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**Too Few Women to Hold Up Half the Sky?
Imbalanced Sex Ratio and Economic Development in China
—— A Feminist Economics Perspective**

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Chinese

in partial fulfillment of the requirements for obtaining the degree of
MASTER OF ARTS IN DEVELOPMENT STUDIES

Major:

ECD

Specialization:

Women and Gender Studies

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The Hague, The Netherlands
December 2024

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This document represents part of the author's study programme while at the International Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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List of Acronyms

PSR	Population Sex Ratio
SRB	Sex Ratio at Birth
CA	Capability Approach
ISS	Institute of Social Studies
UNDP	United Nations Development Programme
GDP	Gross Domestic Products
HDI	Human Development Index
NGO	Non-Governmental Organization
NPC	National People's Congress of the People's Republic of China

Acknowledgments

I would like to express my heartfelt gratitude to Professor Irene van Staveren, my research paper supervisor, for her invaluable advice on my research methodology and methods, writing, and overall direction. Working with her at ISS has been an honor, and her guidance has been unforgettable and meaningful. I also want to thank Professor Lorenzo Pellegrini for his feedback, and Associate Professor Zhang Yu from my undergraduate university, USST, for her remote support and encouragement.

My heartfelt thanks go to Stella—I am so grateful for our friendship, her support has meant much more to me than she might realize. I would also like to thank Lulu, Junko, Niloufar, Karla, and other classmates in the SJP and ECD majors for their encouragement and companionship, especially during our study and discussions in the library that brought me strength and comfort.

Finally, I want to express my gratitude to my parents and friends back in China, whose unwavering support has been invaluable throughout my journey.

感谢所有人，和我经历的所有黑暗时刻，感谢没有被世界压垮的我，感谢《The Handmaid's Tale》中的那句台词：Nolite te bastardes carborundorum

Abstract

This research paper focuses on the relationship between population sex ratios and regional economic development in China from a feminist economics perspective. The One-Child Policy and the economic upsurge after the 1980s have combined to influence the process of development and gender equality in China. While previous studies have predominantly focused on sex ratios at birth, this research shifts the focus to the overall population sex ratio and its broader economic consequences. Using the Capability Approach and feminist economics as the framework, the research explores the impact of China's Policies and Son Preference, highlighting the causes of the imbalanced sex ratio and its detrimental effects. Employing a mixed-methods approach, the research combines interviews with five Chinese women from diverse backgrounds and a fixed-effects regression analysis of panel data (2013–2022) from China's National Bureau of Statistics. The results show that imbalanced sex ratios significantly negatively impact per-person disposable income, considering the time lag. Tackling this issue and its consequences requires confronting institutional inequalities related to gender and the economy, rather than simply improving certain indicators. It necessitates changing gender norms in policies and promoting Comprehensive Sexuality Education.

Relevance to Development Studies

This research paper focuses on the intersection between economic development and women's development, combines feminist economics with the capability approach, and adopts a mixed research method to explore the complex relationship between China's sex ratio imbalance and economic development, which has important practical significance. The issue of sex ratio imbalance is not just a socio-demographic imbalance but also reflects deeper gender inequality and power structures, which are crucial for economic development. Feminist economics is a discipline that deserves more attention because it provides a very profound and important perspective for analysing micro, macro, theoretical, and empirical research related to women and the economy, thereby revealing the long-term impact of gender inequality on social resource allocation, labour market, and regional economic development. This study analyses China's development issues from a macro perspective and focuses on the multi-dimensional and comprehensive Human development.

Keywords

Sex ratio; China; Economic Development; Gender Inequality; Feminist Economics; One-Child Policy; Son Preference; Reproductive Rights.

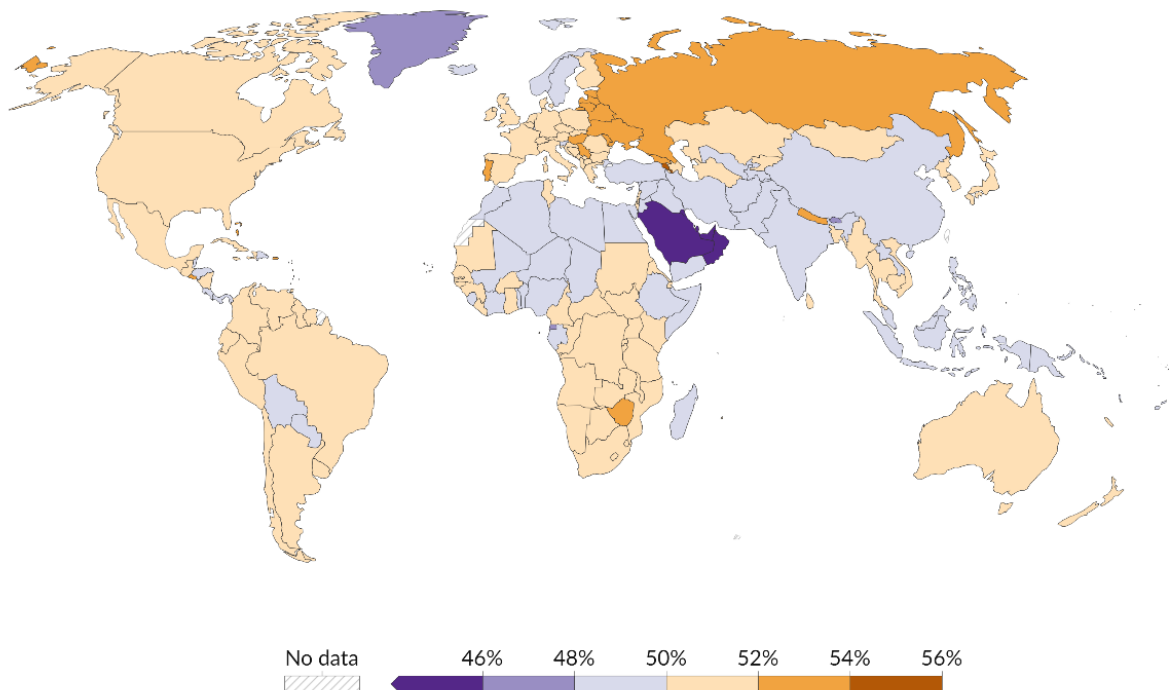
Chapter 1

Introduction

1.1 Sex Ratio and Missing Women

The sex ratio, influenced by social, cultural, economic, and biological factors, and vice versa., is a critical indicator of gender equality and development. World Health Organisation (WHO) data show that the sex ratio at birth (SRB) in most countries is about 105 males for every 100 females, and the sex ratio of the population (PSR) is approximately 96 to 104. However, there are a few notable outliers, China, India, the Middle East, and North Africa. For instance, in 2019, the national PSR in India was 106; In Tianjin province of China in 2015 and 2019, the PSR exceeded 120, even if the average sex ratio of the population of China was 104.8 in 2021.

Figure 1 Share of the population that is female, 2022



Data source: Our World in Data.org/gender-ratio / Multiple sources compiled by World Bank (2024)

Note: Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.

Thus, my initial curiosity is what is behind the unbalanced sex ratio and what does it mean? Does this issue need to be further explored and analysed in the context of development studies? It is clear that the issue is not only demographic but also intertwined with economic, gender, social, and human development factors. Many scholars have also been concerned with this issue, especially at the end of the last century. Amartya Sen first raised the phenomenon of "Missing women" in 1990,

It is often said that women make up a majority of the world's population. This mistaken belief is based on generalizing from the contemporary situation in Europe and North

America... In China alone, this amounts to 50 million 'missing women,' taking 1.05 as the benchmark ratio. When that number is added to those in South Asia, West Asia, and North Africa, a great many more than 100 million women are 'missing.' These numbers tell us, quietly, a terrible story of inequality and neglect leading to the excess mortality of women. (Sen 1990)

For decades, many scholars have expanded and estimated this phenomenon which is based on Sen's idea, such as exploring economic motives behind Son Preference, the attention to family policies intervention, concerns about reproductive health rights, and violence and crime related to imbalanced sex ratio (Nie, 2010.; Edlund et al., 2013; Diamond-Smith et al., 2018; Srinivasan and Li, 2018). One of these studies estimated a more accurate number, Chao et. al (2019) identified 12 countries during 47 years, resulting in 23.1 million missing female births globally, with the majority in China, 11.9 million. China's large population, the One-Child Policy implemented in the 1980s and the booming economy in the early 21st century have brought more attention to the issue of an imbalanced sex ratio. According to the latest data from China's National Bureau of Statistics, there will be 30.97 million more men than women in China in 2022, more missing women means more unmarried men and a variety of potential socio-economic consequences. Despite China's progress on poverty and women's rights, the sex ratio imbalance has become a non-negligible problem in research on gender and economic development as fertility and population have continued to decline in recent years. China has also adjusted from a One-Child Policy to a Three-Child Policy in the past decade, a shift and future policy trend that also deserves feminist scholars' attention and vigilance. Thus, this paper researches the relationship between imbalanced sex ratios and economic development in China from a feminist economic perspective and provides suggestions in the context of policy changes

1.2 Background and Research Questions

The Global Gender Gap Report 2024, published by the World Economic Forum, shows that the process of gender equality is stagnating and that it will take 134 years to close the gender gap. Gender equality still has a very long way to go, and women's development and reproduction rights are of paramount importance. China is noteworthy not only because it ranks 39th in Economic Participation and Opportunity but also 145th in Health and Survival out of 146 countries in the report. In the past decade, China's rankings in the Global Gender Gap Report have steadily declined, and China's performance in health and survival is of greatest concern in four indexes. The sex ratio at birth is one of the measures of female health and survival indicators, which is linked to the imbalance population sex ratio and the phenomenon of "Missing women".

The essential cause of this phenomenon is considered by many to be Son Preference in Asia, while the One-Child Policy, ultrasound testing of the sex of the fetus, and sex-selective abortions have fuelled the imbalance in the sex ratio as well (Banister, 2004; Bulte et al., 2021). Son Preference is centuries old and no evidence shows this preference is increasing but its manifestations have changed and are still widespread in China. While women can hold up half the sky is a widely accepted slogan in Chinese society, Missing women are a more neglected fact, and the specter of the persistent Son Preference is still noticeable. This paper argues that Son Preference is a patriarchal ideology and that inequality in economic development reinforces patriarchy while endangering long-term economic and social development. (Bian, 2023) analyzes the view of women in Confucian culture in China's patriarchal society and argues that Confucian culture emphasizes the differences between men and women, and also develops a model based on the gender division of labour. This dynamic power relationship within the family still exists and is related to the country's and society's development.

According to the definition provided by the Feminist Economics journal, feminist economics aims to explore and critique economic issues that impact women, men, and children. It emphasizes the gendered aspects of economic policies and theories, while not being limited to gender-specific topics. The field integrates insights from different disciplines and countries to foster a rethinking of economic development and gender inequalities (International Association for Feminist Economics, n.d.). Therefore, a feminist economics perspective will give this study a critique of male dominance and gender issues in the Chinese context, exploring interdisciplinary issues in population studies and economic development studies. This paper is background in contemporary China after the adjustment of the One-Child Policy and during the period of economic growth slowdown, while also considering the Household Registration system and urban-rural development gap as key elements. The research questions and hypotheses of this paper are:

- What is the relationship between an imbalanced sex ratio and economic development in China?
- How does an imbalanced sex ratio affect China's economic development from a feminist economics perspective?
- Do imbalanced sex ratios negatively impact disposable income by exacerbating gender inequalities and economic disparities?

Specifically, this paper use the Mix-method as a research method, combining expert interviews and secondary panel data analysis with a fixed effects regression model. The interviews help identify key or potentially overlooked control variables to ensure all relevant factors are included in the analysis. The qualitative part of the study hypothesizes that gender imbalances are negatively correlated with per-person disposable income, taking into consideration urban-rural differences and One-Child Policy adjustments. Finally, the results are interpreted in light of the interview insights, with conclusions and suggestions derived from both the quantitative analysis and qualitative findings.

1.3 Positionality

As a woman born in northwest China, a relatively low-income province, I always encountered the shadow of Son Preference in my life. Due to the One-Child Policy and my urban household registration, I am my family's only child and a girl. Interestingly, before I moved to Shanghai. I just felt the gap between urban and rural development and all the prejudices against girls. After living in Shanghai for several years, I was also fully aware of the huge gap between regions in China, whether its economic development or gender equality. I'm very curious about the root causes of this disparity and am outraged by the ubiquitous gender bias and inequality. As I learned more about feminism, I realized that gender, economy, and regional development are not separate issues but intersectional.

