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ORIGINAL PAPER

Assimilation of marriage migrants and the role of language: evidence from South Korea

So Yoon Ahn[1] · **Darren Lubotsky**[1,2]

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Abstract

We study the economic assimilation of marriage migrants in South Korea. Females migrating from poorer countries to marry men in richer ones is an important phenomenon. Analyzing data from over 70,000 such marriages in Korea, we document that marriage migrants tend to have low earnings and employment rates upon arrival. However, their economic outcomes improve quickly and, after 15 years, they tend to have higher employment rates and income nearly equal to native-born Korean wives. Despite their successful integration into the Korean labor market, marriage migrants remain less likely than native-born Korean wives to report that they make daily expenditure decisions within their family. Leveraging unique ethnic variation among migrants who vary in their Korean language skills, we find that language skills facilitate a larger role for migrant wives in household decision-making. This study sheds light on the nuanced dynamics of assimilation, emphasizing that economic achievements may not necessarily translate into equitable decision-making power within the household for migrant women.

Keywords Marriage migration · Assimilation · Labor market outcomes · Intra-household decision-making · South Korea

JEL Classification D13 · J12 · J16 · J61

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✉ Darren Lubotsky
lubotsky@uic.edu

So Yoon Ahn
syahn@uic.edu

[1] Department of Economics, University of Illinois at Chicago, Chicago, IL, USA

[2] NBER, Cambridge, MA, USA

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1 Introduction

Many Asian countries have experienced severe sex ratio imbalances primarily due to son preferences and sex-selection technologies. For example, in South Korea (Korea, afterward), the sex ratio at birth reached 1.16 males per female in 1990 and persisted until the mid-2000s (Edlund and Lee 2013; Choi and Hwang 2020). Consequently, men in Korea face difficulties in finding spouses in the marriage market. To address this imbalance, Korea and several other countries, such as Taiwan and Singapore, import brides from developing countries like Vietnam and China.[1] Although migration for marriage is not a new phenomenon, its economic and social effects, as well as the well-being of migrant women, remain poorly understood.

This paper studies the economic assimilation of marriage migrants in the labor market and within their households, leveraging detailed data on 70,000 marriage migrants in Korea. Korea provides an ideal setting to study the assimilation of marriage migrants because it is one of the largest bride-receiving countries in Asia. Existing studies on cross-border marriages largely focus on matching patterns, gains from such marriages, and the impacts on natives (Çelikaksoy et al. 2006; Edlund et al. 2013; Kawaguchi and Lee 2017; Weiss et al. 2018; Adda et al. Forthcoming; Dziadula and Zavodny 2023; Farahzadi 2023; Ahn Forthcoming). Due to a scarcity of high-quality data on marriage migrants, there is a lack of understanding regarding how these individuals assimilate in the host country. We provide the first evidence of the assimilation process of marriage migrants.

Understanding the assimilation of marriage migrants is particularly interesting and important for several reasons. First, unlike many labor migrants who may return to their home countries after a period of employment, marriage migrants often intend to remain in their destination country indefinitely. This extended time horizon may influence their assimilation trajectories and patterns.[2] Second, marriage migrants typically form families in their new country and their integration is closely connected to family dynamics. Examining their assimilation provides insights into the evolution of family structures and the changing roles of spouses, with potential implications for future generations. Last, policies aimed at supporting immigrants need to consider the specific challenges and opportunities faced by marriage migrants. Understanding their assimilation experiences informs the development of targeted policies that address the unique dynamics of family-based migration.

[1] Sex ratio imbalances are not limited to South Korea; China and India, the two most populous countries in the world, also exhibit significant imbalances. For instance, the sex ratio at birth in China reached 1.2 males per female in 2000, indicating approximately 15 excess males relative to the natural ratio of 1.05 (Almond et al. 2019). Despite China also experiencing an imbalanced sex ratio, some Chinese women migrate for marriage due to better economic opportunities in destination countries. In addition, recently China has also begun importing brides from Vietnam.

[2] Marriage migrants may have a greater incentive to accumulate country-specific human capital over the long term. This includes language proficiency and skills that are essential for economic and social integration. However, at the same time, they may invest less in their human capital if they rely on local family members. Meng and Gregory (2005) show that migrants who marry natives assimilate faster than migrants who do not intermarry. See Dustmann and Görlach (2016) for more discussion on temporary migration vs. permanent migration.

To understand the multi-faceted assimilation patterns of marriage migrants, we examine two key outcomes: labor market outcomes, including employment, monthly earnings, and weekly hours of work, and intra-household decision-making, namely, who within the household makes decisions on household daily expenditures. Understanding labor market outcomes is crucial for assessing the economic integration of marriage migrants. These outcomes shed light on the extent to which migrants successfully enter and participate in the workforce of the host country. It is also important to understand households' decision-making processes because they impact resource allocations and influence the well-being of migrants and their children. Because of marriage migrants' relative lack of familiarity with their new country and its culture and language, their Korean husbands may yield more power within the household. Whether this is accurate, and how it changes as wives assimilate, has not been studied.

Our analysis proceeds in two steps. We first document the assimilation patterns of marriage migrants in Korea, focusing on their labor market outcomes and intra-household decision-making power. Next, we investigate the role of languages to explain their assimilation patterns. Studying the role of language is difficult because language skills are generally correlated with other skills and characteristics. We address this in a novel way by studying differences in outcomes across two of the largest ethnic groups of marriage migrants. Individuals from China make up the largest portion of marriage migrants in Korea. About half of them are ethnically Korean and they tend to have better Korean language skills relative to other migrants from China.

Our first conclusion is that marriage migrants assimilate rapidly into the Korean labor market. The employment rate among migrant brides is about 20% in their first year, well below the 50% employment rate of married native-born Korean women. However, migrants' employment rate rises to over 60% after they have been in Korea for over a decade. Migrants also catch up on weekly hours of working and work similar hours as natives after 15 years since migration. This rapid increase in employment is mirrored by a rapid increase in earnings. After 15 years of migration, the unconditional average monthly earnings of migrants are similar to those of natives. This rise in relative earnings is driven by the relative increase in employment rates among marriage migrants. Conditional on working, marriage migrants earn about one-third less than native-born Korean wives, which is consistent with the difference in their educational attainment.

On the other hand, household decision-making is strikingly different in migrant households than in native-born Korean households. We measure household decision-making through a survey question that asks whether daily expenditure decisions are largely made by the wife, by the husband, or by both together. In marriages between two native-born Koreans, expenditure decisions are made by the husband in 6.6% of households. By contrast, over 33% of households with a marriage migrant report that daily expenditure decisions are made by the husband. As their marriage matures, however, the share of households that report decisions are made by the wife or by both spouses together rises. However, even after spending 15 years or more in Korea, there is a significant gap in the share of households where wives make expenditure decisions between marriage migrant households and native-born Korean households. This is consistent with a theoretical prediction in Ahn (Forthcoming) that the costs of cross-border marriages, including cultural differences and monetary costs, are solely

borne by the female marriage migrants.[3] These costs may decrease over time, but the data indicate that such disparities persist.

To investigate the role of language in their assimilation process, we compare the assimilation patterns of Korean-ethnic Chinese and non-Korean-ethnic Chinese. We first document that these two groups have quite different language skills upon arrival in Korea, but are similar across a range of other dimensions, such as educational attainment, rural status, and characteristics of their spouses. Despite their differences in language skills, their labor market outcomes are similar, indicating a limited role for language in their labor market outcomes. Language does, however, play a critical role in households' decision-making outcomes. During their first 10 years in Korea, when gaps in language skills are the largest, Korean-ethnic Chinese wives are significantly more likely to make expenditure decisions by themselves or jointly with their husbands compared to the other Chinese migrant women. One important question is whether the differences between Korean-ethnic Chinese wives and other Chinese wives reflect cultural differences, and not solely language skills. We address this by controlling directly for variables that capture cultural differences and find that our estimates are unchanged.

We make several contributions to the literature. First, our work builds on a long line of research that documents and analyzes differences in outcomes between immigrants and the native-born, and how these differences evolve as immigrants spend more time in their new country.[4] Existing studies are largely confined to the settings in the United States and European countries (e.g., Charsley et al. 2020). In contrast, our study introduces new empirical evidence on economic and within-household assimilation within a distinctive Asian context, where marriage migration is prevalent due to sex ratio imbalances in marriage markets. Our findings underscore the importance of examining household outcomes to fully understand migrants' experiences in destination countries, especially those of women. Given that marriage migrants are predominantly female and originate from less affluent countries, they may encounter challenges related to their status within households. We also contribute to the literature on the impacts of language proficiency on immigrants' outcomes by highlighting that language fluency affects another dimension of immigrants' assimilation, within-household decision-making power.[5]

[3] In her model, the utilities of native-born women and migrant women who share the same level of human capital level are matched to men who also have the same level of human capital as one another. These men get the same utility whether they marry a native-born or migrant woman. In equilibrium, the gap in the utilities between the native-born and migrant women is exactly the cost related to cross-border marriages, suggesting that migrant women bear all the costs. For more details, see Ahn (Forthcoming).

[4] For surveys on this literature, see Kerr and Kerr (2011), Dustmann et al. (2016), and Abramitzky and Boustan (2017).

[5] See Chiswick and Miller (2015) for a review of the literature on language skills and immigrant outcomes. Although existing literature on assimilation of immigrants is heavily focused on economic aspect, there are studies which explore different dimensions of immigrant outcomes (for instance, identities in Dustmann (1996), Constant et al. (2009); Cai and Zimmermann (2022); housework time in Hwang (2016); fertility in Mayer and Riphahn (2000) time allocations in Vargas (2016)); children's name choices in Abramitzky et al. (2020).) Intermarriage is often used as a measure of assimilation. However, in our context, most migrants marry and migrate concurrently. Therefore, intermarriage cannot be used as a measure of assimilation. Bisin and Tura (2019) study immigrants' marriage, fertility, and intra-household cultural decisions as equilibrium outcomes.

Second, we contribute to the small but growing literature on cross-border marriages by providing the first evidence of migrants' assimilation outcomes. While the existing literature investigates the impacts of cross-border marriages on matching patterns and intra-household allocations of natives (Edlund et al. 2013; Kawaguchi and Lee 2017; Weiss et al. 2018; Ahn Forthcoming), there has been very little evidence on how marriage migrants fare in the labor market and households because of the lack of high-quality data on migrants. We add to the literature by providing the first comprehensive analysis of the assimilation of marriage migrants using detailed surveys on marriage migrants.

This paper proceeds as follows. Section 2 provides background information on marriage migrants in Korea. Section 3 describes data. Section 4 presents our empirical model. Section 5 presents results on migrants' assimilation. Section 6 discusses the potential role of language proficiency in explaining our results. Section 7 concludes the paper.

2 Background on marriage migration in Korea

There was a notable increase in the occurrence of cross-border marriages in Korea beginning in the 1990s. The percentage of cross-border marriages among all newly-weds was below 1% in 1991 but rose strikingly to 13.6% by 2005 (Kawaguchi and Lee 2017). Figure 1 shows the number of cross-border marriages from 2000 to 2017. While a substantial number involve marriages between Korean women and foreign men, the predominant majority of these marriages include Korean men and foreign women. This figure illustrates a rapid increase in such marriages in the early 2000s, followed by a subsequent decline from 2005 to 2017.

