Preliminary and Incomplete. Please do not cite.

A Foreign Affair:

Fertility and Divorce Responses of Local Women Due to the Influx of Foreign Brides

Lena Edlund
Columbia University, Department of Economics and NBER
Elaine Liu*
University of Houston, Department of Economics
Jin-Tan Liu
National Taiwan University, Department of Economics and NBER

November, 2011

Abstract: In recent years, the bride in one out of every 5 Taiwanese marriages have been non-Taiwanese. Many of these cross borders marriages involve a commercial marriage broker arranging for a foreign bride to enter Taiwan from China, Vietnam or Indonesia. In the wake of this massive influx of foreign brides, local women may be displaced and the intrahousehold bargaining power may shift toward married men who, after getting a divorce, may now easily re-marry a foreign bride. This paper first describes the foreign bride phenomenon in Taiwan, and then examines the impact of this massive influx of foreign brides on the fertility and divorce pattern of local married women. Our dataset consists of the universe of all marriages, divorces and the subsequent birth records between 1998-2006 in Taiwan. We use regional and time variation of the foreign brides share in a town to examine the impact of foreign bride share on the duration of marriages and fertility outcomes of Taiwanese women. To address the endogeneity problem, we use difference-in-differences technique. We examine the change in local women's fertility pattern before and after 2003 when government started to restrict the entry of foreign brides. The policy ought to have a greater impact in areas with high foreign-bride demand. We find that the influx of foreign brides does not have any impact on divorce rates of local women, but it affects local women's fertility decision.

JEL code: J12, O15, D1

* Corresponding author. Email: emliu@uh.edu

1. Introduction

Due to son-preference, several countries including China, Taiwan, India, South Korea have suffered from bride shortage. This trend has projected to worsen in China, in particular, due to the fertility decline and one child policy of 1979. According to several studies estimation, every one in five men between age 30-39 will never get married (Dasgupta et al., 2011). However, this marriage squeeze is most felt by those men in low socio-economic status. Meng (2011) has shown that female tend to migrate to urban area in China. Using a dataset in Taiwan, we observe that even in places where sex ratio at birth is only slightly skewed, the male-female sex ratio at marriage age worsen considerably for those who were living in the rural areas (see Figure 1).

While women are migrating to a wealthier area, these bachelors in China, Taiwan, Singapore, and South Korea have used their relative economic advantage find their spouses in less developed areas including Indonesia, Vietnam and other nations in Southeast Asia via marriage brokerage service. This phenomenon is becoming more widespread. In 2003, every 1 in 4 new marriages in Taiwan is with a foreign wife, while in South Korea the rate is about 10% in 2006. Given the magnitude of these marriages and the sensationalism of the topic, this phenomenon has received extensive media attention in the Western World.[1] However, few papers on the topic have been published in the peer-reviewed academic literature. Most of the articles have been limited to smaller-scale interviews and analysis concentrated in specific locales due to the lack of data (Hsia, 2007).

This study, based on datasets from Taiwan, is one of the first to examine the phenomenon using a detailed micro-level dataset. The objectives of the paper are twofold: the first is descriptive. We illustrate the extent of the foreign bride phenomenon in the marriage market in Taiwan, the fertility / divorce pattern of foreign bride and the health outcome of

[1] See New York Times report on February 22, 2007 and March 30, 2008. BBC

newborns of foreign brides. For the second, we investigate the causal impact of this massive influx of foreign brides on local Taiwanese women's welfare. The influx of foreign women could increase competition for both Taiwanese married and single women, thus lower the bargaining power of Taiwanese women. One may be concerned about the endogeneity issue— that towns where foreign bride flows are higher may be more discriminatory to local women, and thus lower local womens' bargaining power relative to other areas. To deal with the endogeneity problem, we use a policy change that took place in 2004. We will describe the policies in detail in Section 3, but the essence of both policies is to reduce the flow of Chinese and Southeast Asian brides entering Taiwan. Given the exogenous change of supply of foreign brides, we use difference-in-differences technique to explore whether the policy has differential impact depending on the demand of foreign bride. The policy ought to have a greater impact in areas traditionally with high foreign-bride demand. We find that the influx of foreign brides does not have any impact on divorce rates of local women, but it affects local women's fertility decision.

The dataset we use to examine is a merged dataset from several different sources. We begin with the registry of universal marriage and divorce records between 1998-2006, which has individual information on brides and grooms, including their countries of origin. We then link this dataset with recent birth records. Therefore, we are able to track every marriage that occurred in Taiwan between 1998-2006 along with the couple's subsequent fertility pattern. This effort allows us to further delve into the life of these foreign brides and local Taiwanese brides subsequent to their weddings.

We find that children of foreign brides are less likely to be of low birth weight compared to the children of local women. Despite the fact that foreign brides do not receive citizenship if they get divorced too soon, they are still more likely to get divorced than Taiwanese

brides.[2] Using the difference-in-difference technique, we find that a higher share of Chinese brides causes an increase of divorce rates of local women, but the Southeast Asian brides seem to have a stabilizing effect on local women's marriages. Local women also demonstrate an increase in fertility rates in response to the competition from Chinese brides.

The paper is structured as follows: Section 2 discusses the existing literature on foreign brides, Section 3 discusses the dataset, Section 4 presents the specification for regression analysis, and Section 5 discusses the findings.