A few years ago, I overheard about male relatives living in rural areas who had their fetuses sex tested out a son and were bragging about it to everyone. This discrimination against girls was so commonplace and his actions, though illegal in China, remain largely unchecked due to various regulatory gaps. Later, I shared this with my friends and family. Most of them argued that this was due to poverty, and they also believed that discrimination and gender inequality against girls were also related to low income and backward culture. In other words, they believe that the poorer you are, the more rigidly you insist on having sons, and that economically advanced places tend to be more gender-equal. I doubt it, as a feminist because I believe the Son Preference as a part of patriarchy is culturally constructed and is an obstacle to women's mobility in the economic sphere. Poverty and inequality occur

multidimensionally and there is no absolute causality. An interest in economic development studies and feminism led me to choose this topic of research.

I feel very privileged that I was able to be an MA student at the International Institute of Social Studies (ISS) to complete this research. My experiences living and studying in Northwest China, Shanghai, and the Netherlands have given me a more comprehensive view of the world and a deeper reflection on my standpoints. As a researcher, I am observing my home country and what is happening there from a more distant and objective place; As a feminist, I am reflecting on patriarchy and inequality on the side of marginalized groups; As a girl who grew up under the One-Child Policy, I am caring about how generations like mine think about the past and the future. In sum, I am not only a feminist researcher but also a person involved. I'm a participant in this part of the ongoing history called the "Missing women" phenomenon

Chapter 2 Literature Review and Framework

2.1 Review of “Missing women” and sex ratio Studies.

2.2.1 What do we know about “Missing women”?

Missing women refers to the phenomenon that a massive female population is missing due to birth selection or premature death. The phenomenon exists in many regions of the world, including North Africa, the Middle East, and East and Southeast Asia, with China and India, which together account for about 35 percent of the world's population, being the most affected (Sen, 1990; Jacobsen, 2020). For example, Klasen and Claudia Wink (2003) found the number of “Missing women” has increased in absolute terms to over 100 million, and China accounts for most of the global increase in “Missing women.” Chao et al. (2019) found evidence of Sex Ratio at Birth (SRB) imbalances in 12 countries between 1970 and 2017, leading to 23.1 million missing female births in the world, with China accounting for 11.9 million. However, another recent study constructed long-term estimates of the total number of Missing women in China and India from 1950 to 2020 and found that India had a high number of Missing women, but the number of Missing women grew faster in China than in India after the 1980s, but that China made more rapid progress in reducing excess female deaths (Datt, Liu and Smyth, 2022).

Many studies have also explored the causes and factors of this phenomenon, including gender discrimination, economic status, poverty, bride price and dowry, family size, ultrasound technology, and infanticide history. (Klasen and Wink, 2003; Gillard et al., 2008 Edlund, Yi and Research, 2013, p3; Bulte et al., 2021). The most frequently discussed point of the studies on Asia was the Son Preference, sex-selective abortion, and neglect of the girl child (Lynch, 201; Nanda et al., 2012; Edlund, Yi and Research, 2013), while the studies related to China also highlighted the influence of One Child Policies and the Household Registration (Hukou) System (Attane, 2009; Bulte et al., 2021). As Sen (1990) first mentioned, the economic and cultural complexity behind this phenomenon cannot be explained solely from a cultural perspective. The factors and causes are not only cultural and economic, but also political and policy, social movements, and human rights, thus this research paper argues that a multidimensional and feminist perspective is warranted.

Another word for the phenomenon of missing women is the imbalance in the sex ratio. The sex ratio is the proportion of males to females in the population, typically expressed as the number of males per 100 females. Sex ratio is also a widely used indicator in studies on Missing women, however, more studies have chosen the sex ratio at birth (SRB) as a measurement index, such as the estimates in the study of Chao et. al (2019) and Attane (2009), rather than the population sex ratio (PSR). According to the World Bank, the sex ratio at birth usually ranges between 104 and 106 males per 100 females, while the sex ratio of the total population declines with population deaths, migration, etc. It is important to note that in China, the population sex ratio is a cumulative result of years of imbalanced SRB, the long-term enforcement of family planning policies, and the country's large population size. Additionally, there is evidence suggesting that the household registration system (hukou) has led to underreporting and misreporting of the number of girls (Bulte et al., 2021). Therefore, considering the purpose of this research paper is to analyze the relationship between unbalanced sex ratios and economic development, a more comprehensive and cross-section indicator is needed, and the population sex ratio is more suitable.

Besides, the choice of “sex” or “gender” also needs to be taken into account, as the term is understood differently in various languages and groups, and the ambiguity of the terminology can also affect research (Pryzgodna et al., 2000). Using the term “sex” instead of “gender” is based on two main reasons in this research. First, it considers the widespread binary understanding of gender and the classification of biological sex in China. (Yu, 2015) Second, the statistical measurement of the sex ratio in the world is also based on biological sex. While in the later quantitative analysis “sex” may be interpreted more broadly to include “gender,” especially in discussions around gender norms and gender roles, the Chinese National Bureau of Statistics and the linguistic context in China still define the sex ratio in terms of biological, binary sex categories. Therefore, “sex” is used as the primary term throughout this research.

2.2.2 Causes and consequences of the imbalance in the sex ratio

Due to the history of infanticide and the patriarchy, China's SRB has been imbalanced for a long time, while Son Preference is deeply entrenched. One-Child Policy and Sex-Selective abortion stimulate SRB but the underlying cause is Son Preference (Banister, 2004). There is also an underreporting of females due to omissions in the household registration system and the impact of the One Child Policies (Bulte et al., 2021), which has contributed to the PSR imbalance to some extent. In existing studies, some scholars have examined the impact of the SRB and female shortage on economic and social development. For instance, the imbalanced sex ratio means an increase in the number of men in society, leading to a large population of unmarried men, it has been shown that this rise in unmarried men can contribute to the proliferation of commercial sex activities and the spread of sexually transmitted infections, including HIV; and in the model of China's dependence on family and children for old age, these unmarried men will lack financial support and care for their elderly (Ebenstein et al., 2009). Hudson and Boer (2005) focus more on social violence, they argue that the sex imbalance in Asia is mainly patriarchal and extremely devaluing of women's lives, and empirical studies by Diamond-Smith et al. (2018) show that an imbalance in the sex ratio not only increases violence against women but also increases overall violence.

However, Banister's (2004) study on the shortage of girls in China noted that the imbalance in the sex ratio at birth does not directly lead to war or more serious social issues, but that the human rights of girls born into Son Preference environments are violated. One empirical study in recent years can be related to this. Liu, Su, and Yin (2022) analyzed the relationship between parental patriarchal preferences during childhood and health in adulthood, finding that Son Preferences negatively impacted girls' health in old age, mediated by unequal educational opportunities, health levels, and care resources during childhood. Therefore, the indirect effects of the sex ratio imbalance are broad and multidimensional and extend over a wide time and generational span. Other recent empirical shows in parts of China with a severe shortage of young women, parents of unmarried sons face higher rates of accidental injuries and workplace deaths (Tan et al., 2021). Jin, K. (2023) argues that the One-Child Policy brought about greater change, which helps to explain the high savings rate of urban families in China, the rapid increase in the level of tertiary education, which greatly improved the status of women, and that the solution to the problem of the serious imbalance in the ratio of men to women, especially in some of the poorer parts of the country, was the importation of wives from abroad. In addition, a noteworthy study by Xiong (2021) analyzed court documents from 2010 to 2018 on trafficking in women for forced marriages, which included both internal trafficking as well as foreign females, and found that a local shortage of marriageable women does not directly cause such trafficking. Rather, it is primarily driven by deep-rooted discrimination against daughters' values, which is reflected in the imbalanced local sex ratio.

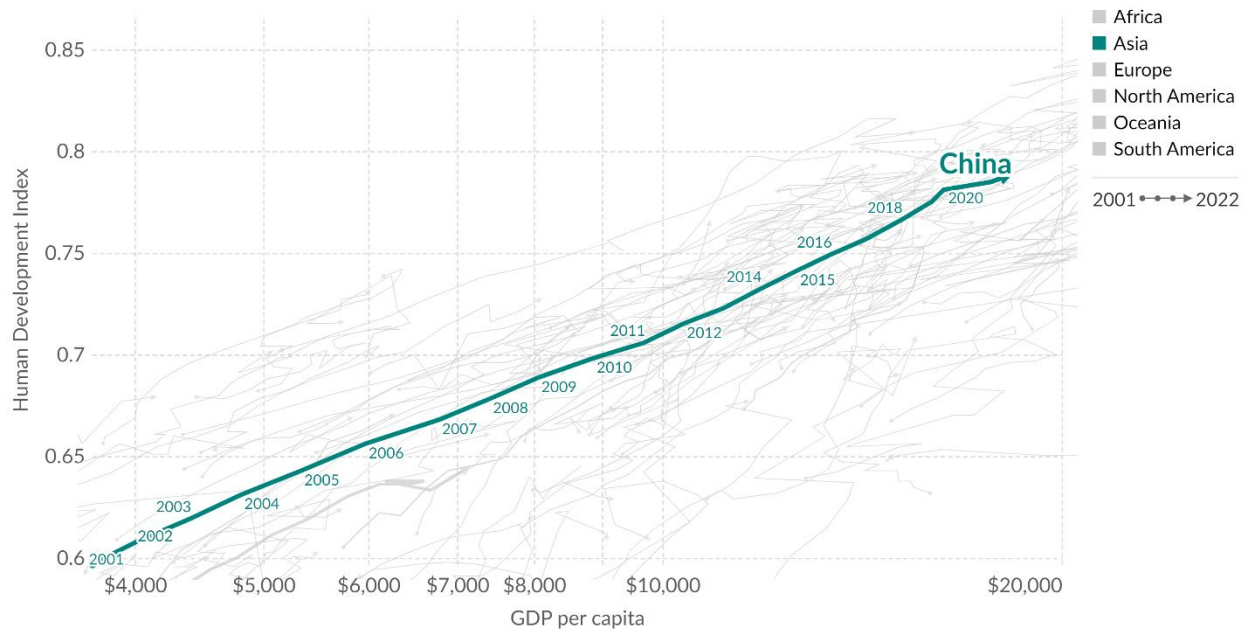
Besides, the savings rate and the marriage market are scholarly concerns as well. Srinivasan and Li (2018) argue that while an increased sex ratio improves women's bargaining power in the marriage market, gender discrimination persists. Research on the issue of "left-over women" also supports this point. Wang, Zou, and Fan (2019) observe that in both China and India, despite a lower number of marriageable and overall women in the population, unmarried women above a certain age are still labeled as "leftovers." Wei and Zhang (2009) analyzed savings data from rural and urban households in China, finding that in regions with higher sex ratios, households with sons tend to save more. In contrast, the net effect of sex ratio imbalance on the savings of households with daughters appears to be negligible. A similar conclusion is drawn from a study in the United States, where Griskevicius et al. (2012) examined urban sex ratios and savings and consumption behaviors, though the assumption and interpretation in this study are still based on gender stereotypes, the result found that a higher proportion of males decreased their willingness to save for the future.

In summary, research on the sex ratio has focused more on the macro level and less on the individual level and the sex ratio of the population. Both the Sex Ratio at Birth (SRB) and the Population Sex Ratio (PSR) have different negative impacts; however, they also serve as causes of these negative effects. Although there may be interventions through policies, education, or economic development, there is also a possibility of entering a vicious cycle. More importantly, the strong links between sex ratio and reproduction and women's human rights need to be studied more critically. Nie (2010) argues that sex-selective abortion is the main direct cause of the serious imbalance in the SRB in China and that the blurred boundaries of coercive state intervention in China lead to the neglect of reproductive freedoms and rights. Banister (2004) also criticizes the patriarchal cultural and Son Preference behind the shortage of girls, which has a negative impact on girls' self-esteem and development. Hence, this research paper chooses the Capabilities Approach and Feminist Economist as the conceptual framework to examine the relationship between population sex ratio and economic development, with consideration of reproductive rights, reflections on economic development, and a critique of Son Preference.

