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THE GENDER GAP REVERSAL IN HIGHER EDUCATION: THE CASE OF BRAZIL AND CHINA

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Abstract

This study investigated the reversal of gender disparity in enrollment in higher education in Brazil and China (both of whom members of BRICS) from having more male than female students in the past, to now having more female than male students. This reversal began for

Brazil in 1988, and for China in 2008. The paper examined factors that contributed to the reversal through employing a qualitative methodology, including an extensive review of literature, analysis of statistical data and official documents from the Brazilian and Chinese governments, the United Nations, as well as the World Bank, and a comparative analysis between Brazil and China, exploring such aspects as feminist movement, legal framework, economic development, expansion of higher education, and demographic factors. The study is significant as it illuminates the evolving landscape of higher education and gender dynamics in Brazil and China to offer valuable insights for other countries for reference. In particular, the case studies on Brazil and China can inform international efforts to address gender disparity and create more inclusive and equitable systems not only in education but also in other fields.

Keywords

Gender, Reversal, Higher Education, Brazil, China.

Resumo

O presente estudo tem como objetivo investigar a inversão da desigualdade de gênero nas matrículas no ensino superior no Brasil e na China, dois países membros do BRICS. Vários países vieram testemunhar uma transição da desigualdade de género no ensino superior, partindo de "mais estudantes do sexo masculino do que feminino" a "mais estudantes do sexo feminino do que estudantes do masculino", como o caso do Brasil e da China. A inversão da desigualdade de género no ensino superior aconteceu em 1988 e 2008 no Brasil e na China, respetivamente. Com base neste facto, este artigo pretende responder à seguinte questão: Quais são os fatores que contribuem para a inversão da desigualdade de gênero no ensino superior no Brasil e na China? Para o efeito, esta pesquisa adota uma abordagem qualitativa, incluindo uma análise de literatura, de dados estatísticos e documentos oficiais dos governos brasileiro e chinês, das Nações Unidas e do Banco Mundial, bem como uma análise comparativa sobre as semelhanças e diferenças entre o Brasil e a China no tocante à inversão da desigualdade de gênero. Neste sentido, através desta investigação, pretendemos identificar os fatores que contribuem para esta transição a partir de aspetos como movimentos feministas, quadro jurídico, desenvolvimento económico, expansão do ensino superior e fatores demográficos. A importância deste estudo reside em suas implicações para a compreensão da evolução panorâmica do ensino superior e da dinâmica de género a nível global. A análise da inversão da desigualdade de género no Brasil e na China pode servir de referência a outros países. As perceções derivadas deste estudo de caso podem chamar esforços globais para colmatar a questão de desigualdade de género e criar sistemas educativos de maior inclusão e equidade. Além disso, a abordagem na questão de género no ensino superior pode ajudar a despertar uma atenção crescente, para lidar com a desigualdade de género em outros domínios.

Palavras-chave

Gênero, Reversão, Ensino Superior, Brasil, China.

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THE GENDER GAP REVERSAL IN HIGHER EDUCATION: THE CASE OF BRAZIL AND CHINA[1]

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1. Introduction

For many bygone decades, higher education was a luxury for women, and male had always outnumbered female students and graduates (UNESCO & IESALC, 2021, p. 11). However, with the rapid expansion of enrollment in education worldwide, more and more women have had the chance to access higher education. This trend has continued to a point that, now, a number of countries have witnessed a turnaround—i.e., there are now more female than male students in higher education—a phenomenon referred to as higher education's "gender gap reversal". Globally, this reversal commenced in 2002 (UNESCO & IESALC, 2021, p. 3), and, currently, female students are over-represented in higher education in 74% of the world's countries (including both developed and developing countries) with available data (UNESCO, 2020, p.14). Brazil and China are two of these countries.

