

Hypergamy and Cross Border Marriages in South Korea: An Examination of Factors Influencing Flows of Migrant Brides and Grooms from Developing Countries

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Abstract

This study investigates whether cross-border marriages in South Korea follow the logic of hypergamy. It examines whether the factors that affect the number of brides from developing countries also hold true for grooms using a panel regression analysis based on a modified gravity model and macro-national data from 1999-2012. Results show the model accounting for 54% of the variation in the number of foreign brides and 42% of the variation in the number of foreign grooms. In the case of foreign brides, five (5) out of seven (7) variables were statistically significant. The share of women in the population and gender inequality were found to be significant and positive predictors. In the case of foreign grooms, only three (3) out of seven (7) variables were statistically significant. There is limited evidence that marriages involving brides from developing countries are consistent with expectations of hypergamy. There is very limited and weak evidence that marriages involving foreign grooms also follow this trend.

Keywords

Hypergamy; cross-border marriages; international marriages; marriage migration; developing countries

Introduction

Despite South Korea's preferred narrative of ethnic homogeneity, cross-border marriages are on the rise there. Studies suggest that from negligible numbers three decades ago, roughly one out of every ten marriages in South Korea now involve a spouse from another country. Approximately eight in ten marriages involve brides from other countries marrying a Korean groom. Many of these brides come from developing countries in Southeast and Central Asia.

The general term "marriage migration" pertains to spatial movement to join a spouse who lives in another area (Fan & Li, 2002). The terms "cross-border marriage-migration", "cross-border marriages", and "marriage migration" extend to spatial movement either by men or women across national borders to join a spouse residing in another country. Some recent studies that use these terms, however, use them in the context of the observed large-scale migration of brides often from developing countries to developed countries to marry grooms there (Constable, 2005; Williams, 2010; Tseng, 2010; Kim, Yang & Torneo, 2012).

Earlier literature documented the phenomenon in developed Western countries and more recently in Japan and South Korea. While extensive studies have been conducted on the

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migration of brides from developing countries in the literature in both countries, few studies focus on foreign grooms from developing countries (Kim, Yang & Torneo, 2012). This study aims to remedy this gap in the literature with a particular focus on South Korea.

Implicit in the existing studies of female marriage migration is the assumption that the increase in the number of foreign brides in South Korea is driven in part by economic considerations. The logic of this argument is that many of the foreign brides in South Korea marry Koreans to improve their socio-economic status. After all, the vast majority of foreign brides married to Korean men come from developing countries.

The concept of “hypergamy” captures this logic. This term pertains to the practice of marrying upwards of one’s socio-economic class in order to improve social, economic, and/or political mobility (Crestor & de Leon, 1982; Williams, 2010). Earlier studies used the term to describe the matrimonial practice in some castes of Hindu society where brides marry a groom with a higher social status (Van Den Berghe, 1960). Hypergamy is distinguished from “isogamy”, where marriage occurs between social, economic, or political equals, and “hypogamy”, where marriage may reduce the bride’s social, economic, and/or political status (Williams, 2010).

The term “global hypergamy” is used by Constable (2005) to describe the global phenomenon of marrying “up”. This describes the observed phenomenon where large numbers of women from less developed countries tend to marry men from more developed countries, such as South Korea, presumably to improve their status. Some studies note, however, that this is not a simple or straightforward process as brides may improve economically but experience reduced social or political status (Freeman, 2005; Schans, 2012; Ishii, 2016).

It is not the intention of this study to argue that hypergamy is the sole driver of cross-border marriages in South Korea. Marriage is a complex phenomenon and many other variables are at play. From the demand side, marriage squeeze and the demographic and social changes that accompany industrialization are among the oft-mentioned pull factors for migrant brides in South Korea. From the supply side, poor economic conditions, lack of economic opportunities, and low standards of living are some of the factors assumed to push women from developing countries to marry men from developed countries like South Korea (H.M. Kim, 2007; H. Kim, 2008; Lee, 2008; Lim, 2010; J.K. Kim, 2011; Kim, Yang & Torneo, 2012; 2014).

Statement of the problem

Until the 1990s, both immigration and cross-border marriages were rare in South Korea. Where cross-border marriages between Korean and non-Korean nationals did occur, the majority of the foreign spouses were grooms. This changed in the mid-1990s when thousands of ethnic Korean brides from China arrived and was followed in the late 1990s by an influx of women from other developing Asian countries. The rapid rise of female marriage migration in South Korea has received plenty of attention, but the scholarship is yet to be fully developed. Unlike labor migration, there are few comprehensive theoretical explanations or empirical models addressing marriage migration.

Implicit in the existing studies of cross-border marriages in South Korea is the assumption that such marriages are influenced by demographic and economic considerations. Without discounting the micro- and meso-level factors at play in both South Korea and origin countries, we note that overall, the phenomenon is both explicitly and implicitly assumed to respond to “push” and “pull” forces in a manner similar to labor migration, albeit with a

different set of drivers (e.g., marriage squeeze vs. labor shortage). The specific drivers, their dynamics, and their specific contributions are rarely subjected to empirical verification, however. Various scholars have offered their insights, but there are very few theoretical and empirical studies on the subject, with many studies employing case studies or descriptive and qualitative approaches (Freeman, 2005; Abelman & Kim, 2004; Lee, 2010; Williams, 2010; H.M. Kim, 2007; H. Kim, 2008; Lee, 2008; Lim, 2010; Kim, 2010; J.K. Kim, 2011; Kim, Yang, & Torneo, 2012).

Economic considerations are either implicitly or explicitly assumed to influence cross-border marriages involving brides from developing countries, but there is a dearth of empirical studies validating this claim. Neither Kim, Yang, and Torneo's (2012) study of cross-border marriages nor Torneo's (2016) study of the factors of labor migration in South Korea involve an empirical analysis and validation of the specific correlates that influence cross-border marriages in South Korea. Moreover, published English studies of grooms from developing countries in South Korea are virtually non-existent in the English literature.

