Basketball | 12 | 14.46 | 11 | 8.40 |
| Volleyball | 12 | 14.29 | 12 | 9.60 |
| Swimming | 8 | 3.33 | 13 | 3.95 |
| Gymnastics | 6 | 7.14 | 7 | 7.14 |
| Shooting | 6 | 5.83 | 8 | 6.84 |
| Canoeing | 5 | 7.81 | 4 | 3.48 |
| Fencing | 5 | 7.81 | 6 | 7.14 |
| Diving | 4 | 11.11 | 4 | 7.55 |
| Cycling | 4 | 6.67 | 7 | 6.60 |
| Synchronized Swimming | 3 | 6.98 | 9 | 14.06 |
| Table Tennis | 3 | 6.67 | 2 | 2.60 |
| Tennis | 3 | 6.25 | 3 | 3.70 |
| Archery | 3 | 5.08 | 3 | 4.92 |
| Rhythmic Gymnastics | 2 | 5.41 | 8 | 9.64 |
| Sailing | 2 | 4.76 | 0 | 0.00 |
| Equestrian | 2 | 3.70 | 0 | 0.00 |
| Judo | 0 | 0.00 | 6 | 4.17 |
| Hockey | 0 | 0.00 | 0 | 0.00 |
| Beach Volleyball | 0 | 0.00 | 0 | 0.00 |
| Softball | 0 | 0.00 | 0 | 0.00 |
| Badminton | 0 | 0.00 | 2 | 2.35 |
| Football | 0 | 0.00 | 0 | 0.00 |
| Average | 8 | 7.67 | 6 | 4.46 |

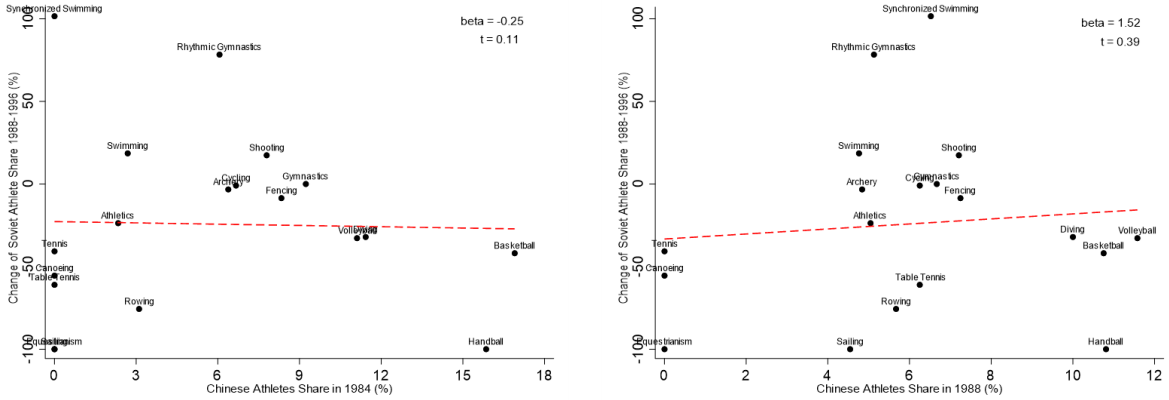
**Notes:** This table shows the number and proportion of Soviet (1988) and Russian (1996) female athletes across Olympic sports. Proportions are calculated as the share of total female participants in each sport, excluding Chinese athletes. The data illustrates substantial cross-sport variation in Soviet female participation rates and the heterogeneous impact of political dissolution on competitive landscapes across different disciplines.