The primary reason for the increase in cross-border marriages is the overall fertility decline that began in the 1960s and the resulting sex ratio imbalances in the Korean marriage market. Since men tend to marry women who are younger than them, population decreases lead the effective sex ratio in the marriage market to be male-biased. The sex ratio imbalance in the marriage market is more severe in rural areas because young women are more likely to move to urban areas in the course of industrialization and urbanization (Yang and Lu 2010). Combined with the sex ratio imbalances in the marriage market, the formal establishment of a diplomatic relationship between China and Korea in 1992 triggered massive marriage migration by Chinese women, particularly those who are ethnic Koreans, to rural areas in Korea (Kim 2010). The number of cross-border marriages peaked in 2005 and has decreased since then due to stricter visa requirements and regulations on marriage agencies.

China and Vietnam are the largest bride-sending countries. This is documented in Fig. 2, which shows the number of cross-border marriages by year and country of origin of the migrant. Initially, the influx of foreign brides was predominantly from China. While a considerable proportion of Chinese brides belong to the Korean ethnicity, there is also a significant representation of non-Korean-ethnic Chinese. As of 2021, among married couples with Korean men and Chinese women, 53% are of Korean ethnicity, while 47% are not ethnically Korean. Korean-ethnic Chinese, also known as Choseonjok, are individuals of Korean descent who are Chinese citizens. Proficiency

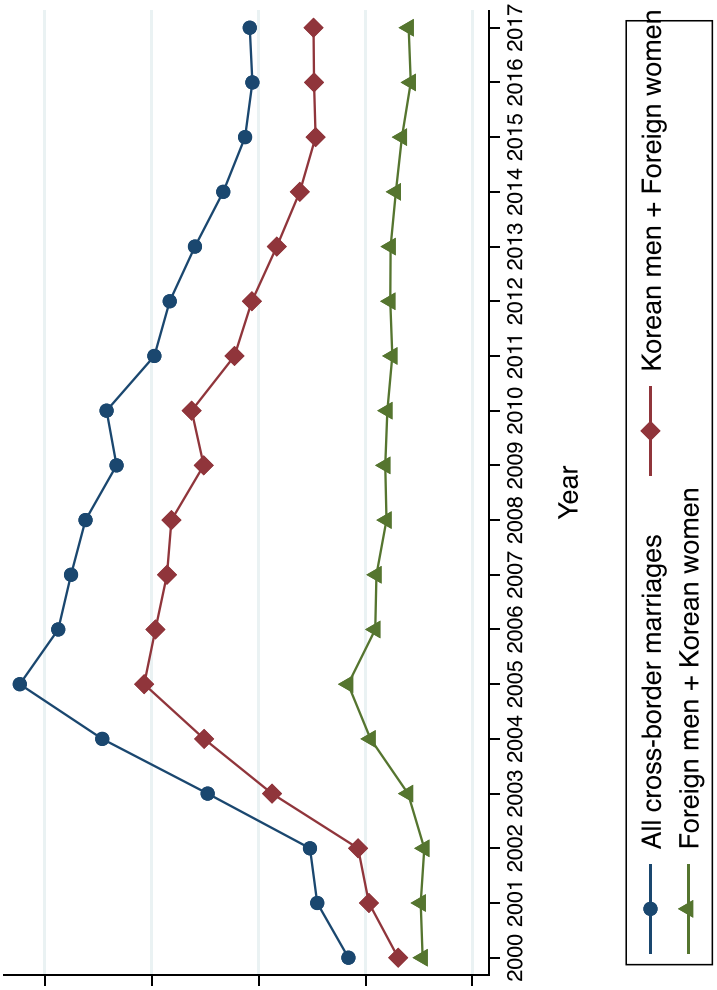
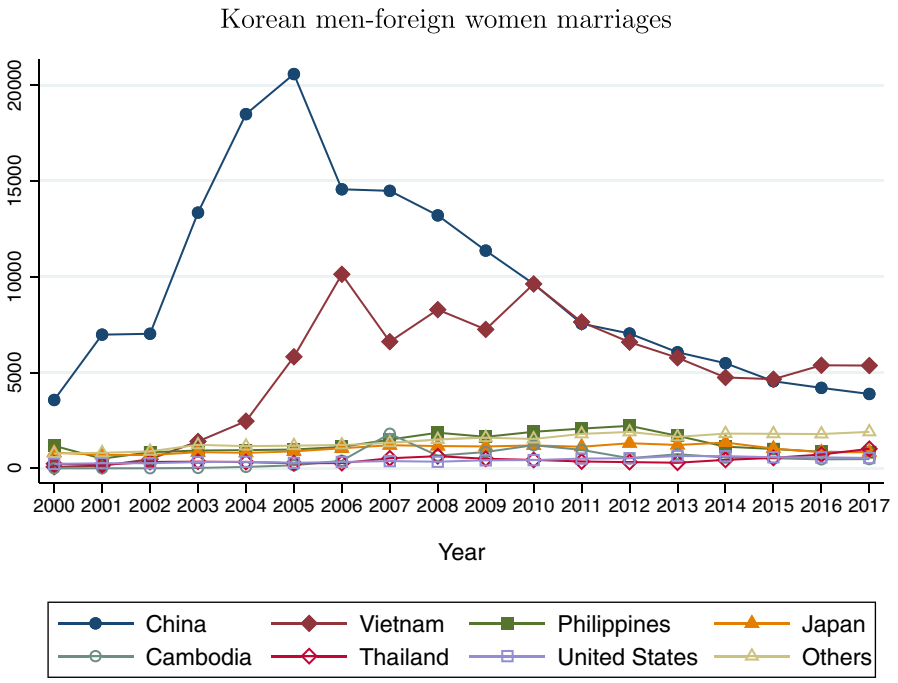


Fig. 1 The number of cross-border marriages in Korea. Source: Statistics Korea



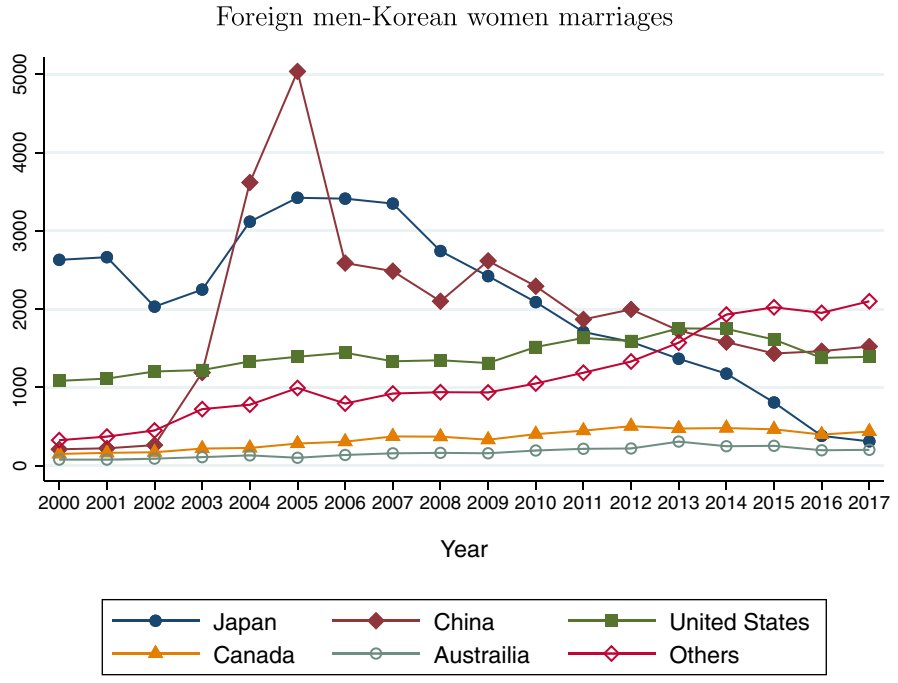


Fig. 2 The number of cross-border marriages in Korea by country of origin. Source: Statistics Korea

in the Korean language varies among Choseonjok individuals, but generally, they exhibit better language skills compared to non-Korean-ethnic Chinese or brides from other countries due to cultural heritages and school policies that encourage the use of Korean.[6] This ethnic gap in language proficiency among Chinese provides a unique opportunity for us to understand the role of languages in assimilation. Notably, there was a rapid increase in marriages between Korean men and Vietnamese women in the early 2000s, coinciding with the emergence of large-scale cross-border matching agencies (Yang and Lu 2010).

A significant portion of these marriages is facilitated by marriage brokerage agencies. For these marriages, typically, Korean men travel to meet prospective brides, and the marriage ceremony occurs in the bride's home country. This entire process typically spans only a few months, after which the couples settle in Korea following the marriage. Wang and Chang (2002) explains the process of these marriages in the context of Taiwan and Vietnam. The process is very similar in cross-border marriages in Korea. Around 70% of marriage, migrants marry and migrate in the same year, and 80% marry and migrate within a year interval.

The visa designated for marriage migrants in Korea is known as the F-6 visa.[7] Among the various visa types available for working in Korea, the F-6 visa offers the highest degree of freedom and flexibility. It is specifically designed for foreign spouses of Korean citizens who intend to reside and work in Korea. Obtaining the F-6 visa is contingent on marrying a Korean citizen. The F-6 visa has a maximum validity of 3 years, after which marriage migrants have the option to renew the visa. However, in the event of a divorce within this period, the marriage migrant is required to relinquish the visa status once it expires.

Following 2 years under the F-6 visa, migrants have the option to apply for permanent residency (F-5). Once migrants obtain the F-5 visa, there is no need to renew the F-6 visa, and the F-5 remains valid irrespective of future marital or financial status. Similar to the F-6 visa, the F-5 visa entails requirements such as current marital status, financial means, a clean criminal background, current domicile, and language proficiency. The process of acquiring Korean citizenship shares similarities with obtaining permanent residency. However, migrants are required to either renounce their citizenship in their countries of origin or refrain from exercising their original citizenship while in Korea. Consistent with the rules, the share of F-5 and Korean citizenship increases sharply after a migrant has lived in Korean for 3 years.

3 Data

In this section, we outline the datasets used in our analysis. Data on marriage migrants comes from the National Survey of Multicultural Families (NSMF). Information on Korean natives comes from two surveys, the National Survey on Fertility, Family

[6] The Chinese government has policies aimed at preserving the cultures and languages of ethnic minority groups within China.

[7] Note that there was a modification in visa categorization in the year 2011. The F-6 visa was formerly referred to as the F-2 visa, specifically under the F-2-1 type.

Health & Welfare in Korea (NSFFW) and the National Survey on Korean Families (NSKF). We append data from these surveys together to form one dataset. This section describes these data in more detail.

3.1 Data on marriage migrants

The data on marriage migrants are from the National Survey of Multicultural Families (NSMF), which is a repeated cross-sectional survey. It started in 2009 and has been conducted every 3 years. We use data from the 2009, 2012, 2015, and 2018 surveys. The 2009 NSMF attempted to survey all marriage migrants (approximately 131,000 people) who reside in South Korea.[8] The survey completion rate was 55.9%, resulting in approximately 73,000 marriage migrant households. The subsequent surveys were smaller and contained 15,001, 17,109, and 17,073 marriage migrants in 2012, 2015, and 2018.