Gender parity is measured using the Gender Parity Index (GPI), which refers to the female-to-male ratio of a given indicator. A GPI of 1 indicates parity between the genders; a GPI below 1 indicates disparity in favour of males, and a GPI above 1 indicates disparity in favour of females. The further from 1 the parity index is, the greater the disparity between females and males (UNESCO, 2024). For Brazil, a gender imbalance in education (i.e., more men than women students) had been part of the reality for almost 450 years (Beltrão & Alves, 2009, p. 2) until the gap began to narrow in the 1980s. Available data from the World Bank show that the GPI for higher education enrollment in Brazil was 0.95 in 1979, 1.0 in 1983 and 1.05 in 1988 (data unavailable between 1984 and 1987), and has remained above 1.05 from then on (World Bank, 2024a), indicating that there was already gender parity in higher education in 1983, and, by 1988, the gender gap had already begun to reverse. As for China, the GPI for higher education

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enrollment was below 1.0 before 2007, at 1.0 in 2007 and above 1.0 from 2008 on, indicating gender parity in higher education in 2007, and gender gap reversal beginning in 2008, with the GPI holding steady at 1.04 thereafter (World Bank, 2024a).

The reversal of gender gap in higher education has attracted a great deal of attention from scholars all over the world. A number of studies have examined the phenomenon in developed countries—especially European countries and the U.S—while some explored the reversal's driving forces. Riphahn and Schwientek (2015) investigated mechanisms behind the reversal of gender gap in secondary and tertiary education in Germany, and found that neither individual/family background nor labour market characteristics appeared to be strongly associated with the gender gap in education, but the gap in tertiary education was correlated with the development of class sizes and social norms. Reijnders (2018) explains the gender gap reversal in higher education from the perspective of changes in the wage structure and expectations about marriage in America, and claims that the most important driving force for the reversal is the decline in marriage rate, as single women have a greater incentive to invest in education than single men. Goldin, Katz and Kuziemko (2006) explored the gender gap reversal in college attendance and graduation in America, and found that females' increasing expectation of economic returns from higher education contributed to their improved college preparation and performance. Bossavie and Kanninen (2018) developed a unified conceptual framework to formulate and test two main hypotheses, namely, tail hypothesis and mean hypothesis, to better understand the forces behind the reversal. Their results show that the lower variance in scholastic performance among females has been a driver for the reversal.

Gender gap reversal in education has also attracted attention from Chinese and Brazilian scholars. Li (2016) discusses the phenomenon of gender gap reversal in education in China and its challenges to society, including difficulties (e.g., discrimination) that women face when looking for good employment, wage gap between women and men with the same educational credentials, conflicts between work and family, among others. Wang, Wang and Hu (2022) explored the effects that gender gap reversal in education has on how men and women match up to get married, revealing that China now faces severe education-related marriage imbalance—the higher a woman's education level, the more difficult it is for her to find a husband; the reverse is also true, i.e., the less educated a man is, the more difficult it is for him to find someone to marry—and the problem will persist for a while. Liu and Zhang (2023) studied the gender gap reversal among China's undergraduates and postgraduates, but focusing mainly on data to prove the trend. Yan and Meng (2023) divided the factors contributing to the gender gap reversal in higher education into external (e.g., economic and social development and progress made in gender equality) and internal factors (e.g., higher return of higher education for women and women's competitiveness in education compared to men in terms of academic performance). There is also a smattering of studies on gender gap reversal in Brazil's education system. Beltrão and Alves (2009) analyzed the onset time of the reversal there by laying out the development of female education and claimed that universal public policies as well as cultural and behavioral changes were central factors during the process.

Nevertheless, most studies have focused on the situations in developed countries; few have focused on China and Brazil. As China and Brazil have the world's second and seventh largest populations, respectively, and both are members of BRICS as well as being two of the most important economies in the world, analysing the gender gap reversal in higher education in these two countries can offer valuable insights on gender issues for other countries not only regarding the realm of higher education but also in other fields. This paper therefore studies and compares the Brazilian and Chinese higher education systems from a gender perspective in an attempt to understand the factors that have contributed to their gender gap reversal.

2. Factors Leading to Gender Gap Reversal in Brazilian and Chinese Higher Education

Both Brazil and China have greatly improved gender equality in society, including in their education landscape; more and more women now have access to higher education, which gives them more opportunities to improve their lives and social statuses. The reversal of gender gap in higher education can be attributed to both external and internal factors: the external (i.e., environmental) factors make it possible for female students to receive higher education, while the internal factors (e.g., motivation) allow more and more female students to finish secondary education and enter higher education. Due to length limitations, this paper will focus its scope on the external factors that led to the gender gap reversal in higher education in Brazil and China. Specifically, we identify the most common and most important factors, and explore how they created a favorable environment to facilitate the reversal.