***Table A7.*** *Female Medalist Effects on Sport-Related Occupation Choice*

| | Dependent Variable: Occupation Choice | | | |
|---|---|---|---|---|
| | Athlete | Sport Agent | Sport Retail | All Related |
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort | -0.000255 | 0.000157 | 0.000369 | 0.000272 |
| | (0.000330) | (0.000386) | (0.000833) | (0.00105) |
| Controls | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| Mean | 0.0012 | 0.0018 | 0.0037 | 0.0067 |
| $N$ | 264,190 | 264,190 | 264,190 | 264,190 |
| $R^2$ | 0.012 | 0.015 | 0.019 | 0.017 |

**Notes:** This table examines whether exposure to hometown female Olympic medalists influences women's entry into sports-related occupations. The dependent variables are binary indicators for employment as professional athlete (column (1)), sports agent and related occupations (column (2)), sporting goods retail (column (3)), and all sports-related occupations combined (column (4)). All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

# C. Robustness Checks for the Bartik IV




(a) 1984 Los Angeles (b) 1988 Seoul

***Figure A4.*** *Soviet Decline and Pre-dissolution China Participation. These figures tests whether the Soviet Union's decline in women's sports was systematically concentrated in sports where China posed larger competitiveness. Each panel shows a binscatter plot examining the relationship between China's pre-dissolution athlete participation share (x-axis) and the subsequent change in Soviet athlete participation share (y-axis) across women's Olympic events. Panel (a) uses China's participation in the 1984 Los Angeles Olympics as the pre-dissolution measure, while Panel (b) uses the 1988 Seoul Olympics.*

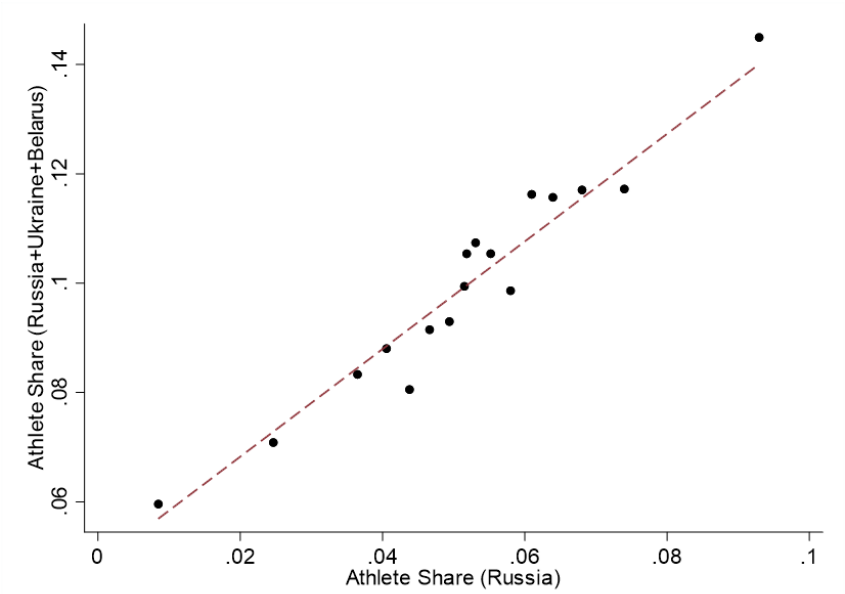



***Figure A5.*** *Correlation between Russian and Combined Post-Soviet Athlete Participation Shares. This figure presents a binscatter plot examining the relationship between athlete participation shares across women's Olympic events for Russia alone (x-axis) versus the combined participation of Russia, Ukraine, and Belarus (y-axis) during 1996-2004. Each point represents the average participation share within bins of Russian participation, excluding Chinese athletes from the calculations. The analysis controls for sport event fixed effects. The strong positive correlation ($R^2 = 0.95$) demonstrates that Russian participation patterns closely mirror those of the broader post-Soviet region.*