II. Background and Existing Literature

2.1 Background

Commercial marriage brokerage industry has been booming in Taiwan since the 1990s. Brokers charge a lump sum between $6000-$10000 USD[3] from the perspective groom, and brokers would take care of the entire process, including arranging grooms' trip abroad, their meeting with perspective brides, arranging a wedding banquet at bride's hometown, getting all documents ready for the bride's visa application and arranging the trip to Taiwan for the chosen bride.[4] The entire process takes less than a week.[5]

2.2 Existing Literature

The foreign bride phenomenon in Taiwan has been widely studied since Shia's (1997) early work. However, most of the existing papers in the literature have been limited to small-scale interviews and analysis concentrated in specific locales, and few have been

[2] It takes about 8 years to get citizenship. Foreign brides who get divorced before receiving citizenship would be sent back to their home countries.
[3] The average wedding in Taiwan costs $26000 USD according to a government report in 2006.
[4] Some new report cites that a Vietnamese bride receives about $600 USD as the bride price. These brides often have to wait for a couple months before they receive the proper visa to enter Taiwan.
[5] According to a survey report produced by the Taiwanese government with data collecting from 175,000 foreign spouses in 2002, 37.8% of all foreign brides (excluding brides from mainland China) were introduced to their spouse via commercial marriage broker and 46% met through friends/relatives. The high share of foreign brides being introduced through friends are mostly due to the social network of existing foreign brides who have moved to Taiwan.

published in peer-reviewed journals. Therefore, in this section, we only discuss a few articles that have used a large-scale survey or the census and are thus most similar and relevant to our project.

In Tsay's (2004) book chapter, he provides an overview of the trends of the foreign bride phenomenon from 1991 to 2003 in Taiwan. Since his access to data is limited to aggregate-level datasets provided by the central government, his work mainly focuses on describing the increasing trend, the country-composition of foreign brides and the location of their new families. His paper is one of the first to identify the regional variation of the demand and supply for brides. Luoh (2006) takes this a step further and combines the Labor Force Participation survey with the 2000 Census survey to exam the relationship between grooms' education level and the likelihood of marrying a foreign bride. He finds that foreign brides have disproportionately married grooms of lower of education, and more than 50% of the men who have received less than a middle school education have married a foreign bride. He also finds that foreign brides are disproportionately located in the South (such as Ponghu, Chiayi and Nantou Counties) and the more developed counties (such as Taipei and Taichung City) have very few foreign brides.

One other related paper which explores the change in fertility patterns is the paper by Liaw et al (2009). Their paper uses the 2003 Survey of Foreign and Mainland Spouses' Life Status, and compares the fertility pattern of foreign versus local brides.[6] They estimate that the lifetime total fertility of foreign women is 1.58 children. The main focus of their paper is to examine the characteristics that determine fertility. However, unlike our paper, they do not examine the health of the newborn. We exploit the advantage of our dataset in that it contains birth weight information, which allows us to examine the health of babies born to foreign versus Taiwanese mothers.

[6] The 2003 Survey is meant to be a census of all family with foreign spouse in Taiwan. However, the attrition of the survey is non-negligible. And one should understand that the attrition is non-random.

Work that is most similar to ours has been done by Tsai et al (2010). They provide suggestive evidence that foreign brides would create competition for Taiwanese women in the local marriage market, thus leading to the growth of nonmarital fertility. Our work differs from theirs in that we focus on the impact of foreign brides, not single Taiwanese women, on existing marriages. The spirit of our work also parallels that of Card (1990) and others which examine whether immigrant workers (foreign brides) would displace domestic workers (domestic brides).

III. Data

The datasets used in this paper are from various sources. The first is the universal dataset of the wedding and divorce registry from 1998 to 2006. It contains records of all 1,397,209 marriages that took place between 1998 and 2006. Among these marriage records, 255,797 are of foreign brides and there are another 34,565 records with the bride's origin missing (which most likely are of foreign origins). For each marriage record, information on education, age, and home addresses of both the bride and groom are collected. The home address allows us to map the current residence to the township level. Therefore, we can calculate the influx of foreign brides in proportion to all marriages, creating foreign bride share (FBS), in each township for each year between 1998 and 2006. As for the divorce registry, we have information of wife and husband's education, age, residence, and date of divorce. With information on both dates of marriage and divorce, it allows us to calculate the duration of each marriage that took place between 1998 and 2006. We also have all birth records in Taiwan between 1998 and 2006. For each birth, this dataset contains information on parents' level of education, age, nationality and birth weight. We then merge the marriage dataset with the universe of birth records between 1998 and 2006. By doing so, we are able to trace the fertility pattern of each couple who were married between 1998 and 2006. This dataset would allow us to conduct analysis at the micro-level.

3.1 Descriptive Statistics-Marriage

Figure 1A shows the share of new marriages with foreign brides between 1998 and 2006. Figure 1B shows the number of marriages with foreign brides for each quarter between 1998 and 2006. Foreign brides have started entering Taiwan in the mid-1990s. By the time our data starts in 1998, 10% of new marriages are Chinese brides and 6% of new marriages are Southeast Asian brides. The increasing trends continued until 2003. Starting on September 1 of 2003, the Taiwanese government began to implement a stricter policy toward interviews for brides from China. Prior to the policy, Chinese brides only need to provide marriage certificate to enter the country. After the policy, all brides from China have been required to attend an interview at the port of entry and could be refused for entry. Because of the policy change for Chinese brides, the influx of Chinese brides experienced a sudden drop, while the numbers of Southeast Asian brides were unaffected. On the other hand, in Vietnam, the Taiwanese consulate maintained a looser policy prior to 2005 and was processing hundreds of marriage approvals per day. However, starting in 2005, the consulate requires one-on-one interviews for all marriage cases and it only reviews 20-30 marriage cases a day (Dajiyuan News, 2005), and we start observing a decline in the numbers of Southeast Asian brides.

[Insert Figure 1A & Figure 1B]

Table 1 describes the breakdown of the share of foreign brides by country of origins in 1998 to 2006. China, Vietnam and Indonesia are among the most popular sources of foreign brides.