This study attempts to address the aforementioned gaps. It will answer the central research question: *Do the trends in the number of cross-border marriages between Korean nationals and brides from developing countries follow the logic of hypergamy?* It will also answer the operative sub-questions: *Do changes in the macro development conditions of developing countries of origin have a discernible impact on the number of foreign brides and grooms in South Korea from those countries? Do the macro development factors that affect the number of brides also affect the number of grooms from developing countries in a similar manner?*

This study is an attempt to empirically validate whether economic explanations for cross-marriages involving brides from developing countries are supported by empirical data. It will examine whether countries that are less developed tend to have a greater share of foreign brides in a destination country like South Korea and whether changes in conditions like inflation and unemployment will affect their numbers. As standard in migration literature, population and distance were included in the model. Gender inequality and the Human Development Index were added as new variables.

While there is ample literature on the issue of female marriage migration from developing countries to South Korea, the author has yet to encounter a study that claims the existence of a male marriage migration phenomenon from developing countries. And yet the data suggest that there are an increasing number of grooms from developing countries in the country even if the number is substantially below the magnitude of brides. This study will thus examine macro data to see if there is evidence that men from developing countries are also influenced by macro-development factors to seek out marriage with Korean nationals as a way to improve their socio-economic conditions as is the case in hypergamous marriages.

Significance of the study

This study will examine empirical evidence on whether the oft assumed "hypergamy" (Crestor & de Leon, 1982) concept provides a good basis for examining marriage migration from developing to developed countries as a form of economic behavior at the macro national level. It will also provide valuable insights on the possible impact of macro-development conditions in developing countries of origin on the number of cross-border marriages and migrants in South Korea from those countries who have migrated for or through marriage.

One unique feature of this study is its attempt to examine the case of brides and grooms from developing countries of origin separately using hypergamy as a lens. It examines first

whether the macro-development conditions of developing countries of origin impact the number of marriages involving brides from developing countries in South Korea as would be expected if such marriages followed the logic of hypergamy. Then it examines whether these conditions also affect the number of marriages involving grooms from origin countries in the same way.

Another unique feature of this paper is its inclusion of gender equality as a variable. While previous studies on the topic have tended to over-emphasize economic considerations as a driving force for why women from developing countries marry men in developed ones, little attention is given to the gender relations in these societies. This study examines whether women in developing countries where gender inequality is more prevalent tend to marry in higher numbers than women from developing countries with higher levels of gender equality.

Scope and limitations

The study will not comprehensively discuss the micro and meso drivers of marriage migration in South Korea and origin countries since most of these are already adequately covered in the literature. Instead, it will focus its analysis on selected macro-level development variables at the national level. The idea is to test how the number of cross-border marriages involving men and women from developing countries responds to changes and variations in national conditions. Annual country-level data will be used to examine the impacts of these variables on cross-border marriages involving brides and grooms, separately.

This study utilizes data from 1999 to 2012 and includes only countries that have had substantial numbers of their nationals marrying South Koreans and that can, therefore, provide relatively complete data. Until around 1999, the Korean government tended to cluster together the data for several countries in official records and only a few countries were recorded separately. Thus, the dataset adopted was from 1999 when records of spouses from different countries were already disaggregated. There are around 20 countries from which a substantial number of foreign brides in South Korea originate and around 19 countries from which the foreign grooms originate.

However, only the 15 developing countries from which most foreign brides originate and eight (8) developing countries from which foreign grooms originate are considered in the analysis for theoretical and practical reasons. Unlike in the case of developing countries, there is no theoretical or empirical literature that strongly argues that significant numbers of men and/or women from developed countries are marrying South Koreans for economic reasons.

The selection generates a strongly balanced panel of data that allows for a more efficient panel regression analysis of how variations in the selected demographic and socio-economic factors correlate with variations in the number of foreign brides and foreign grooms. Admittedly, removing countries with extremely low numbers of nationals married to Korean nationals and those with missing data poses some limitations, but the author believes that this is justified. Missing data and data from countries with very low variations (e.g., differences of 0 or 1 marriages a year) contribute very little in helping us to measure the effects of the selected variables on the numbers of foreign brides or grooms in a regression model.

Materials and Methods

Theorizing and modeling marriage migration

Economic theories primarily see international migration as a product of demand and supply considerations as well as rational decision-making processes by migrants. Neoclassical economic theories see migration as a result of substantial wage differences as well as differences in the availability of labor and capital between developing and industrialized countries. Migrants move from countries with surplus labor to countries with capital, and capital moves to countries with surplus labor until equilibrium is reached. Dual labor market theory links immigration to the structural characteristics of modern industrial economies that create a permanent demand for cheap foreign migrant labor. New Economics of Migration see migration as a family strategy for managing economic risks (Todaro, 1976; Massey et al., 1993). These theories, however, are based on and pertain to the international migration of labor. These have been used to explain migration to South Korea (Torneo & Yang, 2015).

Push-pull conceptualizations explain that international migration is a result of “push factors” from sending countries and “pull factors” from receiving countries. Push factors are conditions in the home countries that encourage people to migrate. These include lack of employment opportunities, low wages, low living standards, and political instability. Pull factors, on the other hand, are conditions in receiving countries that create demand for migrants. These include labor shortages, high wages, higher living standards, and better political environments (Kim, 2009; Torneo, 2016). These factors are often applied to international labor migration but rarely to marriage migration.

While the economic push-pull conceptualizations are the primary approaches adopted in this study, the author acknowledges the important role of non-economic, non-material, and emotional meso- and micro-level factors in migration. Family, kinship, and social ties, for example, may play an important role in migration decisions and serve as the basis of migrant social networks. These are defined by Massey et al. (1993, p. 448) as “sets of interpersonal ties that connect migrants, former migrants, and non-migrants in origin and destination areas through ties of kinship, friendship, and shared community origin”.

Social networks facilitate the transmission of information, job opportunities, and adaptation of potential migrants to destination countries thereby incentivizing migrants to choose destinations where there are such communities (Fawcett, 1989; Vogler & Rotte, 2000; Mayda, 2010). Social networks may contribute to marriage migration, for example, through marriage immigrants acting as facilitators of marriages for friends or relatives from their home country (Lee, 2008; Seol, 2006; Tseng, 2010).

Compared to labor migration, theories of marriage migration are less established. Studies of marriage migration in South Korea have explained the phenomenon from both the supply (push) and the demand (pull) side. Demand-side explanations point to “marriage squeeze” or the shortage of Korean brides, especially in rural areas, as being a result of the confluence of various factors. These include the migration of women to urban areas, improvements in education, changing norms (that see women delaying marriage and establishing careers), and skewed gender ratios arising from population policies in the 1960s that manifested in the marriage-eligible population of the 1990s (H.M. Kim, 2008; Kim, Yang & Torneo, 2012).