2.1 Feminist Movements

The term "feminism" was coined in 1837 by Charles Fourier (1772–1837), a French sociologist and a strong advocate for women's rights (Old Times, 2021). Feminism originated in the U.S. and Europe, then spread to Asia, Africa and Latin America, and the rest of the world (Mohajan, 2022: 2). Various definitions have been given on feminism, but a unified definition has remained elusive so far. Nevertheless, feminism has a universal goal: pursuing gender equality.

The world has witnessed four waves of feminist movement. The first one took place from the second half of the 19th century to the early 20th century, the main goals of which were to fight for women (especially married women)'s suffrage, education and employment, with the focus being on suffrage. The second wave began in the 1960s and lasted until the 1990s. This wave aimed to fight for equal education and employment opportunities, maternity leave, birth control and abortion rights (Mohajan, 2022, p. 1). The third wave, which began in the 1990s, embraced a spirit of rebellion in lieu of reform, and encouraged women to express their sexuality and individuality (Pruitt, 2022). The fourth wave of feminism began around 2012. It mainly relied on social media to improve gender equality in society (Mohajan, 2022, p. 4). These feminist movements have helped

to involve women in different fields of society, providing them with more opportunities to receive education, improving gender equality overall.

Brazil has experienced its own four waves of feminist movements. The focus of the first movement was also the right to vote. It was in 1932 that the New Brazilian Electoral Code was promulgated, which symbolizes the approval of women's right to vote (Zarbato & Martins, 2022: 1132). The second wave of feminist movement in Brazil began in the 1960s—a period of military dictatorship—with one of its goals being to increase solidarity among women and improve their self-esteem (Zarbato & Martins, 2022: 1133). Participants of the movement included exiled feminists, political activists, university students as well as academics (Perez & Ricoldi, 2023, p. 4). The third wave was driven by the increasingly important voice that global NGOs added to gender discussions, which included the Human Rights Conferences of the 1990s and the Fourth World Conference on Women held in Beijing in 1995 (Perez & Ricoldi, 2023, p. 4). Finally, the fourth wave in Brazil relates to the expanding use of the Internet (Perez & Ricoldi, 2023, p. 10). Overall, it can be said that the feminist movements in Brazil have almost always been aligned with feminist movements across the world.

On the other hand, China's feminist movements were different, because of a deep-rooted gendered hierarchy resulting from Confucian influences that dominated Chinese societies, which, for centuries had imposed a so-called "three obediences and four virtues" on women. The three "obediences" refer to the complete compliance of a girl to her father and older brothers before marriage, a wife to her husband, and a widow to her son. The four "virtues" refer to women assuming a submissive place in society and modulating their behavior accordingly, restraining themselves in speech, clothing themselves appropriately, and managing their households properly and cheerfully (Cheng, 2009, p. 2260). In addition, the centuries-old practice of foot-binding prevented women from participating in labour work and limited them to the domestic sphere, rendering them almost fully dependent on men, resulting in an extremely low status of women in society.

Feminist movements were introduced to China through the Chinese people's own fight against feudalism and imperialism, which in turn gave women hope to take back control of their own lives. Today we consider the May Fourth Movement the first feminist movement in China. The May Fourth Movement, which took place during the 1910s and 1920s, was mostly intellectuals protesting against not only the corruption and incompetence of the warlord government but also foreign invasions of China. More importantly, the movement represented an open, systematic challenge to the gender segregation in Chinese society. and opened the door towards gender equality in all spheres of life, ushering in equal education and employment opportunities for women (Li, 2000, p. 2). Some of the May Fourth feminists later assumed important roles in the Communist Party of China (CPC), which was formed in 1921. China's national women's organisation, the All-China Democratic Women's Federation (ACDWF), an official institution to unite women from all walks of life, was established in 1949. In 1957, the ACDWF became the All-China Women's Federation (ACWF), enabling feminists to carry out various reforms nationwide.