[Insert Table 1]

Table 2 describes the couples' characteristics broken down by the brides' origins for those who got married in 1998. Grooms who marry a Mainland Chinese bride are on average about 13 years older than those who marry a Taiwanese bride, and those who marry a Southeast Asian brides are 6 years older. Southeast Asian brides on average are about 2 years younger than Taiwanese brides. Therefore, the age gaps between brides and grooms are much wider for Southeast Asian brides and Mainland Chinese brides (approximately 11~14

years in age difference), compared to Taiwanese brides. As for education, grooms who marry a Mainland Chinese / Southeast Asian bride receive less education comparing to those who marry a Taiwanese bride. 30% of Southeast Asian brides and 45% of Chinese brides did not report their education level, whereas only less than 0.2% of Taiwanese brides did not report their education level. Conditional on reporting, the education levels of Mainland Chinese brides are similar to those of the Taiwanese brides, and Southeast Asian Brides receive less education compared to Taiwanese and Chinese brides.[7] A simple comparison across the health of newborns would indicate that newborns of foreign brides are healthier than newborn of Taiwanese brides in birth weight and mortality measure. Among Taiwanese couples who marry in 1998, almost 17% of them get divorced by 2006 and the divorce rates were even higher for those with foreign wife.

Figure 2 breaks down the share of grooms marrying foreign brides by the level of education. It is clear that the likelihood of marrying a foreign bride decreases with one's education. More than half of the groom who only have elementary school education would be marrying either a Chinese or a Southeast Asian brides, but it is rather uncommon for any male who have college or above degree to marry a foreign bride.

[Insert Table 2]

[Insert Figure 2]

Likewise, Figure 3 breaks down the share of grooms marrying foreign brides by their age. We find that it is most common for an older groom (age 50 or above) to marry a foreign bride. The oldest grooms over 50 years old are the most likely to marry a bride from China whereas the percentage of grooms who marry Southeast Asian brides peak between age 40 and 45. In Figure 4 we further break down the data by the groom's past marriage history—whether they have been divorced or not. We find that divorcées are much more likely to marry a Chinese

[7] Kamaguchi and Lee (2011) find that foreign brides in Japan and Korea are more educated than the average women in their home country of their birth cohort. Conditional on reporting brides' education level, we find similar pattern for foreign brides in Taiwan.

bride than those who have never married. Divorcees are also much more likely to marry a Chinese bride than a SE bride. While it is unclear whether the divorcées ended their previous marriages prior to the decision to marry a foreign wife, nearly 20-30% of divorcees who remarried are marrying a foreign bride. This possible competition with foreign women could create stress for local Taiwanese married women, which is what we examine in the next section.

[Insert Figure 3]

[Insert Figure 4]

IV. Empirical Specification

To assess the health of the child, we first examine birth weight. Birth weight has been found to be a good proxy of future health and cognitive ability (Case and Paxson, 2008). Specifically, research has shown that newborns having low birth weight (LBW), defined as 2,500 gram or less, tend to exhibit lower levels of educational attainment and poorer self-reported health status as adults. Birth weight data is made available to us in the vital statistics, which also report the parents' education level, age, and the country of origin of the parents. Between 1998 to 2006, there were 2,062,637 births born to mothers whose marriages occur between 1998 to 2006, 142,357 (6.9%) of them were reported to be of low birth weight.[8]

$$\text{Prob}\,(LBW)_{it} = \beta + \gamma(foreign)_i + \delta X_{it} + v_t + \varepsilon_i \quad --- Eq(1)$$

LBW is an indicator variable that equals 1 if the birth weight is 2500 gram or below, zero otherwise. For each newborn *i* in year *t*, we examine the probability of being low birth weight given a set of family characteristics X_{it}, year fixed-effect (v_t) and whether mother is of foreign origin $(foreign)_i$. *foreign* is an indicator variable which equals to one if mother is

[8] The vitality data do include some parental characteristics, but often they are missing. To solve the missing data issue, we merge the vitality data with the marriage registration record from 1998 to 2006 using individual identifier. Therefore, the sample used in the regression excluded newborns whose parents were married prior to 1998.

of foreign origin, and zero otherwise. Xi is a set of parental characteristics, such as parents' education level, parents' age and parity. Our main outcome of interest in this regression is the coefficient on foreign, γ. v_t controls for the village fixed effect. We also create several other measure of infant health—such as extreme low birth weight (equals 1 when birth weight less than 1000 g) and infant mortality.

Without an empirical estimation, the sign of γ in equation 1 is unclear for the following two reasons. One, most foreign brides are from less developed nations and could thus be less healthy on average than Taiwanese brides. Therefore, we would expect γ to be negative. Moreover, if the grooms of foreign brides are more likely to be in a lower social economic status, it is possible that these newborn would be in worse health at birth. On the other hand, before these foreign brides could get married, there was a competitive selection process in their home countries. Most likely, one dimension of the selection process is the health of the brides. Thus, those brides who were selected to move to Taiwan may simply be healthier women from their countries of origin. Additionally, Taiwan has provided universal health insurance, which covers prenatal care, thus it could ameliorate the differences in access to health care due to one's socio-economic status. Lastly, one of the main reasons these Taiwanese bachelors marry a foreign woman is to have a child. A study by Lin, Liu and Qian (2008) shows that that when ultrasound technology is available, a newborn girl's health improves. It implies that the desirability of the child to the parents is positively associated with her health. Therefore, if those families with foreign brides are more enthusiastic about having a child than the average Taiwanese family, their newborns may be healthier as a result.

