Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin
Ollscoil Átha Cliath | The University of Dublin

School of Social Sciences and Philosophy

Assignment Submission Form

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Student ID Number:	23364635
Programme Title:	Applied Social Data Science
Module Title:	DISSERTATION
Assessment Title:	**When Considering Migration, How Does the Gender Wage Gap** in the Rec**eiving Country Affect Chinese Women's Migration Decisions?**
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Date Submitted	12/08/2024

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When Considering Migration, How Does the Gender Wage Gap in the Receiving Country Affect Chinese Women's Migration Decisions?

Abstract

This study focuses on the factors affecting female migration in China, by using a review of existing literature and a review of existing international migration theories, choosing the theoretical framework of Gutmann et al.(2023) and Kuhnt (2014), OECD database and mixed effects models, analyzing data from different countries and years, and using the employment rate of migrant females in the host country and the host country per capita gross domestic product (GDP) as the control variables, the study explores the impact of the main independent variable, the host country gender wage gap, on the dependent variable, the proportion of Chinese female immigrants, providing new evidence for previous migration theories based on empirical studies of the Chinese case. The results of the benchmark regression model show that the gender wage gap is significantly negatively related to the proportion of Chinese female migrants, and it is also found that the employment rate of migrant females and GDP per capita have a significant positive effect on the proportion of Chinese female migrants.

1 Introduction

The International Labour Organization estimates that women make about half of all migrants worldwide and as much as 70–80% in some nations (Fleury, 2016). Six OECD nations got a

higher number of female migrants in 2021 than male migrants. The countries with the largest percentage of female immigrants include Israel, Australia, the United States, and Ireland (OECD, 2023). The concept of "feminisation of migration" has also been used for a long time. Much of the literature has raised the importance of focusing on immigrant women and gender differences among immigrants. The number of female migrants is increasing more quickly than that of male migrants in several current receiving nations. Therefore, gender-disaggregated data are essential to filling up knowledge gaps in migration studies (Fleury, 2016). A detailed examination of the factors that lead to the greater number of Chinese women immigrants than male immigrants is warranted given the globalization of this population. Nonetheless, in certain instances, women are not included by the conventional understanding of male migration seen in the literature now in publication (Fleury, 2016).

International migration processes have only recently been subject to gendered assessments in comprehensive statistical datasets (Ruyssen & Salomone, 2018; Artuç et al., 2015; Docquier et al., 2009; Dumont et al., 2007) as well as the economic literature (Ruyssen & Salomone, 2018; Cobb-Clark, 1993; Cortes, 2015; Docquier et al., 2012; Kofman, 2000; Morrison et al. 2007; Zlotnik, 1990, 1995). From IMO's official data, we can see that there is an imbalance in the proportion of women among Chinese immigrants who choose to emigrate to various destination countries, However, not many research have looked particularly on the causes of Chinese women's migration (Wang et al., 2023).

So what factors influence Chinese women's decision-making when choosing a destination country for migration? After reviewing the existing literature on the factors that contribute to women's decision-making to migrate, I found that in addition to family reunion, factors such as escaping from a gender-unequal society, pursuing higher education, seeking more promising employment opportunities and global networks, pursuing self-fulfilment, the rapid development of the media, the globalisation of the economy and the degree of immigrant integration in the receiving country are also included. Among the many factors, gender equality deserves attention. Recently, gender discrimination has shown to be particularly significant among the non-economic variables causing female migration. The fact that women generally still fall short of males in terms of access to opportunities and fundamental freedoms may influence the way they migrate. This is true even in the face of global attempts to close the gender gap (Ruyssen & Salomone, 2018). Gender inequality can end up costing the country economically. According to research, there is a correlation between gender wage disparity and child poverty, as well as a skills shortage and underutilization. These factors, along with the underappreciation of women's labor, can result in annual economic losses up to billions of euros (Tomlinson, 2011; Women and Work Commission 2006; TUC 2007). Among the seventeen Sustainable Development Goals (SDGs) is promoting gender equality. China's economy is now the second biggest in the world, yet gender inequality is still a major problem there (Liao, 2024; Liu, 1999; Sular et al., 2020). China is ranked 107th in the world in terms of gender disparity, behind Vietnam, Malaysia, and Mexico, according to the World Economic Forum (Liao, 2024; 2023).

In comparison, European countries are at the forefront of gender equality in the world. 15 EU Member States are rated from first (Sweden) to nineteenth (Portugal) out of 177 UN Member States, while the new EU Member States are placed from thirty-first (Estonia) to seventy-seventh (Romania) based on the UN Development Programme's measures of gender empowerment (Tomlinson, 2011). In Europe, gender equality was included as an important indicator in employment policy in September 1997. With the creation of the Employment Experience Survey (EES), the foundation for coordinating the creation of employment policy across member nations, the commitment to gender equality was made clearer during the 1997 Luxembourg Summit (Tomlinson, 2011; Rubery 2002). Together with entrepreneurship, employability, and adaptation, equal chances for men and women formed one of the four pillars of the Amsterdam Treaty's employment title (Tomlinson, 2011).

The causes of migration may be a combination of "push factors" in the country of origin prior to migration and "pull factors" in the immigration policies of the host country (Wang et al., 2023). Thus, are Chinese women making migration decisions under the dual influence of the "push" of gender inequality in the country of origin and the "pull" of gender equality in the country of destination? The relationship between gender inequality in countries of origin and women's decision-making to migrate has been previously documented. Gutmann et al. (2023) examine a hitherto largely unexplored cause of the gender migration gap: gender discrimination against women in countries of origin. Gutmann et al.(2023)'s study is the first global study on how systemically entrenched gender discrimination affects the gender migration gap (GMG). The study uses data from 158 countries of origin and 37 countries of destination, mainly OECD and high-income countries, for the period 1961-2019. And it

estimates a gravity equation derived from a random utility-maximising migration model that takes into account the gender of the migrant. The study finds that improving gender equality in both categories of rights deepens the gender migration gap (i.e., fewer women migrate relative to men) (Gutmann et al., 2023). Ruyssen and Salomone (2018) have explored through empirical research the extent to which global female migration can be explained by their own perceived gender discrimination. Using unique individual-level data, they tracked women's intentions and preparations to migrate from 148 countries between 2009 and 2013, and shed light on how personal perceptions of sexism facilitate or impede women's transnational migration (Ruyssen & Salomone, 2018). The research evidence suggests that women who feel they are not treated with respect and dignity are more motivated to migrate (Ruyssen & Salomone, 2018). There are also studies that use macro data to provide mixed evidence on the relationship between gender discrimination and female migration behaviour. Nejad (Ruyssen & Salomone, 2018; 2013) and Young (Ruyssen & Salomone, 2018; 2014) examine the impact of institutionalised gender inequality on the rate of high-skilled female migration, using the CIRI (Cingranelli-Richards) Human Rights Database (2014) Women's Rights Index as an indicator. Ferrant and Tuccio (Ruyssen & Salomone, 2018; 2015) use the Social Institutions and Gender Index (SIGI) developed by the OECD Development Centre to provide empirical evidence on the relationship between gender inequality in social institutions and female South-South migration. The study suggests that discriminatory social systems in countries of origin and destination are important determinants of female South-South migration (Ruyssen & Salomone, 2018). Baudassé and Bazillier (Ruyssen & Salomone, 2018; 2014) use a gravity model to test whether labour market discrimination should be considered a push factor or a means of selection for female migration. They conclude that, other things being equal, gender discrimination has a positive impact on female brain drain

(Ruyssen & Salomone, 2018). It is also verified in the robustness tests of Gutmann et al.(2023)'s study that the degree of gender equality in the country of destination has no significant effect on the gender migration gap in the country of origin. Given that equality of rights in countries of origin affects female migration, the degree of gender discrimination also affects women's choice of destination countries. However, the final results show that gender equality in destination countries has no significant impact on the gender migration gap (Gutmann et al., 2023).