2.2 Review of Economic Development and Gender Equality in China

China's economy has grown rapidly since its reform and opening up in 1980 and its joining of the World Trade Organisation (WTO) in 2001. According to the United Nations Development Programme (UNDP), China's Human Development Index (HDI) stood at around 0.594 in 2000 and has continued to grow since then, reaching over 0.768 in 2021, with a general upward trend, and with achievements in education, life expectancy, and tackling poverty. As shown in Figure 2.1 below, China's GDP per person and HDI have grown positively over the past 20 years. However, China's internal economic and gender inequalities remain significant, as China's rankings in the Global Gender Gap Report have steadily declined.

Figure 2 Human Development Index vs. GDP per capita, 2001 to 2022



Data source: Our World in Data.org /human-development-index / UNDP, Human Development Report (2024); World Bank (2023)

Note: GDP per person is expressed in international - \$ at 2017 prices. The Human Development Index (HDI) is a summary measure of key dimensions of human development: a long and healthy life, a good education, and a decent standard of living.

The Fourth World Conference on Women in 1995 had a significant impact on the economic status of Chinese women and laid a foundation for broader discourse on gender issues. Due to the household registration system and uneven regional resources, there are also disparities in economic development and gender equality between regions. On economic development, Li Shi et al. (1999) found that a large part of China's income gap comes from the disparity between urban and rural areas and the gap between geographic regions. China's National Bureau of Statistics incorporated regional disposable income per person into censuses, starting in 2012. Disposable income per person is a more objective indicator of real income in China than GDP per person, especially for low-income areas and rural areas. Besides, the statistical caliber in China is affected by the Household Registration system because disposable income is more reflective of the valid situation, covering labourers from rural to cities. Based on the inter-provincial panel data of 31 provinces from 2005 to 2017, Wang Jiangqing (2020) finds that the sex ratio is positively correlated with the urban-rural income gap. There is an old saying in China, ‘*Investing in a daughter is like throwing water on the ground*’, which demonstrates women's property inheritance rights, and the issue of dowry and bride price in marriage, which makes the socio-economic expectations of families towards their daughters negative. One study on land inheritance among 412 rural households revealed that, despite women playing an active role in agricultural production, a growing number of them lose access to their contracted land upon marriage (Hare, Yang, and Englander, 2007). The Household Registration system plays a vital role in the issue of urban-rural disparities, as this system and the social welfare institute are tied together to help the One-Child Policy implementation and limit labour mobility at the same time (Bulte et al., 2021). Until the cities needed more labour to build as the economy booming, the Household Registration system, which had been in place since 1958, underwent major reforms in 2014, but the gap between urban and rural development persisted.

Although Mao's famous line, 'Women can hold up half the sky', has had a profound and widespread impact on Chinese society, women's status and development in the economy and society have also improved, and the ghost of persistent gender norms and Son Preference is still visible. Regarding gender inequality and sex ratio, China has a long history of female infanticide, in the early duration of R.P China, the government made great efforts to eradicate this "backward culture", but with the implementation of the One-Child Policy in the 1980s, the introduction of ultrasound technology, and the sex-selection abortions, the SRB has remained abnormally high (Banister, 2004). Research on patriarchy and Son Preference in China has often been connected to the historical background of Confucian culture. Even if Confucianism always be regarded as a backward culture in modern China, it continues to exert a significant influence on contemporary gender culture and economic development. For instance, Du (2016) found that listed companies in China between 2001 and 2011 with a strong Confucian culture had significantly fewer female leaders, than those in regions with weaker Confucian influences. Furthermore, per person GDP weakens this negative correlation, and Du's (2016) study concludes that the Confucian philosophical system continues to influence contemporary Chinese society, thereby devaluing women's status in companies and reducing gender diversity on boards. In a more macro view, Yu's (2015) book on sorting out the development of feminism in China, mentions that economic development and policy change also played an influence:

"As China started to shift from 'state-socialism' to 'market-socialism', Chinese women were found to become 'more vulnerable', 'more frequently turned into sexual objects, and exploited and discriminated against in employment contexts'. The differences between men and women had to be reemphasized to 'justify inequalities that came with economic reform' (Min Dongchao 2005, as cited in Yu, 2015: 275–276)."

This emphasis on gender differences aligns to some extent with Confucianism views, but Confucianism is still widely regarded as an outdated and "backward culture", moreover, its patriarchal values and Son Preference persist in both cultural and social contexts. Although China has continuously advocated and practiced gender equality from top to bottom through legislation and public policies over the past 70 years, these regulations are often just guidelines. With economic growth after market-oriented reforms, the ideology of gender equality gave way to profit-seeking behaviour. The male-centred conditionality makes the so-called gender judgment more like a propaganda slogan than a reality (Yang, 2020).

As pointed out by Yang (2020), despite China's progressive socialist agenda, its gender revolution remains 'stalled.' Behind the imbalance in economic development and sex ratio is the intersection of patriarchal ideology, gender inequality, urban-rural development disparities, and policy issues. All in all, there is a lack of literature on the relationship between PSR and economic development at a macro level, and more research is needed to address the institutional, historical inequalities experienced by women. The systemic, long-term economic consequences of the sex ratio imbalance of the population may have been overlooked in China, which is one of the results of the neglect of the gender perspective in economic research.

2.3 Review of Capabilities Approach and Feminist Economist Study

2.3.1 The Summary of Capabilities Approach and Feminist Economists

The Capabilities Approach (CA) developed primarily by economist Amartya Sen and philosopher Martha Nussbaum, is a theoretical framework for evaluating individual well-being and development (Sen, 1999; Nussbaum, 2000). In general, CA refers to the approach to

the comparative standard of living assessment and focuses on what people are able to do and to be, concerned with the dignity and freedom of individual choices in reality, and is a multidimensional and comprehensive approach. Nussbaum (2011) argues that using GDP as a measure of the quality of life is widespread, but economic growth and profit are merely instruments for human life; the ultimate purpose of development is *Human Development*. She emphasizes that this approach does not simply squeeze various goals into one signal box, but rather examines their relationships and complementarities, as well as the differences that arise from various social standpoints.

Both Sen and Nussbaum have focused on gender inequality in their theoretical studies of CA because it is a widespread problem of justice worldwide, as well as a human development issue. Nussbaum (2011) points out that the problems related to gender are a kind of theoretical litmus test for CA, for example, the GDP's neglect of unpaid care labour, domestic violence and child development, sexual orientation, same-sex marriage, etc. It can help us to better reflect on the capabilities list and why CA works better. These social problems overlap with the core concerns of feminist economics, which is engaged in a feminist rethinking of theories and policies in different fields. Feminist economics has been developed within the most recent quarter-century, which challenges many traditional and androcentric economic theories by incorporating gender analysis. Nelson (1995) criticized a prototypical economic article that has a bias on an economic model, method, and topic, the key point of economics discipline isn't objective, it's that it's not objective enough. Furthermore, Robeyns (2008) reviewed the criticisms of Capability Approach (CA) in feminist literature, including false gender neutrality and male-centrism, thus ignoring the social system or welfare dimensions that are particularly important to women and children. At the macro level, policies, and institutional inequalities, such as China's One-Child Policy, the hukou system, regional income disparities, and PSR imbalances, affect the capabilities of populations - especially marginalized groups such as women - to achieve freedom and well-being in a broad way.

In short, the Capabilities Approach and feminist economics perspective provide a multidimensional, practical, and relatively objective framework to do the research, at the same time the research should always have a self-reflexive attitude and keep critically assessing, it is a vital methodological commitment with feminist economics (Robeyns, 2021).

2.3.2 Construct the Theoretical Framework.

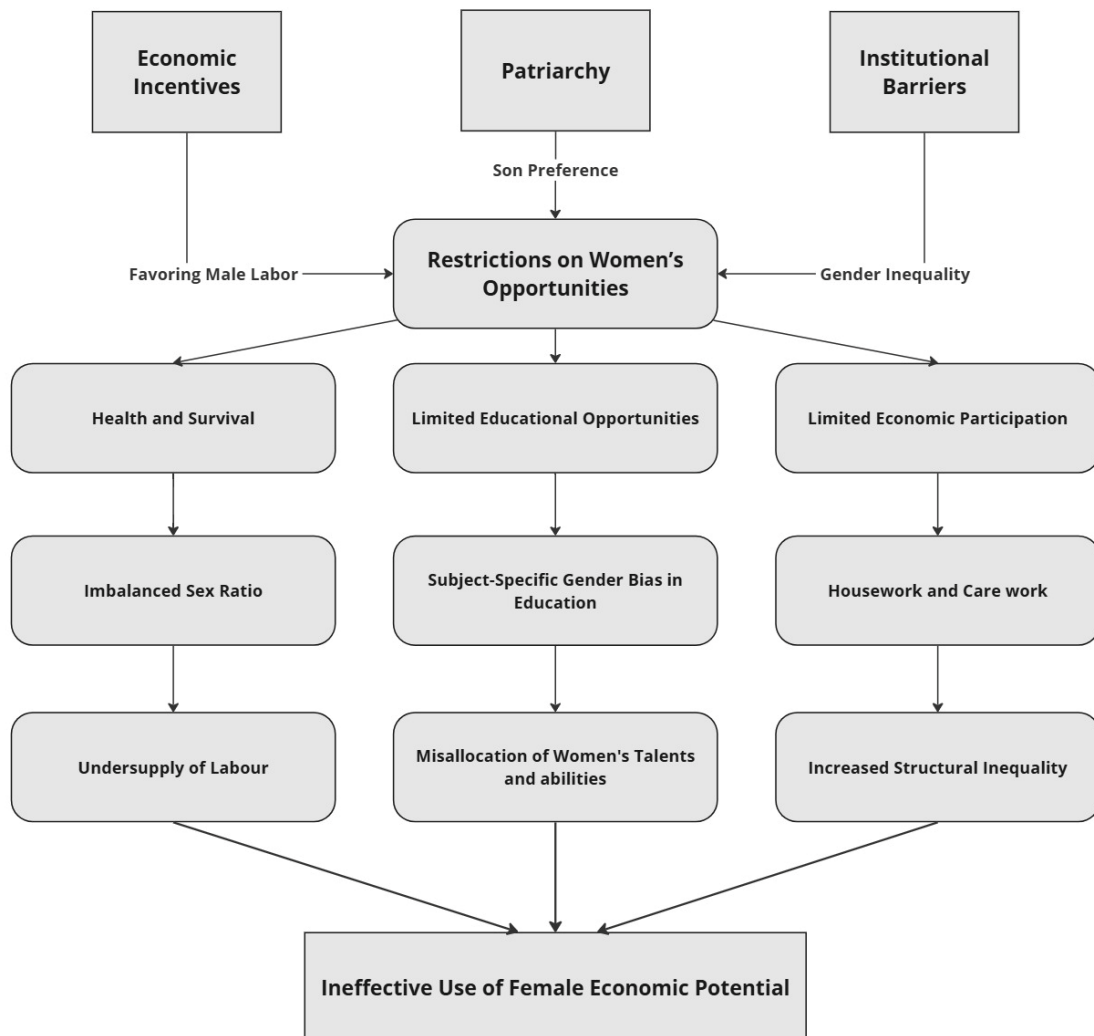
From the Feminist Economist perspective, this research paper considers the Son Preference value in China as a patriarchal ideological characteristic, which wildly exists in the family and economy. Feminist economics believes patriarchy refers to economies in which men have more power than women. Peterson et al. (2000) point out that patriarchy exists on a subconscious level and influences reproduction. It also shows in one evidence from China, that Xiong (2021) demonstrated that one of the main drivers of trafficking in women is the patriarchal desire to perpetuate the male lineage of the family. Son Preference value is considered part of the traditional family values, which can also be considered Confucianism, that boys deserve more nurturing and care than girls, and therefore influences childbearing decision-making and gender bias in the family (Du, 2016). While many other countries also have some degree of patrilineal system, researchers have found that this logic is much more rigid in countries with gender bias (Das Gupta, 2002).

Furthermore, building on theoretical assumptions, if patriarchal ideology is embedded in economic development, it is likely to perpetuate discrimination against women in both labour and marriage markets. This could also hinder reproductive rights and individual capabilities, potentially intensifying income disparities across regions and within populations. Such dynamics contradict the real purpose of development, which is centered on human

development, as articulated in Nussbaum's framework. The following Figure 3 illustrates one type of mechanism.