The above is thus an important empirical question to answer, and the results are presented in Table 3.[9] The default group is the local Taiwanese women, and we control for parental characteristics in Columns 2 and 4. The marginal effect from the probit model is

[9] We drop those mothers who are aborigines or from other foreign countries from the sample.

reported.[10] We find that, in comparison to those born to local Taiwanese women, newborns whose mothers are of Chinese or Southeast Asian origin are less likely to be of low birth weight. Alternatively, we use infant mortality as an outcome variable in Columns 3 and 4, and our results are robust. The coefficients are quite stable for inclusion of other controlled variables. Given the existing evidence on long term impact of birth weight (Almond, Chay and Lee, 2005), this finding is of important policy implications. Our finding suggests that the selection effect (from home countries) may dominate over the fact that these children are more likely to be born into household with lower income.

[Table 3 Inserted Here]

Aside from the concern for child health, we are also interested in whether these marriages with foreign brides are less stable and are of shorter duration. Therefore, we estimate the logistic model with the following specification.

$$\text{Prob}\,(Divorce)_{it} = \beta + \gamma(foreign)_i + \delta X_i + v_t + \varepsilon_i --- Eq(2)$$

The dependent variable measures whether the couple *i* who were married at time *t* is subsequently divorced by 2006. Foreign is an indicator of whether bride is of foreign origin, and *Xi* is a set of characteristics, such as couple's education level, age and whether they have a son, and time fixed effect. The results are reported in Table 4 columns 1 and 2. The marginal effects from the probit regressions are reported in Table 4. We find that Chinese brides are 15% more likely to divorce and Southeast Asian brides are 5.6% more likely to divorce. However, once we control for individual characteristics in Columns 2, the coefficient on Chinese brides become much smaller, and Southeast Asian brides are 0.5% less likely to divorce compare to the local Taiwanese brides. Anecdotally, there have been some reports in the news media portraying foreign brides as often a victim of domestic violence (Taipei Times, 2005). Even though they would like to have a divorce, but their husbands rarely agree

[10] See, Shen, and Lin (2006) using 2004 natality record from Taiwan has also concluded that neonatal mortality rate among children born to foreign mothers are healthier than those born to Taiwanese mothers.

given that they have pay a lump sum cost up front. Therefore, we further investigate whether these divorces are by joint consent of both husband and wife or by the decree of court. Conditional on divorce, we find that foreign brides are about 20-27% more likely to file for divorce at the courthouse.

[Table 4 inserted here]

V. Impact of foreign brides on local women

Our next step is to investigate if and how the influx of foreign brides impact the divorce rate of local Taiwanese married women. For example, the husband's decision of either staying in a marriage or getting a divorce may depend on his options post-divorce. Therefore, without foreign brides, the outside options are slim, especially given the severely competitive marriage market for men due to the skewed sex ratio. With the easiness of re-marrying foreign brides, men's outside option improves, so their threshold of divorcing the current wife would become lower. This could affect women's bargaining power at home.

We examine two outcome variables: fertility and divorce of local couples. First,

dependent variable is divorce

$$(Divorce)_{ivt} = \beta + \gamma(FBS)_{v(t-1)} + \delta X_{it} + \tau_t + \pi_v + \varepsilon_i - - - Eq(3)$$

This coefficient from this equation would indicate whether the influx of foreign brides, as measured by the existing flow of foreign brides (FBS) from year *(t-1)*, have an impact on the probability of divorce for local women for any given time *t*. X_{it} represents one's individual characteristics including groom's age, groom's education, duration of marriage, time of marriage, never have son and never have daughter. We examine Equation 3 with linear probability model. In Columns 1 to 3, we examine the share of foreign brides, and in Columns 4 to 6 we separately examine the impact of Chinese brides share from Southeast Asian bride share. First, we use foreign bride share at the county level and control for county fixed effects, and results are presented in Columns 1 and 4 of Table 5. We also use alternative

specification of foreign bride share measured at the village level. However, we drop those who live in one of the 8 metropolitan in Taiwan since the definition of "village" is defined as an administrative block in the metropolitan area.[11] The results are presented in Columns 2 and 5. Lastly, we control for individual fixed effect, and the results are presented in Columns 3 and 6. Throughout the specification, we find robust evidence that areas with higher foreign bride share is associated with higher divorce rates among local women even controlling for village / county / individual level fixed effect.[12]

[Table 5 Inserted Here]

$$(Fertility)_{ivt} = \beta + \gamma(FBS)_{v(t-1)} + \delta X_{it} + \tau_t + \pi_v + \varepsilon_i --- Eq(4)$$

Next, we examine whether foreign bride share in the local area affects one's fertility decision. The outcome variable is whether the individual *i* has a child in period *t* and we examine whether it is correlated with foreign bride share in period *(t-1)*. Again, X_{it} includes individual education level, age dummy, duration of marriage, never have sons, never have daughters and year of marriage. The results are presented in Table 6. Across specifications, we find that in areas with higher foreign bride share, the fertility rates would decrease.

5.1 Difference-in-Differences Results

Considering the analysis above, we have only examined the contemporaneous correlation between influx of foreign brides and the local women's divorce rates and fertility decision. We have not yet established causality. For example, areas where the share of Chinese foreign brides is high could also be where women traditionally have less bargaining power or places where divorce rates have always been high. To deal with the potential endogeneity problem, we use a policy implemented in September, 2003, which we describe in detail in Section III, as our identification strategy to employ the difference-in-difference

[11] The list include Taipei city, Kaohsiung city, Hsinchu city, Taichung city, Tainan city, Jiayi city, Kilong city

[12] Alternatively, we have also use hazard analysis to examine one's time to divorce and whether it is related to the foreign bride flow in the area. We find similar pattern as our OLS results. For brevity, we do not present the result here.

techniques. The following equation is estimated:

$$(Divorce)_{ivt} = \beta + \gamma(Treat * FB\ demand)_{vt} + (Treat)_t + (FB\ demand)_v + \delta X_{it} + \tau_t + \pi_v + \varepsilon_i --- Eq(5)$$