Does the pull factor of gender equality in the destination country also have no significant effect on Chinese women's migration decisions? In this paper, I will validate the question on a case dataset from China. The database on the official OECD website provides a number of indicators for measuring gender equality in countries, covering a wide range of categories such as education and skills; employment, entrepreneurship and skills; public life and policy instruments; technology, knowledge and resources; and health and well-being. The literature suggests that the gender wage gap is important in addressing gender inequality (Liao, 2024)and recent empirical research from 61 countries suggests that the gender wage gap is still significant, at 23% in developed countries and 27% in developing economies (Oostendorp, 2009; World Bank, 2001, pp. 55-57). Therefore, I will use the gender wage gap in the destination country instead of its degree of gender equality as the main independent variable, and the percentage of Chinese immigrants who are female as the dependent variable.

Therefore, my research question is Does the gender wage gap in the receiving country have a significant effect on the female share of Chinese migrants? For the purpose of the empirical study, the macro data I use consists of the "OECD Official Migration Database" , the "OECD Gender Wage Gap Database" , the "OECD Migrant Employment Rate Database" , and the "OECD GDP-Regional Databaset". Preprocessing the dataset yields a total of 362 observations (N = 362) covering information on 30 destination countries. I will fit a linear mixed effects model for the empirical study. The fixed effects of the model consist of the gender wage gap, the employment rate of immigrant females in the host country, and the GDP per capita in the host country. The gender wage gap is the main independent variable, and the host country immigrant female employment rate and host country GDP per capita are the control variables. Random effects consist of year and country level data. The findings of the benchmark regression model indicate that the gender wage gap in the host country has a significant effect on the share of Chinese immigrant females, but this finding is not significant enough for the robustness test, but still shows a certain degree of robustness. The value of this study is twofold: first, previous studies have focused on exploring the impact of the degree of gender equality in the country of origin as a push factor on women's migration decisions, whereas this study focuses on exploring the impact of the degree of gender equality in the country of destination as a pull factor on Chinese women's migration decisions. Second, this study provides empirical research evidence on Chinese case data based on previous theories.

The following section of the paper consists of four parts. Section 2 presents and discusses a large number of empirical papers on the study of factors in female migration decision-making

in a mainly categorised manner.The extensive collection of factors influencing female migration provides a sufficient research base for the main independent variable, the gender wage gap, and the two control variables. Next, existing theories of international migration are collated and critiqued to provide theoretical underpinning for the development of the hypotheses. Section 3 provides a detailed description of the data and variables used, and concludes with the construction and detailed description of the model. Section 4 describes in detail the results of the empirical analyses and the robustness tests, and briefly discusses the endogeneity of the model. Section 5 summarises the study's conclusions and mentions the shortcomings of the study and the implications for immigration policy and gender equality policy. Also, This study only discusses voluntary migration and does not include cases of political asylum, humanitarian aid, human trafficking, etc.

2 Theoretical Framework & Hypothesis

The purpose of this part of the thesis is to review a large amount of international migration literature, firstly to collect a wide range of factors related to women's migration decision-making, and then to collate and critique existing international migration theories and research findings, from which the most suitable theoretical framework for this study can be selected, and finally to draw research hypotheses. In Google Scholar, output the keywords "women and immigration", "Chinese immigrant women", "international immigrants", "women's migration", and "international migration". International immigrants", "determinants of immigration", "gender migration gap International immigrants", "determinants of

immigration", "gender migration gap", "international immigration theory" and other keywords, and collected relevant and important literature and organised as follows.

2.1 Factors affecting female migration

The reasons for female migration are very complex and need to cover multiple dimensions. With regard to female migration, there are key macro-factors that influence female migration, micro-factors like women's individual experiences in their daily lives, as well as complex links between seemingly contradictory push and pull factors (Kim, 2013). Due to the fact that immigrant women are from many nations, their lives are shaped by their social status, cultural background, and individual experiences, resulting in complex pictures of them. For women, in some cases, there is no "free movement" because what appears to be a woman's voluntary choice to migrate is in fact a forced choice, fuelled by larger forces in the country of origin that push women to other parts of the world (Kim, 2013). In the existing literature on factors influencing female migration, family reunification, escape from gender inequality and repressive traditional social norms, pursuit of higher education, search for more promising employment opportunities and global networks, quest for self-fulfilment, rapid development of the media, globalisation of the economy, and degree of immigrant integration in the receiving country are among the factors cited. The following is a detailed review and discussion of what is available in the literature.

2.1.1 Pursuit of gender equality

Social norms and stereotypes of gender can strongly influence migration decisions. The decisions of single moms, widows, and divorcees to migrate are heavily influenced by societal norms and gender stereotypes; they travel in order to avoid social shame (Fleury, 2016; IOM 2004, 2005a, quoted in UNFPA 2006). Furthermore, according to Petrozziello (Fleury, 2016; 2013) and Afsar (Fleury, 2016; 2009), women who are victims of domestic abuse and gender-based violence also frequently relocate. Some Filipino women regard migration as a means of gaining more freedom from the influence of their families, which includes the possibility of marriage, according to Asis (Fleury, 2016; 2002) and Espiritu (Fleury, 2016; 2002). Women may migrate as a result of prevailing inequalities in society and discrimination in the family (Fleury, 2016). Domestic violence, such as that committed by parents, intimate partners, or other family members, and physical abuse against women in the community, such as female genital mutilation, are examples of violence and abuse against women that can happen in the countries of origin. The decision of a woman to move may be influenced by several variables (Fleury, 2016). Women who are denied the freedom to act on their own behalf by society have even fewer opportunities to be individually tailored (Kim, 2013).

In many East Asian countries, due to structural inequalities in the marketplace, many highly educated and skilled women who do not have access to the economic opportunities expected of them travel to the West in search of a way out. In Korea, a woman's employment prospects decrease with her level of education. Despite this, a large number of Korean women opt for female independence, which does not alleviate the systemic disparity in the labor market (Kim, 2013; Kim 2005: 169-177).From the 1980s onwards, there was a sharp increase in the

number of schools and a progressive reduction in the substance of university education. This did not guarantee middle-class people a decent level of life or secure their competitiveness in the labor market (Kim, 2013; Abelmann 2003). In summary, a surge of Korean women migrating to the West has been fueled by the unmet promise of education, the worsening of social inequality, and the lack of work possibilities. In Japan, it is becoming increasingly common for women to quit their jobs and emigrate to Western countries (Kim, 2013). In the literature, other authors have argued that for highly educated women in South Korea, Japan, and China, the idea that a higher education leads to expected values like freedom to work, economic improvement, social advancement, and expanded choices may be just wishful thinking. This is because the harsh reality of gender, social, economic, and cultural conditions in East Asian countries is that they will not change significantly in the near future and will still have an impact on labor market outcomes (Kim, 2013). A large body of research on migration contends that moving may boost women's status within the family and community as well as their autonomy, human capital, and sense of self. A more equal social competitive system that empowers women and increases their access to resources can be fostered by migration (Fleury, 2016).