The NSMF is especially advantageous for analyzing marriage migrants' outcomes because these surveys include an extensive amount of information. We have information on the migrant and their spouse's basic demographic characteristics (e.g., age, education, country of origin) and migration-related characteristics such as their visa status and entry year. We can also observe their labor market activities (including employment, monthly income, weekly hours of work, occupations).

To understand intra-household behavior, we exploit variables in the 2012 and 2015 waves of the NSMF on who makes important decisions within households. These type of questions have been widely used as a proxy for decision-making power within households (e.g., Friedberg and Webb 2006; Bertocchi et al. 2014; Majlesi 2016; Ke 2021).[9] The survey also contains information about decision-making regarding children's education. Although we obtain similar results when we analyze this variable, we present and focus on results for household expenditures for two reasons: First, decisions about children's education may reflect responsibilities rather than bargaining power. Second, all households were surveyed for the decision-making question on expenditures whereas decision-making on children education was collected only for households with children, introducing sample selection issues.[10]

3.2 Data on native-born Koreans

We use the National Survey on Fertility, Family Health & Welfare in Korea (NSFFW 2009, 2012, 2015, 2018) and the National Survey on Korean Families (NSKF) 2015 for native-born Koreans. The NSFFW is a nationally representative survey on

[8] Marriage migrants are defined as foreign nationals who married Koreans or those who acquired Korean nationalities after marrying Koreans.

[9] Another way of inferring intrahousehold bargaining power is to examine consumption on gender-specific goods and children's goods (e.g., Lundberg et al. 1997; Bobonis 2009; Calvi 2020; Ahn Forthcoming). However, we do not have data on consumption.

[10] Majlesi (2016) finds that better labor market opportunities for women lead to a higher probability of women making major expenditure decisions, while decision-making on children's education was not affected.

family behavior conducted every 3 years and this is our main dataset for native-born Koreans.[11] The NSKF is a nationally representative survey conducted every 5 years. We utilize this dataset to complement the NSFFW because decision-making variables are available only in specific years in the NSFFW.[12]

The NSFFW surveys were conducted on ever-married women of childbearing ages (15–49) and never-married men and women aged 20–44.[13] We focus on married women in our analysis. The sample size is approximately 10,000 married women each survey year. The NSFFW includes demographic information of women and their husbands and information on labor market activities, comparable to that in the NSMF. For instance, employment status, monthly income, and weekly hours of work are available. For decision-making variables, we append the 2012 NSFFW and the NSKF 2015 because NSFFW 2015 does not include decision-making variables whereas NSKF 2015 includes them.

3.3 Sample selection

Because the majority of marriage migrants are women, we focus on female migrants in our analysis. We strict the sample of migrant and native-born wives to include those who were 20 to 40 years old in 2009.[14] This balances the aggregate age range of the migrant and native-born samples. We drop migrant families who arrived in Korea before 1992, when China and Korea established a diplomatic relationship, which corresponds to less than 1% of the sample. We include households where both the husband and wife are present.[15] We drop multinational households from the NSFFW and the NSKF to make these samples representative of native-born Korean families. Finally, we focus on heterosexual marriages only.

3.4 Summary statistics

Table 1 presents summary statistics for female migrants and Korean natives. The first two columns document that migrant wives tend to be younger, less-educated, and more likely to live in rural areas compared to native-born wives. Forty-four percent of migrants are from China and this represents the largest origin group of marriage migrants. Among Chinese, about 44% of the migrants from China are of Korean ethnicity (Choseonjok). Vietnam is the second largest country that sends brides to Korea.

[11] The first survey was conducted in 1964.

[12] The first survey was in 2010 and currently three waves exist (2010, 2015, and 2020).

[13] In 2009 and 2012 surveys, women in the ages 15–64 were also surveyed except for birth-related questions. The birth-related questions were only asked to women of childbearing ages (15–49).

[14] That is, we include those who were 20 to 40 years old in the 2009 data, 23 to 43 in the 2012 data, 26 to 46 in the 2015 data, and 29 to 49 in the 2018 data.

[15] In the 2009 NSMF and NSFFW only women were surveyed and they were asked questions about their husbands. In contrast, the later waves of the NSMF the NSKF surveyed every member of the households. In these surveys, we keep households where both husbands and wives participated in the survey. The share of dropped households is less than 1%.

Table 1 Summary statistics

	Migrants	Natives	Migrants (yrs in KR $\leq$ 5)	Migrants (yrs in KR $>$ 5)	Natives (yrs in marriage $\leq$ 5)	Natives (yrs in marriage $>$ 5)
Rural	0.303	0.139	0.322	0.292	0.136	0.139
Age	33.444	37.777	29.882	35.589	32.187	39.580
Age at migration	25.823	.	26.851	25.205	.	.
Age of spouse	44.472	40.429	42.439	45.677	34.315	42.401
First marriage	0.866	0.985	0.866	0.865	0.970	0.990
First marriage of spouse	0.804	0.987	0.770	0.825	0.975	0.991
Less than high school	0.302	0.014	0.360	0.268	0.011	0.015
High school	0.425	0.382	0.391	0.446	0.254	0.424
College	0.249	0.558	0.233	0.259	0.679	0.519
More than college	0.024	0.045	0.017	0.028	0.057	0.042
Spouse: Less than high school	0.156	0.015	0.151	0.158	0.007	0.018
Spouse: High school	0.550	0.321	0.527	0.564	0.247	0.345
Spouse: College	0.267	0.590	0.286	0.256	0.672	0.563
Spouse: More than college	0.020	0.074	0.019	0.020	0.073	0.074
Year since migration	7.657	.	3.146	10.265	.	.
Origin: China (non-Choseonjok)	0.247	.	0.251	0.245	.	.
Origin: China (Choseonjok)	0.195	.	0.099	0.253	.	.
Origin: Vietnam	0.287	.	0.374	0.235	.	.
Origin: Philippines	0.087	.	0.089	0.085	.	.
Origin: Japan	0.045	.	0.035	0.051	.	.
Origin: Cambodia	0.032	.	0.050	0.022	.	.
Origin: Taiwan/ Hong Kong	0.007	.	0.007	0.006	.	.
Origin: Others	0.100	.	0.094	0.103	.	.
Korean citizenship	0.429	.	0.127	0.610	.	.
Monthly household income	2970.975	4663.060	2653.695	3150.131	4178.854	4822.856
Employed	0.505	0.511	0.344	0.602	0.450	0.530
Monthly income (cond. working)	1096.822	1354.186	1063.488	1108.413	1658.433	1263.246
Weekly hours of work (cond. working)	45.231	41.184	47.200	44.504	42.152	40.915
Permanent employment (cond. working)	0.353	0.515	0.298	0.373	0.714	0.460
Expenditure decision-making: Mostly wives	0.325	0.627	0.227	0.378	0.595	0.685
Expenditure decision-making: Together	0.332	0.305	0.308	0.345	0.326	0.267
Expenditure decision-making: Mostly husbands	0.343	0.068	0.465	0.277	0.079	0.048
Number of observations	71,842	26,674	40,597	6367	31,245	20,307

Sources: The NSMF 2009, 2012, 2015, 2018 and the NSFFHW 2009, 2012, 2015, and 2018. Notes: The samples include married women whose ages were between 20 and 40 years old in 2009. Income variables are adjusted by the consumer price index (2020) and in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%. Sample weights of the surveys are applied

The remaining columns further divide the migrant samples by whether they had lived in Korea for fewer or more than 5 years; and the native-born samples by whether they had been married for fewer or more than 5 years (recall the most marriage migrants move to Korea within a year of marriage). Marriage migrants' employment rates rise from 34 to 60%. This is a substantially larger increase than native-born Korean wives experienced between the first five and later years of marriage, rising from 45 to 53%. This foreshadows one of our key conclusions below. The final rows of the table indicate that migrant wives tend to have less decision-making power in families. Whereas less than 7% of native-born wives indicate that their husband makes most decisions about daily expenditures, 34% of migrant wives report this. This imbalance shifts as migrant wives spend more time in Korea, however.

4 Empirical specification

We are interested in estimating the assimilation effect of marriage migrants on labor market outcomes and intrahousehold decision-making outcomes. We estimate the following model, commonly used in the immigration assimilation literature using repeated cross-section data.

$$Y_{ict} = \gamma YSM_{ct} + \mu_c + \theta_t + \delta X_{it} + \varepsilon_{ict} \tag{1}$$

where i, c, and t indicate each individual, arrival cohorts, and survey year. Y is the dependent variable which includes labor market outcomes (employment, monthly income, weekly hours of working) and a dummy variable for household decision-making (whether decisions are mostly made by wives or jointly made by husbands and wives). YSM indicates years since migration and measures the effect of assimilation. To allow for non-linearity of the impact of years since migration, dummy variables are used to indicate years since migration. Specifically, we include dummies for "0–1 years," "2–4 years," "5–9 years," "10–14 years," and "15 years or more." The data includes both natives and marriage migrants and natives are used as a base group. X_{it} includes individual characteristics; they include age, education, and whether this individual lives in a rural area.[16] In some specifications, we also add controls for the spouse's age and education. μ_c represents a vector of fixed effects denoting immigrant arrival cohorts.[17] θ_t indicates a vector of survey year fixed effects.

Repeated cross-sectional data is important for our estimation strategy. It is widely understood that cross-sectional data has limitations in estimating the true assimilation effect among migrants (e.g., Borjas 1985). In a single cross-section, the correlation between time in Korea and outcomes will reflect both differences across arrival cohorts and differences that stem from assimilation. Repeated cross-sectional data allows us

[16] We can include the age of migration as a control while identifying the impacts of age using natives. We conducted this exercise as a robustness check and this does not qualitatively change our results.

[17] Given the limited power, we aggregate the arrival cohorts into 5-year intervals, grouping cohorts that arrived before 1995, between 1995 and 1999, between 2000 and 2004, between 2005 and 2009, between 2010 and 2014, and between 2015 and 2018.

to estimate the effect of time in Korea (γ in the model above) while also controlling for potential differences in outcomes across cohorts (μ_c).[18]

Finally, as noted in the background section, most of marriage migrants marry and migrate at essentially the same time. Therefore, it is difficult to separately identify the impacts of years since marriage and the impacts of years since migration using samples of marriage migrants. However, we can use the information of natives to understand the impacts of the duration of marriages. We address this issue below when discussing the main results.

5 Results

The findings of this study are presented in this section. We begin with an analysis of labor market outcomes, followed by an analysis of intra-household decision-making. For each, we first present graphical evidence on assimilation patterns and then discuss regression results that control for cohort effects, observable characteristics of the wives, and then their spouses.

5.1 Labor market outcomes

In this section, we investigate how long it takes for marriage migrants to catch up to the labor market outcomes of natives. In particular, we analyze their employment, monthly income, and weekly hours of work in comparison to native-born Korean women.

The first five bars in Fig. 3 present the share of migrant women who are employed by the number of years spent in Korea. Note that these are unconditional averages. The far-right bar indicates the average employment rate for Korean native women, which is slightly over 50%. The fraction of migrants who are employed during their first year in Korea is just under 20%. Migrants' employment rate rises considerably, surpasses that of the native-born after 5 years, and is over 60% after 10 years in Korea.