Women perform essential reproductive, labor, and other socio-economic functions. Especially in rural areas, wives are expected to help their husbands in their livelihood, bear

and rear children, be homemakers, and take care of their respective husband's parents in their old age. The demand for foreign brides in South Korea may, therefore, be understood in the context of a need to address the need for both the reproductive and traditional labor roles of Korean wives insofar as they are no longer sufficiently being addressed, especially in rural areas. To further complicate matters, marriage squeeze in South Korea is occurring against the backdrop of a rapidly ageing population. As such, even the Korean national government has adopted policies supporting marriage migrants as well as what they refer to as "multicultural families" (Torneo, 2014).

Supply-side explanations, on the other hand, emphasize the economic logic of cross-border marriages from developing countries. The majority of foreign brides in South Korea come from developing countries with lower per capita incomes and standards of living (Kim, Yang & Torneo, 2012). As such, "hypergamy", the practice of marrying upwards of one's socio-economic class, provides a basis for examining these marriages as a form of economic behavior. From this perspective, women from developing countries marry men in more developed countries in order to improve their socio-economic status. With South Korea's ascent into the ranks of developed countries with higher incomes and standards of living, women from less developed countries have more opportunities to improve their social mobility through marriage with Korean men. The logic of hypergamous marriages parallels that of international labor migration.

Gravity model of marriage migration

In developing an empirical model for studying marriage migration, the author built on previous models of international labor migration. Generally, migration is argued to be influenced by economic considerations as well as supply, demand, and other factors that affect mobility. Labor migrants move from countries with low income and job opportunities to countries with higher incomes and job opportunities (Todaro, 1976; Massey et al., 1993). Labor shortages—especially in industries involving dirty, difficult, and dangerous work—create a demand for foreign workers from developing countries. In a similar manner, marriage migrants are observed to move from developing countries with relatively low standards of living to more industrialized countries with better standards of living. In the case of South Korea, the shortage of marriage-eligible women in rural areas also creates a demand for foreign brides from developing countries.

While there is still no well-established empirical model of marriage migration, the findings of the most recent studies provide a good starting point for developing such a model. Kim, Yang, and Torneo (2012, p. 27) note that foreign brides in South Korea mostly come from: a) developing Asian countries—mostly in Southeast and Central Asia; b) countries that are geographically proximate and have strong economic and historical ties with South Korea (i.e. China and Japan); or c) developing countries where a substantial population of the Korean diaspora reside (e.g., China, Uzbekistan, and countries from the former USSR). The majority of sending countries are less developed and have lower per capita incomes than South Korea.

According to the same study, foreign grooms in South Korea predominantly come from: a) countries in close proximity to South Korea (e.g. Japan, China, and, to a lesser extent, Taiwan) and/or that have a traditionally large presence in South Korea (e.g. the U.S.); b) developed countries to which substantial numbers of Koreans travel or migrate (e.g. Canada, Australia, England, Germany, France, etc.) whose nationals are involved in smaller numbers compared to the first group; and c) labour-sending countries (e.g. Bangladesh, Pakistan, Vietnam, Philippines, etc.), the nationals of which are involved in an even smaller

number of marriages. Foreign grooms are very diverse and, as of the most recent studies, there are no indications that marriages involving them are characterized by socio-economic considerations.

To a broad extent, the pattern of migration by foreign brides from countries with low levels of economic development relative to South Korea fits the expectation of economic theories and the logic of hypergamy. There appears to be a socio-economic rationale to such marriages as foreign brides predominantly come from developing countries with poorer socio-economic conditions relative to South Korea. Also notable is the element of strong geographic proximity in both types of marriages. The combination of these features suggests that migration by foreign brides may be reasonably examined using the gravity model.

The gravity model is one of the most successful models of economic and spatial interaction. This model describes migration as a function consisting of three groups of variables: 1) political, economic, and demographic factors affecting migrant flows from the source country; 2) political, economic, and demographic factors affecting migrant flows to the receiving country; and 3) natural and artificial factors enhancing or restraining migrant flows to the host country. Migration is influenced by factors relevant to the source country, the receiving country, the characteristics of the migrants, and natural or artificial factors, such as distance (Anderson, 2010; Borjas, 1989; Vogler & Rotte, 2000; Karemera, Oguledo & Davis, 2000; Mayda, 2010).

The foundations of the gravity model of migration were established in Ravenstein's (1885, 1889) Laws of Migration and the work of Lee (1966). The basic proposition is that migration is directly proportional to the population of sending and receiving locations and inversely proportional to the distance between them. A basic gravity model of migration based on Ravenstein was expressed by Faist (2000) in Equation 1. The basic equation sees migration as simply a function of population and distance and some constant K . M_{ij} is the number of migrants moving from place i to j ; P_i is the population of place i ; P_j is the population of place j ; and D_{ij} is the distance between place i and j .

Equation 1. Basic Gravity Model of Migration

$$M_{ij} = K \frac{P_i P_j}{D_{ij}^2}$$

Karemera, Oguledo, and Davis (2000); Vogler and Rotte (2000); Lewer and Van den Berg (2007); and Torneo (2016) have each proposed models and conducted empirical research on international migration based on the gravity model. They demonstrated that the theoretical model of the gravity equation can be re-specified and augmented by relevant characteristic variables in modeling migrant flows. In line with Greenwood (1985), Borjas (1989), and Friedberg and Hunt (1995), these scholars were able to successfully integrate political, economic, demographic, physical, public policy characteristics, and other variables into the gravity model.

The econometric model in Equation 2 models migration behaviour over time and across countries as follows: M_{sr} pertains to migration flows in a given pair of origin and destination countries; D_{srt} is a corresponding matrix of migration flow determinants with a given pair of origin and destination countries; β is the corresponding standard coefficient of the determinant variable(s) (the primary object of interest); U_{sr} is the (unknown) migrant flow effects associated with the pair of origin and destination countries; and E_{srt} is the error term.