Moreover, with the establishment of the People's Republic of China (PRC) in 1949, feminists in CPC have been able to materialise their feminist objectives. In the early years of the PRC, great achievements were made in such areas as women's literacy, equal employment and equal pay, political participation, reproductive health, and new public facilities to reduce working women's burden of childcare and housework (Wang, 2018, p. 160). However, during the Cultural Revolution, which lasted for 10 years from 1966 to 1976, the ACWF was forced to suspend itself, and women's issues were completely ignored (Li, 2000, p. 33). Since the economic reform which started in late 1978, great achievements have been made in the development of women's movement in China, and women's study programmes and research centres have been thriving. China can therefore be regarded as a late bloomer in feminist movement; in turn, the movement itself was characterised by social movements and reforms aligned with the development of the CPC. Today, feminists in China are still devoted to improving gender equality in the society, and people's consciousness of gender equality is increasing.

Thanks to the influence of these feminist movements (and others worldwide), more and more importance has been attached to women's rights, and various actions have been taken by different countries to improve gender equality on a global scale.

2.2 Legal Framework

Like many other countries in the world, Brazil and China had patriarchal societies that prioritised men over women. Women have long been associated with being only daughters and mothers responsible for housework and childcare (i.e., homemakers), while men are breadwinners for the whole family. For Brazil, its patriarchy-induced gender inequality was influenced by Iberian culture brought over from Portugal during colonial times. Throughout most of Brazil's history, labour was divided along women's reproductive and men's productive roles, setting men and women into the public and private spheres, respectively, and women were seen as not having any need to learn to read or write (Beltrão & Alves, 2009, pp. 3, 7). In China, its patrilineal clan societies had long valued sons over daughters, but the situation worsened during feudal times, when Confucianism became a core ideology that dominated China for the next two millennia. Women, considered subordinated to men, had very low status in both the family and society; boys were given priority to receive education, while girls were confined at home.

Thanks to influence from feminist movements worldwide as well as in Brazil and China mentioned above, a series of laws have been enacted to improve gender equality. In Brazil, the imperial decree that provided women with the right to enroll in a university course dates from 1881 (Beltrão & Alves, 2009, p. 4). The constitution of 1824 defined basic education as a right of every citizen and an obligation of the state. The 1934 constitution guaranteed women's right to vote. Brazil became one of the signatories of the Universal Declaration of Human Rights in 1948 (Moraes, 2020, p. 7), Article 2 of which claims that "Everyone is entitled to all the rights and freedoms set forth in [the] Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status" (UN, 1948). The Guidelines and Bases of Brazilian Education Law (LDB) made it possible for

women who were receiving teacher's training to take part in university entry exams in 1961 (Beltrão & Alves, 2009, p. 6). The constitution of 1988 established compulsory and free basic education for citizens aged four to seventeen (Brazil, 1988). This not only played a significant role in increasing the number of female students, but more importantly established an obligatory qualifying exam system for the public to fill civil service positions. Such a system tends to favour women with university degrees to become lawyers, economists and other professions that used to be dominated by men (Beltrão & Alves, 2009, p. 11), in turn providing greater motivation for women to pursue higher education. The 1998 Brazilian Federal Constitution determines that education is a right of all and that the state and the family have a duty to provide it (UNESCO, 2021). Furthermore, two programmes which aimed to reduce poverty in the country, namely, Bolsa Família (introduced in 2002) and Fome Zero (FZ) (introduced in 2003), have increased school attendance and lowered inequality, including gender inequality, in Brazil (Villiers, 2023: 327).

In China, equality between men and women was stipulated in the constitution of the People's Republic of China, which was established in 1949. Subsequently, with the implementation of the "reform and opening up" policy, a series of laws and regulations were promulgated to promote gender equality. Moreover, after the Fourth UN World Conference on Women held in Beijing in 1995, equality between men and women was established as a basic state policy of China, symbolising that gender equality was to be guaranteed through implementing laws and policies. Meanwhile, the Chinese government also increased support, including enacting the Education Law in 1995, the Vocational Education Law in 1996, a revised constitution in 2004, and a revised Compulsory Education Law in 2006, to ensure that women have the same right, opportunities and access to education as men (Wang & Gui, 2020, p. 81). It is clearly pointed out in Article 36 of the Education Law that "Schools and administrative departments concerned shall, in accordance with relevant regulations of the State, ensure that females enjoy equal rights with males in enrollment, admission to schools of a higher level, employment, conferment of academic degrees, dispatch [sic] for study abroad, etc." (People's Republic of China, 2001).