Column(1)–(4) in Table 2 show the corresponding regression results from the sample of both migrant and native-born Korean women. We regress an employment indicator on dummy variables for years spent in Korea and survey year fixed effects. The second column adds cohort fixed effects to account for migrant quality changes over time, with pre-1995 arrivals being the omitted category. Subsequent columns add migrant characteristics (age, education, and rural status), and spousal characteristics (age and education). The first and second columns show similar patterns to the graph. As seen in the figure, the regressions reveal that the employment rate of marriage migrant women is lower than that of Korean native women when they initially move to the country, but it gradually increases over time, surpassing the employment rate of Korean natives around when they have spent 5 to 9 years in Korea. Once education, age, and rural/urban status are controlled, the gap between natives and migrants

[18] However, even with the repeated cross-sectional data, there are still empirical challenges if return migration, or divorce in this context, is selective (e.g., Lubotsky 2007; Abramitzky and Boustan 2017). For example, if migrants with below-average earnings are more likely to divorce, our sample of marriages will have the appearance of an upward earnings trajectory. We discuss this issue of selective divorce and its implications for our estimates in the next section.

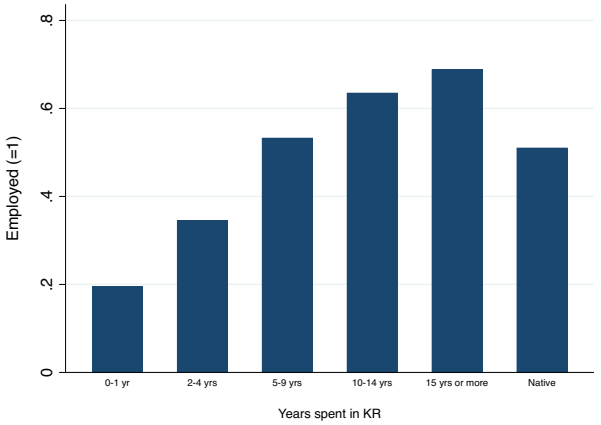


Fig. 3 Assimilation patterns of employment. Note: This figure presents the average employment level by the duration of residence in Korea. Sample weights of the surveys are applied. Source: The NSMF 2009, 2012, 2015, 2018 and the NSFFW 2009, 2012, 2015, 2018

decreases. However, the general pattern of assimilation remains similar. The other controls, including the arrival cohort fixed effects, have little effect on the assimilation estimates. The arrival cohort fixed effects indicate that post-1995 arrivals tend to have persistently higher employment rates than those who came before 1995.

Figure 4 shows how monthly income changes by the years spent in Korea. In Panel (a), we include non-workers and code their income as zero. In Panel (b), we exclude non-workers. Including non-workers, average income just after the migration is approximately $200 per month.[19] Migrants catch up to the earnings of natives over time and earn relatively similar amounts after 15 years in Korea. This earnings assimilation reflects increased employment propensities, rather than increases in earnings among workers, as documented in Panel (b). Conditional on working, migrants' average earnings are fairly flat and about $500 less than that of the native-born. The consistent gap between marriage migrants and native-born Korean women in the unconditional average monthly income is consistent with the differences in their educational differences shown in Table 1.

Column(5)–(8) in Table 2 present the regression results using monthly income as outcomes. The dependent variable is measured in dollars and we include non-workers as having zero income. Controlling for migrant cohort fixed effects and migrant characteristics, new migrants have an earnings disadvantage of about $350 upon arrival, though this gap disappears after 15 years of residence in Korea. In an unreported analysis, we find that the earnings gap among the sample of workers falls slightly with time in Korea in models that also control for the respondents' and spouses' characteristics.

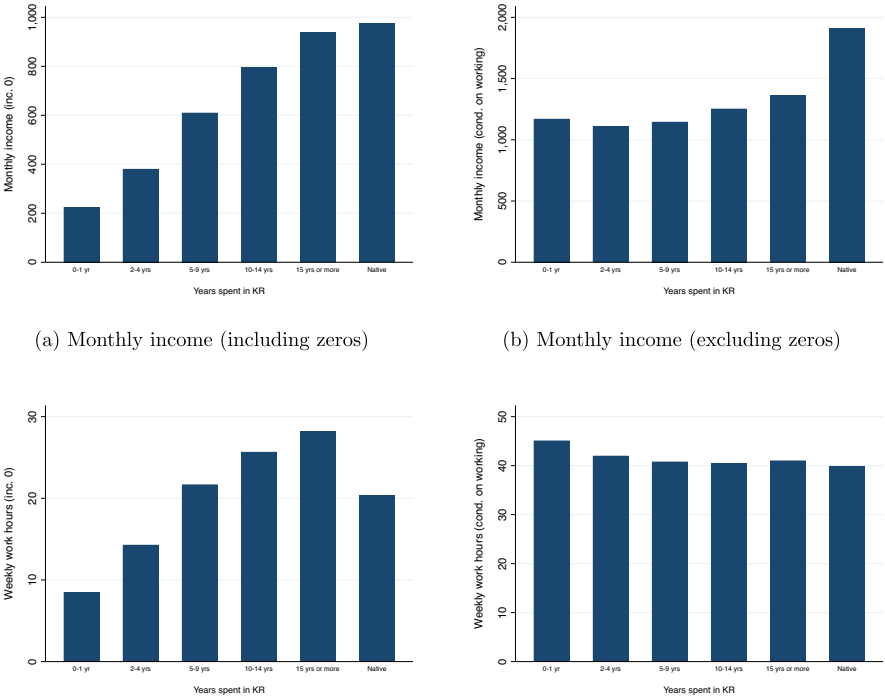
Panels (c) and (d) in Fig. 4 show how weekly hours of work change as marriage migrants spend more time in Korea, with and without including non-workers in the sample. Migrants work about 10 h per week in the first year after arrival compared to

[19] Income variables are expressed in 1000 South Korean Won (KRW), adjusted by the consumer price index to 2020 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%.

Table 2 Effect of years spent in Korea on labor market outcomes

Dependent variable	Employed (=1)				Monthly income ($)				Weekly hours of working			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0–1 yrs in KR	−0.257***	−0.261***	−0.239***	−0.243***	−516.694***	−456.231***	−359.267***	−356.950***	−10.497***	−14.185***	−13.490***	−13.616***
	(0.010)	(0.039)	(0.040)	(0.040)	(17.340)	(75.237)	(75.510)	(76.061)	(0.484)	(1.929)	(1.954)	(1.968)
2–4 yrs in KR	−0.133***	−0.139***	−0.129***	−0.137***	−421.951***	−363.573***	−287.227***	−279.304***	−5.395***	−9.134***	−8.938***	−9.238***
	(0.008)	(0.038)	(0.039)	(0.039)	(14.702)	(73.875)	(73.968)	(74.536)	(0.368)	(1.886)	(1.901)	(1.917)
5–9 yrs in KR	0.021***	0.012	0.013	0.005	−272.461***	−234.455***	−156.771**	−145.917**	1.211***	−2.366	−2.560	−2.939
	(0.007)	(0.036)	(0.037)	(0.037)	(13.356)	(69.750)	(69.927)	(70.424)	(0.322)	(1.801)	(1.814)	(1.827)
10–14 yrs in KR	0.108***	0.094***	0.078**	0.069*	−135.301***	−120.180*	−55.741	−42.661	4.924***	1.880	0.926	0.464
	(0.008)	(0.034)	(0.035)	(0.035)	(14.925)	(65.902)	(66.314)	(66.738)	(0.379)	(1.734)	(1.742)	(1.757)
Over 15 yrs in KR	0.150***	0.135***	0.105***	0.094***	−34.855	−36.214	35.643	51.134	7.250***	5.255***	3.541**	3.009*
	(0.011)	(0.031)	(0.031)	(0.032)	(22.543)	(58.048)	(59.005)	(59.354)	(0.583)	(1.544)	(1.560)	(1.577)
Arrival cohort		0.034	0.037	0.033		22.063	38.765	43.045		2.538	2.613	2.407
1995–1999		(0.033)	(0.033)	(0.033)		(61.753)	(62.583)	(62.617)		(1.678)	(1.672)	(1.676)
Arrival cohort		−0.005	0.024	0.024		−25.041	32.369	30.758		1.772	2.806*	2.783
2000–2004		(0.034)	(0.034)	(0.034)		(64.313)	(65.106)	(65.120)		(1.697)	(1.690)	(1.695)
Arrival cohort		0.027	0.101***	0.105***		−18.569	147.333**	141.660**		4.494**	7.089***	7.283***
2005–2009		(0.035)	(0.036)	(0.036)		(67.713)	(69.612)	(69.709)		(1.772)	(1.784)	(1.791)
Arrival cohort		−0.024	0.048	0.052		−102.293	41.333	37.437		2.753	5.354***	5.506***
2010–2014		(0.037)	(0.038)	(0.038)		(72.151)	(73.758)	(73.985)		(1.863)	(1.867)	(1.880)
Arrival cohort		−0.051	0.013	0.016		−215.994**	−127.391	−129.573		1.556	3.914*	4.023*
2015–2018		(0.047)	(0.047)	(0.047)		(85.763)	(87.674)	(88.014)		(2.217)	(2.199)	(2.209)
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort effect	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Controls	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Spouse characteristics controls	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Dep. var. mean	0.417	0.417	0.417	0.417	539.7	539.7	539.7	539.7	16.3	16.3	16.3	16.3
Observations	97,853	97,853	97,853	97,853	96,131	96,131	96,131	96,131	96,455	96,455	96,455	96,455

Notes: Omitted category for years spent in Korea is natives. Omitted category for arrival cohort is cohort migrated before 1995. Controls include age, education dummies, and rural status. Spouse controls include spousal age and spousal education dummies. Monthly income is adjusted by the consumer price index (2020) and is in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$



(a) Monthly income (including zeros)

(b) Monthly income (excluding zeros)

(c) Weekly hours of working (including zeros)

(d) Weekly hours of working (excluding zeros)

Fig. 4 Assimilation patterns of monthly income and weekly hours of working. Note: These figures present the average monthly income level and weekly hours of working by the duration of residence in Korea. Source: The NSMF 2009, 2012, 2015, 2018 and the NSFFW 2009, 2012, 2015, 2018. Monthly income is 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. It is denominated by KRW in 2020. Sample weights of the surveys are applied

the 21 h per week among native-born Korean wives. However, as marriage migrants accumulate experience in Korea and increase their employment rates, their average work hours rise to about 28 h per week. However, Panel (d) makes clear that this rise in hours is driven by changes at the extensive margin. Hours of work conditional on working slightly decreases with time in Korea. Columns (9) through (12) in Table 2 present regression results for weekly hours of work among all wives and indicate that the addition of control variables does not alter the conclusion that migrants' hours of work rise relative to that of native-born wives.