At the core of this mechanism is the patriarchal ideology underlying the preference for sons, followed by economic incentives and institutionalized gender inequality. These three key factors collectively restrict the development of women's capabilities. These restrictions manifest in various ways: starting with limited health and survival capabilities, fewer girls are born, and those who are born often lack adequate healthcare and nurturing, leading to imbalanced sex ratios and a further reduction of women in the labour market. Another pathway begins with limited educational opportunities, where gender norms and subject-specific biases in education prevent women from entering fields in which they may excel, thus limiting their opportunities to break through into more sectors or overcome the glass ceiling. This results in the misallocation of women's talents and abilities in the labour market. Additionally, limited economic participation forces women to bear more unpaid caregiving responsibilities, further marginalizing them in economic activities, as their labour often goes unrecognized and uncompensated, reinforcing institutional inequalities as well. Ultimately, this leads to the inefficient use of women's economic potential, restricting their capabilities and hindering both economic and human development. This mechanism highlights the interplay between patriarchal ideology, economic incentives, and institutional barriers in perpetuating gender inequality and limiting women's capabilities.

Figure 3 Mechanism of the Framework on Women Development



2.4 Summary and Reflection

This chapter starts from the issue of “Missing women”, summarizes the different directions and perspectives on the study of sex ratio imbalance, and the causes and consequences of these two issues, also discusses why the population sex ratio (PSR) was chosen for this research paper rather than the birth sex ratio (SRB), then reviewing the issue of economic development and gender inequality in China. Moreover, it also summarizes the framework Capability Approach (CA) and feminist economic perspectives used in this research and proposed mechanisms.

Nevertheless, it is a matter of reflection that in some quantitative studies, economic factors are quantified at the macro level, expressed in various parameters, but further reflection on social justice and feminist critique is lacking. For instance, Wang, Zou, and Fan (2019) identified through the panel data of 2012-2015 in Shanghai that income gaps in different areas caused female marriage migration patterns and led to the male marriage squeeze in poor rural areas and the ‘leftover women’ problem in big cities such as Shanghai. But the true

cause of the unmarried male problem was the shortage of women. So-called 'Leftover women' is a constructed fake problem to cover up the inequitable distribution of development resources faced by women in different areas. Moreover, in an earlier study, Bulte et al., (2004) critically evaluate that the severe shortage of women had existed long before the founding of the People's Republic of China and that the shortage of women in China was not caused by poverty, although economic factors were cited as one of the many reasons for Missing women. Besides, Wei and Zhang (2011) argued imbalanced sex ratio also stimulates economic growth by inducing more entrepreneurship and hard work, due to data proving more new private firms are found to emerge in areas with higher sex ratio imbalances, and GDP growth is faster in provinces with higher sex ratios. This empirical study of economic growth and male-central shows a marked lack of care and reflection on justice in economic development, not only disregarding women's rights but also lacking a conscience for human development.

In conclusion, the issue of gender imbalance and economic development in China involves complex realities, closely related to macro-level policies, patriarchal ideology, regional development disparities, and institutional inequalities. Both the Capability Approach (CA) and feminist economics, with their emphasis on human development and concern for social justice, not only provide a flexible theoretical framework but also transcend the limitations of a domestic perspective, offering a more robust and objective analysis of macro-level inequalities.

Chapter 3

Methodology and Methods

3.1 Rationale of Mix-Method

According to Creswell's (2014, pp. 215–239) explanation of mixed methods, this study adopts transformative mixed-methods. Connecting to the context of China and the imbalanced sex ratio literature, the Capabilities Approach and Feminist Economist perspective help this research paper choose the method and indicators. In other words, based on the literature review and theoretical framework, variables are selected, and interviews and thematic analysis are then used to identify key variables and uncover any gaps, creating a solid link between the research and real-life contexts. This paper argues that research on sex ratios needs to recognize that numbers are not just data, but represent real people, Missing women, and women whose reproductive health rights are being challenged. Individual experiences, viewpoints, and macro data analyses are equally valuable, only in this way to understand the research object and analyze to answer the research questions from multiple perspectives. Furthermore, it informs the selection of control variables for the fixed-effects regression analysis, ensuring that the regression model is based on reliability and explanatory power. That is to say, this paper accepted the critique of methodology in the economic discipline from Feminist Economist researchers, such put mathematics models as the very center of research instead of focusing on the connection of policy and real social issues, mathematical methods should not equal objective, and that value judgments about hard and soft data need to be scrutinized, while be aware of potential bias in choosing indicators to represent (Nelson, 1995). In analysing the regression results, the content from the interviews is also integrated, considering contextual concepts and policy backgrounds to arrive at the final findings and conclusions.

The transformative mixed-methods approach is considered to provide a powerful voice for researching gender inequality (Creswell 2014, pp. 238), aligning with the aim of this research paper, which focuses on the patriarchal ideology and institutional economic and gender inequalities behind the imbalanced PSR and economic development. Specifically, this paper investigates how unbalanced sex ratios have happened and what the economic consequences are, by online interviewing 5 Chinese women, from different areas but all have insights on Son Preference and gender issues in China; and how the PSR influences disposable income across different regions, considering 4 economic policy regions and both urban and rural areas by fixed effect regression.

3.2 Data and Collection

3.2.1 Online Interviews and Generating Themes

This paper selected interviewees by recruiting participants through targeted posts on the Chinese women's forum, "Oversea Women¹," as well as through extended social media chat groups. Among the six individuals who intentionally texted me during July, I selected five women for interviews. For the two with occupational and regional overlap, I randomly selected the one who contacted me earlier. The posted recruitment content stated the objectives and methodology of this study and indicated that participants were expected to be

¹ <https://www.womenoverseas.com/en>

Chinese women with strong interest in or expert knowledge with any related issues of gender inequality, Son Preference, One-Child Policy, and economic development in China, regardless of age, place of residence, nationality, or occupational background. The recruitment strategy aimed to engage individuals fitting the study's criteria, ensuring that a diverse range of perspectives would be captured, all women from different areas in China have very different areas. This diverse selection process helps ensure the representativeness of the sample, providing a range of perspectives and valuable insight.

The interviews were conducted online using Zoom, ensuring convenience and accessibility for participants, and the duration was approximately one hour. Informed consent was obtained from all interviewees prior to the sessions, the consent form was to be sent the day before the interview, and to receive digital signatures. With their consent, interviews were recorded by Zoom and then transcribed in Chinese, coded, and analyzed using the qualitative data analysis software ATLAS.ti. This method ensures a structured examination of the data and generation themes, allowing for the identification of keywords and themes relevant to the research question. The use of ATLAS.ti further enhances the reliability and replicability of the analysis by providing tools for organizing, coding, and interpreting qualitative data within a transparent methodological framework. The following Table 1 provides basic information about the five interviewees

Table 1 Interviews List

Participant Pseudonym	Age group	Country of current residence	Occupational information
Ling	40-50	A province in northern China	Psychologist
Hong	30-40	A province on the southern coast of China	Leader of one Chinese NGO which covers labour in East and Southeast Asia
Ming	30-40	Middle- East	A former worker in the factory and became an auditor in Beijing, Study abroad in the Middle East
Zhang	30-40	United States of America	Worked in Beijing and Hong Kong as an activist for queer and women's rights, and is currently working full-time for a gender NGO in the US.
Xun	20-30	Beijing, China	Working in a television content company

To maintain conceptual clarity, the interviews, transcription, and coding were conducted in Chinese to align with the participants' native language. The interview questions were open-ended, allowing participants to share their experiences, insights, suggestions, and criticisms freely. These interviews provide rich context and depth to the quantitative research findings and assist in determining subsequent control variables, such as those related to pensions and urban-rural disparities. Additionally, they offer important insights into how patriarchy and policies affect women's economic opportunities and outcomes.

3.2.2 Variables and Data Sources

The selection of key variables in this paper is based on the context of Son Preference and the urban-rural regional gap in China, rooted in theoretical frameworks like the Capabilities Approach and Feminist Economics and additional interviews. Instead of GDP per person,

this paper uses disposable income as the dependent variable and PSR as the independent variable.

Among the control variables, this paper selected some variables related to economic development, such as Urbanisation Rate, average years of Education, Female Labour Force Participation Rates, etc., and added Pension expenditure, maternity insurance, dependency ratio, and sex ratio at birth of the third child, the proportion of males in the National People's Congress (NPC) of the People's Republic of China from the perspective of feminist economics and through interviews' insight.

All variable names, definitions, and data sources are shown in Table 2 below, the vast majority of which are derived from the China Statistical Yearbook, which is annual publicly available secondary data compiled by the Ministry of Civil Affairs of China and the National Bureau of Statistics of China. In this study, all the data for each province from 2012 to 2022 were selected, of which the Female Labour Force Participation Rate is at the national level with no data for each province, the third-child sex ratio is only available for each province in 2010 and 2020. The data sources cover 31 provinces in China, this paper collected for a total of 11 years from 2012 to 2022. The data from 2012 was collected taking into account the time lag effect, so the total sample size is 341 observations.

For an analysis of the contribution of qualitative research to variable selection, see Chapter 4.

Table 2 Variables List

Variables	Definitions	Sources
Disposable Income	The income is available to residents for consumption and savings. It consists of four parts: wage income, net business income, net property income, and net transfer income.	China National Statistical Yearbook 2012-2022
Population Sex Ratio	Number of males per 100 females at a fixed time in a given area	
Average years of Education	Average number of completed years of formal schooling by individuals in a given population.	
Disposable Income in Urban	The income is available to residents in the cities and towns for consumption and savings	
Disposable Income in Rural	The income is available to residents in the villages and countryside for consumption and savings	
Female Labour Force Participation Rates	The percentage of women aged 15 and older who are economically active means they are either employed or actively seeking work within a given economy.	World Bank database 2012-2022
Urbanization Rates	The percentage of a country's population living in urban areas	China National Statistical Yearbook 2012-2022
Maternity Insurance	Government-mandated social insurance program designed to support employed women during pregnancy; in some provinces, male participation can be used for wives	
Urban Employees' Pension Expenditures	Government-mandated Pension Insurance covers individuals who are employed, must have a labour contract	
Urban and Rural Pension Expenditures	Government-mandated Pension Insurance includes people who are unemployed or work in informal sectors, mainly for those in rural area	

Third-child Sex Ratio at Birth	Refer to the Sex ratio at birth of the third child in the families	Report of the 2010 and 2020 China National Census
Sex Ratio at Birth	The Sex ratio at birth of the third child in the families	
Male Ratio in NPC	Proportion of males in the National People's Congress of the People's Republic of China,	China National Statistical Yearbook 2012-2022
Pension Expenditures Percentages of Total Disposable Income	Indicates the share of pensions in disposable income: public expenditure on total pensions divided by the total resident population multiplied by the total disposable income per person.	
Dependency Ratio	The ratio of the population under 14 years of age and over 65 years of age to the population of working age, i.e. the approximate number of persons of non-working age per 100 persons of working age.	

3.3 Fixed Effects Regression Model

This paper employs a fixed-effects regression model using panel data from Chinese provinces 11 years period, covering the years 2012-2022. The advantage of panel data is that it allows for better control of heterogeneity, reduces multicollinearity among variables, and enhances degrees of freedom and efficiency (Baltagi, 2013, p. 6-7). This research utilizes *Stata* for data analysis, applying robust standard errors to address heteroscedasticity issues. Additionally, the time lag effect is incorporated, with the PSR and some control variables lagged by one year, and the interaction term also based on the lagged PSR. This is because the impact of PSR is often not immediate, and the lag term makes the explanation more in line with reality, helping to capture the buffer period after the implementation, making the analysis results more realistic. All model passed the Hausman test, confirming the appropriateness of the fixed-effects method. Interaction terms between policies (e.g., the two-child and three-child policies) and PSR allow for a more detailed analysis of how policy changes interact with demographic structures to influence economic outcomes. The establishment of the model and the regression analysis primarily reference Baltagi, B. H. (2013) *Econometric Analysis of Panel Data*.

$$Y_{di} = \alpha + \beta_1 PSR_{it} + \beta' X_{it} + \mu_i + \epsilon_{it}$$

As equations above, where the dependent variable, Y_{di} refers to per-person disposable income in the province i at time t , PSR_{it} refers to the Population Sex Ratio in the province i at time t . X_{it} is the vector of all control variables in this model, details and definition can be seen in the Table 2. The term μ_i captures unobserved individual characteristics that remain constant over time, and ϵ_{it} represents the error term.