Equation 2. Gravity Model of Migration in Time Series and Cross-Sectional Form

$$M_{sr} = U_{sr} + \beta D_{srt} + E_{srt}$$

The gravity model is compatible with economic theories of migration and with hypergamy. It was selected in this study for its ability to incorporate different kinds of variables (socio-economic, demographic, and geographic, etc.) that could not normally be combined in one empirical model. Torneo (2016) developed an adapted gravity model for analyzing general and labor migration in South Korea. The model combines economic, demographic, political, policy, geographic, and other factors in both sending and receiving countries. While this model has been tested for general and labor migration, it has not yet been tested and applied to marriage migration. Initial evidence in Kim, Yang, and Torneo (2012) and Torneo (2016) provide reason to believe that the gravity model is also suitable for examining this phenomenon.

Using the gravity model in Equation 3 below, the author examines how selected factors, specifically: population (population size, share of female population), economic (unemployment, female unemployment, inflation), development (human development, gender inequality), and geographic (distance) affect the number of foreign brides. A similar model is used to determine how similar factors affect the number of foreign grooms. In the latter model, data on females are simply replaced with data on males.

Equation 3. Modified Gravity Model for Estimating Female Marriage Migration

$$\begin{aligned} \text{Foreign brides}_{sr} &= a_0 + a_1(\text{human development}_s) + a_2(\text{gender inequality}_s) \\ &+ a_3(\text{general unemployment}_s) + a_4(\text{female unemployment}_s) \\ &+ a_5(\text{inflation}_s) + a_6(\text{total population}_s) + a_7(\text{female population}_r) \\ &+ a_9(\text{distance}_{sr}) + E_{sr} \end{aligned}$$

Methodology

The statistical data used for this study were gathered from official Korea Immigration Service of the South Korean Ministry of Justice, Statistics Korea, the World Bank Development Indicators, Centre d'Etudes Prospectives et d'Informations Internationales, and the United Nations Development Programme. *Stata 13* was used to process and conduct statistical analysis. Panel regression analysis was used in this study to analyze social, economic, geographic, and other variables that may have affected the number of both foreign brides and foreign grooms in the country.

There were three basic criteria set to determine the countries to be included in the study: first, that a substantial number of foreign brides and foreign grooms be officially recorded for these countries from 1999 to 2012 (the scope of the study); second, that there be sufficient variation (i.e., more than 5) in the number of foreign brides and grooms year on year; third, that data be available for all variables for at least 10 out of the 12 years covered in this study. These criteria ensured a strongly balanced panel of data (i.e., both historical and cross-sectional) that allowed us to effectively measure the impact of the selected independent variables on the dependent variables within and across countries over time. It is of note that there are missing values for gender inequality for 2009 and 2010 in the dataset for foreign grooms. *Stata 13* was used to produce computations that account for these missing values.

Table 1: Selection, Description, and Sources for Dependent Variables

Variable	Description	Source
Foreign brides	This includes all registered marriages in South Korea involving Korean grooms and foreign brides.	Korea Immigration Service, Ministry of Justice; Yearbook of Immigration Statistics, Statistics Korea.
Foreign grooms	This includes all registered marriages in South Korea involving Korean brides and foreign grooms.	Korea Immigration Service, Ministry of Justice; Yearbook of Immigration Statistics, Statistics Korea

Table 2: Selection, Description, and Sources for Independent Variables

Variable	Description	Source
Development		
Human Development Index (HDI)	This is a composite index combining life expectancy, literacy, and income. It measures three dimensions of human development: living a long and healthy life, being educated, and having a decent standard of living.	Human Development Report – United Nations Development Programme
Gender Inequality Index (GII)	This is a composite index measuring average achievement in the three basic dimensions captured in the HDI adjusted to account for inequalities between men and women.	
Economic		
Inflation_GDP	This shows the rate of price change in the economy as a whole measured by the annual growth rate of the GDP implicit deflator. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.	World Bank Development Indicators
General unemployment rate	This pertains to the share of the labor force that is without work but available for and seeking employment.	
Female unemployment rate	This pertains to the proportion of the female labor force that is without work but available for and seeking employment.	
Male unemployment rate	This pertains to the proportion of the male labor force that is without work but available for and seeking employment	
Geographic		
Distance	This pertains to the simple geodesic distance between the capital of the sending and receiving countries.	Centre d'Etudes Prospectives et d'Informations Internationales

Panel regression was used to conduct a joint and an individual estimation of the effects of individual variables while controlling for others. The origin countries of foreign spouses in South Korea are diverse and include developing countries and newly emerging economies. Thus, the author expected some degree of heterogeneity. Because classical OLS regression

cannot account for unobserved heterogeneity (i.e., the effects of omitted variables, individual effects, time effects) special models called fixed-effects and random-effects models were used based on the results of the diagnostic tests. This allowed us to identify factors that were statistically significant, the direction of their impact, and their correlation coefficients. Robust estimators were used to compensate for autocorrelation and heteroskedasticity.

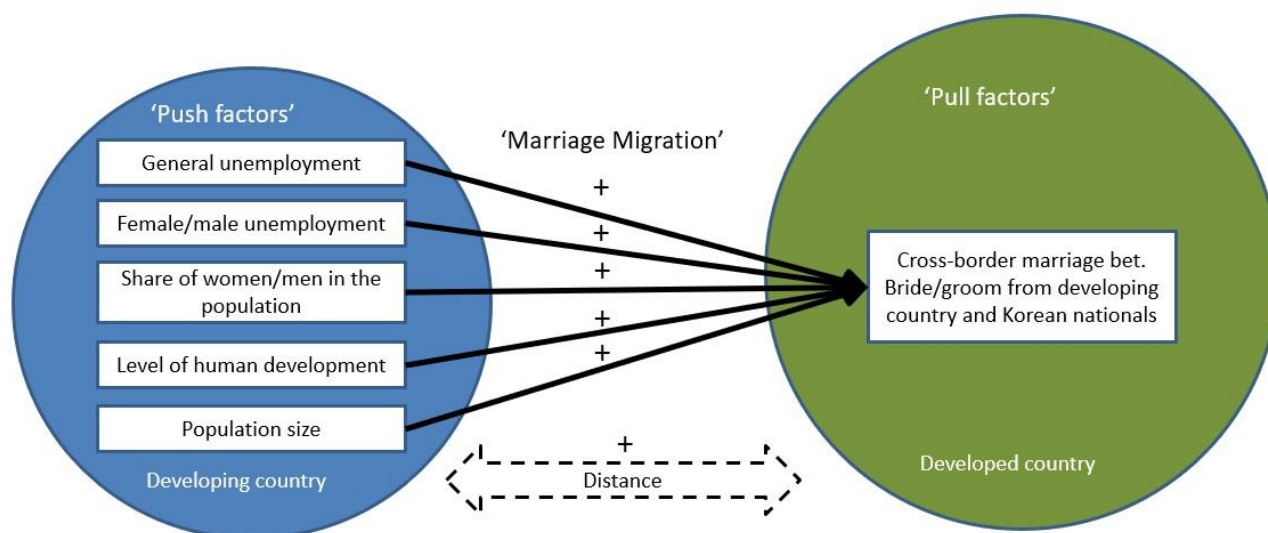
Hypothesis

This study tested several hypotheses, summarized as follows.