5.2 Intra-household decision-making

In this section, we investigate within-household decision-making patterns for Korean native couples and marriage migrant couples. Specifically, we focus on decision-making outcomes regarding daily expenditure, where respondents indicate whether such decisions are made mostly by the wife, by the husband, or both together. Figure 5

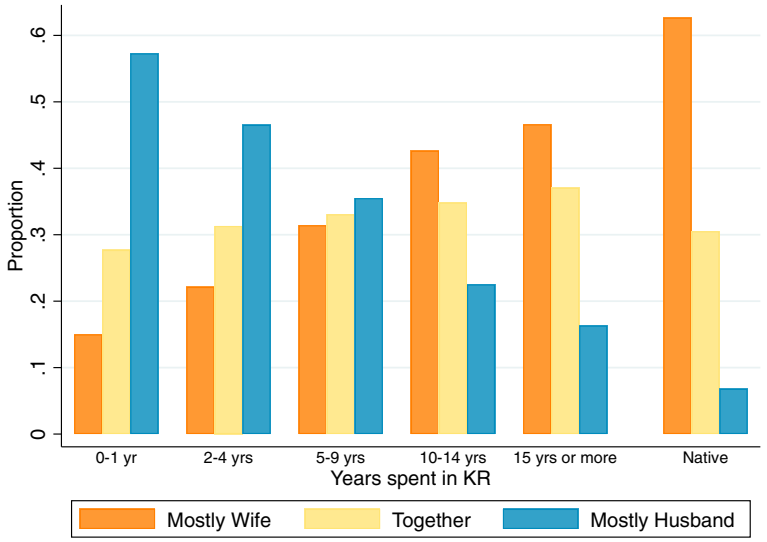


Fig. 5 Household daily expenditure decision-making by years spent in Korea. Note: This figure presents the share of main decision-maker regarding household daily expenditures. Sample weights of the surveys are applied. Sources: The NSMF 2012, 2015, the NSFFW 2012, and the NSKF 2015

shows descriptive patterns for within-household decision-making. Marriage migrants have much lower decision-making power within households when they initially move to Korea. While husbands make most decisions in less than 7% of all-native-born households, husbands make most decisions in almost 60% of marriage migrant households at the time of arrival. As marriage migrants spend more time in Korea, their decision-making power increases. However, even after 15 years in Korea, the share of households where wives make most decisions or husbands and wives jointly make decisions is far smaller in marriage migrant households than in Korean native households.

Regression results in Table 3 confirm the patterns in Fig. 5. In all specifications, even after 15 years after moving to Korea, the probability that wives make most expenditure decisions or husbands and wives jointly make decisions in marriage migrant households is 7–9 percentage points lower than in Korean native households, depending on the set of control variables. It is important to note that cross-border couples tend to have a large age gap compared to Korean native couples. However, even after controlling for spousal age and education, there is a statistically significant 7 percentage point gap in decision-making power between migrant households and Korean native households.[20]

This result is consistent with the prediction on intra-household allocations provided by the two-country marriage matching model in Ahn (Forthcoming). Her proposition

[20] As noted earlier, we have also estimated models of who makes decisions regarding children's education. Although we find qualitatively similar results using this alternative measure, we prefer to use expenditure decisions as a proxy for decision-making power for the reasons explained in the data section. These results are available upon request.

Table 3 Effect of years spent in Korea on household expenditure decision-making

	Dep. var.: Decisions made by mostly wives or together (= 1)			
	(1)	(2)	(3)	(4)
0–1 yrs in KR	−0.51***	−0.37***	−0.34***	−0.33***
	(0.02)	(0.05)	(0.05)	(0.05)
2–4 yrs in KR	−0.40***	−0.29***	−0.27***	−0.26***
	(0.01)	(0.04)	(0.05)	(0.05)
5–9 yrs in KR	−0.29***	−0.21***	−0.19***	−0.18***
	(0.01)	(0.04)	(0.04)	(0.04)
10–14 yrs in KR	−0.15***	−0.13***	−0.11***	−0.11***
	(0.01)	(0.04)	(0.04)	(0.04)
Over 15 yrs in KR	−0.09***	−0.09**	−0.07*	−0.07*
	(0.01)	(0.03)	(0.04)	(0.04)
Arrival cohort 1995–1999		0.00	0.01	0.01
		(0.04)	(0.04)	(0.04)
Arrival cohort 2000–2004		−0.02	−0.01	−0.01
		(0.04)	(0.04)	(0.04)
Arrival cohort 2005–2009		−0.07*	−0.05	−0.04
		(0.04)	(0.04)	(0.04)
Arrival cohort 2010–2015		−0.14***	−0.12***	−0.12**
		(0.05)	(0.05)	(0.05)
Survey year FE	Yes	Yes	Yes	Yes
Cohort effect	No	Yes	Yes	Yes
Controls	No	No	Yes	Yes
Spouse characteristics controls	No	No	No	Yes
Dep. var. mean	0.719	0.719	0.719	0.719
Observations	22,754	22,754	22,754	22,754

Notes: Omitted category for years spent in Korea is natives. Omitted category for arrival cohort is cohort migrated before 1995. Controls include age, education dummies, and rural status. Spouse controls include spousal age and spousal education dummies. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

shows that if a Korean man is matched to either a Korean woman or a female from a different country with positive probabilities in the stable match, the costs from cross-border marriage are entirely borne by the foreign wife. The costs in this context refer to a reduced portion of marital surplus due to the factors such as cultural differences, matching fees, travel costs, bureaucratic requirements, etc. Therefore, intra-household equilibrium shares of the marital surplus enjoyed by the foreign wives are smaller than those of native-born wives. Over time, as marriage migrants assimilate, it is likely that these costs decrease because language barriers or cultural differences are reduced, though they may not be eliminated.

This finding regarding intra-household decision-making power underscores the complexity of assessing the well-being of marriage migrants. Relying solely on metrics such as household income or labor market outcomes may offer an incomplete understanding of their welfare. Rather, we emphasize the importance of also considering other aspects within the household, such as decision-making dynamics and power structures, that play a crucial role in shaping the overall welfare and quality of life for marriage migrants (in line with the discussion on intra-household inequality in Chiappori and Meghir (2015)). By acknowledging the multifaceted nature of their experiences, researchers and policymakers can gain a more comprehensive understanding of the challenges and opportunities faced by marriage migrants in the context of their households and broader societal structures.

5.3 Robustness to the length of marriage and divorce

In this section, we assess whether our results presented above are influenced by the length of time a couple has been married or by selective divorce. Most marriage migrants move to Korea within a year of their marriage. Therefore, years in Korea are nearly collinear with years married. To separately identify these factors, we control for years of marriage, which is identified from the outcomes of the native-born Koreans under the assumption that the effects of marriage are the same for both groups. Table 4 shows the results with and without controlling for the number of years married. The results on labor market outcomes and household decision-making outcomes are largely unchanged. This is perhaps not surprising because these outcomes tend to be fairly stable among Korean natives during their marriage.

Non-random divorce and out-migration could introduce biases in our assimilation estimates. If divorces are more common among women with lower employment rates, our samples of married couples used in the main analysis will show the appearance of a rising employment rate that is due to the changing sample composition, rather than a true assimilation effect. We conduct two exercises to understand the role of divorce.

First, our data includes samples of divorced women who remain in Korea after divorce, which amounts to about 3% of marriage migrants. These women were not included in our main analysis. (Divorced women who leave Korea are not in the data at all.) To address the effect of excluding divorced women from our main analysis, we repeat our analyses but include divorced migrant women. Table 5 compares our estimated effects on labor market outcomes with and without divorced women. It is clear that the estimated effects are quite similar. In fact, divorced women tend to have higher earnings and weekly hours of working compared to non-divorced marriage migrants after spending 15 years or more in Korea, which could be attributed to either selection or a response to the event of divorce.

The household decision-making variable was only asked of married couples. To assess how these results could differ by the exclusion of divorced couples, we construct lower bounds and upper bounds by imputing the missing values for divorced women using 0 (“Wife is not the major decision-maker”) and 1 (“Wife is the major decision-maker”). The results are presented in Table 6. These bounds show that the pattern of results — that marriage migrants have lower decision-making power within

Table 4 Effect of years spent in Korea on labor market and household outcomes, with years in marriage controls

Dependent variable	Employed (=1)		Monthly income ($)		Weekly hours of working		Wife decides mostly or joint (= 1)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0–1 yrs in KR	−0.243***	−0.317***	−356.950***	−543.841***	−13.616***	−17.482***	−0.334***	−0.312***
	(0.040)	(0.042)	(76.061)	(80.691)	(1.968)	(2.050)	(0.053)	(0.055)
2–4 yrs in KR	−0.137***	−0.126***	−279.304***	−314.042***	−9.238***	−9.493***	−0.260***	−0.239***
	(0.039)	(0.040)	(74.536)	(81.735)	(1.917)	(1.968)	(0.046)	(0.048)
5–9 yrs in KR	0.005	0.043	−145.917**	−89.826	−2.939	−1.294	−0.181***	−0.147***
	(0.037)	(0.037)	(70.424)	(72.391)	(1.827)	(1.837)	(0.044)	(0.047)
10–14 yrs in KR	0.069*	0.090**	−42.661	9.431	0.464	1.833	−0.105***	−0.098**
	(0.035)	(0.035)	(66.738)	(67.255)	(1.757)	(1.759)	(0.041)	(0.042)
Over 15 yrs in KR	0.094***	0.082***	51.134	41.104	3.009*	2.433	−0.066*	−0.084**
	(0.032)	(0.032)	(59.354)	(59.506)	(1.577)	(1.570)	(0.036)	(0.037)
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spouse characteristics controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years in marriage effects	No	Yes	No	Yes	No	Yes	No	Yes
Dep. var. mean	0.417	0.417	539.7	539.7	16.3	16.3	0.719	0.719
Observations	97,853	97,845	96,131	96,123	96,455	96,447	22,754	21,566

Notes: Omitted category for years spent in Korea is natives. Controls include age, education dummies, and rural status. Spouse controls include spousal age and spousal education dummies. Years in marriage effects are included as dummies for "0–1 yr," "2–4 yrs," "5–9 yrs," "10–14 yrs," and "15 yrs and more." Monthly income is adjusted by the consumer price index (2020) and is in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Table 5 Effect of years spent in Korea on the labor market, including divorced samples

Dependent variable	Employed (=1)		Monthly income ($)		Weekly hours of working	
	(1)	(2)	(3)	(4)	(5)	(6)
0–1 yrs in KR	−0.159***	−0.162***	−293.587***	−306.180***	−9.151***	−8.619***
	(0.050)	(0.048)	(94.491)	(89.167)	(2.407)	(2.337)
2–4 yrs in KR	−0.088*	−0.090**	−255.616***	−264.003***	−5.882***	−5.310**
	(0.048)	(0.045)	(90.569)	(85.061)	(2.281)	(2.207)
5–9 yrs in KR	0.001	0.012	−181.790**	−163.421**	−2.695	−1.504
	(0.045)	(0.043)	(85.937)	(80.195)	(2.171)	(2.096)
10–14 yrs in KR	0.043	0.059	−114.359	−53.279	−0.290	1.492
	(0.044)	(0.041)	(82.103)	(76.299)	(2.086)	(2.012)
Over 15 yrs in KR	0.060	0.072*	−3.026	58.074	1.670	3.330*
	(0.040)	(0.038)	(73.469)	(68.360)	(1.879)	(1.821)
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Include divorced samples	No	Yes	No	Yes	No	Yes
Observations	95,588	98,133	93,877	96,370	94,262	96,807

Notes: Omitted category for years spent in Korea is natives. Controls include age, education dummies, and rural status. Monthly income is adjusted by the consumer price index (2020) and is in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: $*p < 0.1$; $**p < 0.05$; $***p < 0.01$

households, but increase their power with time in Korea — is not driven by the exclusion of divorced couples.