The main advantage of the fixed-effects model is its ability to control for time-invariant characteristics, which makes it reliable for studies involving panel data spanning 10 years across 31 Chinese provinces. To eliminate the effect of unobserved heterogeneity, the above models all use robust standard errors. This is done by using the command `xtreg, fe robust` to analyse panel data. Although year dummy variables were not explicitly included, the fixed-effects model effectively controls for heterogeneity between provinces and time-invariant characteristics. Considering that including year dummies could lead to multicollinearity, the paper believe that the current model is sufficient to reveal the relationship between independent and dependent variables and provides a solid foundation for subsequent analysis

Chapter 4

Result and Findings

4.1 Interviews Findings by Thematic Analysis

4.1.1 Societal Expectations and Economic Returns Behind Gender Bias

(1) Societal Expectations and Inheritance

The social expectations behind Son Preference are not only about reproductive choices; every interviewee mentioned 'inheritance', a concept that is closely linked to Son Preference and reflects social expectations in the context of patriarchy. Zhang believes that China has historically maintained a strong belief in inheritance:

If Chinese people do not particularly worship deities, then their faith often revolves around local gods or ancestors. Ancestors, in fact, represent an issue of generational inheritance. This inheritance is primarily passed down to male descendants, and in this context, legal recognition (status) is more important than bloodline. Even an adopted son can be accepted for the sake of inheritance. (Zhang, 2024)

Ling's experience corroborates this, as she has encountered many cases of adopting boys around her. She believes that the Son Preference is an unconscious social inertia, a tradition spanning thousands of years. Marriage and childbirth are like pre-installed programs in many people's minds. She said:

I've received consultations from three women in a row, all of whom, upon reaching a certain age, felt they must get married—there was no other option. So, they hurried to find someone, and the marriages were very rushed. After getting married, they had children and then found that the marriage was extremely painful. For them, marriage was a way to stop others from talking about them. The only benefit was that. (Ling, 2024)

This shows that women are surrounded by an unconscious preference for males, while also facing various societal expectations. Hong, who works for an NGO advocating labour rights in the south of China, encountered similar cases. She mentioned that some female workers, under pressure from their families to get married, quickly married and had children, then returned to factory work, seemingly just to complete a task. Xun, who grew up in a setting that blends urban and rural life, observed that the urgency for a son is more pronounced in rural areas:

People believe a son is the root of the family, he brings labour and more income. Whether it's the father or his siblings, they all hope to have a son, believing that a son is the family's foundation and can carry on the lineage. (Xun, 2024)

(2) Heteronormativity and Male-Centric Perspectives

Zhang, a feminist and queer activist, criticized the male-centred perspective of the Son Preference, particularly how discussions of China's reported sex ratio imbalance often revolve around concerns like "what will happen to the excess men who can't find wives." This is a narrative that stems from a very male-centric viewpoint. She also shared the experience of a lesbian couple:

During one interview, we spoke with a lesbian couple who wanted to follow a more traditional gender division of labour. They had already had a boy, and one of the reasons they gave was that boys have more advantages in society. (Zhang, 2024)

She further critiqued heteronormativity and the societal expectation of motherhood that people are only considered an outstanding mother if you give birth to a son. Even if you have both a son and a daughter, the best-case scenario is still to have one of each, and you must be a 'good mother'." Having lived in the U.S., she noted that Son Preference exists in different forms across societies, but the expectation that women should become mothers and wives is a constant across cultures. Xun also pointed out the dominance of men in society:

"What I have most clearly perceived is that traditional Chinese society is primarily male-dominated. The main groups in society are adult men, and men take on most of the societal roles. We tend to acknowledge that men bear more responsibilities—they are seen as upholding family honor, and their choices are linked to the rise and fall of society. In traditional views, people tend to believe that a son is necessary to carry on the family lineage and legacy, and the existence of women often just lies in producing a male heir." (Xun, 2024)

(3) Economic Returns and Pension Issues

Another significant motivation for the Son Preference is economic returns, particularly in terms of elder care and inheritance. In China, it is socially expected that children will care for their parents in old age. However, men are perceived to have greater potential for economic success, as they are expected to earn more income and thus provide better financial support for their parents. Ming, a woman who grew up in a rural area, shared that in her hometown, many elderly people believe they should rely on their sons for support in old age, followed by their daughters-in-law and daughters. She said:

"When their children reach marriageable age, parents start pressuring them to marry, because only when their children are married can they have security in their old age. The parents' well-being in old age is tied to whether their children's marriages are stable, creating a relationship of shared interests." (Ming, 2024)

Hong mentioned a conversation with a friend, where they calculated that the cost of raising a boy is much higher than that of raising a girl, but her friend still wanted a son. She argued that many women from lower socioeconomic backgrounds lack economic opportunities, yet they still serve as the main breadwinners for their families, as their husbands either don't earn money or repeatedly lose money by claiming to pursue various business ventures. Both Hong and Zhang also touched on the issue of property inheritance for women in China, noting that it remains problematic both legally and in practice. Ling recalled a conversation with a friend who had both a son and a daughter. When asked whether they would split their inheritance equally between the two, the friend quickly replied that everything would go to the son. She said:

"Although people say that girls are doing well now, and girls are important, and we need to invest in them, many women still assume that once they marry, the family property is no longer related to them. I think this reflects a deeply entrenched inequality, where only the men in the family are seen as rightful heirs to the family's wealth." (Ling, 2024)

4.1.2 Institutional Inequality Under Urban-Rural Disparities and Policy Obstacles

(1) Rural and Urban Areas, the Mobility of Female Labour

Migration between rural and urban areas in China is driven by the development gap between the two regions, with women facing more intersecting and complex challenges. Ming, who

has lived and worked in both remote rural areas and major cities, highlighted the significant disparity between rural and urban China, noting that most resources are concentrated in cities and among those working for the government. She pointed out that the bureaucratic system, along with the Household Registration (hukou) system, maintains these inequalities, citing stark differences in pensions and social welfare, and criticized the hukou system for restricting labour mobility, stating that a lack of protections and fair compensation perpetuates the rural-urban dividers, she remarked,

I believe son preference still exists in cities, but urban families have the security of pension systems. Urbanization and resource allocation are still primarily focused on cities. When rural workers come to the cities, they are simply seen as labour. Once their prime working years pass, they still have to return home. The government's policies set many barriers, effectively preventing rural people from fully integrating into urban life. You must pay a hefty 'entry fee' to move to the city. (Ming,2024)

Hong, who works in an NGO, has encountered many women who migrated from rural areas to work in cities. Their paths are often quite similar: after completing nine years of compulsory education, they did not continue to high school or vocational schools. Around the legal minimum working age, they, along with many classmates, moved from the countryside to work in beauty salons or factory assembly lines in Guangdong. Interestingly, fewer boys from similar backgrounds made the move to cities. She argues that this marks the beginning of occupational segregation based on gender, with disparities in development resources emerging at a very young age. She also added,

In the past, rural people wanted to move to the cities primarily to get a better education for their children. For instance, in Dongguan, there was a large factory employing 300,000 people, and in 2014, a massive strike occurred. The strike wasn't over minimum wages or working hours but over the issue of migrant workers' children attending school in Dongguan. Under the points-based household registration system, workers needed to accumulate points by paying into social security. However, many workers found that when their children reached school age, they hadn't accumulated enough points due to gaps or insufficient social security payments. (Hong,2024)

Ling's childhood experience of Household Registration (hukou) migration was also tied to education. During her elementary and middle school years, hukou registration was crucial. In provinces with more relaxed policies, one could purchase an urban hukou and then transfer it back to their hometown. Her parents bought urban hukou for themselves and her brother, but not for her. Her father urged her to study hard to get into a good school and pay an additional fee, which eventually allowed her to obtain an urban hukou. According to Hong, her organization's data from 2015 to 2018 showed that about 70% of the people who sought help with issues related to children's education and family communication were women. Most of the cases involved left-behind children, and once the children reached a certain age, their grandparents were often no longer physically able to care for them. Therefore, a family member, usually the mother, had to return home to take care of the children. Among those who resigned from their jobs for family reasons, 98% were women, even if their income was higher than their husbands' or if their career prospects were better, it was still the mother who left the workforce.

It becomes clear that the reasons for female labour migration are diverse. It is not just about the gap in development resources, but also about the gendered division of roles and occupational segregation, with underlying patriarchal influences within families. Zhang emphasized the considerations surrounding mobility, noting that in regions where Son Preference is prevalent, two scenarios may arise: on the one hand, these areas may drive girls to leave and seek opportunities elsewhere; on the other hand, if they choose to stay, it often

means that the conditions for their survival are harsh, their autonomy is restricted, and their development is limited, leaving them largely at the mercy of family arrangements.

(2)One-Child Policy and Economic Support

Ling's child was born in 2005, at which time her workplace required proof of IUD placement, issued by relevant medical institutions as a "contraceptive surgery certificate." This requirement was quite common before 2010. Later, China changed its family planning policy to allow for a second child in 2015 and a third child in 2021. In practice, the implementation of this policy varied across provinces, with differing levels of enforcement in rural and urban areas. For instance, in rural regions, families may be allowed to have two daughters or one son, and enforcement is also influenced by the family's economic background (Bulte et al., 2021).

Zhang shared that in some areas of Guangdong if one works in the city, they might only have one child or at most two. In contrast, those who are able to pay fines for having more children, often due to successful business ventures, may continue to have more. She noted that reflections on marriage do not entirely mitigate the preference for sons. During discussions with some female workers about marriage, she found that many had divorced or were unhappy in their marriages, they indicated that if given the choice again, they might not marry their current partners. However, when it came to their hopes for their children's marriages, those who had sons generally wished for them to marry, while those with daughters believed it should depend on their daughters' wishes. Overall, they recognized that marriage tends to benefit men more than women. Zhang also pointed out that family planning is a top-down policy with uneven implementation across regions, heavily dependent on individual family circumstances. Therefore, she finds it challenging to assess whether its impact is ultimately positive or negative. The preference for sons persists regardless of policy, as this cultural bias remains deeply ingrained, especially since stricter family planning regulations were not as prevalent in regions like Fujian Province in the past.

(3)The Inevitability of sex Imbalance

Ming believes that the PSR imbalance is an inevitable outcome resulting from the choices made by the previous generation, and the current generation is now bearing the consequences. She argues that if parents had not chosen to abandon so many female infants, the severity of the sex imbalance today would be much less pronounced, preventing issues such as difficulty for men in finding wives or exorbitant bride prices. This sex imbalance directly leads to a situation where the number of eligible men exceeds that of women, and since women often prefer to "marry up," the phenomenon of lower-class men remaining single has become increasingly common. Hong added another perspective from the viewpoint of a gray market, noting that the "Son Preference" phenomenon presents business opportunities and continues to generate a potential market. Services such as surrogacy and fetal sex determination thrive on the demand stemming from this gender bias. The core motivation is not merely to know the fetus's sex, but to confirm whether it is male. She recalled a friend who studied the surrogacy industry, mentioning that those seeking surrogacy often look for surrogate mothers, many of whom come from ethnic minority groups, particularly in rural areas of Southwest China. Many middle-class individuals and wealthy businessmen opt for surrogacy services specifically to ensure the birth of a male child.

Ming also mentioned another factor that perpetuates this situation: the influence of parents' Son Preference on the next generation has not changed despite educational advancements. Particularly in rural areas, the rigidity of the previous generation's mindset, combined with a lack of self-reflection and learning opportunities, allows these strong preferences and behaviours to be passed down through generations.