Some European countries have reduced the cost of childcare for mothers by increasing the availability of childcare services, giving mothers more energy to improve their human capital in the job market. In 2002, the Barcelona Parliament added the additional quantitative objective that, by 2010, childcare services should be sufficient to cover 33% of children aged 0-3 and 90% of children aged 3 to compulsory school age. Such targets for the expansion of childcare services are part of the "Reconciliation of work and family life" strategy.

Importantly, these specific quantitative targets mean that Member States can be assessed to determine the extent to which their policy reforms have succeeded or failed in relation to the targets set within a given time frame (Tomlinson, 2011). There are reports that 2.4 million families are benefiting from 3,000 childcare centres. The reviewers highlighted the UK as one of three European countries that made good progress in expanding childcare services between 2005 and 2008 (Tomlinson, 2011; Plantenga et al., 2008).

The gender wage gap in China has gradually widened. An analysis of the China Household Income Project (CHIP) in 2013 and 2018 shows that the widening of the gender wage gap is due to increased discrimination against women in the workplace, in addition to a number of gender-specific factors that are unfavourable to women (Liao, 2024). Although China has become the world's second largest economy, gender equality has not kept pace with economic development. Women on average earn only about 75% of what men earn (Liao, 2024; Boss Zhipin, 2022). Although the expansion of higher education has helped women catch up with men in terms of educational attainment, the gender wage gap still exists. Studies have found that the gender wage gap in China increased by more than 200% from 1988 to 2007 and declined from 2007 to 2013 (Liao, 2024; Liu, 2011; Song et al., 2019). In recent years, the gender wage gap has remained high, and the position of women in the upper echelons of the wage distribution has been deteriorating (Liao, 2024; Liu & Zuo, 2023). And, Huang (Liao, 2024; 2010) points out that most of the gender wage gap in China is due to discrimination, while about 20% is due to gender differences in human capital (Liao, 2024).

Some European countries have added the promotion of gender equality to the strategic objectives of their member States. The Lisbon Strategy still sets quantitative targets for increasing the employment rate of women and reducing the gender wage gap and unemployment rate (Tomlinson, 2011). Recommendations to close the gender pay gap were also included in the Women and Work Commission's report (Tomlinson, 2011; 2006). These included strategies to reduce gender segregation; encouraging equal pay reviews; promoting quality part-time work; developing career paths for women in low-paid jobs; and welcoming the TUC's recommendations on gender equality in the workplace (Tomlinson, 2011; 2006, p.87). Of these, Sweden is far ahead in closing the gender pay gap. According to Rubery et al.'s (Tomlinson, 2011; 2005) analysis of the European Earnings Structure Survey of the EU-15, Sweden has the smallest gender wage gap. Sweden's gender wage gap of 17% is lower than the EU-15 average of 18.3% and represents a strong position given the high employment rates for both men and women (Tomlinson, 2011). Sweden's strategy for closing the gender pay gap is to make female-dominated sectors such as healthcare and childcare more competitive, with the aim of allowing women to start their own businesses and having a wider choice of employers. In addition, measures are in place to reduce vertical segregation of women and men in government. Sweden's Equal Opportunities Act requires all employers with at least 10 employees to draw up an annual equal opportunities plan as well as an action plan for equal pay, extending from the public sector to the private sector (Tomlinson, 2011; Commission of the European Communities, 2007, p. 17).The Swedish Government has also taken steps to reduce gender segregation in government (Tomlinson, 2011).

2.1.2 Integration of immigrants

Immigration is one of the main political challenges facing developed democracies today. at the beginning of the 21st century, the foreign-born population accounted for 13.5% of the total population of the United States and more than 15% of European countries such as Germany, Sweden and Switzerland. Since 2015, conflicts on Europe's fringes have led to an influx of more than 6.5 million refugees into EU countries. Rapid demographic change puts pressure on labour markets and increases cultural heterogeneity, which can undermine social cohesion (Fouka, 2024). In Europe, the employment rate of immigrants may be lower than that of the native-born, but in most non-EU OECD countries, the employment rate of immigrants is higher than that of the native-born (OECD, 2023). The likelihood of long-term unemployment among migrants is higher than that of native-born individuals in over half of the EU's member states (OECD, 2023).

In terms of the degree of integration of migrants in host countries, migrants, including migrant women, face considerable challenges in finding employment in host countries. Immigrant women are less competitive in the labor market than their male counterparts, even if they participate in higher education at higher rates (OECD, 2023). In the European Union, only 57% of immigrant women are employed, compared to 73% of their male counterparts, and 65% of native-born women (OECD, 2023). Highly skilled immigrant women tend to be underemployed and in positions below their qualifications (Fleury, 2016; Ghosh 2009). Despite the fact that an increasing number of women are migrating for employment, unemployment rates for migrant women are still higher than for migrant men or native women. Migrant women from non-OECD countries have higher unemployment rates in OECD countries than native women, with fewer than 60% of migrant women aged 15-64

finding employment in 2004 (Fleury, 2016; Ghosh 2009). Of the 155 countries in the EU in 2003, migrant women from Turkey and North Africa had the lowest employment rates, at 31% and 25% respectively. According to the European Commission in 2004, this rate was significantly lower than the employment rate for native women or migrant men (Fleury, 2016; European Commission 2004a, 2004b, cited in Munz et al. 2006). Dayton-Johnson et al. (Fleury, 2016; 2007) find that, controlling for education and age, the employment rate of immigrant women declines compared to native women in Austria, Germany, the Netherlands and the UK. In France and Sweden, however, the opposite was true, with the employment rate of immigrant women rising faster than the local employment rate.

Immigrant women in the U.S. can face a gradual decline in income as their husbands' human capital grows. One study found that immigrant women in the United States initially earn more than native women, but that their incomes diminish as their husbands build human capital and other skills. The researchers called this dynamic a "family investment strategy," explaining that wives work less once their husbands are able to secure better jobs. Other studies, such as those by Baker and Benjamin, have found similar results (Fleury, 2016; Long 1980, Baker and Benjamin 1994, 1997, cited in Ozden and Neagu 2008). Unemployment may result from forms of migration such as family reunification or cultural norms regarding female employment. Women who migrate but are not employed may face difficulties in learning the local language or finding social networks that help them integrate into the local community because of family preferences or difficulties in accessing the labour market (Fleury, 2016; Munz et al., 2006). In general, female migrants for family purposes have the lowest labour force participation rates (Fleury, 2016; Liebig 2007, cited by Ghosh 2009).

According to Ghosh (Fleury, 2016; 2009), highly skilled female migrants have the highest employment rates and family migrants have the lowest employment rates in Australia. However, Ghosh states that the employment rate of second generation family migrant females in Australia is much higher for legal and socio-cultural reasons. When women migrate for marriage or family reunification, they may have difficulty finding opportunities commensurate with their skills and expertise (Fleury, 2016; Ghosh 2009). In an earlier study of married university administrators by Bird and Bird, migration benefited about half of the husbands at the expense of their wives' careers, while only one-third experienced the opposite effect. Women often give up their careers for their spouses (Fleury, 2016; Bird and Bird 1985, cited by Jacobsen and Levin 2000).