Our final robustness check addresses the fact that divorced women who leave Korea do not appear in our data. To do this, we utilize data from the Korean divorce registry to calculate the cumulative probability of divorce for each yearly marriage cohort in each year. To handle missing outcome values for the fraction of divorced women, we impute them using the 25th and 75th percentile values of the respective variables, providing two bounds for our estimates. This imputation is done separately for natives and migrants and appropriate weights to reflect the size of divorced cohorts were used.[21] Note that migration status information is available from the divorce registry only starting from 2010. Given that we have data on marriage cohorts up to 2018, we can examine an assimilation effect of a rather shorter time period of 8 years. Results from this exercise are presented in Table 7. It is clear from this table that the general pattern of results is quite similar between our main estimates and the estimated bounds from including divorced individuals. Migrants' employment rates, monthly income, hours of work, and wives' decision-making power all rise with additional time in

[21] Specifically, we add one observation to the data for each combination of marriage cohort and length of marriage. We give each of these observations a weight that reflects the number of women in this group.

Table 6 Effect of years spent in Korea on household expenditure decision-making, including divorced samples

	Dependent variable: wife decides mostly (= 1)		
	(1)	(2) Lower bound	(3) Upper bound
0–1 yrs in KR	−0.274***	−0.292***	−0.272***
	(0.068)	(0.066)	(0.066)
2–4 yrs in KR	−0.211***	−0.229***	−0.212***
	(0.060)	(0.058)	(0.057)
5–9 yrs in KR	−0.124**	−0.151***	−0.110**
	(0.055)	(0.053)	(0.053)
10–14 yrs in KR	−0.095*	−0.136***	−0.062
	(0.051)	(0.049)	(0.048)
Over 15 yrs in KR	−0.107**	−0.144***	−0.073*
	(0.043)	(0.042)	(0.041)
Survey year FE	Yes	Yes	Yes
Cohort effect	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Include divorced samples	No	Yes	Yes
Observations	25,119	25,870	25,870

Notes: Omitted category for years spent in Korea is natives. Controls include age and education dummies. Spouse controls include spousal age and spousal education dummies. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Korea relative to outcomes among native-born wives. Unsurprisingly, the level of the migrant-native disparity differs depending on whether we impute the higher or lower outcome values to the divorced wives, but it is clear that the assimilation pattern we find is not biased by changing sample composition caused by selective divorce and outmigration in a meaningful way.

6 The role of languages

Language plays a pivotal role in the process of migrant assimilation, influencing various aspects of individuals' integration into a new society (e.g., Chiswick 1991; Dustmann 1994; Dustmann and Fabbri 2003; Bleakley and Chin 2004). First, proficiency in the host country's language is often a prerequisite for economic participation. The ability to communicate effectively in the workplace opens up employment opportunities and facilitates career advancement. Culturally, language proficiency is a key factor in understanding and appreciating the customs, traditions, and values of the host society. Language also has intergenerational implications because migrants' language ability may affect children's language acquisition as well (Casey and Dustmann 2008).

Table 7 Effect of years spent in Korea on labor market and household outcomes, with divorced samples

Dependent variable	Employed (=1)			Monthly income ($)			Weekly hours of working			Wife decides mostly or joint (= 1)		
	(1)	(2) Bound 1	(3) Bound 2	(4)	(5) Bound 1	(6) Bound 2	(7)	(8) Bound 1	(9) Bound 2	(10)	(11) Bound 1	(12) Bound 2
0–1 yrs in KR	−0.253***	−0.125	−0.266***	−679.537***	−545.200***	−661.539***	−9.855***	−4.959	−10.606***	−0.548***	−0.418***	−0.642***
	(0.027)	(0.093)	(0.040)	(50.745)	(129.935)	(62.747)	(1.279)	(3.606)	(1.819)	(0.022)	(0.072)	(0.054)
2–4 yrs in KR	−0.103***	0.053	−0.175***	−534.838***	−365.157***	−566.503***	−4.099***	2.058	−7.044***	−0.444***	−0.268***	−0.616***
	(0.015)	(0.070)	(0.044)	(28.533)	(101.364)	(58.755)	(0.690)	(2.787)	(1.809)	(0.014)	(0.063)	(0.060)
5–8 yrs in KR	0.042***	0.199***	−0.148**	−321.305***	−181.445**	−507.173***	1.991***	8.475***	−5.423**	−0.281***	−0.153*	−0.507***
	(0.013)	(0.062)	(0.069)	(26.246)	(87.972)	(95.714)	(0.599)	(2.597)	(2.673)	(0.018)	(0.085)	(0.145)
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	0.438	0.440	0.437	713.002	715.637	710.976	16.978	17.043	16.930	0.642	0.643	0.642
Observations	12,760	12,796	12,796	12,631	12,667	12,667	12,760	12,796	12,796	5,696	5,714	5,714

Notes: Samples include marriage cohorts from 2010 to 2018. Divorced fraction for each marriage cohort is obtained. For bound 1, the 75th percentile values were used for imputation for divorced people. For bound 2, the 25th percentile values were used for imputation for divorced people. These imputations were done separately for natives and non-natives. Omitted category for years spent in Korea is natives. Monthly income is adjusted by the consumer price index (2020) and is in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

We show that language indeed plays a vital role in explaining assimilation patterns of marriage migrants.

First, we repeat our analyses above while also controlling for language abilities. The NSMF includes questionnaires on Korean language proficiency. In the 2012, 2015, and 2018 waves, migrants were asked to indicate their proficiency level in speaking, listening, reading, and writing on a 5-point scale (very good, good, average, bad, very bad). In the 2009 wave, migrants' language proficiency in three areas (speaking, reading, and writing) was collected.

Tables 8 and 9 present the labor market outcome results and household decision-making outcome results with language proficiency controls. For each outcome, we first repeat a baseline model that controls for survey year effects, cohort effects, age, education, rural status, and spousal characteristics. We then estimate a model that includes indicators for speaking ability.[22] For every outcome we examined, the coefficients of language skills indicate that better language abilities positively influence outcomes. The only exception to this pattern is the coefficient on "very bad" speaking ability, which is quite imprecisely estimated due to small sample sizes.

Importantly, the assimilation patterns for labor market outcomes are robust to controlling for language skills. For instance, in Table 8, in column (1), employment rates increase by 33.7 percentage points ($0.243 + 0.094$) relative to natives during migrants first 15 years in Korea. In column (2), when the language controls are included, employment changes by 31.2 ($0.327 - 0.015$) percentage points. On the other hand, the assimilation effects for household decision-making variables are noticeably smaller when language controls are included. The coefficients associated with language proficiency indicate a positive influence of improved Korean speaking abilities on the probability that decisions are made mostly by the wife or jointly between both spouses. It is also interesting to note that controlling for the years since migration, even migrants with very good speaking abilities are nine percentage points less likely to make decisions by themselves or jointly decide compared to natives, while labor market outcomes are not statistically different from natives if migrants have at least good speaking abilities.

In the same tables, we also include specifications that control for variables that capture cultural differences between spouses because language ability and cultural differences may be correlated with one another. Specifically, we employ two measures of cultural differences: (1) whether migrants experienced cultural differences with their spouse and (2) whether migrants had conflicts with their spouse due to cultural differences. We find that assimilation effects decrease further when cultural differences are included as controls. However, the coefficients of language abilities remain stable. This suggests that the language effects are not driven by cultural differences.

Although this evidence is suggestive of the importance of languages, it is clear that these results are not necessarily causal. The choice to invest in language skills may be endogenous. There is also a possibility of reverse causality because labor market

[22] The language variables are coded as zero for the native-born wives. We also estimate the models including controls for listening, reading, and writing abilities, and find similar results. We present the results controlling for only speaking abilities for simplicity of the presentation. Furthermore, speaking abilities have the most significant impacts and the assimilation results remain similar when additional language controls are included.

Table 8 Effect of years spent in Korea on labor market outcomes, with language and culture controls

Dependent variable	Employed (=1)				Monthly income ($)				Weekly hours of working			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0–1 yrs in KR	−0.243***	−0.327***	−0.114**	−0.188***	−356.950***	−326.952**	−362.551***	−343.865**	−13.616***	−20.651***	−5.307**	−12.260***
	(0.040)	(0.059)	(0.048)	(0.064)	(76.061)	(129.491)	(95.991)	(139.795)	(1.968)	(2.531)	(2.316)	(2.776)
2–4 yrs in KR	−0.137***	−0.237***	−0.029	−0.119*	−279.304***	−261.085**	−282.973***	−275.422**	−9.238***	−16.875***	−2.262	−9.797***
	(0.039)	(0.058)	(0.046)	(0.062)	(74.536)	(128.253)	(92.152)	(137.296)	(1.917)	(2.482)	(2.228)	(2.702)
5–9 yrs in KR	0.005	−0.101*	0.080*	−0.016	−145.917**	−132.393	−146.218*	−142.535	−2.939	−10.765***	1.986	−5.690**
	(0.037)	(0.056)	(0.041)	(0.059)	(70.424)	(125.949)	(81.868)	(131.229)	(1.827)	(2.409)	(2.021)	(2.538)
10–14 yrs in KR	0.069*	−0.040	0.118***	0.020	−42.661	−32.731	−40.593	−39.779	0.464	−7.461***	3.840**	−3.878
	(0.035)	(0.055)	(0.038)	(0.057)	(66.738)	(123.875)	(73.104)	(126.357)	(1.757)	(2.357)	(1.861)	(2.421)
Over 15 yrs in KR	0.094***	−0.015	0.114***	0.017	51.134	58.741	55.254	54.667	3.009*	−4.944**	4.580***	−3.125
	(0.032)	(0.053)	(0.033)	(0.054)	(59.354)	(120.070)	(61.554)	(120.557)	(1.577)	(2.223)	(1.612)	(2.240)
Korean ability: very bad		−0.112**		−0.099**		−0.348		−6.032		−8.231***		−7.877***
		(0.044)		(0.044)		(105.806)		(105.956)		(1.646)		(1.659)
Korean ability: bad		−0.110***		−0.109***		−98.939***		−97.217***		−4.397***		−4.114***
		(0.019)		(0.019)		(26.609)		(26.838)		(0.929)		(0.930)
Korean ability: average		−0.029**		−0.027**		−23.855		−22.405		−1.309**		−1.024*
		(0.013)		(0.013)		(19.333)		(19.340)		(0.607)		(0.607)
Korean ability: good		−0.007		−0.005		−20.891		−19.626		−0.504		−0.191
		(0.010)		(0.010)		(15.545)		(15.511)		(0.467)		(0.467)
Korean ability: very good		−0.004		−0.002		−20.538		−19.535		−0.745		−0.496
		(0.010)		(0.010)		(16.680)		(16.592)		(0.477)		(0.477)

Table 8 continued

Dependent variable	Employed (=1)				Monthly income ($)				Weekly hours of working			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Experienced cultural diff			0.017**	0.017**			−13.978	−10.736			0.192	0.168
			(0.007)	(0.008)			(12.468)	(12.570)			(0.367)	(0.371)
Fought with the spouse due to cultural diff			−0.026***	−0.027***			14.026	11.232			−0.852**	−0.825**
			(0.007)	(0.007)			(11.765)	(11.823)			(0.349)	(0.352)
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spouse characteristics controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Language controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Culture difference controls	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Dep. var. mean	0.417	0.417	0.417	0.417	539.7	539.7	539.7	539.7	16.3	16.3	16.3	16.3
Observations	97,853	97,853	97,853	97,853	96,131	96,131	96,131	96,131	96,455	96,455	96,455	96,455