***Table A8.*** *Prefecture-level Characteristics before Soviet Dissolution and Predicted Medal Chance*

| | Dependent Variable: Prefecture-level Characteristics in 1990 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sex ratio born before 1991 | GDP per capita (yuan, thousand) | Primary sector share | Secondary sector share | #Primary school per 1,000 | #Gym per 1,000 | #Hospital per 1,000 |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Predicted Medal 1992 | -2.412 | 571.8 | -4.616 | -0.848 | -10.76 | -0.0278 | 2.753 |
| | (3.812) | (632.0) | (4.971) | (4.819) | (7.130) | (0.0449) | (4.150) |
| Mean | 0.52 | 2,310.52 | 24.55 | 47.57 | 46.38 | 0.24 | 25.28 |
| $N$ | 91 | 84 | 84 | 84 | 84 | 83 | 84 |
| $R^2$ | 0.001 | 0.010 | 0.010 | 0.000 | 0.027 | 0.005 | 0.005 |

**Notes:** This table examines whether the instrumental variable (predicted medal opportunities for the 1992 birth cohort) systematically predicts pre-determined prefecture-level characteristics. The dependent variables are prefecture characteristics measured before Soviet Dissolution: sex ratio of population born before 1991 (column (1)), GDP per capita in thousands of yuan in 1990 (column (2)), primary sector share of GDP in 1990 (column (3)), secondary sector share of GDP in 1990 (column (4)), number of primary schools per 1,000 residents in 1990 (column (5)), number of gymnasiums per 1,000 residents in 1990 (column (6)), and number of hospitals per 1,000 residents in 1990 (column (7)). Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

***Table A9.*** *Robustness Checks for Instrumental Variable Estimation*

| Control pre-1991 pref. char. | Instrumental Variable Estimation | | | | | | |
|---|---|---|---|---|---|---|---|
| | Dependent Variable: Years of Schooling | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Female × Medal Cohort | 0.714*** | 0.714*** | 0.714*** | 0.714*** | 0.724*** | 0.714*** | 0.724*** |
| | (0.0990) | (0.0990) | (0.0990) | (0.0990) | (0.101) | (0.0990) | (0.101) |
| Controls | Y | Y | Y | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y | Y | Y | Y |
| Sex ratio×BirthYear | Y | | | | | | |
| GDP per capital×BirthYear | | Y | | | | | |
| $1^{st}$ Industry Share×BirthYear | | | Y | | | | |
| $2^{nd}$ Industry Share×BirthYear | | | | Y | | | |
| Primary School×BirthYear | | | | | Y | | |
| Gym×BirthYear | | | | | | Y | |
| Hospital×BirthYear | | | | | | | Y |
| F-statistics | 142.587 | 142.587 | 142.587 | 142.587 | 138.239 | 142.587 | 138.131 |
| $N$ | 264,190 | 232,713 | 232,713 | 232,713 | 232,713 | 230,696 | 232,713 |
| $R^2$ | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |

**Notes:** This table presents robustness checks for the instrumental variable estimates. Columns (1)-(7) sequentially add interactions between pre-1991 prefecture characteristics and birth year fixed effects: column (1) controls for sex ratio × birth year, column (2) for GDP per capita × birth year, column (3) for primary sector share × birth year, column (4) for secondary sector share × birth year, column (5) for primary school density × birth year, column (6) for gymnasium density × birth year, and column (7) for hospital density × birth year. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

***Table A10.*** *Placebo Tests for Instrumental Variable Estimation*

| | Dependent Variable: Years of Schooling | | | |
|---|---|---|---|---|
| | 1960s Cohort | 1970s Cohort | 1980s Cohort | 1960s-1980s Cohort |
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort | 0.190 | 2.388 | 3.559 | -0.0980 |
| | (2.526) | (2.126) | (3.219) | (1.651) |
| Controls | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| F-statistics | 2.634 | 3.120 | 3.099 | 3.064 |
| $N$ | 77,386 | 73,241 | 76,956 | 227,583 |
| $R^2$ | 0.002 | 0.002 | 0.005 | 0.002 |

**Notes:** This table presents placebo tests examining whether the instrumental variable spuriously predicts educational outcomes for cohorts unaffected by the Soviet collapse. For each individual born in earlier cohorts (1960s-1980s), we assign predicted medal opportunities calculated for a corresponding later 1990s cohort from the same prefecture. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