Treat is a dummy variable indicating whether it is post the 2004 policy or not.[13] We estimate areas' foreign bride demand by imputing the average foreign bride share at the village level between 1998 to 2002 and divide the village foreign bride share into quartiles. The fourth quartiles are villages traditionally with highest foreign bride share prior to the policy and the first quartiles are areas with lowest foreign bride share prior to the policy. Our main coefficient of interest is γ, which captures the heterogeneous impact of the 2004 policy on divorce outcome. Given that the policy change took place in late-2003, we first restrict our sample to look at the divorce outcome in 2003 and 2005. The results are presented in Column 1 of Table 7. Next, we look at divorce outcomes for 2002/2003 and 2005/2006 and the results are presented in Column 2. Consistently, we find no significant results, suggesting that the foreign bride share has no impact on divorce. We then examine whether there may be differential impact by groom's education level. We have shown in Figure 4 that grooms' who complete college education and graduate degree rarely marry a foreign bride. We expect them to be less impacted by the policy, compared to those who have least education. In Columns 3 to 5, we divide the sample by groom's education level: illiterate-completing 8th grade, 9th grade to some college, and having a bachelor degree or graduate degree. Across all education groups, we find that divorce is not affected by the foreign bride influx.

Although we find that local women's divorce is not affected by the influx of Chinese bride, it could be that Taiwanese may lose bargaining power at home in exchange of staying in their marriage. Therefore, we examine the fertility decision next. The following equation is

[13] In our analysis, we exclude outcomes in 2004 for a couple reasons. First, divorce may take a while to process and it could be initiated prior to the policy. Second, the policy was enforced starting in Sep 2003, but it may take a year for information to spread.

estimated and the results are presented in Table 8.

$$(Fertility)_{ivt} = \beta + \gamma(Treat * FB\ demand)_{vt} + (Treat)_t + (FB\ demand)_v + \delta X_{it} + \tau_t + \pi_v + \varepsilon_i --- Eq(6)$$

We find that post 2003 policy, those who reside in areas with higher foreign bride demand now are more likely to have a child compared to those who live in areas with low foreign bride demand. It is similar to the OLS results in Table 6. Again, our results suggest that the higher foreign bride influx causes local women to have fewer children.

Conclusion

This paper describes a new migration phenomenon—the influx of foreign brides-- that is becoming more and more popular in many Asia including China, Singapore, Taiwan and South Korea. We use dataset from Taiwan to first examine the type of men who married foreign brides, the foreign brides' children's health. Our findings suggest that even though foreign brides are more likely to marry to less educated and older husband; however, foreign brides' children are healthier than children of Taiwanese women. We find no evidence that foreign bride influx causes marriages of local women to dissolve, but we do find some fertility responses of local women to the influx of foreign bride.

Bibliography

Almond, Douglas, Chay, Ken and David Lee (2005) "The Costs of Low Birth Weight" Quarterly Journal of Economics: 1031-1083

Card, D. (1990). The impact of the mariel boatlift on the miami labor market. *Industrial and Labor Relations Review, 43*(2), 245-257.

Case, A., & Paxson, C. (2008). Stature and status: Height, ability, and labor market outcomes. *Journal of Political Economy, 116*(3), 499-532.

Gupta, M. D. (2005). Explaining asia's "missing women": A new look at the data. *Population and Development Review, 31*(3), pp. 529-535.

Hsia, Hsiao-Chuan. (1997). Selfing and Othering in the "Foreign Bride" Phenomenon –A Study of Class, Gender and Ethnicity in the Transnational Marriages between Taiwanese Men and Indonesian Women. Ph.D. diss., University of Florida

Human Rights Report (2008) US Department of State

Jayachandran, S. & Lleras-Muney, A. 2009. "Life Expectancy and Human Capital Investments: Evidence from Maternal Mortality Declines-super-," The Quarterly Journal of Economics, MIT Press, vol. 124(1), pages 349-397, February.

Liaw, K., Lin, J., & Liu, C. (2009). *Reproductive contributions of foreign wives in Taiwan: Similarities and differences among major source countries* McMaster University.

Lin, M., Qian, N., & Liu, J. (2008). *More women missing, fewer girls dying: The impact of abortion on sex ratios at birth and excess female mortality in Taiwan.* National Bureau of Economic Research.

Luoh, Ming-Ching (2006) "Gender Differences in Educational Attainment and International Marriages." Taiwan Economic Review, March 2006, 34(1), pp.79-115. (in Chinese)

See, L., Shen, Y., & Lin, S. (2008). Lower early neonatal mortality among singletons in transnational marriage families: Taiwan birth registry. *European Journal of Epidemiology, 23*(7), 483-489.

Taipei Times "Foreign bride problem needs fixing" Jan 04, 2005

Tsai, Wehn-jyuan, Liu JT, Hockenberry , J (2010) “Do Foreign Brides Crowd Out Domestic Unwed Women? A Study of Nonmarital Fertility in Taiwan”, Unpublished Manuscript

Tsay, Ching-lung. 2004. “Marriage migration of women from China and Southeast Asia to Taiwan,” in Gavin W.Jones andKamaliniRamdas, (eds.), *(Un)tying the Knot: Ideal and Reality in Asian Marriage*. Singapore : Asia Research Institute, National University of Singapore.

Wang, H. (2002). The commodification of international marriages: Crossâ border marriage business in taiwan and viet nam. *International Migration, 40*(6), 93.