4.1.3 Reproductive Rights and Restrictions on Female Capabilities

(1) Sex-Selective Abortion and Reproductive Costs

The promotion of the One-Child Policy in the 1970s coincided with a broader acceptance of abortion, but sex-selective abortion is an active choice, and the costs of childbirth for women are often underestimated. Ling stated,

Abortion has become not just accepted, but it has normalized miscarriage to the point where it seems routine. I've seen girls in the hospital who have had many abortions. There is no sexual education in China, and on the other hand, it's a much larger topic. (Ling, 2024)

Zhang noted that many men compare women's reproductive roles with their own work, assuming that it is natural for men to work outside while women stay home to give birth and care for children. However, she argued that a more appropriate comparison would be between men going to war and women giving birth at home. The burdens and risks of work and domestic labour are comparable, but the risks associated with childbirth far exceed those of work. Childbirth can lead to death and may cause irreversible bodily harm to women. Yet, in every culture, reproductive labour is undervalued. Whether children are celebrated as "gifts from God" or the emphasis is on producing male heirs to bring honor to the family, these narratives frame reproduction as a woman's responsibility—an obligation that must be fulfilled without compensation. Zhang also referenced the opinion of "Caliban and the Witch", a book written by Silvia Beatriz Federici in 2014, and the domestic wage movement, arguing that what is termed surplus value is actually a product of women's unpaid labour. Under capitalism, women bear the burden of unpaid domestic work and the responsibility for reproducing labour, yet the value of this labour is not returned to them; instead, it creates the illusion that wages are solely awarded to men.

The neglect of women's unpaid labour has become a norm around China, and the costs and dangers of childbirth are also underestimated. More critically, China's current Three-Child Policy, which is being promoted with encouragement, aims to address low birth rates and an aging population. Xun believes that encouraging marriage and childbirth through this policy will not yield real results, as such encouragement necessitates women sacrificing their rights, time, and energy for family obligations. This is fundamentally at odds with the environment in which the younger generation of women has grown up, particularly for families with only one daughter.

(2) Multiple Restrictions on Female Capabilities

Against the backdrop of Son Preference and family planning policies, women's development in terms of basic capabilities, internal capabilities, and combined capabilities has been constrained. For example, Ming shared that her mother once stopped her from going to high school, and preferred that she stays home to care for aging family members and eventually secure a bride price through marriage. She believed this not only restricted her access to educational opportunities but also stifled her creativity as a woman. Zhang also highlighted how women's basic and internal abilities are affected, noting that in China, if a child is female, they are less likely to receive care and attention, creating an imbalanced state of development. Ling added her perspective on the greater resources allocated to boys, stating that men are granted a privileged position from birth. Because of this, they don't need to work very hard; they are accommodated by others and are automatically entitled to family property. Boys are the focus of attention and receive more resources, giving them more options in life. In contrast, girls have to work much harder and, even if they have access to fewer resources and opportunities, must strive to achieve a status similar to that of their male counterparts.

In recent years, since the implementation of the Three-Child Policy, women's combined capabilities have also been restricted more, such as in changes to divorce laws. For

instance, since the Civil Code of China was enacted on January 1, 2021, a mandatory 30-day "cooling-off" period for divorce has been implemented. Ling pointed out that recent in China, even if a couple files for divorce through the courts, it is almost impossible to get a divorce on the first hearing, and the courts will prefer mediation to maintain the marriage

Zhang further argued that as the sex imbalance worsens, with more men and fewer women, society may theoretically place more value on women. However, the reality is quite the opposite. Society increasingly views the world through the lens of these men, who are in the majority. She believes this, to some extent, explains the rise of right-wing ideologies, noting that while more women are becoming educated, the number of single, often disenfranchised men is growing, which could also have implications for democratic elections.

(3) Agency and the Dilemmas of Only Children

Despite the deeply affecting sex imbalance and the One-Child Policy, the interviews also saw more positive possibilities, especially in the context of social media and the growth of online feminism, which has led to more discussion of women's Agency. Ling observed that Chinese society has undergone significant changes over the past two decades, particularly with the rise of the Me-Too movement. She noted an increasing awakening of women's sense of agency, even among women aged 40 to 60. She shared that in conversations with mothers of this age group, she found their perspectives had shifted dramatically—they no longer pressured their daughters to marry and even supported the idea of single motherhood. Xun also pointed out that with economic growth and improved living standards, the duration of women's education has increased, and women often outperform men at various educational stages. As more women enter the workforce, the challenges they face in both their careers and personal lives are gaining more attention on social media. The male agency faces another dilemma, Zhang argued that Son Preference also restricts the development of the male agency. On the one hand, boys benefit from better material conditions, but on the other, they face excessively high expectations, which can lead to an inflated sense of self and eventual frustration when they fail to meet these expectations. She also critiqued the elite view that the One-Child Policy has given girls more resources for development, pointing out that this perspective overlooks the realities of rural and lower-class families.

Thus, being the only child in the family faces a dilemma in that the only girl has increased agency in the family but faces institutional inequalities in society, whereas the only boy's agency may be limited by over-attention in the family but has an advantage over the female in society, however, the only child as such is expected to take on more of the burden of old age. Xun explained that those born under the One-Child Policy generation face greater competition and the future burden of caring for their elder parents. However, with education and growing feminist consciousness, women are increasingly defending their reproductive rights and social welfare, contributing to societal progress.

4.2 Summary and Insights Guiding Quantitative Variables

Last section analysis shows that China's sex imbalance is closely intertwined with the patriarchal ideology of Son Preference, where economic development is both a driving factor and deeply impacted by this phenomenon. Son Preference in China is deeply rooted in social expectations related to inheritance, heterosexual marriage norms, and the economic returns and pension issue. Institutional inequalities, exacerbated by the urban-rural gap and policy barriers such as the One-Child Policy and the hukou system, further complicate the experiences of migrant women workers, reinforcing gender-based labour divisions and limiting the development of women's capabilities. Given the long-standing presence of Son Preference within family and cultural practices, the negative consequences of gender imbalance are inevitable. Sex-selective abortion and overlooking the cost of reproduction also contribute to

sustaining this imbalance. Moreover, women's reproductive rights and capabilities are constrained by societal norms that undervalue the labour of childbirth, while economic and familial pressures hinder their broader agency. Despite these challenges, the rise of feminist consciousness and shifts in generational perspectives, particularly the enhancement of female autonomy, signal an emerging resistance to these entrenched inequalities, especially among the generation shaped by the One-Child Policy.

Moreover, this research selects the variables Pension, Maternity Insurance, Male Ratio in Parliament, and Dependency Ratio as added control variables based on the available data set and the findings of thematic analysis. The aim of the quantitative regression is to examine the impact of the sex ratio on disposable income (Yd), which primarily represents economic development. Other indicators of economic development, such as Urbanization Rate, average years of education (Edu), and Female labour force participation rate (FLPR), are also included.

During the interviews, pension issues and urban-rural disparities were frequently mentioned, so both urban and rural disposable income were included (Yd U and Yd R), as well as pension expenditure for urban and rural areas (Pension UE and Pension UR). Pension in disposable income (Pension of DI) is also a control variable, calculated from population, disposable income, and pension expenditure to minimize multicollinearity and improve result accuracy. Additionally, the Male Ratio in Parliament and SRB third are used to represent institutional inequalities in a male-dominated society. SRB third refers to the sex ratio of the third-born child in one household, as research (Banister, 2004) and interviews (Ling, Ming) stressed that in areas with more severe Son Preference, families are more willing to pay fines or accept sex-selective abortion. Therefore, SRB third represents patriarchal ideologies is the key assumption in this research.

The Dependency Ratio and Maternity Insurance are control variables related to reproductive labour. The analysis of interviews highlighted the impact of social expectations and women's care work, particularly the disproportionate caregiving burden on women. Since the number of children and elderly people in society is fixed, the Dependency Ratio can partly represent the extent of women's reproductive labour, while maternity insurance is a social welfare program for female reproduction. Moreover, Female labour force participation rate (FLPR) and women's average years of education (Edu F) also represent women's capabilities development.

4.3 Regression Results

4.3.1 Descriptive Statistics

The quantitative part examines the impact of the imbalanced PSR on per-person disposable income. The dependent variable, Yd, represents the annual per person disposable income of each province, while the independent variable is the provincial population sex ratio (PSR). The sample covers 31 provinces from 2012 to 2022, resulting in a total sample size of 341 observations.

Among these variables, PSR, SRB, and Edu are lagged by one year, as the impact of sex ratio and education on income is considered to be delayed in reality. SRB third, however, is not lagged because the data source only includes data in 2010 and 2020, which can reflect the stable situation over a period of time, so lag is not considered. PSR three child interaction and PSR three child interaction are interaction variables related to policy changes in 2013-2022. The Two-Child Policy and the Three-Child Policy are dummy variables, i.e. they correspond to the implementation of the Two-Child Policy in 2015 and the Three-Child Policy

in 2021, and since this policy is only for Han Chinese, the variables are not included in the ethnicity variable. Definitions and data sources for all variables can be found in Table 2, while descriptive statistics are shown in Table 3.

Table 3 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Year	341	2017	3.167	2012	2022
PSR	341	104.541	3.519	96.73	123.17
PSR L1	310	104.563	3.533	96.73	123.17
Yd	341	25958.983	12771.817	4102.215	79609.8
Yd U	341	35186.536	12162.16	17156.89	84034
Yd R	341	14385.491	6257.455	4506.66	39729.4
Edu F	341	8.95	1.23	3.817	12.781
Edu M	341	9.567	1.083	4.622	13.09
Edu F L1	310	8.899	1.232	3.817	12.781
Edu M L1	310	9.524	1.084	4.622	13.09
FLPR	341	62.022	.919	60.122	63.347
Maternity Insurance	341	20.249	24.844	.3	155.7
SRB third	341	146.088	33.33	94.77	260
SRB	341	112.972	6.336	100.29	127.76
SRB L1	310	113.359	6.316	100.29	127.76
Pension UE	341	1202.44	938.763	12	4206.2
Pension UR	341	77.766	74.405	.5	440
Pension of DI	341	.015	.02	.001	.107
Male Ratio Parliament	341	75.209	1.228	73.5	76.6
Urbanization Rate	341	160.29	91.664	1	319
Dependency Ratio	341	39.347	7.48	21.18	68.8
Two child policy	341	.091	.288	0	1
Three child policy	341	.091	.288	0	1
PSR two child	310	10.445	31.405	0	115.37
interaction					
PSR three child	310	10.466	31.462	0	112.86
interaction					

Note that disposable income is in RMB, where Maternity Insurance, Pension UR, and Pension UE are all public expenditures in billions of RMB.

Descriptive statistics show that the average PSR in China is 104.5, while the average disposable income (Yd) is 25,958.9 RMB. There is a significant gap between the maximum value (79,609.8 RMB) and the minimum value (4,102.22 RMB), and the large standard deviation (12,771.82) further highlights the widespread income disparity. The standard deviations of Yd U and Yd R are both smaller than that of total disposable income. However, it is evident that urban disposable income shows greater variation, while rural disposable income is relatively concentrated but at a lower overall level, which aligns with the findings from the interview analysis in this study. Additionally, the mean and standard deviation of PSR, SRB, and SRB third reveal the imbalance in sex ratios and the regional differences in Son Preference. The Male Ratio in Parliament has remained stable over the years, with a mean of 75.2%. Furthermore, Edu M is higher than Edu F, reflecting the institutional and long-term gender inequality in political and education.

4.3.2 Model 1: Province Level with Policy Change

The first model result in Table 4, below three groups are gradually regressed to include policy variables, which show that the PSR is significantly negatively correlated with the disposable income per person. The lagged PSR (PSR L1) has a negative and statistically significant effect on disposable income across all models, with coefficients ranging from -40.41 to -44.59, suggesting that an increase in the sex ratio decreases disposable income. Although 40 RMB

is a small absolute value, since the PSR fluctuates between 96 and 123, it can be converted into if the PSR increases by 10 units, Yd will decrease by 400 RMB. Although this value accounts for 1% of the average disposable income, it accounts for 10% of the disposable income in the poorest provinces.