2.1.3 Globalization

Various factors such as global capital, masculinity, hierarchical structures, social divergence, uneven regional development, and others might impact the migration of women (Kim, 2013). Due to the economic globalization of East Asia, there has been a shift in the patterns of international migration, with a steady influx of highly trained and rare individuals moving to Western nations (Kim, 2013). The literature summarizes how highly skilled immigrant women from Hong Kong, China and mainland China who migrate to Canada are affected by structural changes in the globalised economy. Reference is also made to the contradiction between receiving countries actively attracting highly skilled immigrant labour to boost the labour market, on the one hand, and highly educated Chinese immigrant women facing unemployment, on the other (Man, 2002).

2.1.4 Family immigration

The following are reasons for Chinese families to emigrate:

> (1) to join family members; (2) to leave political problems; (3) to leave personal problems; (4) to find a good job or earn a better income; (5) because your family brought you; (6) to get an education for yourself; (7) to get married; (8) to provide your children with an education or better opportunities; and (9) other reasons (Wang et al., 2023, p.6)

Among these, family migration is the main motive for female migration. From traditional research, it appears that women migrate primarily for the purpose of marriage or family reunification, as women are more likely to move for the sake of a spouse (Fleury, 2016; UN DESA 1993, cited in Martin 2004). Twice as many women as men immigrate to the United States for the sake of their spouses (Fleury, 2016; Ghosh 2009). Men tend to migrate through the labour market or humanitarian channels, whereas among the reasons for migration for women, family migration is by far the main category (OECD, 2023). Moreover, family migration is also the main category of entry for new permanent migrants, accounting for 40% while labour migration and free movement each account for 21% (OECD, 2023). In summary, migration motivated by familial ties may be linked to more deeply held traditional Chinese cultural preferences, whereas migration motivated by a desire to improve one's economic situation may be linked to more strongly held American cultural preferences. The

aforementioned theories, however, have not been investigated in Chinese immigrant households (Wang et al., 2023).

There is literature on the motivation of some women who are alienated from traditional Chinese society to enter into romantic relationships with foreign men, which can also be a reason for transnational marriages and family migration. Hundreds of thousands of foreign men have come to China in search of work due to the country's explosive economic expansion, which has made it a prominent role in the global economy. Furthermore, the rise of the Internet has made it possible for divorced women in China, even those who don't live in Tier 1 cities, to go outside of their own social circles for love partnerships (Zurndorfer, 2018). Romantic connections with foreign men appear to be a workable alternative for the women who were previously discussed in respect to this structural issue (Zurndorfer, 2018).

2.1.5 Media Influence

The rapid development of the media has facilitated female migration. It is worthwhile to investigate the significance of mediating migration as well as the role that the media plays in the process of migration (Kim, 2013). Some studies have shown that Asia's transnational media and online networks have grown at the fastest rate in the world since the 1990s, The rapid growth of media can cause people to constantly imagine the possibilities of living and working elsewhere, and their plans are often influenced by the mass media (Kim, 2013). Women are now the target audience for global consumerism and culture, thanks to the

influence of international publications and the media on women's ideologies (Frith & Feng, 2009).

2.1.6 Pursuing education, employment and self-fulfilment

Female migration to the West represents a means of self-empowerment. Along with improving gender equality and bolstering women's capacity to make their own decisions and accomplish their goals, migration can provide women with more equitable access to opportunities for personal growth, such as work and education (Fleury, 2016). Women are traveling abroad more and more on their own, frequently in quest of better job or educational prospects and consequently higher living standards for themselves (Fleury, 2016). In addition to the "family strategy" and the "independence strategy," an Italian qualitative research on migrant women reveals that women travel in pursuit of self-employment techniques that also include the "mixed network strategy." Along with the "family strategy" and the "independent strategy," there is also the "mixed network strategy." An example of a "mixed network strategy" is the ability of immigrant women to engage in social or business exchanges with other foreigners. By doing this, immigrant women will be able to take part in more associations and community events and strive to better the lives of other immigrant women, paving the road for their empowerment and sense of self-fulfillment (De Luca & Ambrosini, 2019). Chinese immigrant women have established networks around the world through a variety of communication channels, including pilgrimage, business, education, and family visits, just as men have, and this is the most notable change in contemporary Chinese immigrant women compared to those who immigrated overseas before World War II (Ryan,

2002). There is a new wave of thinking among young women emigrating to the West to redefine the relationship between work and themselves and to take control of the direction of their lives (Kim, 2013). One of the main reasons given for self-actualization and relocation is typically education and employment prospects (Kim, 2013). The goal of freedom is valued by immigrant women in liberal professions (De Luca & Ambrosini, 2019). Women with education are really interested in being independent and realizing their own potential (Kim, 2013). A significant number of immigrant women have transformed into "intellectual expatriates," defying the conventional marital path and serving as the faces of the new wave of immigrant women (Kim, 2013). In order to avoid the Chinese labor market and obtain employment overseas, some urban Chinese women choose to postpone marriage in order to pursue further education in Western nations or to achieve independence. This might be among the few options available to Chinese women who choose to live unconventional lives (Kim, 2013). Asian immigrants are becoming an increasingly educated and knowledgeable influx to the West due to the swift growth of East Asian economies that are becoming more globalized (Wang et al., 2023).

Asian women travelling to the West to study has become a phenomenon. A new generation of Asian women is enrolling at Western educational institutions in order to be exposed to Western culture and experience a different way of life as a result of economic globalization in the region (Kim, 2013). The "feminisation of migration" is shown in the number of young women who are studying overseas (Zhang & Xu, 2020). Because their international education experience gives them a way to fulfill their personal ambitions, young female students are frequently seen as more competitive in the Chinese employment market (Zhang & Xu, 2020).

2.2 Review of international migration theory

2.2.1 Neoclassical labour migration theory

The neoclassical labour migration theory originates from neoclassical economics and was first proposed by economists John R. Harris and Michael P. Todaro in the 1970s. The theory emphasises that individuals are rational economic decision makers who make optimal choices after comparing benefits and costs. The underlying assumption is that migration decisions occur from an economic-level comparison of relative benefits and costs, both financial and psychological (Lee et al., 2017; De Haas, 2010) . The underlying model of the theory also suggests that migration is caused by factors such as income differences between regions, distance between birthplace and destination, and market conditions such as labour force participation rates (Lee et al., 2017). But the theory is limited in its explanatory nature and is restricted to explaining one of the dichotomous phenomena. This is inappropriate because the dichotomy is applied in a legal-bureaucratic context, not a sociological one. In addition to this, the theory ignores the fact that the migration process is subject to other factors and their interactions (Kuhnt, 2019). In addition, the theory is also based on the fact that wage differentials only take into account the rational decisions that women make after weighing them on an economic level, and basically fails to take into account some of the non-economic aspects (Kofman et al., 2013). However, the theory tends to view migrants as atomistic, utility-maximising individuals and tends to ignore other motivations for migration and migrants' belonging to social groups such as family and community (Lee et al., 2017; De Haas, 2010).

2.2.2 Push-Pull Theory

The Push-Pull Theory was proposed by Everett Lee in 1966. The theory explains that migration is the result of a combination of negative push factors at the place of origin and positive pull factors at the destination, and is also influenced by intermediary factors that mediate between origin and destination, as well as by personal factors of the migrants (Lee, 1966). While migration may result from comparing factors in countries of origin and destination, simple "additive" and "subtractive" calculations do not determine migratory behaviour (Lee, 1966). In that regard, we must point out that what leads to migration is not so much the actual factors of origin and destination as the perception of those factors. Individual sensitivities, intellectually, affect the assessment of the situation at the place of departure, while knowledge of the situation at the place of destination depends on personal contacts or sources of information that are not universally available (Lee, 1966). As a result, the decision to migrate is never entirely rational, and for some people there is much less of a rational component than an irrational one (Lee, 1966). And not all migrants make this decision on their own; children are taken away from their country of origin by their parents, and wives are forced to accompany their husbands to new environments (Lee, 1966). But again, the theory is unable to identify dominant factors (Lee et al., 2017; De Haas, 2010) .