Notes: Omitted category for years spent in Korea is natives. Controls include age, education dummies, and rural status. Spouse controls include spousal age and spousal education dummies. Language controls include speaking skill dummies (5-point scale). Native language skills are coded as 0. Cultural difference controls include whether the couples experienced cultural differences and whether migrants fought with the spouse due to cultural differences. For these cultural variables, the values for natives are all coded as 0. Monthly income is adjusted by the consumer price index (2020) and is in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Table 9 Effect of years spent in Korea on household expenditure decision-making, with languages and culture controls

	Dep. var.: Decisions made by mostly wives or together (= 1)			
	(1)	(2)	(3)	(4)
0–1 yrs in KR	−0.33***	−0.14**	−0.28***	−0.16**
	(0.05)	(0.07)	(0.05)	(0.07)
2–4 yrs in KR	−0.26***	−0.10	−0.20***	−0.11*
	(0.05)	(0.06)	(0.05)	(0.06)
5–9 yrs in KR	−0.18***	−0.05	−0.12***	−0.06
	(0.04)	(0.06)	(0.04)	(0.06)
10–14 yrs in KR	−0.11***	0.01	−0.05	0.00
	(0.04)	(0.06)	(0.04)	(0.06)
Over 15 yrs in KR	−0.07*	0.04	−0.01	0.03
	(0.04)	(0.06)	(0.04)	(0.06)
Korean ability: very bad		0.06		0.02
		(0.05)		(0.05)
Korean ability: bad		−0.26***		−0.23***
		(0.03)		(0.03)
Korean ability: average		−0.24***		−0.22***
		(0.02)		(0.02)
Korean ability: good		−0.16***		−0.14***
		(0.01)		(0.01)
Korean ability: very good		−0.09***		−0.08***
		(0.01)		(0.01)
Experienced cultural diff			−0.10***	−0.07***
			(0.01)	(0.01)
Fought with the spouse due to cultural diff			−0.03***	−0.03**
			(0.01)	(0.01)
Survey year FE	Yes	Yes	Yes	Yes
Cohort effect	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Spouse characteristics controls	Yes	Yes	Yes	Yes
Language controls	No	Yes	No	Yes
Culture difference controls	No	No	Yes	Yes
Dep. var. mean	0.719	0.719	0.719	0.719
Observations	22,754	22,754	22,754	22,754

Notes: Omitted category for years spent in Korea is natives. Controls include age, education dummies, and rural status. Spouse controls include spousal age and spousal education dummies. Language controls include speaking skill dummies (5-point scale). Native language skills are coded as 0. Cultural difference controls include whether the couples experienced cultural differences and whether migrants fought with the spouse due to cultural differences. For these cultural variables, the values for natives are all coded as 0. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Table 10 Summary statistics: Choseonjok vs. Non-Choseonjok migrants

	(1) Choseonjok mean	(2) Non-Choseonjok mean
Rural	0.200	0.219
Age	36.598	34.956
Age of spouse	44.401	43.823
First marriage	0.777	0.772
First marriage of spouse	0.817	0.783
Less than high school	0.225	0.261
High school	0.559	0.469
College	0.203	0.240
More than college	0.013	0.030
Spouse: Less than high school	0.143	0.118
Spouse: High school	0.605	0.538
Spouse: College	0.238	0.318
Spouse: More than college	0.011	0.021
Year since migration	10.105	7.625
Have permanent residency or KR citizenship	0.727	0.465
Monthly household income	3090.272	3126.031
Observations	16,400	11,704

Sources: The NSMF 2009, 2012, 2015, 2018 and the NSFFHW 2009, 2012, 2015, 2018. Notes: The samples include married women whose ages were between 20 and 40 years old in 2009. Monthly income and wage are adjusted by the consumer price index (2020) and are in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. The statistics are weighted using the NSMF weights

outcomes and household decision-making power affect the acquisition of language skills. It is difficult to find an exogenous variation in language skills because typically language skills are correlated with many other observable and unobservable attributes.[23]

To better understand the impacts of language skills, we exploit a unique feature of migration to Korea. Approximately half of Chinese marriage migrant women are ethnically Korean (Choseonjok), whereas the other half are not ethnically Korean. Both groups are born in China and share a common cultural background from China. For instance, the structure of education (curriculum and assessment) in China is largely same for minority and Han ethnicity (Cherng et al. 2019; Yang et al. 2015). However, Choseonjok individuals also share a cultural heritage with Koreans, including

[23] Angrist and Lavy (1997) exploited a change in language of instruction in Morocco to identify the impacts of language skills on test scores and earnings. Bleakley and Chin (2004) used the fact that younger children have advantages in learning languages compared to older children to construct an instrument for language abilities. More recently, Cai and Zimmermann (2022) used the linguistic distance between the dialect of the original province of migrants and their host county in the context of Chinese internal migration as an exogenous variation.

language, traditions, and customs. Furthermore, despite the official education policy emphasizing the use of Mandarin in China, the language of instruction is allowed to be local languages if there are more than 50% of students who can speak local languages (Cherng et al. 2019; Yang et al. 2015). Accordingly, Choseonjok individuals have better Korean language skills compared to non-Choseonjok Chinese and may have a stronger affinity with Korean culture due to their ethnic ties.

Choseonjok and non-Choseonjok Chinese migrants are quite similar to one another along a range of dimensions, except for their ability to speak Korean. Table 10 provides summary statistics for the two groups. The share of migrants in rural areas, the age gap between spouses, share of first marriages, educational distribution, and monthly income are similar between Choseonjok and non-Choseonjok. However, Choseonjok has longer residence in Korea on average and is more likely to have Korean citizenship or permanent residency.[24]

A comparison of language abilities is presented in Fig. 6.[25] The vertical axis measures the fraction of migrants who report that their speaking ability is "at least average level," the top three categories within a set of five scales used for language ability assessment questions. Upon arrival, Choseonjok marriage migrant women have significantly better speaking abilities in Korean compared to non-Choseonjok Chinese marriage migrant women. Both groups show improvements in language skills over time, but the growth is faster for non-Choseonjok women given the lower baseline language abilities. Upon arrival, more than half of Non-Choseonjok women's speaking ability is rated to be bad or very bad, whereas only less than 10% of Choseonjok are at that level. After residing in Korea for 15 years or more, both groups tend to have similar speaking abilities.

Language is obviously an important difference between the two groups, but there may be other time-varying differences as well. Specifically, Choseonjok women may exhibit greater familiarity with Korean culture overall, which could also influence assimilation patterns. Figure 6 also presents cultural difference variables over time for Choseonjok and non-Choseonjok migrant women. Non-Choseonjok women tend to experience more cultural differences, as expected. However, unlike a clear improvement pattern in language abilities, the cultural gap changes only slightly over time. For Choseonjok women, both measures of cultural differences stay relatively stable over time. Nevertheless, when examining labor market outcomes and household outcomes, we include a specification controlling for these cultural difference measures to see if outcome differences among Choseonjok and non-Choseonjok are mainly driven by these cultural gaps.

In Tables 11 and 12, we assess whether Choseonjok and non-Choseonjok Chinese migrants have different assimilation patterns for labor market outcomes and house-

[24] Ethnic Korean women are eligible for work visas that are unavailable to other foreign spouses (Choi et al. 2021). More specifically, once divorced, ethnic Korean Chinese women do not need to return to China, whereas other foreign spouses have to return if they do not have Korean permanent residency or citizenship (which they typically obtain after 2 years in Korea).

[25] Listening, reading, and writing graphs show qualitatively similar patterns. These graphs can be provided upon request.

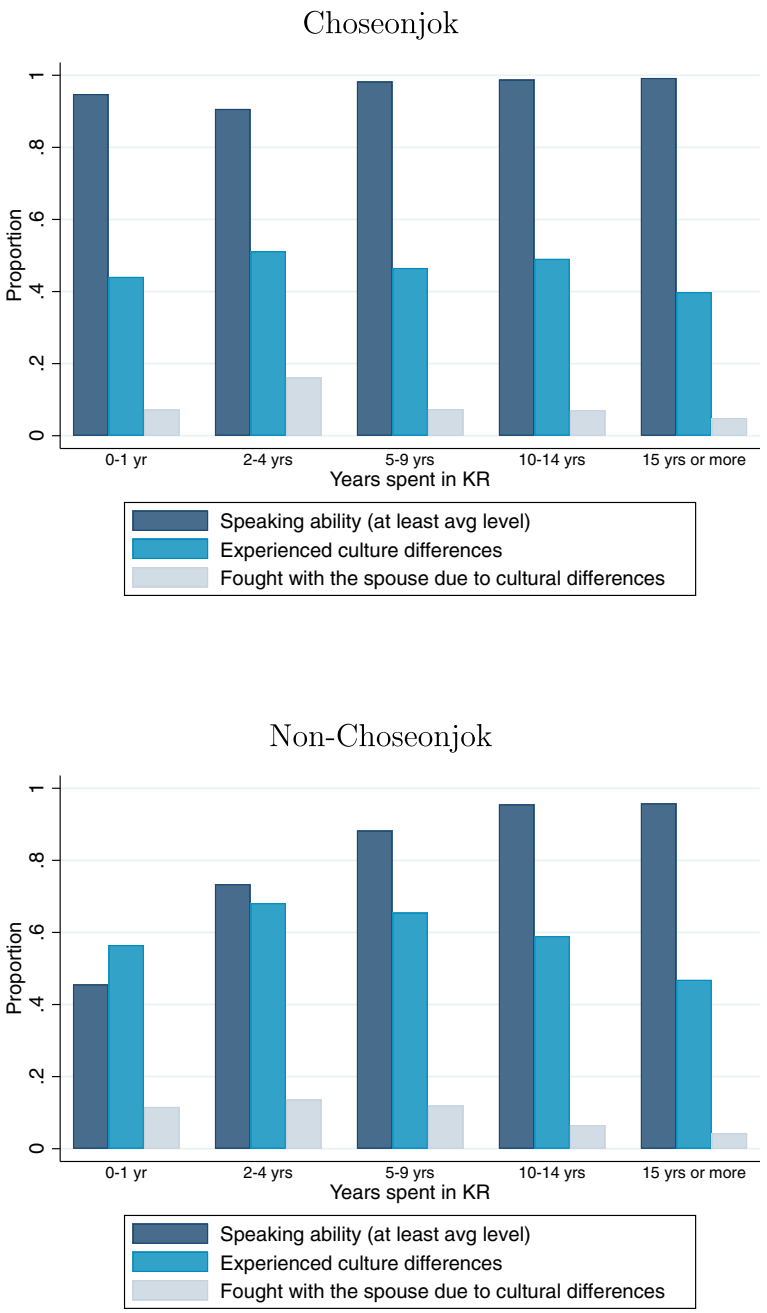


Fig. 6 Korean speaking abilities and cultural differences by years spent in Korea and ethnicity. Source: The NSMF 2012, 2015, and the NSFFW 2012, 2015. Note: Sample includes migrants from China. Sample weights of the surveys are applied

Table 11 Ethnic variation in the effect of years spent in Korea on labor market outcomes