Table 4 Model 1 Province Level with Policy Change

VARIABLES	(1) Yd	(2) Yd	(3) Yd
PSR_L1	-40.41* (20.75)	-43.84* (22.36)	-44.59** (21.70)
Yd_R	1.638*** (0.0932)	1.645*** (0.0955)	1.629*** (0.0959)
Edu_F_L1	-49.11 (296.3)	-14.23 (317.4)	-86.68 (323.0)
Edu_M_L1	149.2 (363.3)	82.92 (376.0)	214.1 (419.0)
FLPR	-290.8*** (66.93)	-296.2*** (67.97)	-462.0*** (93.90)
Urbanization_Rate	-8.588 (6.098)	-8.545 (6.100)	-9.190 (6.165)
Maternity_Insurance	36.09*** (6.306)	36.09*** (6.373)	35.82*** (6.409)
Male_Ratio_Parliament	448.5*** (109.1)	459.1*** (119.5)	578.2*** (120.3)
Dependency_Ratio	25.89 (21.82)	24.95 (21.56)	22.34 (20.47)
Pension_of_DI	31,911*** (11,129)	31,455*** (11,143)	31,879*** (11,263)
Pension_UR	-0.320 (1.378)	-0.282 (1.323)	0.0387 (1.386)
Pension_UE	-0.621* (0.324)	-0.649* (0.328)	-0.636* (0.326)
SRB_third	-17.11*** (4.203)	-17.03*** (4.337)	-17.72*** (4.296)
SRB_L1	-95.33 (68.42)	-96.20 (69.08)	-100.1 (70.00)
Two_child_policy		-3,573 (3,222)	-3,288 (3,023)
PSR_two_child_interaction		33.79 (31.22)	30.64 (29.23)
Three_child_policy			-810.5 (3,945)
PSR_three_child_interaction			11.47 (37.26)
Constant	3,484 (10,386)	3,756 (11,052)	5,461 (11,013)
Observations	310	310	310
R-squared	0.992	0.992	0.992
Number of Province	31	31	31

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Female labour force participation rate (FLPR) has a substantial negative effect on disposable income, with coefficients ranging from -290.8 to -462.0, suggesting that higher female labour participation correlates with lower disposable income, potentially due to the lower wages or job quality in sectors dominated by female workers. Urbanization rate does

not show a statistically significant effect in any model, while maternity insurance exhibits a positive and significant effect on disposable income, with a coefficient of around 36.09, highlighting its role in supporting economic stability. Pension expenditure demonstrates positive effects, with a particularly strong coefficient for Pension of DI (31,911), pointing to the importance of pension systems in supporting economic well-being.

In contrast, the third-born sex ratio (SRB third) shows a significant negative relationship with disposable income in all models, with coefficients ranging from -17.11 to -17.72, reflecting the negative economic consequences of gender imbalances in family structures. The interaction terms for the two-child and three-child policies with PSR are not statistically significant, suggesting limited direct effects from these policies in the context of this analysis.

4.3.3 Model 2: Province Level with Urban and Rural

The second model focuses on urban-rural differences, however, statistically significant only in the first group. This diminishing significance when urban disposable income (Yd U) is added highlights how urban income may offset some effects of the sex ratio on income levels. Given China's significant urban-rural income disparities and the interview evidences, both rural (Yd R) and urban disposable income (Yd U) are included to capture their distinct contributions.

In Model 2, which includes only rural disposable income (Yd R), results are significant, suggesting that rural income may play a more critical role in explaining changes in total disposable income. Group 2 and 3 introduce urban disposable income (Yd U), and Group 3 additionally includes policy variables; however, these show negative but insignificant associations. Variance inflation factor (VIF) testing reveals notable multicollinearity (VIF value of 11) between Yd, Yd U and Yd R, which affects the final results. This finding indicates that when examining the relationship between population sex ratio and disposable income, rural economic conditions are more responsive, while urban income in this specific model does not sufficiently explain changes in overall income levels. Also worth noting is SRB third and Male Ratio Parliament remain significantly negative in three groups, aligning with findings that higher Son Preference, has adverse effects on disposable income. While the Two-Child Policy interaction with PSR is not significant, the Three-Child Policy and its interaction with PSR show some significance in group 3, hinting at potential policy effects on gender and income dynamics.

This model also indirectly demonstrates the complexity of the relationship between sex ratio imbalance and economic development across urban and rural contexts in China. These findings align with interview data, underscoring that urban-rural development disparities remain influential and persistent factors in economic development.

Table 5 Model 2 Province Level with Urban and Rural

VARIABLES	(1) Yd	(2) Yd	(3) Yd
PSR_L1	-40.41* (20.75)	-22.75 (18.57)	-24.15 (19.08)
Yd_R	1.638*** (0.0932)	0.800*** (0.144)	0.803*** (0.143)
Yd_U		0.482*** (0.0896)	0.491*** (0.0884)
Edu_F_L1	-49.11 (296.3)	210.7 (195.0)	254.2 (204.6)
Edu_M_L1	149.2 (363.3)	-824.4** (318.8)	-937.6*** (339.6)
FLPR	-290.8*** (66.93)	-7.795 (45.10)	24.08 (57.46)
Urbanization_Rate	-8.588 (6.098)	-12.12*** (4.205)	-11.90*** (4.152)
Maternity_Insurance	36.09*** (6.306)	16.63** (6.627)	16.38** (6.559)
Male_Ratio_Parliament	448.5*** (109.1)	297.8*** (83.07)	298.1*** (90.45)
Dependency_Ratio	25.89 (21.82)	28.57** (13.70)	27.80** (12.65)
Pension_of_DI	31,911*** (11,129)	16,396 (10,036)	15,623 (9,924)
Pension_UR	-0.320 (1.378)	-1.862 (1.131)	-1.937* (1.104)
Pension_UE	-0.621* (0.324)	-0.120 (0.146)	-0.173 (0.150)
SRB_third	-17.11*** (4.203)	-9.379** (3.525)	-8.788** (3.530)
SRB_L1	-95.33 (68.42)	-69.66 (61.14)	-69.78 (61.46)
Two_child_policy			-3,348 (2,126)
PSR_two_child_interaction			31.17 (20.32)
Three_child_policy			3,898* (2,096)
PSR_three_child_interaction			-38.11* (19.89)
Constant	3,484 (10,386)	-5,973 (8,279)	-7,478 (8,440)
Observations	310	310	310
R-squared	0.992	0.996	0.996
Number of Province	31	31	31

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.3.4 Model 3: Provinces with strong Son-preference

In both the literature review and interviews, Son Preference—recognized as a cultural phenomenon or patriarchal ideology—was frequently cited as one of the primary drivers of gender imbalance. As discussed in Chapter 3, SRB third is used as an indicator reflecting the extent of Son Preference. Therefore, in the third model, this study focuses on provinces

where SRB third is 180 or higher, selecting a total of 10 provinces for regression analysis: Beijing, Shanghai, Zhejiang, Fujian, Shandong, Hainan, Hunan, Anhui, Liaoning, and Hebei.

Table 6 Model 3 Provinces with strong Son-preference

VARIABLES	(1) Yd	(2) Yd	(3) Yd
PSR_L1	-107.9** (47.32)	-125.5** (50.24)	-122.2** (43.56)
Yd_R	1.606*** (0.117)	1.608*** (0.118)	1.601*** (0.111)
Edu_F_L1	-154.5 (312.0)	-1.677 (298.9)	-341.6 (245.5)
Edu_M_L1	320.7 (796.2)	110.4 (750.3)	820.7 (855.7)
FLPR	-454.7** (153.7)	-424.3** (175.5)	-874.1*** (211.8)
Urbanization_Rate	-28.67*** (5.799)	-29.37*** (5.153)	-30.78*** (4.719)
Maternity_Insurance	23.91** (9.973)	25.55** (10.02)	18.43* (9.430)
Male_Ratio_Parliament	888.9*** (150.1)	826.0*** (141.3)	1,160*** (111.3)
Dependency_Ratio	106.3* (56.36)	105.6* (54.63)	91.01* (47.04)
Pension_of_DI	43,746 (33,552)	40,130 (32,584)	36,309 (31,561)
Pension_UR	0.956 (0.876)	0.673 (1.021)	0.963 (0.792)
Pension_U	-0.343 (0.504)	-0.386 (0.482)	-0.396 (0.473)
SRB_third	-25.47*** (5.691)	-25.85*** (5.892)	-27.92*** (5.892)
SRB_L1	-235.6* (114.4)	-240.5** (105.9)	-242.4** (99.62)
Two_child_policy		-9,662* (4,578)	-7,391** (3,229)
PSR_two_child_interaction		93.19* (43.72)	70.91** (30.86)
Three_child_policy			3,268 (5,480)
PSR_three_child_interaction			-21.15 (51.27)
Constant	8,000 (19,447)	14,216 (17,529)	14,391 (16,957)
Observations	100	100	100
R-squared	0.995	0.995	0.996
Number of Province	10	10	10

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The lagged population sex ratio (PSR_L1) has a strong negative impact on per person disposable income (Yd) across all groups, which are gradually include policy variables. The coefficients of PSR ranging from -107.9 to -125.5, suggesting that an increase in the sex ratio decreases disposable income. Compared with the previous two models, the absolute value of the coefficient of this model has increased by nearly 3 times. In other words, if the PSR increases by 10 units, Yd will decrease by 1255 RMB. Although this value accounts for 4.8%

of the average disposable income, it accounts for 30.5% of the disposable income in the poorest provinces. It can be concluded that the negative impact of PSR on disposable income is more serious in this region where sons are more valued than daughters.

Furthermore, Policy variables, specifically the Two-Child Policy and its interaction with PSR, are also significant in groups 2 and 3. The Two-Child Policy is associated with a reduction in disposable income, while the interaction term is positively significant, hinting at complex policy impacts on disposable income, potentially influenced by high SRB. Additionally, both the male ratio in parliament and maternity insurance had positive impacts on disposable income. This underscores the persistence of a male-dominated societal structure, while also indicating that social support for reproduction has contributed positively to income levels.

4.3.5 Robustness test

In the robustness test, this paper replaced the population sex ratio (PSR) with the sex ratio at birth (SRB) for fixed-effects regression analysis. Both variables are lagged by one year in the test. This substitution revealed that maintained a negative correlation with disposable income, the results were not statistically significant in model 1 and 2. In the third model, the negative correlation is still significant, but the P value is larger than the original one. It is important to note that SRB data is available only for the years 2010 and 2020, categorizing it as non-balanced panel data. Thus, it is employed linear interpolation to address the missing data, but this may impact the results to some extent. In other words, the interpolated data may not accurately reflect the actual effects of the policy changes in 2015 and 2021, potentially reducing the explanatory power and reliability of the models, rendering it practically meaningless.

Considering these factors, this paper believes that using PSR as the primary research variable is a more reasonable choice, ensuring that the model of this study remains stable and that the research conclusions are valid and reliable.

4.4 Summary of Quantitative Results

Through the three models, it can be concluded that the PSR imbalance of the population has a significant negative impact on per-person disposable income. With each unit increase in the sex ratio decreasing per person disposable income by 40.41 RMB to 125.5 RMB after controlling for a variety of variables. If the PSR increases by 10 units, disposable income will decrease by 1255 RMB, though it accounts for 4.8% of the average disposable income, it accounts for 30.5% of the disposable income in the poorest provinces. This negative impact is significant for all provinces, and the situation is more complicated between urban and rural areas, and the negative significant impact is more serious for provinces that have higher level of Son Preference.

Policy dummy variables and interaction variables were included in the three models, but the impact of Two child policy and Three child policy showed a negative correlation in different models, but none reached the significance level. It is worth noting that both SRB third and SRB show negative effects in the model, and have strong statistical significance in model 3, which shows that the imbalanced sex ratio, or Son Preference may have long-term consequences in affecting disposable income.

Other control variables, such as the proportion of men in parliament, Maternity Insurance and Urbanization Rate, also have an important impact on disposable income. The proportion of men in parliament exhibits a significant positive effect in all models, which may indicate that male dominance in the political arena creates a more favorable environment for

policy-making that supports economic growth; however, it may also simply increase the disposable income of males. Due to the lack of gender-disaggregated data on disposable income, further research is needed in this area. From a feminist economics perspective, this positive correlation may reflect a institutional problem: regions with higher male representation may be more inclined to serve male-dominated economic activities and industries in economic policymaking and resource allocation, with consequent impacts on overall incomes. This may lead to a further entrenchment of male superiority in power structures, perpetuating the tendency of economic growth models to value male labour and industry at the expense of investing in female labour, welfare and empowerment. This positive correlation may also imply that the absence of women at the political decision-making level reflects the deeper impact of gender structures on policy preferences and resource allocation. Furthermore, the Female labour participation rate (FLPR) has a significantly negative effect on per person disposable income, reflecting the existence of institutional inequalities. On the other hand, the urbanization rate shows a significant negative effect in the model, indicating that the urbanization process may have exacerbated the urban-rural income gap to a certain extent and inhibited the growth of overall income.

Additionally, Maternity Insurance has a positive impact on income, this demonstrates that by providing financial support, maternity insurance safeguards women's work and economic status, and enhances their freedom of career development. It also implies that a female-friendly policy such as maternity insurance reduces the likelihood of dropping out of the labour market due to childbearing or eases the financial burden on women during maternity. These results suggest that social support mechanisms, such as maternity insurance, may play a positive role in mitigating the economic impact of gender inequality. At the macro level, this policy not only promotes the accumulation of human capital, but also energises sustainable economic development.