2.2.3 historical-structural approach

This theory, also known as neo-Marxian paradigm, is influenced by Marxism and views international migration as a result of unequal distribution of resources in the capitalist world

under historical development (Truong, 1996; Amin, 1974; Wood, 1981 & 1982; Portes, 1978) . However, this theory attributes the causes of female migration to rational decisions made for the state and collectively, again failing to take into account a number of non-economic reasons (Kofman et al., 2013).

2.2.4 An Integrative Approach to International Female Migration

This is based on a contextualised study of female migration from West and South Asian countries conducted by Oishi in 2002. Patterns of international female migration can be analysed in terms of three 'country of origin' dimensions: (1) the state (macro level), where the immigration policies of the country of origin play an important role in determining the patterns of international female migration; (2) the individual (micro level), where women's autonomy and decision-making power are crucial determinants, and where women have much more autonomy than has been implied by most of the migration literature; and (3) society (meso level). much more autonomy than implied by much of the migration literature; (3) Social (meso-level). Social legitimacy is a prerequisite for women's large-scale international mobility and encompasses the historical legacy of women's employment, national and global economic integration, women's urban-rural mobility, and educational attainment (Oishi; 2002). However, the theory only considers the dimension of the country of origin and lacks an exploration of the dimension of the receiving country.

2.2.5 Threetier conceptualization of the migratory process

This was proposed by Kofman et al in 2013. The theory proposes a gender blindness that has previously been prevalent in the migration literature, as well as describing the role of migration agencies as mediators between the migration system and individual migrants. The theory proposes a three-tiered conceptualisation of the migration process:

> (i) the migratory regime that includes the relations between the country of emigration and immigration, the conditions of entry and rights of residence, employment and so on, including the rights of family members; (ii) the migratory institution that includes formal state structures as well as mediators and facilitators, recruitment agencies and informal networks through which individuals and households negotiate migratory regimes; and (iii) individual migrants whose migration choices are conditioned by their own histories, social identities and resources as well as by the broader structural conditions. All three levels of analysis are highly gendered (Kofman et al., 2013, p. 31)

The theory incorporates gender analysis at all three levels, which is instructive for this study; however, it ignores macro factors at the national level and the interaction between factors at each level.

2.2.6 Network Theory

Personal, cultural, and other social interactions are the main factors contributing to migration, according to network theory. Within migrant friends' personal networks, knowledge

regarding employment opportunities and overseas living is efficiently and extensively shared in the countries of origin. Vigorous immigrant solidarity groups assist other migrants in finding work and acclimating to their new surroundings in the host nation. These networks of migrants lessen the burden of migration on new arrivals, fill in knowledge gaps, and ultimately draw migrants and others with a similar mindset away from their home nations (Oishi; 2002). Migrant networks determine the degree of integration of migrants with the host country, while also maintaining ties with the home country (Lee et al., 2017; Poros, 2011, p. 2). The network theory does apply more to the case of Asian female migrants. Women are better at using their networks than men. There are field studies that show that many female migrants find jobs through their relatives or friends. There must be a correlation between the density and spread of personal networks between the host country and the country of origin and the expansion of the scope of migration (Oishi; 2002). Nevertheless, the development of networks beyond national borders cannot be explained by network theory. The distribution of social networks varies by nation and location. Theorists of migration systems have contended that social networks arise from the political, geographical, and historical links that formerly bound two areas before widespread movement (Oishi; 2002; Kritz et al., 1992). In spite of this, network theory is not very helpful in understanding patterns of international female migration, as there is no solid evidence of the tight relationships that exist between the Asian nations that send and receive migrants (Oishi; 2002).

2.2.7 Household Strategy Theory

According to the notion of family strategy put out by strategic theorists, decisions about migration are made jointly by family members rather than by individuals, and people act together to reduce individual risks as well as to increase projected income. Families manage the risks associated with the household economy by allocating family labor in a flexible manner (Oishi; 2002). In reality, though, the argument is predicated on census data that indicates a greater number of individuals from lower-class households are opting to relocate. Oishi's data, however, indicates that the great majority of Asian women choose to migrate on their own (Oishi; 2002).

2.2.8 A universal research framework for migration decision-making

The theoretical framework was proposed by Kuhnt in 2014. Kuhnt constructs the determinants of migration at three different levels: macro, meso and micro levels, based on the framework proposed by Timmerman et al., and emphasises the dominant role of macro factors, taking into account both country of origin and destination factors, in addition to allowing for interactions between the different factors at each level (Kuhnt, 2019). The theoretical framework summarises and categorises the factors that influence individual migration:

> The macro-level refers to factors that are common to all potential migrants in a particular country, such as the socio-economic and political context or migration governance and policies of origin and destination countries, regions or other entities (for instance, EU (European Union) mandates). The meso-level encompasses sub-national or local factors,

> including networks or cultural reasons. Individual and household characteristics of potential migrants, such as gender, age, educational level, and social status, as well as behavioural factors, such as risk aversion, are part of the micro-level (Kuhnt, 2019, p. 5).

This framework provides the theoretical basis for the selection of control variables for this study. Categorising the factors affecting female migration mentioned in the previous section according to the above framework, it can be concluded that the macro factors include the degree of gender equality in the countries of origin and the receiving countries, the degree of immigrant integration in the receiving countries, and economic globalisation; the meso factors are the influence of the media; and the micro factors are the migration of the family and self-fulfilment. Since macro factors play a dominant role (Kuhnt, 2019), the degree of immigrant integration in the receiving country and GDP per capita in the receiving country will be chosen as the control variables for the study. *OECD INDICATORS OF IMMIGRANT INTEGRATION 2023* provides a rich set of indicators for measuring immigrant integration covering a wide range of aspects such as immigrant population, immigrant employment, immigrant well-being, and immigrant social integration. Since immigrants are generally concerned about the economic opportunities and employment situation in receiving countries, and since there is already literature on the employment challenges faced by immigrant females, the female immigrant employment rate was chosen as an indicator of immigrant integration for the purposes of this study.

In conducting hypothesis construction, since Gutmann et al.(2023) in his study concluded that gender equality in the destination country does not have a significant effect on the gender migration gap, after combining Kuhnt's theory, I would expect my independent variable gender wage gap in the receiving countryto influence or explain the dependent variable Chinese female immigrants' share, meanwhile, female immigrants' employment rate and per capita GDP of the receiving country are used as control variables to provide empirical conclusions for the theory based on the Chinese case. Therefore, the hypotheses of this study are as follows:

H0: The gender wage gap in the host country does not have a significant effect on the share of Chinese female immigrants

H1: The gender wage gap in the host country has a significant effect on the percentage of Chinese female immigrants

3 Research design

3.1 Data

This study uses a number of official data sets from the OECD, including the International Migration Database, the Gender Wage Gap Database, the Employment Rate of Foreign-born Women Database, and the Gross Domestic Product (Region). These data sets provide detailed statistical information for a number of countries and regions covering the period from 1994 to 2023. Each data set will be described in detail below.