In the 1996 version of the Vocational Law, it is claimed in Article 7 that the state would "take measures to help women receive vocational education" (People's Republic of China, 1996), and Article 10 of the latest (2022) version reiterates that the state "guarantees women's equal right to receiv[ing] vocational education" (People's Republic of China, 2022). It is stated in Article 96 of the first version of the constitution (1954) and in Article 48 of 2004's revised constitution that "Women in the People's Republic of China enjoy equal rights with men in all aspects in political, economic, cultural, social and family life" (People's Government of Guangdong Province, 1954; National People's Congress, 2004). Finally, the Compulsory Education Law also gives girls the same right and obligation as boys to receive compulsory education.

All of these on one hand spread the concept of gender equality and on the other enforce the implementation of gender equality policies, which in practical ways have helped to change people's gender ideology, thus reducing and removing barriers between women and education. Consequently, education, which used to be a privilege reserved for men

can now be accessed by women. This in turn has helped to increase the number of female students, especially in higher education.

2.3 Economic Development

Economic development and education investment produce greatly positive impact on higher education (Li, Gao & Chen, 2022). Economic development is the foundation for higher education development, and higher education development helps to increase women's access to higher education. According to data from the International Monetary Fund (IMF) (2021), the GDP per capita in Brazil was 1,200 US dollars in 1980, increasing to 2,240 US dollars in 1988 and 8,270 in 2021, with some fluctuations in between. Particularly notable was its steady, rapid increase from 2002 to 2011, peaking at 13,630 US dollars in 2011. In China, the GDP per capita saw a massive general growth trend from 89.5 US dollars in 1960 to 12,720.2 US dollars in 2022, with particularly dramatic growth from the year 2001 onwards (World Bank, 2024b).

Such economic development has enabled the governments to implement compulsory education both in Brazil and China, allowing more and more families to send their children, both boys and girls, to pursue higher education. This has increased women's possibility to get education and then higher education. Meanwhile, along with the economic development, significant achievements have also been made in poverty reduction in both Brazil and China. With the international poverty line of $2.15 as reference, Brazil's poverty rate decreased from 23.95% in 1981 to 12.27% in 1986 and 3.51% in 2022. Even more prominent achievements have been made in China: the poverty rate decreased rapidly from 71.96% in 1990 to 48.14% in 1996 and 0.11% in 2020 (World Bank, 2022). Poverty reduction has further helped to reduce families' economic burden, which has partly resulted in the increasing attention paid to children's education. As higher education is linked to women's socioeconomic status and their societal role and position (Moore, 1988, p. 103), women are more motivated to seek opportunities for education once the economic conditions allow. Moreover, women tend not to spare any effort to stand out academically.

2.4 Expansion of Higher Education

Higher education develops in response to the need of economic development, which in turn provides the basis for the expansion of higher education. Such expansion renders higher education no longer a luxury, but something available to an increasing number of people, both men and women. According to Martin Trow, higher education is developed over three phases, namely, elite, mass and universal higher education, which are marked by gross enrollment rates of less than 15%, between 15%–50%, and over 50%, respectively (Marginson, 2017, p. 1). As higher education transitions from the "elite" to the "universal" phase, the number of female students tends to increase rapidly and exceed the number of male students.

Brazil and China have both experienced an expansion of their higher education, though the expansion happened much earlier for Brazil than China. In Brazil, as early as in the 1960s, the development of state bureaucracies and large companies opened a new job market, and the higher education diploma constituted a guarantee of access to this market (Sampaio, 2020, p. 14). After the abolition of slavery in 1988 and the proclamation of the Republic in 1989, the constitution of the Republic decentralised higher education and allowed the creation of private institutions, which led to the immediate expansion of the higher education system (Sampaio, 2020: 7). In China, it was not until 1977 (after the Cultural Revolution, 1966–1976) that China resumed administering college entrance examinations. After China introduced the reform and opening up policy, the demand for higher education has increased rapidly, and to satisfy both individuals' and society's need for higher education, a higher education expansion policy was introduced in 1999. This has rapidly boosted the number of students—particularly female—enrolled in higher education.