Table 3: Summary of hypothesis tested

Variable	'Foreign' brides	'Foreign' grooms
General unemployment in the country of origin	positively correlated	positively correlated
Female unemployment in the country of origin	positively correlated	-
Male unemployment in the country of origin	-	positively correlated
The share of women in the population of the country of origin	positively correlated	-
The share of men in the population of the country of origin	-	no correlation
The level of human development in the country of origin as measured by HDI	negatively correlated	negatively correlated
Population size in the country of origin	positively correlated	positively correlated
Distance between the country of origin and South Korea	negatively correlated	negatively correlated

Figure 1: Conceptual Framework



Marriage is a potential strategy for migration. This is especially true in South Korea given the very limited available options for a prolonged or permanent sojourn. Generally, semi-skilled people from developing countries have only one option to migrate and stay permanently in the country, which is to marry a Korean national. Women have more opportunities because brides are in shortage in rural areas and sought by matchmaking

agencies (Kim, Yang & Torneo, 2012). For men from developing countries, this option is logically accessible to those who have contact with Korean nationals, such as those already staying or working in South Korea.

Unemployment in developing countries can affect marriages in several ways. Economic logic suggests that high levels of unemployment can induce people to migrate to countries with better opportunities, which increases the chance of cross-country marriages. Gender-specific unemployment rates may have similar effects. Attitudes towards women seeking formal work in Asia vary across countries and regions and will not be discussed here in length. Nevertheless, the lack of employment opportunities for women can incentivize them to move elsewhere. Consistent with hypergamy, the author hypothesizes that high female unemployment can encourage women, especially from developing countries, to increase their consideration of marriage with Korean men as an option to gain economic opportunities and improve their status.

Men are traditionally expected by society to be breadwinners in many countries in Asia. Unlike foreign brides, however, foreign grooms from developing countries are not sought out by Korean matchmaking agencies. They are less socially accepted and are not directly supported by government policies (Kim, Yang & Torneo, 2012; Kim, Yang & Torneo 2014). Nevertheless, male migrant workers from developing countries living and working in South Korea do have opportunities to meet and potentially marry Korean women. Economic logic dictates that when male unemployment in their home countries is high, single male migrant workers may be encouraged to prolong or to make permanent their stay in South Korea. Marriage with a Korean national is one of the few legal options available to them.

Since 1885, population and distance have been posited as major determinants of migration. Migration rates are inversely proportional to distance and directly proportional to population. Modern studies use distance as a proxy for estimating travel costs. A larger population translates to a larger number of potential migrants and higher migration (Ravenstein, 1885; 1889; Torneo, 2016). The author applies the logic of the gravity model to marriages: the larger the population, the larger the number of potential brides and grooms.

In the case of South Korea, the male-skewed population translates into a lack of eligible brides and is a major contributor to marriage squeeze, which causes Korean men to look for brides from elsewhere. Given that monogamous marriage is the norm in most countries, the share of women in the population is a rough indicator of how many women are available for marriage. Countries, such as South Korea, with shortages of marriage-eligible women are more likely to draw from countries with a surplus of marriage-eligible women.

Logically, a higher share of men in the population of a country translates to a larger number of potential grooms. The male-skewed population of South Korea, however, means there is a surplus of eligible Korean grooms. The literature does not suggest the existence of a demand for foreign grooms in South Korea. Thus, the higher share of men in the population of an origin country may have little bearing on the number of foreign grooms.

The Human Development Index (HDI) is considered to be a better indicator of development than income alone and is used in this study as a proxy measure for the level of development of countries of origin. Because the logic of hypergamy is that women marry to improve their socio-economic status, it is only logical to hypothesize that HDI is negatively correlated with the number of foreign brides in South Korea. Consequently, the HDI of a country is also negatively correlated with the number of foreign grooms. People from countries with lower levels of development have more incentives to marry someone from a developed country like Korea.

The Gender Inequality Index (GII) is a composite index measuring average achievement in the three basic dimensions captured in the HDI adjusted to account for inequalities between men and women. Following the logic of hypergamy, high levels of gender inequality encourage women to improve their socio-economic status through marriage and will consequently be correlated with a higher number of foreign brides in South Korea. High levels of gender inequality disadvantage women but favor men. The author, therefore, hypothesizes gender inequality to be negatively correlated with the number of foreign grooms in South Korea.

Analysis

Since the year 2000, the majority of foreign brides in South Korea have come from only 20 countries. Of these, 15 may be classified as developing countries: Cambodia, China, Indonesia, Kazakhstan, the Kyrgyz Republic, Lao PDR, Malaysia, Mongolia, Nepal, New Zealand, the Philippines, Russian Federation, Thailand, Uzbekistan, and Vietnam. Five are developed: Australia, Canada, Japan, Taiwan, and the United States. In this study, Taiwan was not included due to a lack of data and its contested status. Fifteen (15) developing countries were included in the main analysis. Lags of one (1) year were adopted for the independent variables to establish temporal precedence.