Figure 1

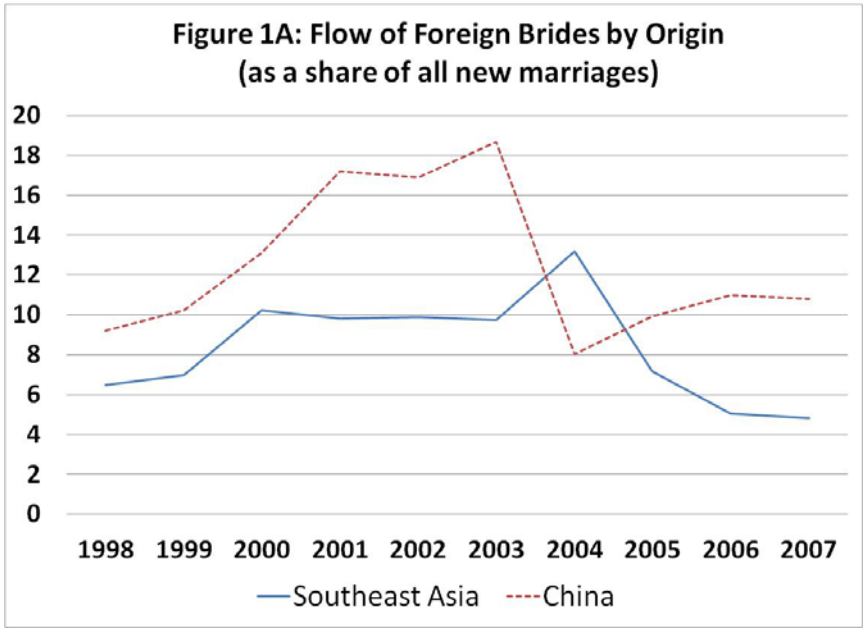
Figure 1A: Flow of Foreign Brides by Origin
(as a share of all new marriages)
20
18
16
14
12
10
8
6
4
2
0
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007
Southeast Asia
China

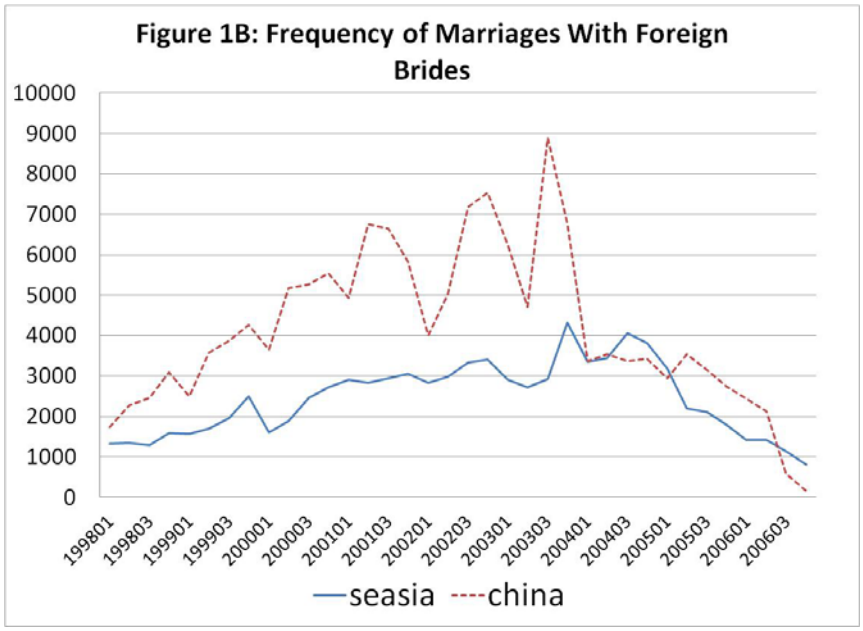
Figure 1B: Frequency of Marriages With Foreign Brides
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
199801 199803 199901 199903 200001 200003 200101 200103 200201 200203 200301 200303 200401 200403 200501 200503 200601 200603
seasia
china