Table 1 below shows the expansion of enrollment and the increase of female students in Brazilian and Chinese higher education. In China, the gross enrollment rate of higher education in 1979 was only 1%, ten per cent lower than that of Brazil; it increased to 14% in 2003 after the higher education expansion policy of 1999, and to 17% in 2004, which indicates that China entered the mass higher education phase in 2004. Additionally, the GPI of enrollment in Table 1 indicates that the gender gap reversal began in 2008, with the gross enrollment rate at that point being 22% and GPI reaching 1.04. In Brazil, the gross enrollment rate of higher education in 1979 was 11%, much higher than that of China at the time, and it increased to 15% in 1999, which indicates that Brazil entered the phase of mass higher education in 1999. However, Brazil's GPI of enrollment indicates that the gender gap reversal happened in Brazilian higher education in 1988, when the gross enrollment rate was 11%.

Table 1 Higher Education in Brazil and China

Higher Education in China			Higher Education in Brazil	
Year	Gross Enrollment	GPI of	Gross Enrollment	GPI of Enrollment
1979	1%	0.33	11%	0.95
1983	Not Available	Not Available	11%	1
1988	3%	Not Available	11%	1.05
1994	4%	0.53	11%	1.12
1998	6%	Not Available	13%	1.19
1999	7%	Not Available	15%	1.21
2003	14%	0.83	Not Available	Not Available
2004	17%	0.89	Not Available	Not Available

2007	21%	1	Not Available	Not Available
2008	22%	1.04	Not Available	Not Available
2009	23%	1.06	Not Available	Not Available
2014	44%	1.15	47%	1.26
2019	57%	1.2	53%	1.27
2022	72%	1.15	60%	1.32
Source: World Bank, 2024a; World Bank, 2024c.				

Therefore, things are a bit different between China and Brazil in that the gender gap reversal happened in China after it entered the mass higher education phase, while it happened in Brazil before it entered the mass phase. Nevertheless, they have both witnessed rapid higher education expansion, as well as dramatic increases in the number of female students.

2.5 Demographic Factors

Data from the World Bank show a decline in fertility rate not only for Brazil and China but across the world (Table 2). Between 1970 and 2022, Brazil's fertility rate decreased from 5.0 to 1.6 children per woman, while China's decreased from 6.1 to 1.2, both now falling below the global average. Compared with Brazil, China saw a much more dramatic drop in fertility rate between 1970 and 1980, due to the implementation of the family planning (i.e., one-child) policy in the 1970s.

Table 2 Fertility Rate, Total (Births per Woman)

	1970	1980	1990	2000	2010	2022
World	4.8	3.7	3.3	2.7	2.6	2.3
Brazil	5.0	4.0	2.9	2.3	1.8	1.6
China	6.1	2.7	2.5	1.6	1.7	1.2
Source: World Bank, 2024d						

According to the Resource Dilution theory, parents only have finite access to resources such as time, energy and money, and as the number of children increases, the amount of resources available to each child decreases, which will have negative impact on their educational outcomes (Downey, 1995, p. 746). Moreover, girls will receive much less resources (especially education, including higher education) than boys due to the

aforementioned patriarchal traditions. Having fewer children will enable parents to giver more—not to mention, equal—attention and resources (including education) to each child, and the result of this has been significant increase in girls' access to higher education. Furthermore, according to Becker's Human Capital Investment theory, people make human capital investment decisions based on returns on the investment; those with higher returns will receive more human capital investment (Wang, 2021, p. 8). When girls outperform boys academically, parents become more willing to invest in their daughters to receive higher education.

3. Conclusion

Gender gap reversal in higher education has been an ongoing global phenomenon, but, for Brazil and China, it has already been well underway since 1988 and 2008, respectively. The main external factors contributing to the reversal include: (1) feminist movement, which has not only brought people's attention to gender equality, helped create an environment and more opportunities for women to receive higher education, but also laid a foundation for the formulation and enforcement of laws to promote gender equality; (2) legal framework, which ensures the implementation of gender equality policies in reality and guarantees women's right to education; (3) economic development, which helps to reduce families' economic burden and increase women's opportunities to receive higher education; (4) higher education expansion, which makes higher education accessible to women and leads to tremendous increase of women students; and (5) demographic factors, which allows women equal education resources as men. It is worth mentioning that these factors do not work separately. Instead, the gender gap reversal in higher education has been the combined result of all of these factors at play.

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