Table 4a: Foreign Women from Developing Countries Married to Korean Men

	Pooled OLS	Random Effects	Random Effects Robust	Fixed Effects	Fixed Effects Robust
General Unemployment	-1.478 (0.613)**	-1.162 (0.510)**	-1.162 (0.126)***	-0.803 (0.414)*	-0.803 (0.096)***
Female Unemployment	1.42 (0.592)**	0.092 -0.487	0.092 -0.422	0.177 -0.393	0.177 -0.258
Inflation as Portion of GDP	-0.042 -0.134	0.16 -0.109	0.16 -0.118	0.082 -0.089	0.082 -0.104
Female share of Population	24.068 (6.383)***	55.337 (19.185)***	55.337 -36.318	104.469 (23.290)***	104.469 (21.318)***
Total Population	0.587 (0.079)***	1.029 (0.307)***	1.029 (0.382)***	15.436 (1.697)***	15.436 (3.527)***
Human Development Index	0.393 -0.309	0.32 -0.225	0.32 (0.188)*	0.202 -0.18	0.202 (0.056)***
Gender Inequality Index	-0.774 (0.433)*	-0.332 -0.377	-0.332 -0.376	0.249 -0.309	0.249 (0.126)*
Distance	-3.308 (0.349)***	-3.576 (1.219)***	-3.576 (1.455)**	omitted	omitted
_cons	-72.985 (23.774)***	-199.808 (72.082)***	-199.808 -137.307	-672.017 (96.807)***	-672.017 (117.584)***
R ²	0.62			0.54	0.54
N	149	149	149	149	149

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Diagnostics suggested the fixed-effects panel regression to be the most appropriate method to use in this study and that robust estimators were necessary in order to address detected heteroskedasticity and autocorrelation in the data for foreign brides.ⁱ

The R^2 value of 0.54 suggests that the selection of independent variables accounts for 54% of the variation of the number of marriages involving foreign brides from developing

countries. It also suggests a good fit for the data with the model used in the study. Five (5) of the seven (7) variables included in the final analysis were found to be statistically significant though not necessarily in the expected direction. These are general unemployment, females as share of the population, total population, Human Development Index, and gender inequality index. Distance was omitted in the computation of the fixed-effects model.

Unlike foreign brides, who mostly come from developing countries, the majority of foreign grooms in South Korea come from developed countries. Most come from 19 countries, but only eight (8) of these can be classified as developing countries: Bangladesh, China, India, Nepal, Pakistan, the Philippines, Sri Lanka, and Vietnam. The majority of the countries may be classified as economically developed, specifically: Australia, Canada, France, Germany, Italy, Japan, the Netherlands, New Zealand, Switzerland, the United Kingdom, and the United States. Only the eight developing countries were included in the calculation as they are the focus of this study.

In the case of foreign grooms from developing countries, the result of initial diagnostics suggested the choice to be between pooled OLS and fixed-effects regression. In order to account better for variation within and among countries and to address heteroskedasticity and autocorrelation in the data, the author chose fixed effects regression using robust estimators.ⁱⁱ

Table 4b: Foreign Men from Developing Countries Married to Korean Women

	Pooled OLS	Random Effects	Random Effects Robust	Fixed Effects	Fixed Effects Robust
General Unemployment	-8.047 (2.408)***	-8.047 (2.408)***	-8.047 (4.265)*	-1.995 -1.43	-1.995 (0.730)**
Male Unemployment	6.35 (2.359)***	6.35 (2.359)***	6.35 (3.535)*	2.359 -1.506	2.359 (0.873)**
Male as share of Population	128.458 (42.356)***	128.458 (42.356)***	128.458 -98.667	6.656 -26.702	6.656 -41.335
Total Population	-1.688 (0.513)***	-1.688 (0.513)***	-1.688 -1.173	4.246 -4.195	4.246 -2.982
Inflation as Portion of GDP	-0.102 -0.375	-0.102 -0.375	-0.102 -0.309	0.087 -0.175	0.087 -0.107
Human Development Index	4.368 -2.964	4.368 -2.964	4.368 -5.402	7.654 -4.612	7.654 (3.583)*
Gender Inequality Index	-0.12 -1.355	-0.12 -1.355	-0.12 -1.089	-0.919 (0.547)*	-0.919 -0.611
Distance	-1.363 (0.629)**	-1.363 (0.629)**	-1.363 -0.835	omitted	omitted
_cons	-451.041 (154.726)***	-451.041 (154.726)***	-451.041 -362.192	-97.22 -125.268	-97.22 -174.588
R ²	0.41			0.42	0.42
N	72	72	72	72	72

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The fixed-effects panel regression analysis using robust estimators for foreign grooms from developing countries married to Korean brides resulted in fewer statistically significant variables than the previous model. Of the seven (7) variables, only three (3) were found to be statistically significant: general unemployment, male unemployment, and the Human Development Index. These variables were also statistically significant in the foreign bride model. Furthermore, the general direction of the relationship of these variables and the dependent variable, marriages with foreign grooms, was found to be similar to that of the

foreign bride model. The R^2 value of 0.42 suggests a moderate level of fit between the data and the model.

General unemployment

The fixed panel regression analysis with robust estimators revealed both expected and unexpected results. General unemployment in developing countries was found to be a statistically significant factor for cross-border marriages involving both foreign brides and Korean grooms at the 99% confidence level, but the correlation coefficient was negative. This suggests that there are fewer foreign brides from developing countries with higher levels of general unemployment. Increases in unemployment are correlated with a decrease in the number of foreign brides.

General unemployment in developing countries was found to be statistically significant at the 95% confidence level but negatively correlated with the number of foreign grooms in South Korea. As in the foreign bride model, this suggests that there are less foreign grooms from countries with high levels of general unemployment. This also indicates that increases in general unemployment are associated with fewer foreign grooms. The author argues that high general unemployment makes it more difficult for potential migrants to afford the costs of migration.

These findings are consistent with the effect of general unemployment with overall migration to South Korea in Torneo (2016). The explanation from previous studies is that migration involves substantial costs for processing documents, relocation, etc. Migrants may be unable to afford these costs when there is a very high level of unemployment in their home countries.

Gender-specific unemployment

Female unemployment in developing countries was not statistically significant under the fixed effects model with robust estimators. This suggests that the decision of foreign brides to marry Korean grooms is probably less influenced by female unemployment than by general unemployment in their home countries. Upon close examination, the female unemployment data also show large variations relative to general unemployment which might also explain the lack of a significant and measurable trend. For example, average female unemployment in Cambodia, Indonesia, Kazakhstan, Krygyztan, Malaysia, Philippines, Uzbekistan, and Vietnam was higher than general unemployment in these countries for the study period. In contrast, average female unemployment in China, Lao, Mongolia, Nepal, and Russian Federation was lower than general unemployment. If migration is a family decision, as the theory of the New Economics of Migration holds, then the non-significant finding is an expected result.