3.1.1 OECD International Migration Database

This dataset comes from the OECD International Migration Dataset, an official website of the OECD. This panel data contains data on the flow of immigrants born abroad or foreigners in OECD countries from 1994 to 2022, with gender breakdown, for a total of 1,278 data. The key variables in the dataset include: Citizenship: nationality of immigrants, Country: host country, Year: year of data collection, Sex: gender of immigrants, Observation Value: number of immigrants.

3.1.2 OECD Foreign-born Female Employment Rate Database

This panel data comes from the OECD Data Archive, providing a total of 700 employment data on foreign-born people in 38 OECD host countries from 2000 to 2022. The key variables in the dataset include: Time Period: the year of data collection, Country: the country where data is collected, Observation Value: the employment rate of foreign-born people in the country in that year.

3.1.3 OECD Gender Wage Gap Database

This panel data provides detailed information on the gender wage gap in 38 OECD countries from 1970 to 2023, with statistics by different income quantiles, totaling 2398 data. The key variables of the data set include: Time Period: the year of data collection, Reference Area: the country where the data was collected, Aggregation.operation: data operation standard, such as:

first decile, median, ninth decile, Observation Value: the gender wage gap of the country in each year.

3.1.3 OECD GDP Database

This panel data comes from the OECD Regional and City Database, covering the GDP data of 38 OECD countries from 1995 to 2023, and is adjusted and converted to per capita US dollar value according to purchasing power parity (PPP) to analyze the relative level of economic performance of various countries, with a total of 929 data. The key variables of the data set include: Frequency.of.observation: The observation frequency is "annual", Reference.area: The country where the data was collected, Price.base: Price benchmark, Unit.of.measure: Unit description, TIME_PERIOD: The year of data collection, OBS_VALUE: The per capita GDP of the country in that year.

3.2 Data Processing

In order to explore the correlation between the gender wage gap in the host country and the proportion of Chinese female immigrants, this study first disaggregated the international immigrant dataset by gender to obtain the proportion of Chinese female immigrants and the proportion of Chinese male immigrants; and then merged it with the female foreign-born employment rate dataset, the gender wage gap dataset, and the GDP dataset. During the data processing process, missing values in key variables were excluded from the analysis to ensure

the completeness and accuracy of the data, and finally the processed dataset **Table 1** was obtained, which contains 362 observations covering 30 countries.

Table 1

Database Preview

Country	Year	Female	Total	Male	Female_Percentage	Male_Percentage	FFBER	GWG	GDP_per_capita
Australia	2000	4341	8055	3714	53.89199	46.10801	54.7	17.2	37909.1
Australia	2001	4564	8295	3731	55.0211	44.9789	54	14.34211	38914.9
Australia	2002	5175	9102	3927	56.85564	43.14436	55	15	39663.8
Australia	2003	5500	9374	3874	58.67293	41.32707	55.8	13.04348	40866.6
Australia	2004	7084	12523	5439	56.56792	43.43208	56.7	14.35294	41707.3
Australia	2005	8605	15193	6588	56.63793	43.36207	58.4	15.77778	42337.9

Note.

3.3 Variable Definition

In this study, the main independent variable is the gender wage gap in the host country, the control variables are the employment rate of foreign-born women in the host country and the per capita GDP of the host country, and the dependent variable is the proportion of Chinese immigrant women. Among them, the main independent variable gender wage gap "GWG" is defined as the difference between the median wages of men and women relative to the median wages of men. The gender wage gap (unadjusted) indicator is based on the total income of full-time employees by income decile (upper limit) reported in the OECD income distribution database. In 30 of the 37 countries, the most common reporting period for income and remuneration is weekly and monthly income for full-time employees. Another 5 countries use hourly income, and the remaining 2 countries use annual income. Observations are recorded once a year, and the unit of measurement is Percentage of wages of men in the same decile, which is a continuous variable (OECD).

The control variable, the employment rate of female foreign-born population, "FFBER", is defined as the ratio of employed foreign-born females aged 15-64 to the total number of foreign-born females of that age group (employed and unemployed). An employed person is one who worked at least one hour in the reference week or has a job but is not at work. The observation is recorded once a year and the unit of measurement is Percentage of female foreign-born population, which is a continuous variable (OECD).

The control variable GDP per capita "GDP_per_capita" is defined as the host country's GDP for the year divided by the country's average annual population, measured in "US dollars per person, PPP converted", and is a continuous variable. Data on the host country's GDP for the year are calculated in current prices (millions of national currency) and are collected from EU countries by Eurostat (reg_eco10) and representatives of the OECD Working Party on Territorial Indicators (WPTI), as well as national statistical office websites. Current price data are converted to constant prices and PPP indicators to facilitate comparisons across time and countries (OECD).

The dependent variable "Female_Percentage", the proportion of Chinese female immigrants, is defined as the proportion of female Chinese immigrants who immigrated to a host country in a certain year. The observation results are recorded once a year, and the measurement unit is percentage. It is a continuous variable.

3.4 Descriptive Statistics

Table 2 shows the descriptive statistics of the main variables in the dataset. The data cover different dimensions of socioeconomic indicators for multiple countries and years.

Table 2

Descriptive Statistics

Statistic	Mean	St. Dev.	Min	Max	Median
Year	2,012.74	5.869	2,000	2,022	2,013.50
Female	4,958.70	9,526.12	1	50,243	833
Total	9,065.64	16,845.46	3	87,855	1,663.50
Male	4,106.93	7,351.88	2	38,232	787.5
FFBER	58.996	8.212	27.8	84.9	59.25
Female_Percentage	52.424	7.375	17.098	83.318	53.896
Male_Percentage	47.576	7.375	16.682	82.902	46.104
GWG	12.805	5.738	0.441	28.722	13.253
GDP_per_capita	43,934.19	15,393.02	17,769.60	112,937.10	43,847.30

Note.

Year: The data covers 2000 to 2022, and the median of the data is 2013.5. This time range covers historical data and newer data, helping to analyze trends over time. Number of Chinese immigrant women (Female): The average number of women is 4,958.70, and the standard deviation is 9,526.12, showing that there are large differences in the number of women between different observation points. The number of women ranged from 1 to 50,243, with a median of 833. This difference reflects differences in population size between countries and years. Number of Chinese immigrant males (Male): The average number of males is 4,106.93, and the standard deviation is 7,351.87. The number of males ranged from