***Table A11.*** *Bartik IV Regression: Female Olympic Medal Effects (Event Level)*

| Dependent Variable | Female Medal | |
|---|---|---|
| | $1^{st}$ Stage | $2^{nd}$ Stage |
| | (1) | (2) |
| Female × Medal Cohort | | 0.681*** |
| | | (0.117) |
| Female × Predicted Medal Cohort | 0.507*** | |
| | (0.0529) | |
| Controls | Y | Y |
| HomePref×BirthYear | Y | Y |
| Female×Post-Mao | Y | Y |
| F-statistics | | 91.687 |
| N | 264,190 | 264,190 |
| $R^2$ | 0.886 | 0.004 |

**Notes:** This table reconstructs the instrumental variable using 214 detailed Olympic events rather than 29 broad sport categories. Column (1) shows the first-stage relationship between the event-level instrument and actual medal exposure, while column (2) presents the second-stage effect on years of schooling. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

***Table A12.*** *Defining Bartik IV Shift Using Athlete from Russia, Ukraine and Belarus*

| Dependent Variable | Sport-level Share | | Event-level Share | |
|---|---|---|---|---|
| | $1^{st}$ Stage Female×Medal Cohort | $2^{nd}$ Stage Years of Schooling | $1^{st}$ Stage Female×Medal Cohort | $2^{nd}$ Stage Years of Schooling |
| | (1) | (2) | (3) | (4) |
| Female × Medal Cohort | | 0.707*** | | 0.681*** |
| | | (0.101) | | (0.117) |
| Female × Predicted Medal Cohort | 0.670*** | | 0.507*** | |
| | (0.0579) | | (0.0529) | |
| Controls | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y |
| F-statistics | | 133.938 | | 91.687 |
| $N$ | 264,190 | 264,190 | 264,190 | 264,190 |
| $R^2$ | 0.894 | 0.004 | 0.886 | 0.004 |

**Notes:** This table examines robustness to alternative definitions of the "shift" variable in the Bartik-style instrument, using combined participation of Russia, Ukraine, and Belarus. Columns (1)-(2) use sport category to construct IV, while Columns (3)-(4) use more refined event category. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

***Table A13.*** *Effect of Female Olympic Medal on Gender Disparities in Occupational Choices (IV Results)*

| | Dependent Variable: | | | | | |
|---|---|---|---|---|---|---|
| | Labor Participation | | Whether Work in High-Income Industries | | Whether Work in Male-Dominated Industries | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Female × Medal Cohort | 0.303*** | 0.302*** | 0.203*** | 0.156*** | 0.139*** | 0.105*** |
| | (0.0335) | (0.0333) | (0.0229) | (0.0177) | (0.0151) | (0.0121) |
| Years of Schooling | | 0.00191 | | 0.0397*** | | 0.0289*** |
| | | (0.00126) | | (0.00291) | | (0.00116) |
| Controls | Y | Y | Y | Y | Y | Y |
| HomePref×BirthYear | Y | Y | Y | Y | Y | Y |
| Female×Post-Mao | Y | Y | Y | Y | Y | Y |
| F-statistics | 134.172 | 133.994 | 135.601 | 135.601 | 136.050 | 135.601 |
| Mean | 0.75 | 0.75 | 0.26 | 0.26 | 0.75 | 0.75 |
| N | 264,190 | 264,190 | 197,127 | 197,127 | 197,127 | 197,127 |
| $R^2$ | 0.149 | 0.149 | 0.232 | 0.298 | 0.065 | 0.100 |

**Notes:** This table presents instrumental variable estimates of the effect of exposure to hometown female Olympic medalists on labor market outcomes. The dependent variables are labor force participation, employment in high-income industries, and employment in male-dominated industries. The F-statistics reported are Kleibergen-Paap Wald F-statistics. All specifications include prefecture-by-birth year fixed effects and the Female × Post-Mao interaction term. Control variables include ethnicity, hukou type, and migration status. Standard errors in parentheses clustered at prefecture level; * p<0.1, ** p<0.05, *** p<0.01.