Dependent variable	Employed (=1)			Monthly income ($)			Weekly hours of working		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0–1 yrs in KR	−0.135***	−0.138***	0.010	−229.068**	−245.094***	−235.403**	−8.377***	−8.524***	0.698
	(0.050)	(0.051)	(0.062)	(93.332)	(94.086)	(118.819)	(2.480)	(2.517)	(3.083)
2–4 yrs in KR	−0.051	−0.050	0.073	−159.196*	−184.439**	−165.295	−4.806**	−5.121**	2.573
	(0.048)	(0.049)	(0.059)	(91.326)	(92.035)	(113.892)	(2.396)	(2.421)	(2.918)
5–9 yrs in KR	0.021	0.028	0.116**	−94.407	−106.322	−81.403	−1.993	−2.470	3.071
	(0.045)	(0.046)	(0.052)	(86.111)	(87.574)	(100.970)	(2.262)	(2.303)	(2.606)
10–14 yrs in KR	0.097**	0.079*	0.142***	14.289	−38.180	−14.395	1.608	−0.068	3.895
	(0.043)	(0.044)	(0.048)	(81.936)	(84.464)	(91.816)	(2.171)	(2.238)	(2.406)
Over 15 yrs in KR	0.130***	0.127***	0.157***	131.728*	96.109	118.175	4.772**	3.641*	5.590***
	(0.038)	(0.041)	(0.043)	(71.422)	(79.251)	(81.269)	(1.898)	(2.100)	(2.149)
Choseonjok × 0–1 yrs in KR		0.006	0.003		14.168	12.052		−2.012	−2.223
		(0.037)	(0.037)		(56.333)	(56.115)		(1.594)	(1.633)
Choseonjok × 2–4 yrs in KR		−0.009	−0.003		40.716	35.558		−0.502	−0.157
		(0.023)	(0.023)		(36.815)	(36.976)		(1.187)	(1.191)
Choseonjok × 5–9 yrs in KR		−0.020	−0.020		2.042	−7.567		0.277	0.295
		(0.019)	(0.019)		(32.012)	(32.084)		(0.944)	(0.951)
Choseonjok × 10–14 yrs in KR		0.030	0.029		85.073**	81.652**		2.727***	2.581**
		(0.020)	(0.020)		(36.806)	(36.746)		(1.037)	(1.035)

Table 11 continued

Dependent variable	Employed (=1)			Monthly income ($)			Weekly hours of working		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Choseonjok × Over 15 yrs in KR		0.005	0.007		56.743	53.928		1.810	1.928
		(0.028)	(0.028)		(56.461)	(56.467)		(1.503)	(1.502)
Survey year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spouse characteristics controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cultural difference controls	No	No	Yes	No	No	Yes	No	No	Yes
p val: Choseonjok interaction terms		0.586	0.654		0.178	0.228		0.069	0.080
Dep. var. mean	0.470	0.470	0.470	688.9	688.9	688.9	19.0	19.0	19.0
Observations	53,710	53,710	53,710	52,663	52,663	52,663	53,139	53,139	53,139

Notes: Omitted category for years spent in Korea is natives. Controls include age, education dummies, and rural status. Spouse controls include spousal age and spousal education dummies. Monthly income is adjusted by the consumer price index (2020) and is in 1000 KRW. 1000 KRW was roughly equivalent to 0.9 US dollars in 2018. Monthly income is winsorized at 99%. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: $*p < 0.1$; $**p < 0.05$; $***p < 0.01$

Table 12 Ethnic variation in the effect of years spent in Korea on household expenditure decision-making

	Dep. var.: Decisions made by mostly wives or together (= 1)		
	(1)	(2)	(3)
0–1 yrs in KR	−0.26***	−0.30***	−0.26***
	(0.08)	(0.08)	(0.08)
2–4 yrs in KR	−0.22***	−0.27***	−0.22***
	(0.06)	(0.06)	(0.06)
5–9 yrs in KR	−0.14***	−0.18***	−0.13**
	(0.05)	(0.05)	(0.05)
10–14 yrs in KR	−0.07	−0.08*	−0.04
	(0.05)	(0.05)	(0.05)
Over 15 yrs in KR	−0.03	−0.03	0.01
	(0.04)	(0.04)	(0.04)
Choseonjok × 0–1 yrs in KR		0.08	0.06
		(0.13)	(0.13)
Choseonjok × 2–4 yrs in KR		0.16***	0.15***
		(0.04)	(0.04)
Choseonjok × 5–9 yrs in KR		0.07***	0.05**
		(0.02)	(0.02)
Choseonjok × 10–14 yrs in KR		0.02	0.02
		(0.02)	(0.02)
Choseonjok × Over 15 yrs in KR		0.00	0.01
		(0.03)	(0.03)
Survey year FE	Yes	Yes	Yes
Cohort effect	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Spouse characteristics controls	Yes	Yes	Yes
Cultural difference controls	No	No	Yes
p val: Choseonjok interaction terms		0.000	0.001
Dep. var. mean	0.865	0.865	0.865
Observations	11,388	11,388	11,388

Notes: Omitted category for years spent in Korea is natives. Controls include age and education dummies. Spouse controls include spousal age and spousal education dummies. Sample weights of the surveys are applied. Robust standard errors are used. Significance levels: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

hold decision-making. We do this by augmenting our primary regression specification with interactions between the duration of residence in Korea and an indicator for Choseonjok individuals. For models of labor market outcomes, the coefficients on the

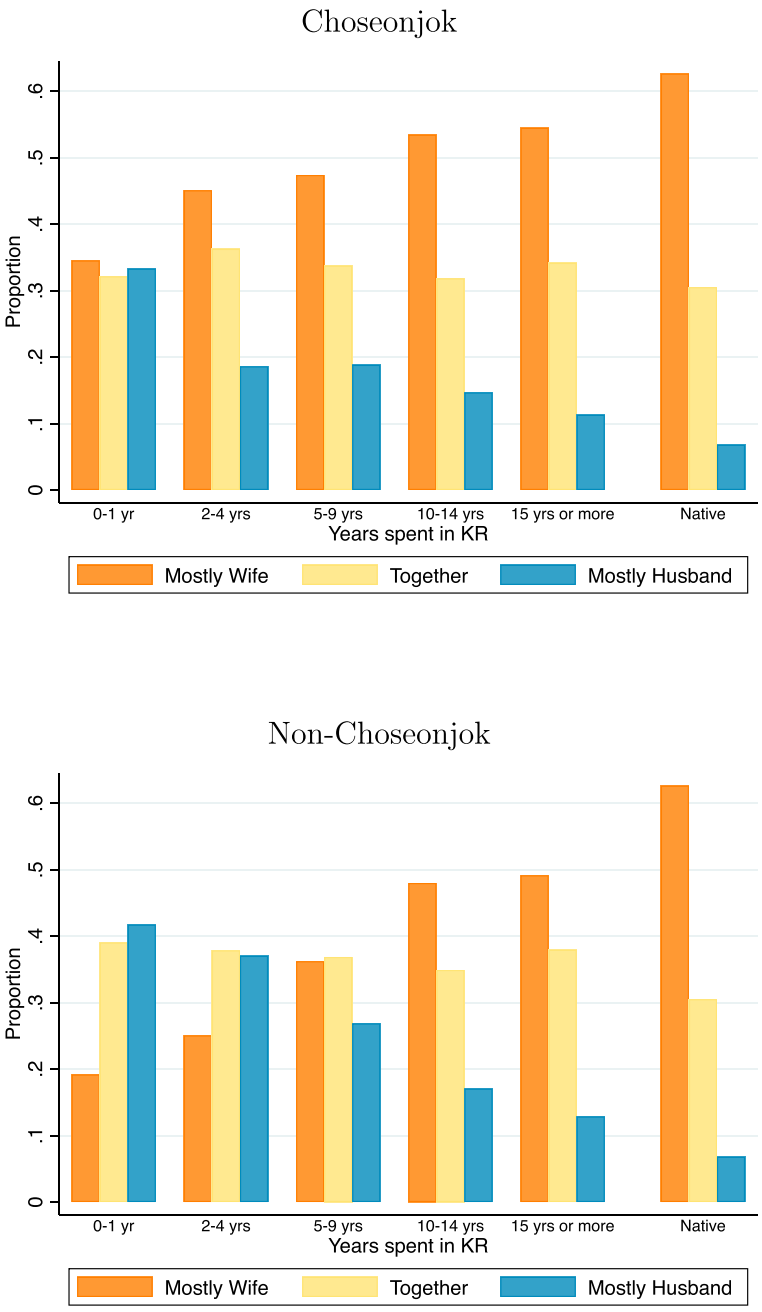


Fig. 7 Household daily expenditure decision-making by years spent in Korea and ethnicity. Sources: The NSMF 2012, 2015, the NSFFW 2012, and the NSKF 2015. Note: Sample includes natives and migrants from China. Sample weights of the surveys are applied

interaction effects tend to be small and we cannot reject the null hypothesis that these interaction terms are jointly zero at the 5% significance level. Thus, although employment rates among marriage migrants eventually surpass those of native-born Korean wives, the language advantage enjoyed by Choseonjok wives does not translate into any additional labor market success relative to other Chinese migrants. This finding is consistent with Damas de Matos (2017), which shows that language proficiency plays a limited role in driving economic assimilation within the low-skilled labor market in the context of Portugal.

Decision-making patterns are strikingly different between Choseonjok and non-Choseonjok, as documented in Table 12 and Fig. 7. Even though Choseonjok and non-Choseonjok marriage migrant women have similar individual and household characteristics as well as comparable labor market outcomes, non-Choseonjok women have much lower decision-making power within households. All the Choseonjok interaction terms are positive, indicating that Choseonjok women consistently have higher decision-making power within households compared to non-Choseonjok women. These differences between the two groups of women are statistically significant, suggesting an important role of language proficiency for household decision-making. In the third column of the results for both labor market outcomes and household outcomes, we include controls for cultural differences, and the coefficients for interaction terms for Choseonjok decrease slightly, but mostly remain similar. This suggests that their different assimilation patterns are not driven by cultural differences.

7 Conclusion

We investigate the economic assimilation of marriage migrants in Korea. Marriage migration is an important and growing phenomenon in Asian countries that are grappling with severe sex ratio imbalances, a phenomenon that is unlikely to diminish in the foreseeable future. Indeed, cross-border marriages may rise in countries such as China and India where serious sex ratio imbalances persist. The unique setting of Korea, with its significant influx of marriage migrants driven by male-skewed sex ratios, provides an ideal setting to examine the economic assimilation of these individuals within the labor market and households.

Our analysis shows that marriage migrants in Korea assimilate into the Korean labor market, with employment rates increasing significantly with additional time in Korea and ultimately surpassing that of native-born Korean wives. Despite this, migrant wives are less likely to report that they are responsible for household expenditure decisions within their family. This disparity in decision-making power within households underscores the importance of going beyond economic outcomes and understanding intra-household dynamics to comprehensively understand the assimilation experiences of marriage migrants. Our study also highlights the positive role of language proficiency in influencing household decision-making among marriage migrants.

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Data availability Data used in this study are available for download at MicroData Integrated Service from the Statistics Korea (https://mdis.kostat.go.kr/eng). Replication codes will be available upon request.

Declarations

Conflict of interest The authors declare no competing interests.

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