2 to 38,232, with a median of 787.5. This suggests that there is also large variability in male numbers across countries and years. Total population (Total): The mean value of the total population is 9,065.63, and the standard deviation is 16,845.46, indicating that the total population size varies greatly between different observation points. The total population ranges from 3 to 87,855 people, with a median of 1,663.5 people. This shows that total population size varies significantly across countries and years. Female Foreign-born Employment Rate (FFBER): The mean female foreign-born employment rate (FFBER) in this data set is 59.00%, with a standard deviation of 8.21. This variable ranges from 27.80% to 84.90%, with a median of 59.25%. The relatively large standard deviations indicate that there are significant differences in female foreign-born employment rates between countries and years. Gender Pay Gap (GWG): The average gender pay gap is 12.80%, and the median is close to the average, 13.25%, indicating that the data distribution of GWG is relatively symmetrical. This variable ranges from 0.44% to 28.72%, and the large difference between the minimum and maximum values illustrates the variability of the gender wage gap across countries. The standard deviation of 5.74 illustrates the variability of the gender wage gap in the sample. Gross domestic product per capita (GDP_per_capita): The mean of GDP per capita is US$43,934.19, and the median is close to the mean, which is US$43,874.30, indicating that the data distribution of GDP_per_capita is relatively symmetrical. This variable ranges from $17,769.60 to $112,937.10, and the large difference between the minimum and maximum values illustrates the variability of GDP per capita across countries. The standard deviation of 15,393.02 illustrates the variability of GDP per capita in the sample. Proportion of female Chinese immigrants (Female_Percentage): the average is 52.42%, and the standard deviation is 7.38%. This variable ranges from 17.10% to 83.32%, with a median of 53.90%. This distribution shows the variability in the proportion of Chinese

immigrant women in the sample, indicating that it is meaningful to use the proportion of Chinese immigrant women as an object of inquiry. Proportion of male Chinese immigrants (Male_Percentage): the average is 47.58%, and the standard deviation is 7.38%. This variable ranges from 16.68% to 82.90%, with a median of 46.10%. The above descriptive statistical results reveal the central tendency and variability of the main variables, laying the foundation for subsequent model construction. Since the measurement scales of gross domestic product per capita (GDP_per_capita) and other variables are quite different, the data need to be centered and standardized before building the model, that is, each variable is subtracted from its mean and then divided by its standard deviation. After eliminating scale differences, the final benchmark regression data set is obtained. **Table 3** is the data preview:

Table 3

Preview of the dataset after variable centering

Country	Year	Female	Total	Male	Female_Percentage	Male_Percentage	GWG_c	FFBER_c	GDP_per_capita_c
Australia	2000	4341	8055	3714	53.89199	46.10801	0.76588002	-0.52316959	-0.3914168
Australia	2001	4564	8295	3731	55.0211	44.9789	0.2678518	-0.6084134	-0.3260755
Australia	2002	5175	9102	3927	56.85564	43.14436	0.38249918	-0.48663653	-0.2774236
Australia	2003	5500	9374	3874	58.67293	41.32707	0.04154784	-0.38921503	-0.1992843
Australia	2004	7084	12523	5439	56.56792	43.43208	0.26974011	-0.27961585	-0.1446687
Australia	2005	8605	15193	6588	56.63793	43.36207	0.51803786	-0.07259516	-0.1037021

Note.

3.5 Model building

The purpose of this study is to explore the relationship between the main independent variable gender wage gap (GWG) and the proportion of Chinese immigrant women (Female_Percentage), and add the foreign-born population employment rate (FFBER) and the host country's per capita gross domestic product (GDP_per_capita) as control variables. Considering that the main variable data set is panel data, it contains a hierarchical data structure of countries and years. In order to deal with the possible impact of countries and years on the dependent variables, this study constructs a linear mixed effects model as a baseline regression model and uses restricted maximum likelihood estimation (REML) for fitting. This linear mixed effects model can handle the fixed effects of independent variables, take into account the random effects of countries and years, and adjust unobserved heterogeneity. The mathematical expression of the model Model_baseline is:

$$Female_Percentage_{ij} = \beta_0 + \beta_1 VALUE_GWG_{ij} + \beta_2 FFBER_{ij} + \beta_3 GDPPC_{ij} + u_{0j} + v_{0k} + \epsilon_{ijk}$$

$Female_Percentage_{ij}$ is the proportion of female population in country j in year k; $VALUE_GWG_{ij}$ represents the gender wage gap value of country j in year k;

$FFBER_{ij}$ represents the employment rate of foreign-born population in country j in year k;

$GDPPC_{ij}$ represents the per capita GDP of country j in year k; u_{0j} is the random intercept of country j; v_{0k} is the random intercept of year k; ϵ_{ijk} is the residual error term.

4 Results

4.1 Empirical Analysis

Please see **Table 4** for all model results. In the fixed effects results, the intercept is 51.1219, the standard error is 1.0865, and the t value is 47.052 ($p < 0.05$). This coefficient is significant, indicating that when all independent variables are averaged, the expected value of the female proportion is 51.12%. The coefficient estimate of the gender wage gap (GWG_c) is -1.0478, the standard error is 0.6180, and the t-value is -1.695 ($p < 0.10$), which is significant. It shows that after controlling for other independent variables, the gender wage gap (GWG_c) is negatively correlated with the proportion of female Chinese immigrants (Female_Percentage), that is, for every unit (one standard deviation) increase in the gender wage gap (GWG_c), the number of Chinese female immigrants The proportion decreased by 1.0478%. The coefficient estimate of the female foreign-born employment rate (FFBER_c) is 1.0204, the standard error is 0.5403, and the t-value is 1.889 ($p < 0.10$), which is significant. It shows that after controlling for other independent variables, the female foreign-born employment rate (FFBER_c) is positively correlated with the proportion of female Chinese immigrants (Female_Percentage), that is, every time the female foreign-born employment rate (FFBER_c) increases by one unit (one standard (poor), the proportion of Chinese female immigrants increased by 1.0204%. The coefficient estimate of GDP per capita (GDP_per_capita_c) is 2.1877, the standard error is 0.9463, and the t value is 2.312 ($p < 0.10$), which is significant. It shows that when other independent variables are controlled, the per capita gross domestic product (GDP_per_capita_c) is positively correlated with the proportion of female immigrants from China (Female_Percentage), that is, for every one unit (one standard deviation) increase in the per capita gross domestic product (GDP_per_capita_c) , the proportion of Chinese female immigrants increased by 2.1877%.

In the random effects results, the variance of the country-level intercept is 30.2438 and the standard deviation is 5.4994. It shows that there is significant variability between different countries. The variance of the year-level intercept is 0.7711 and the standard deviation is 0.8781. indicating that there is less variability between years. The residual variance is 27.8992 and the standard deviation is 5.2820, reflecting the variability unexplained by the model.

In the correlation results between fixed effects, the correlation coefficient between the gender wage gap (GWG_c) and the intercept is 0.025, indicating that there is almost no correlation between the two; the correlation coefficient between the gender wage gap (GWG_c) and the female foreign-born employment rate (FFBER_c) is -0.104, indicating a low degree of correlation between the two; the correlation coefficient between the gender wage gap (GWG_c) and per capita gross domestic product (GDP_per_capita_c) is 0.255, indicating a low degree of correlation between the two. correlation. The correlation coefficient between the employment rate of foreign-born women (FFBER_c) and the intercept is -0.021, indicating that there is almost no correlation between the two; the correlation coefficient between the employment rate of foreign-born women (FFBER_c) and GDP per capita (GDP_per_capita_c) is -0.393, indicating that there is a moderate degree of correlation between the two. The correlation coefficient between GDP per capita (GDP_per_capita_c) and the intercept is 0.112, indicating that there is a low degree of correlation between the two. In general, the correlation between the variables in this model is weak and is unlikely to cause multicollinearity problems.

Based on the restricted maximum likelihood estimation (REML), the log-likelihood value of the model is 2305.5. In the results of the scaled residuals, the minimum value of the scaled residuals is -5.6672 and the maximum value is 6.1006. The value range is widely distributed, indicating that the model fails to fit some abnormal data points well, and there may be skewness or kurtosis problems. The first quartile (1Q) is -0.4724, and the third quartile (3Q) is 0.3967, indicating that most residuals are concentrated between [-0.4724, 0.3967]; The median of the residuals is 0.0007, close to zero, indicating that most residuals fluctuate around the model prediction value, and the model has no systematic deviation overall.