Figure 2

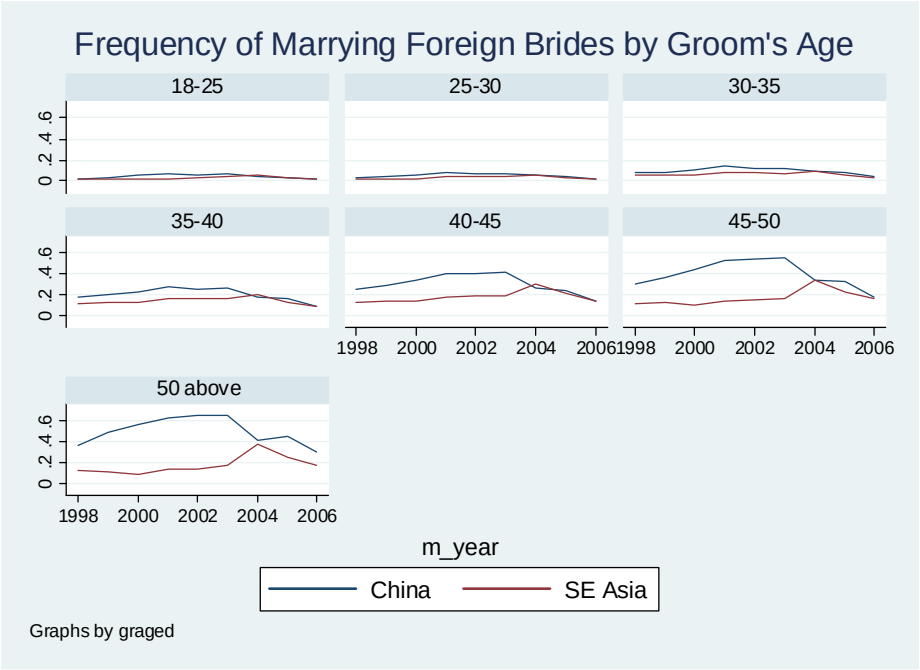

Figure 3

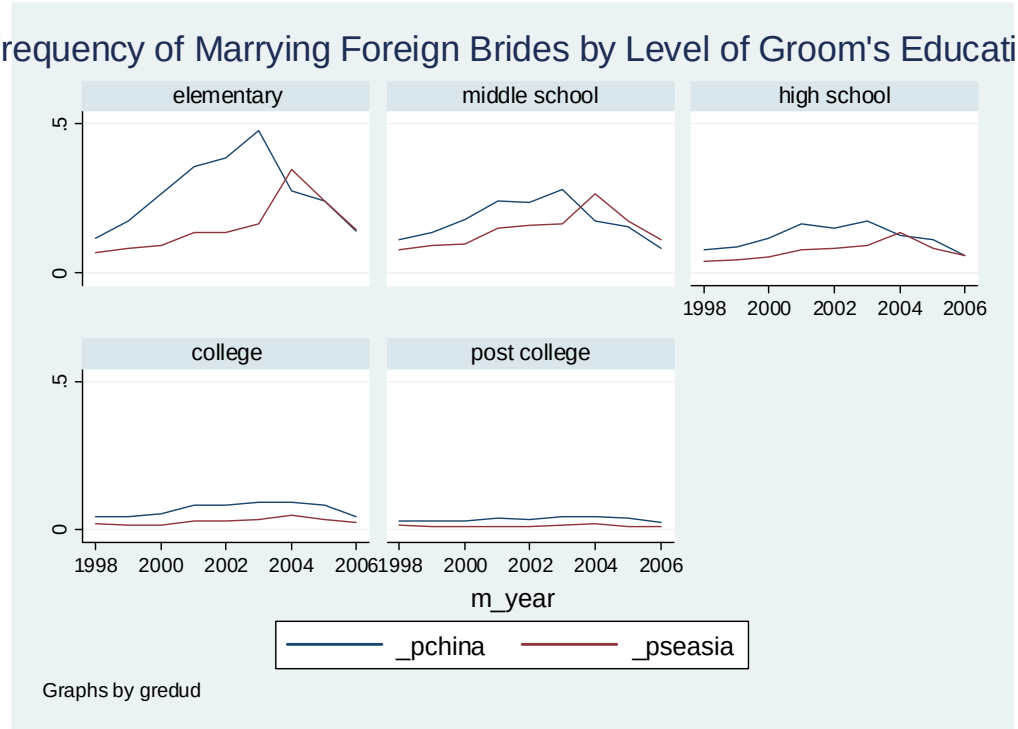

Figure 4

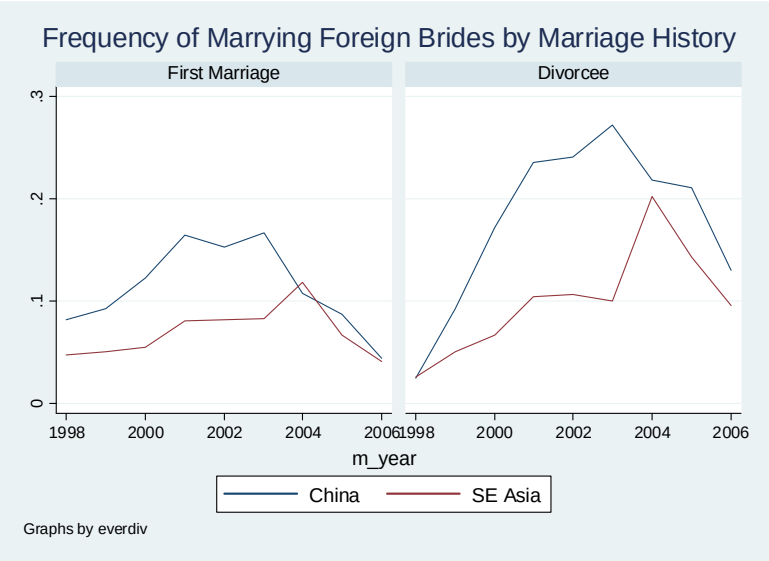
Frequency of Marrying Foreign Brides by Marriage History
First Marriage
Divorcee
0
.1
.2
.3
1998
2000
2002
2004
2006
m_year
China
SE Asia
Graphs by everdiv

Table 1: Foreign Brides by Origin

Country of Origin	#	**%**
China	170,883	55.6
Vietnam	72,715	23.7
Indonesia	19,045	6.2
Thailand	6,157	2.0
Cambodia	4,187	1.4
Others/Missing	34,125	11.1
Total	307,112	

Note: This includes all foreign brides married between 1998 to 2006.

Table 2: Summary Statistics for those got married in 1998

	By Origin of Brides		
	Taiwan	China	SE Asia
Education (Years)			
Grooms	11.0	9.6	9.3
Brides	10.6	10.4	8.6
Age at time of Marriage			
Grooms	30.9	43.7	36.8
Brides	27.9	29.9	25.2
Number of Children (By 2006)			
Sons	0.79	0.42	0.60
Daughters	0.73	0.40	0.56
Low birthweight (%)	6.85	5.00	6.19
Infant Mortality Rates (‰)	4.90	4.30	4.60
Remarried	0.01	0.06	0.07
Divorce	0.17	0.24	0.25
Duration (year)			
cond' on divorce	4.34	3.48	4.37
Observations	111488	10606	6265

Note: This table provides summary statistics of couples who got married in 1998 (N=132,085)

Table 3: Probit Model of Infant's Health

Dependent Variables:	Low Birth Weight (LBW)		Child Died Before 1	
Mother's Origin	(1)	(2)	(3)	(4)
China	-0.021	-0.026	-0.001	-0.001
	[0.001]***	[0.001]***	[0.000]***	[0.000]***
SE Asia	-0.004	-0.013	-0.0001	-0.001
	[0.001]***	[0.001]***	[0.0001]	[0.000]**
Parents' Characteristics		X		X
Observations	1217997	1217997	1217997	1217997

Note: Marginal effects for the probit model are reported. Standard errors are clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. Samples exclude aboriginal mothers. All regressions control for year fixed effects, county FE, gender, parity. Parents' characteristics include both parents' education level and parents' age.