In contrast, male unemployment was found to be statistically significant but positively correlated with marriages between Korean brides and foreign grooms. This suggests that among developing countries, a significantly higher number of foreign grooms come from countries with high male unemployment. In addition, an increase in general unemployment in developing countries was found to be associated with an increase in the number of foreign grooms from those countries. This finding is consistent with the view that such marriages are partially motivated or influenced by economic reasons. Because the sojourn of migrant workers in South Korea is generally restricted by laws to six years or less, it is

reasonable to expect that some migrant workers will try to secure citizenship or permanent migrant status through marriage.

The difference in the significance and the opposing direction of the coefficients of general unemployment and male unemployment is better understood in context. Unlike marriages between Korean grooms and foreign brides that are facilitated by the commercial matchmaking industry and supported by local governments, no such arrangement exists for marriages involving Korean women and foreign grooms (Kim, Yang & Torneo, 2012). As such, men from developing countries who wish to marry Korean women for whatever reason may have to shoulder all the costs involved, including those of migration and marriage.

The author suspects that foreign grooms from developing countries predominantly comprise men who are already living in South Korea. Many of these are foreign workers who may be more reluctant to return to their home countries if there are fewer jobs waiting for them and may be motivated to stay in South Korea and marry Korean women to gain permanent status. This needs further investigation as there are few published studies on this topic as of writing.

Inflation

Similarly, inflation was found to not be a statistically significant factor in marriages between foreign brides and Korean men. Marriage is not a purely economic decision and there are social, personal, and other reasons at play. Marriage is not automatically a substitute for employment and women don't necessarily marry abroad simply because they cannot find jobs in their home countries. Inflation was also not a significant variable where foreign brides from developing countries are concerned. Interestingly, inflation was found to be a statistically significant variable at the 99% level of confidence when the foreign bride model was extended to include both developing and developed countries. The implication is that women overall may be more inclined to stay in South Korea and marry Korean men when inflation in their home countries is high.

Female and male share in the population

The effect of population is further emphasized by the statistical significance (99% level of confidence) and positive correlation between the share of women in the population of a developing country and the number of foreign brides in South Korea. This suggests that an increase in the share of the female population is positively correlated with the number of foreign brides in South Korea. Countries with a larger share of women in their population tend to have a higher number of foreign brides; for example, developing countries with a relative surplus of women have a higher share of foreign brides that contribute towards addressing the deficit of eligible brides in countries like South Korea (Kim, Yang & Torneo, 2012). The results were similar when the model was extended to include developed countries, but the coefficient was substantially less.

Human development

Surprisingly, the *Human Development Index (HDI)* of a country was found to be statistically significant and positively correlated to the number of foreign brides at the 99% confidence level. This result suggests that developing countries with a better level of development (e.g.,

in terms of life expectancy, school enrolment, literacy, and income) have a higher share of foreign brides. Furthermore, an improvement in levels of human development is associated with an increase in the number of foreign brides. This finding contradicts the notion that foreign brides are more likely to come from developing countries with lower levels of human development. This could either suggest purposive selection on the part of Korean husbands or better opportunities for women from relatively wealthier developing countries to meet potential Korean spouses. Results were similar when the model was extended to include foreign brides from developed countries.

In the case of the HDI, the fixed effects panel regression results using robust estimators were likewise consistent with the finding for foreign brides. At the 99% confidence level, HDI showed a statistically significant and positive correlation with the number of foreign grooms in South Korea. This would suggest that among developing countries, more foreign grooms come from countries with relatively better levels of human development. An increase in HDI is associated with an increase in the number of foreign grooms. As is the case in foreign brides, this might be indicative of selection by Korean brides who may prefer husbands from relatively wealthier developing countries. An alternative explanation is that men in relatively better off developing countries have better opportunities to meet and marry Korean women. The results were similar when the model was extended to include men from developed countries.

Gender inequality

The Gender Inequality Index (GII) was found to be statistically significant and positively correlated with the number of foreign brides in South Korea at the 90% confidence level. This suggests that developing countries where there is a large gender inequality have a larger share of foreign brides and that an increase in gender inequality is also associated with an increase in their numbers. This is consistent with the social mobility hypothesis, which suggests that women marry overseas to improve their socio-economic status. The GII combines several indicators of socio-economic inequality (e.g., reproductive health, empowerment, and labor market participation). The positive and significant coefficient suggests that women in developing countries where there is a high degree of socio-economic inequality are more inclined to marry Korean men.

The relationship between GII and the number of foreign grooms from developing countries in South Korea was not statistically significant. However, the GII was statistically significant at the 95% confidence level and negatively correlated to the number of foreign grooms when both developing and developed countries were included. This is the exact opposite of the finding for foreign brides. This suggests that countries where there is large gender inequality have a smaller share of foreign grooms. An increase in such inequality is also associated with a decrease in their numbers. If the significant and positive result of GII with foreign brides suggests that woman from developing countries marry overseas to improve their socio-economic status (i.e., for social mobility), this result suggests that men from developed countries where males are more socio-economically privileged are less likely to marry women from countries like South Korea. More investigation is needed to substantiate this finding.

Distance

As expected, distance was omitted in the fixed effects panel regression model. It was only found to be statistically significant and positively correlated with the number of foreign

brides from developing countries in the pooled OLS model. It was only statistically significant and positively correlated to the number of foreign grooms from developing countries in the pooled OLS and random-effects models, in which robust estimators were not used. Since we have adopted the fixed effects model with robust estimators, we shall no longer interpret these results.

Conclusion

This study empirically investigated, using a modified gravity model, the impact of macro-level development factors on the number of cross-border marriages involving foreign brides and foreign grooms from developing countries in South Korea. It posed the central research question: Does the number of cross-border marriages between Korean nationals and brides from developing countries respond to macro-national factors following the logic of hypergamy?

It also set out to answer the operative sub-questions: Do changes in the macro-development conditions of origin developing countries have a discernible impact on the number of foreign brides and grooms from those countries in South Korea? Do the macro-development factors that affect the number of brides also affect the number of grooms from developing countries in a similar manner?