## D. Text Analysis Methodology for Media Coverage Classification

To study media coverage as a mechanism for female medalists' effects on gender equality, we employ text-based techniques to link media portrayals of athletes with their influence on local gender outcomes. In this section, we detail our methodology for systematically identifying and classifying thematic content in Olympic coverage, specifically how we define gender equality and national pride themes across different types of media reports to construct quantitative measures.

We develop comprehensive indices to capture national pride and gender equality themes by analyzing a large corpus from *People's Daily*, the official newspaper of the Chinese Communist Party's Central Committee. Given its central role in disseminating government policies and viewpoints, *People's Daily* provides a uniquely informative source for examining official narratives and policy-oriented language within Chinese media.

Our analysis begins with a dataset of 1,328,390 news articles published between 1946 and 2004. To focus specifically on content related to athletic achievements, we filter for articles mentioning Olympic medalists' names alongside terms such as "Olympics," "Sports," or "Competition." This process identifies 14,646 articles covering Olympic athletes, which we segment into 91,507 sentences for analysis.

A critical step in our methodology involves constructing well-defined training samples for classification through manual annotation. For gender equality themes, we manually identify 500 sentences containing gender equality discourse (e.g., phrases such as "hold up half the sky," "women are not inferior to men," and discussions of women's capabilities in traditionally male-dominated domains) and 5,000 sentences unrelated to gender equality. Similarly, for national pride themes, we manually annotate 500 sentences containing national pride narratives (e.g., phrases such as "glory for the motherland," "national honor," and discussions of athletic achievements elevating China's international standing) and 5,000 sentences unrelated to national pride. These manually labeled datasets serve as our training samples.

For classification, we employ a supervised learning approach by fine-tuning a pretrained RoBERTa model, a transformer-based language model from the BERT family. We train separate binary classifiersone for national pride and one for gender equalityusing an 80/20 train-validation split. Given the class imbalance in our training data (with non-related samples outnumbering related ones by approximately ten-to-one), we incorporate Focal Loss during training to assign higher weights to misclassified instances, effectively mitigating this imbalance. The Focal Loss function is particularly effective in addressing class imbalance by down-weighting easy examples and focusing learning on hard misclassified cases. The models demonstrate strong performance on the validation set: the national pride classifier achieves F1-scores of 0.96 for

national pride-related sentences and 0.99 for non-national pride sentences, while the gender equality classifier achieves an F1-score above 0.96.

After training, the classifiers label every sentence in the full corpus of 91,507 sentences. An article is classified as national pride- or gender equality-related if it contains at least one corresponding sentence. This procedure identifies 2,348 national pride-related sentences across 1,304 articles and 1,963 gender equality-related sentences across 1,070 articles.

***Table A14.*** *Keyword Sets for Classification*

| Gender Equality Keywords | National Pride Keywords |
|---|---|
| Heroine | Strive for national glory |
| Outstanding woman | National honor |
| Resounding rose | National pride |
| March 8th Red Banner holder | Promote Chinese culture |
| Women of the new era | Live up to the motherland |
| Strong woman | National strength |
| Female general | National image |
| Exceptional woman | National spirit |
| Exemplary woman | National integrity |
| Female pioneer | National cohesion |
| Women's backbone | Repay the nation |
| Women's representative | Serve the nation |
| Women's army | Political responsibility |
| Advanced women's group | Historic breakthrough |
| Intellectual woman | |
| Female intellectual | |
| Gender equality | |
| Respect women | |
| Care for women | |
| Guarantee women's rights | |
| Protect women's interests | |
| Safeguard women | |
| Cultivate women | |
| Oppose arranged marriage | |
| Eliminate male preference | |
| Hold up for half sky | |

**Notes:** This table presents the keyword sets used for constructing the training sample for classification of People's Daily articles into gender equality and national pride themes. The left column lists gender equality keywords and The right column lists national pride keywords. See Appendix D for detailed methodology.