In summary, the results of the baseline regression model show that the gender wage gap and the proportion of Chinese female immigrants are significantly correlated, so there is sufficient reason to reject the null hypothesis H0 and accept the alternative hypothesis H1.

4.2 Robustness check

This study will use two methods to test the robustness of the model. First, the robustness of the sample is tested, sub-sample analysis is performed and abnormal samples are eliminated. Since the COVID-19 epidemic is raging around the world, this emergency will affect people's mobility. Therefore, the special samples during the three-year period of the COVID-19 epidemic (2020 to 2022) are eliminated, and the local samples from 2010 to 2019 are selected. In this sample Fit the model to observe the direction and significance of the model

coefficients, and record the model as Model_1. The estimated coefficient of the main independent variable gender wage gap (GWG_c) in Model_1 is -0.1348, the sign remains stable, and the absolute value decreases; the standard error is 0.8298; the t value is -0.162, the absolute value decreases significantly, and is not significant. . This means that in this partial sample, the direction of the impact of the gender wage gap on the proportion of Chinese female immigrants is stable, indicating that the model is robust to a certain extent.

Second, to test the robustness of the independent variables, change the measurement method of the main independent variable gender wage gap (GWG_c). The original independent variable gender wage gap (GWG) is measured as "the difference between the unadjusted median wages of men and women relative to the median wages of men", which is replaced by "that is, the unadjusted difference between the median wages of men and women relative to the median wages of men." "difference of ten deciles", fit the model on this sample to observe the direction and significance of the model coefficient, and record the model as Model_2. The estimated coefficient of the main independent variable gender wage gap (GWG_D1_c) in Model_2 is -0.9371, the sign remains stable, and the absolute value decreases slightly; the standard error is 0.5832; the t value is -1.607, the absolute value decreases slightly, but is not significant . This means that after changing the measurement method of the gender wage gap, the degree and direction of the impact of the gender wage gap on the proportion of Chinese female immigrants is stable, indicating that the model is robust to a certain extent.

In general, through two robustness tests, it can be seen that whether it is excluding the data selection subsample test during the COVID-19 epidemic, or changing the measurement method of the gender wage gap, the impact of the gender wage gap on the proportion of Chinese female immigrants is to a certain extent All are stable. The female foreign-born employment rate (FFBER_c) and GDP per capita (GDP_per_capita_c) generally maintain their significant impact and robustness on the dependent variables in different robustness tests.

4.3 Discussion of Endogeneity

A potential source of endogeneity in this study could be the omission of certain important control variables. Taken together with the existing migration theories, this study may have omitted the effects of migrant institutions, migrant networks, state welfare in the host country and foreign direct investment (FDI) in the host country and in the process of people's migration. In addition to this, certain factors may affect both the gender wage gap and the proportion of female migrants in China, which may also lead to bias in the coefficient estimation. In addition to omitted variables, there may also be reverse causality in this study, which in turn causes endogeneity problems. For example, the dependent variable (proportion of female immigrants) may in turn affect the independent variable (gender wage gap), and an increase in the proportion of female immigrants from China may lead to an increase in the employment rate of female immigrants in the host country, which in turn affects the gender wage gap.

Table 4

Model Results

	Baseline Model			Model 1			Model 2		
	Estimates	Std.Error	t value	Estimates	Std.Error	t value	Estimates	Std.Error	t value
Fixed effects									
(Intercept)	51.1219	1.0865	47.052***	51.7822	0.9662	53.596***	50.9245	1.1375	44.77***
GWG_c	-1.0478	0.618	-1.695*	-0.1348	0.8298	-0.162	-0.9371	0.5832	-1.607
Other control variables									
FFBER_c	1.0204	0.5403	1.889*	1.7385	0.6666	2.608***	0.97	0.5548	1.748*
GDP_per_capita_c	2.1877	0.9463	2.312**	3.0095	0.9113	3.302***	1.8395	0.8053	2.284**
	Variance	Std.Dev.	Value	Variance	Std.Dev.	Value	Variance	Std.Dev.	Value
Random effects									
Country	30.2438	5.4994		22.81008	4.776		32.6201	5.7114	
Year	0.7711	0.8781		0.06782	0.2604		0.6469	0.8043	
Residual	27.8992	5.282		24.38408	4.938		28.3995	5.3291	
Number of obs			362			204			340
Number of groups: Country			30			30			29
Number of groups: Year			23			10			23
Scaled residuals									
Min			-5.6672			-2.5331			-4.9501
1Q			-0.4724			-0.3729			-0.4936
Median			0.0007			0.0163			0.0104
3Q			0.3967			0.2977			0.3732
Max			6.1006			6.6671			6.0216
Correlation of Fixed Effects									
GWG_c | (Intr)			0.025			0.079			-0.034
GWG_c | FFBER_c			-0.104			-0.177			0.103
GWG_c | GDP_pr_cpt_c			0.255			0.265			0.001
FFBER_c | (Intr)			-0.021			-0.051			-0.017
FFBER_c | GDP_pr_cpt_c			-0.393			-0.372			-0.395
GDP_pr_cpt_c | (Intr)			0.112			0.097			0.053
REML criterion at convergence			2305.5			1278.2			2172.4

Note. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

5 Conclusion

This study focuses on the factors affecting female migration in China, by using a review of existing literature and a review of existing international migration theories, choosing the theoretical framework of Gutmann et al.(2023) and Kuhnt (2014), OECD database and mixed effects models, analyzing data from different countries and years, and using the employment rate of migrant females in the host country and the host country per capita gross domestic product (GDP) as the control variables, the study explores the impact of the main independent variable, the host country gender wage gap, on the dependent variable, the proportion of Chinese female immigrants, providing new evidence for previous migration theories based on empirical studies of the Chinese case.

The results of the benchmark regression model show that the gender wage gap is significantly negatively related to the proportion of Chinese female migrants, and it is also found that the employment rate of migrant females and GDP per capita have a significant positive effect on the proportion of Chinese female migrants. In addition, this study also conducted robustness tests using two methods: subsample test and changing the independent variable measure. The conclusion of the robustness test shows that the effect of gender wage gap on the proportion of Chinese female immigrants is still negative but no longer significant; however, the employment rate of immigrant females and GDP per capita still have a significant positive effect on the proportion of Chinese female immigrants, which indicates that the model is robust to a certain extent. Of course, the model also suffers from endogeneity problems,

which may be caused by the omission of important control variables or the existence of reverse causality.

The present study still suffers from several shortcomings. First, data limitations can lead to biased results. The scarcity of data on the gender wage gap in many countries and the varying statistical standards may have affected the accuracy of the study. Second, the dependent variable may be more discriminating if the migration data for Chinese males is taken into account, and it would be more meaningful to measure it using the gender immigrant migration gap. Finally, there is a potential endogeneity problem with the model used in this study, and it may be necessary to introduce instrumental variables to improve the reliability of the estimation results or to use independent variables lagged by one period in order to attenuate the endogeneity problem due to reverse causality.

The findings of this study have important implications for the formulation of migration and gender equality policies. First, host countries can attract high-quality and high-skilled Chinese female migrants from China by reducing the gender wage gap and increasing migrants' participation in employment. Therefore, migration policies should be formulated with attention to the gender dimension, which not only helps to balance the gender ratio but also improves the quality of human capital in destination countries.

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