The modified gravity model demonstrated a good fit and accounted for 54% of the variation in the number of foreign brides from developing countries. In the case of foreign grooms, it demonstrated a moderate fit and accounted for 42% in the variation of the number of foreign grooms from developing countries in South Korea. This study shows that at the macro-national level, there is only limited evidence that cross-border marriages in South Korea involving women from developing countries appear consistent with the expectations of hypergamy. A similar case can be argued for men despite the absence of an argument for male marriage migration. On its own, hypergamy is not a sufficient explanation for these marriages.

Gender equality was the most significant variable found to exhibit a linear relationship consistent with the explanation of hypergamy in our panel regression of the data on brides from developing countries. Gender inequality was statistically significant and positively correlated to the number of marriages in South Korea involving brides from developing countries. This supports the idea that women from developing countries with higher gender inequality—which is unfavorable to women—will tend to marry Korean men in higher numbers.

In the case of grooms from developing countries, the most significant variable that exhibited a linear relationship consistent with hypergamy in our panel regression of the data was male unemployment. Male unemployment was statistically significant and positively correlated to the number of marriages in South Korea involving grooms from developing countries. This supports the idea that unemployment in home countries may be influencing men from developing countries to consider marriage with Korean women as an option. This might be because marriage is one of the only available options for achieving long-term or permanent status in the country.

There are other macro-development conditions of origin developing countries found to have an impact on the number of men and women from developing countries married to Korean nationals. The statistically significant results of these variables and the sign of the coefficient, while meaningful, do not support the argument for hypergamous marriages. These

variables either showed contrary findings, as in the case of general unemployment and HDI, or showed the influence of demographic factors such as population in cross-border marriages.

In the case of foreign brides, five (5) out of seven (7) variables computed in the model were statistically significant: general unemployment, the share of women in the population, the total population, HDI, and gender inequality. Only general unemployment had a negative coefficient. In the case of foreign grooms, only three (3) variables were statistically significant: general unemployment, male unemployment, and HDI. Male unemployment and HDI had positive coefficients, whereas general unemployment had a negative coefficient.

To a very limited extent, some macro-development factors that were found to affect the number of foreign brides also affected the number of foreign grooms from developing countries in a similar manner. General unemployment had a statistically significant but negative correlation with the number of both foreign brides and grooms. Also, HDI had a statistically significant and positive correlation with the number of both foreign brides and grooms from developing countries.

One counterintuitive result is the statistically significant and negative coefficient of general unemployment to the number of both foreign brides and foreign grooms. High general unemployment rates in their home country may hinder both men and women from developing countries marrying in South Korea. This contradicts Torneo's (2016) tentative hypothesis that unemployment may not be significant to marriage migration.

Another counterintuitive result is the statistically significant and positive coefficient of HDI for both foreign brides and foreign grooms. This finding challenges the notion that women and men from developing countries with poorer standards of living have will have higher incidences of marriage with Korean nationals. This may possibly indicate a conscious preference of Korean nationals for brides and grooms from relatively wealthier developing countries or a higher ability for these potential brides and grooms to successfully enter into marriage with Korean nationals. This finding requires further study to explain satisfactorily.

One new contribution of this study is the finding that gender inequality in sending developing countries is a statistically significant and positively correlated predictor of the number of foreign brides in South Korea. Women from developing countries where women are more disadvantaged relative to men are more inclined to marry men from South Korea. The same cannot be said of men from developing countries where women are disadvantaged.

Another new contribution of this study is the finding that the share of females in the population in a developing country is a statistically significant predictor of the number of brides from that country in South Korea. Since the marriage-eligible population of South Korea is skewed towards men, it makes sense that many of the women come from developing countries with a higher population share of women.

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Endnotes

ⁱ Diagnostics results for Foreign Bride from Developing Countries

Breusch and Pagan Lagrangian Multiplier Test for Random Effects

$$\text{marriages_fbride}[\text{country_id}, t] = Xb + u[\text{country_id}] + e[\text{country_id}, t]$$

$$\text{Test: Var}(u) = 0$$

$$\text{chibar2}(01) = \mathbf{114.63}$$

$$\text{Prob} > \text{chibar2} = \mathbf{0.0000}$$

Hausman Test (Fixed Effects vs. Random Effects)

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(7) = (b-B)'[(V_b - V_B)^{-1}](b-B)$$

$$= \mathbf{83.45}$$

$$\text{Prob} > \text{chi2} = \mathbf{0.0000}$$

F-test for Fixed Effects

$$F \text{ test that all } u_i = 0: F(12, 129) = \mathbf{52.40} \text{ Prob} > F = \mathbf{0.0000}$$

Wooldridge test for Autocorrelation in Panel Data

H0: no first-order autocorrelation

$$F(1, 12) = \mathbf{6.689}$$

$$\text{Prob} > F = \mathbf{0.023}$$

Likelihood Ratio Test for Heteroskedasticity

$$\text{Likelihood-ratio test LR chi2}(12) = \mathbf{115.14}$$

$$(\text{Assumption: first_model nested in second_model}) \text{ Prob} > \text{chi2} = \mathbf{0.0000}$$

ⁱⁱ Diagnostics results for Foreign Grooms from Developing Countries

Breusch and Pagan Lagrangian Multiplier Test for Random Effects

$$\text{marriagefmen}[\text{ID}, t] = Xb + u[\text{ID}] + e[\text{ID}, t]$$

$$\text{Test: Var}(u) = 0$$

$$\text{chibar2}(01) = \mathbf{0.00}$$

$$\text{Prob} > \text{chibar2} = \mathbf{1.0000}$$

Hausman Test (Fixed Effects vs. Random Effects)

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(7) = (b-B)'[(V_b - V_B)^{-1}](b-B)$$

$$= \mathbf{128.61}$$

$$\text{Prob} > \text{chi2} = \mathbf{0.0000}$$

($V_b - V_B$ is not positive definite)

F-test for Fixed Effects

$$F \text{ test that all } u_i = 0: F(7, 57) = \mathbf{53.01} \text{ Prob} > F = \mathbf{0.0000}$$

Wooldridge test for Autocorrelation in Panel Data

H0: no first-order autocorrelation

$$F(1, 7) = \mathbf{10.248}$$

$$\text{Prob} > F = \mathbf{0.0150}$$

Likelihood Ratio Test for Heteroskedasticity

$$\text{Likelihood-ratio test LR chi2}(7) = \mathbf{100.82}$$

$$(\text{Assumption: first_model nested in second_model}) \text{ Prob} > \text{chi2} = \mathbf{0.0000}$$