The three-child sex ratio in all models shows a significant negative correlation with disposable income, though with a small absolute value. From a feminist economics perspective, this result reveals the underlying impact that patriarchal ideologies may have on economic outcomes. In Son Preferred households, resources tend to be concentrated on male members, potentially limiting the economic efficiency of the family and society as a whole. This is also supported by the interview analysis, especially in relation to inheritance and social expectations (Hong, Zhang, 2024). Although not significant, the positive correlation of the dependency ratio merits further exploration. This ratio, representing the proportion of non-working (children and elderly) to working populations, typically reflects the financial support burden on households. As the dependency ratio rises, resource distribution becomes more challenging, especially under gender preferences that may favor male members. This tendency can restrict support for women and other family members, thereby constraining their economic and social development opportunities.

Finally, the adjustments to the One-Child Policy have a small impact on the results, indicating that the entrenched gender norms and economic incentives favoring sons remain powerful, showing that policy adjustments are insufficient. From a feminist economics perspective, Son Preference is driven by patriarchal ideologies, where sons are seen as primary inheritors and supporters in old age, influencing families to allocate resources disproportionately toward them. Through all the above findings and results, we must face this discriminatory gender preference and its potential harmful consequences on women's development, economic development, and longer-term human development from a macro perspective.

Chapter 5

Discussion, Conclusion and Results

5.1 Summary of Key Findings

This research mixed qualitative interviews and quantitative regression analysis to uncover the significant long-term negative impact of an imbalanced sex ratio on economic development. The findings reveal that with every 10 units increase in the population sex ratio, annual per capita disposable income at the provincial level decreases by between 41.04 RMB and 1255 RMB — equivalent to 10% to 30.5% of disposable income in the poorest provinces. Drawing on insights from the interview analysis concerning urban-rural disparities and economic returns related to gender, the regression results highlight institutional gender and economic inequalities, corresponding to the previously discussed Mechanism of the Framework on Women's Development. Opportunities for women's development are limited by the pervasive patriarchal ideology, this preference undermines economic development and exacerbates gender inequality; simultaneously, economic inequality intensifies the imbalance in the sex ratio, leading to a series of consequences.

Further analysis suggests that son preference is deeply rooted in social norms linked to inheritance, marriage, and economic returns in China, while policies barriers, such as the One-Child Policy and the Household Registration System (*hukou*), intensify urban-rural disparities and the imbalance in the sex ratio. Then, these policies entrench son preference and income inequality, creating long-term negative repercussions and ineffective use of women's economic potential. This is strongly supported by the finding that provinces with a higher degree of son preference experience a more substantial reduction in disposable income.

5.2 Discussion

1) Is the sex ratio imbalance and Son Preference changing?

Nationally, China's sex ratio has remained stable between 104 and 105 over the past decade, but there are significant differences across provinces. For example, in Tianjin, the ratio exceeded 120 in both 2015 and 2019, while in Liaoning, it remained around 97 in 2021 and 2022. Furthermore, the birth-sex ratio continues to be imbalanced over the long term. Considering the Chinese government's active stance following the implementation of the Three-Child Policy, including encouragement of childbirth and marriage and the introduction of a "divorce cooling-off period," (The Guardian, 2020) there remain incentives that could exacerbate the sex ratio imbalance. However, the generation raised under the One-Child Policy has undergone significant changes in their views on childbirth. According to research by Tang and Hou (2024), while Son Preference remains stubborn in some provinces, there is a growing trend of preference for daughters. More importantly, the declining fertility rate and the increasing proportion of highly educated women may indicate that people are less willing to have children or, at most, willing to have just one. This trend mainly reflects urban areas, while rural regions continue to face more complex issues of migration and inequality.

As a long-standing and deeply rooted patriarchal ideology, the existence and potential impact of Son Preference are persistent. Although the shift toward a preference for daughters signals a positive change in attitudes toward childbirth, it does not imply the complete disappearance of Son Preference, which remains hidden and pervasive. As Ling mentioned, her friend desires to have both a son and a daughter but still plans to leave her inheritance only to his son. Such inheritance inequality perpetuates women's subordinate status and weakens

their economic power, concentrating wealth more heavily in the hands of men. This paper suggests that this is one of the reasons why Son Preference remains particularly entrenched and rigid in China and even across Asia. In other words, unless institutional gender inequalities and the widespread Son Preference in various areas are addressed, improving the gender imbalance will continue to face significant challenges.

2) Will the One-Child Policy Bring New Possibilities?

Jin, K. (2023) holds an optimistic view on the impact of China's family planning policy, arguing that it represents a golden opportunity for women. In one-child families, more resources are often devoted to daughters, allowing them to be raised similarly to boys. However, Jin's perspective only focuses on partly opportunities for women. While women may experience improved educational opportunities and growth within the family, they still face broader societal constraints. These include the unpaid labour burden, workplace discrimination, glass ceilings, and the underestimated costs of childbirth, all of which limit the development of women's capabilities on a larger scale.

According to China's National Bureau of Statistics, the fertility rate has continued to decline for years, with Shanghai's registered population showing a total fertility rate of 0.6 in 2023, even lower than South Korea's 2023 rate of 0.72. The younger generation's willingness to have children has significantly decreased. As expressed in interviews conducted for this paper, the spread of feminist ideas and women's agency through social media has influenced not only young people but also older generations. The dilemma facing the new generation is that, while they have received greater financial support from their families, they are likely to bear greater caregiving burdens in a future aging society. Thus, the declining fertility rate reflects not only an economic decision but also a shift in social consciousness. However, despite the potential challenge to Son Preference ideology posed by the declining birth rate, this shift may have a limited impact on addressing the long-term consequences of the sex ratio imbalance. Economic inequalities between urban and rural areas remain significant, with Son Preference being more deeply rooted in rural regions. With nearly 40% of China's population still living in rural areas, this demographic requires further study to better understand and address these persistent inequalities.

3) Reflections on term and language

During the interviews, the term "重男轻女" (Son Preference) was mentioned most frequently and was also identified in this research's findings as a form of patriarchal ideology. However, since the interviews were conducted in Chinese and my native language is also Chinese, nuances within this term may pose interpretive challenges for non-Chinese-speaking readers. In Chinese, "重男轻女" implies that men (男) are more valued ("重", Heavy) while women (女) are undervalued ("轻", Light), beyond a mere preference for sons. This ideology not only manifests in reproduction and caregiving but also extends into cultural and economic development. Yu, Z. (2015) summarizes the shifts in the terms "feminism" and "gender" in China, noting that many concepts historically entered Chinese either through direct English translations or Japanese adaptations, leading to shifts in meaning and interpretation. This research suggests that reflecting on translation and terminology is necessary, especially in cross-cultural gender studies, as this can help prevent the imposition of Eurocentric norms and language barriers. This point aligns with Robeyns (2021), who discusses the plurality and human diversity emphasized in the Capability Approach within feminist economics, particularly regarding power dynamics among different groups.

4) Suggestion on Policy and Comprehensive Sexuality Education

This paper argues that eliminating the negative impact of gender imbalance and confronting patriarchal ideology requires addressing gender norms in policies and education.

In her 2011 analysis of China's gender crisis, Tania Branigan observes that while traditional gender values are gradually changing, progress is very slow. Certain policies may unintentionally reinforce these outdated gender norms, Son Preference is one example. For example, one report by China Daily (2016) shows the previous One child policy slogan, "Having a son or daughter is the same; daughters are even more filial to their parents," highlights a push to equalize gender perceptions by promoting the idea that daughters can be more filial, which is a kind of gendered virtues may gain recognition in the short term but ultimately perpetuate gender stereotypes. Another example is the implementation of the One-Child Policy in rural areas. If the first child is a girl, a rural family is allowed to have another child. A county in Fujian Province even provides housing subsidies for rural families who only have one girl (Tania Branigan, 2011). Economic and social incentives intended to support daughters can inadvertently reinforce their undervaluation, as these programs often signal that families with daughters need additional assistance, subtly perpetuating a preference for sons. Thus, gender norms in education also need to be addressed, and Comprehensive Sexuality Education should be promoted.

Comprehensive Sexuality Education was interpreted as eight core concepts in the International Technical Guidance on Sexuality Education (revised edition) released by the United Nations in 2018, including relationships; values, rights, culture and sexuality; understanding gender; violence and safety; health and well-being skills; the human body and development; sex and sexual behaviour; and sexual and reproductive health. This study believes that for Son preference and sex ratio imbalance, we should not only focus on physiological education, but also on knowledge of gender, rights, and culture. According to the Asian-Pacific Resource & Research Centre for Women (ARROW) (2018), Comprehensive Sexuality Education plays a crucial role in addressing reproductive health needs across the Asia-Pacific region. The briefing, which covers 11 Asian countries, found that despite the existence of multiple guidelines and strategy documents in China, the range of issues covered is limited and preventive, such as puberty, sexual health and sexually transmitted infections. Due to the lack of a formal curriculum, coverage and implementation in educational institutions across the country is inconsistent. This research argues that implementation of Comprehensive Sexuality Education is also hampered by institutional sexism, both from the public and from the government. For example, the South Korean Ministry of Education's guidelines, which cost 600 million won (€ 500,000) to produce, immediately sparked controversy when they were first released in 2015. It stated that "women must work hard to improve their appearance and men must work hard to improve their economic ability." Despite the backlash, the Ministry of Education initially stood its ground and simply removed the material from its website, making it no longer publicly available (The Guardian, 2018).

In fact, from 2007 to 2017, Professor Liu Liwen of Beijing Normal University led a team to develop "Cherish Life - Sexual Health Education Textbook for Primary School Students", advocating Comprehensive Sexuality Education. There are a total of 12 volumes, which took a total of ten years. However, in 2017, a parent of a primary school student posted some illustrations in the textbook to the social media, which caused controversy and was boycotted by many parents. To this day, this series of textbooks has not been uniformly approved for use by primary schools in all provinces (Sohu News, 2024). According to the interviews for this research, both Ming and Ling mentioned the influence of intergenerational and family education, and they believe School education has the potential to break the vicious cycle of family and intergenerational education and fate. In short, this research believes that Comprehensive Sexuality Education can provide opportunities for girls whose development is limited in the family to develop their agency and enhance their future economic potential.

5.3 Conclusion

This research paper explores the relationship between sex ratio and economic development, especially the long-term impact of gender imbalance on disposable income in China. Through the lens of feminist economists, the paper explores the deeply entrenched Son Preference as a patriarchal ideology, while utilizing the Capability Approach as a robust framework to address the interplay between economic development and gender equality. The research uses a mixed-methods approach and result shows if the population sex ratio increases by 10 units, the province's annual per person disposable income will decrease by 41.04 RMB to 1,255 RMB, which is about 10% to 30.5% of the disposable income of the poorest provinces. This the negative significant impact is more serious for provinces that have higher level of Son Preference, which highlights the profound impact of the imbalanced sex ratio on economic development, especially in terms of resource allocation, gendered social structure expectations. The patriarchal ideology of son preference exacerbates gender inequality and hampers economic development. This research paper argued this ideology manifests not only in childbearing and child-rearing practices but also in cultural and economic spheres, restricting women's opportunities for economic and social advancement, thus impeding overall economic growth. In contrast, the positive impact of social support mechanisms, such as Maternity Insurance demonstrates that such policies can mitigate the negative effects of gender inequality on the economy. The underutilization of women's capabilities represents a misallocation of human capital, which not only hinders women's development but also limits broader human development.

Tackling this issue and consequence requires overcoming entrenched cultural beliefs about son preference and institutional inequalities, which present substantial challenges to policy interventions and social change. Institutional inequalities in gender and the economy, particularly in areas such as inheritance and reproductive labour, continue to serve as significant barriers to achieving gender equality. Addressing these issues necessitates confronting institutional biases, rather than merely improving specific indicators. This research emphasizes the need to reflect on the long-term potential consequences of the One-Child Policy and sex ratio imbalance. It also calls for a critical examination of the persistent son preference in social and cultural shifts. Furthermore, it advocates for the transformation of gender norms within policies and the implementation of Comprehensive Sexuality Education.

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