Table 4: Whether Foreign Brides are More Likely To Divorce

	Ever Divorce=1	
	(1)	(2)
Bride Origin		
China	0.154	0.023
	(0.001)***	(0.001)***
SE Asia	0.054	-0.003
	(0.001)***	(0.001)***
Individual Charateristics		X
Year FE		X
Observations	1202525	1202525

Note: Marginal effects from probit model are reported above. Standard errors are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. The sample excluded aboriginal women. The default group is Taiwanese women. Individual characteristics include husbands and wives' age, education level and number of daugheters / sons.

Table 5: Linear Probability Model of Divorce Using County or Village-Level Bride Flow

VARIABLES	(1) County Level	(2) Village Level	(3) Village Level	(4) County Level	(5) Village Level	(6) Village Level
share of Fb(t-1)	0.00628*	0.00279	0.00752***			
	(0.00339)	(0.00261)	(0.00260)			
share of CH(t-1)				0.00483	0.00385	0.00771**
				(0.00336)	(0.00334)	(0.00309)
share of SE(t-1)				0.0181*	0.00149	0.00729**
				(0.00942)	(0.00316)	(0.00339)
have no son	0.00476***	0.00369***	0.00925***	0.00476***	0.00369***	0.00925***
	(0.000297)	(0.000276)	(0.000243)	(0.000298)	(0.000276)	(0.000243)
have no daughter	0.00200***	0.00301***	0.00934***	0.00201***	0.00301***	0.00934***
	(0.000248)	(0.000285)	(0.000277)	(0.000248)	(0.000285)	(0.000277)
Edu (9th-College)	-0.00643***	-0.00720***		-0.00643***	-0.00720***	
	(0.000488)	(0.000338)		(0.000488)	(0.000338)	
Edu (College+)	-0.0161***	-0.0164***		-0.0161***	-0.0164***	
	(0.000546)	(0.000464)		(0.000546)	(0.000464)	
Age (30-45)	-0.00487***	-0.00561***	-0.00241***	-0.00487***	-0.00561***	-0.00241***
	(0.000338)	(0.000242)	(0.000260)	(0.000338)	(0.000242)	(0.000260)
Age 45+	0.000184	-0.00150**	-0.00186**	0.000182	-0.00150**	-0.00186**
	(0.000553)	(0.000715)	(0.000887)	(0.000553)	(0.000715)	(0.000887)
County FE	X			X		
Village FE		X			X	
Individual FE			X			X
Observations	4,853,621	2,277,944	2,602,995	4,853,621	2,277,944	2,602,995
R-squared	0.231	0.252	0.397	0.231	0.252	0.397

Note: All regressions control for individual characteristics such as age, education, duration of marriages, never have son, never have daughter, year of wedding, year fixed effect. Standard errors clustered at the village level. Columns 2, 3, 5 and 6 exclude those who reside in one of the 7 metropolitan areas.

Table 6: Linear Probability Model of Fertility Using County or Village-Level Bride Flow

VARIABLES	(1) County Level	(2) Village Level	(3) Village Level	(4) County Level	(5) Village Level	(6) Village Level
share of Fb(t-1)	-0.159**	-0.00334	-0.0349***			
	(0.0727)	(0.00856)	(0.00866)			
share of CH(t-1)				-0.120***	-0.00804	-0.0371***
				(0.0414)	(0.0105)	(0.0104)
share of SE(t-1)				-0.445**	0.00238	-0.0320**
				(0.159)	(0.0119)	(0.0123)
have no son	0.141***	0.142***	0.590***	0.141***	0.142***	0.590***
	(0.00610)	(0.00128)	(0.00122)	(0.00617)	(0.00128)	(0.00122)
have no daughter	0.122***	0.120***	0.571***	0.122***	0.120***	0.571***
	(0.00511)	(0.000875)	(0.00104)	(0.00518)	(0.000875)	(0.00104)
Edu (9th-College)	0.00599***	0.0128***		0.00600***	0.0128***	
	(0.00147)	(0.000750)		(0.00147)	(0.000750)	
Edu (College+)	-0.0285***	-0.0178***		-0.0285***	-0.0178***	
	(0.00214)	(0.00118)		(0.00213)	(0.00118)	
Age (30-45)	-0.0490***	-0.0433***	0.0440***	-0.0489***	-0.0433***	0.0440***
	(0.000945)	(0.000737)	(0.00107)	(0.000978)	(0.000737)	(0.00107)
Age 45+	-0.256***	-0.266***	-0.0761***	-0.256***	-0.266***	-0.0761***
	(0.0114)	(0.00172)	(0.00297)	(0.0114)	(0.00172)	(0.00297)
County FE	X			X		
Village FE		X			X	
Individual FE			X			X
Observations	4,853,621	2,277,944	2,602,995	4,853,621	2,277,944	2,602,995
R-squared	0.092	0.094	0.294	0.092	0.094	0.294

Note: All regressions control for individual characteristics such as age, education, duration of marriages, never have son, never have daughter, year of wedding, year fixed effect. Standard errors clustered at the village level. Columns 2, 3, 5 and 6 exclude those who reside in one of the 7 metropolitan areas.

Table 7: Linear Probability of Divorce

	(1)	(2)	(3)	(4)	(5)
				Husband's Education Level	
	1 year +	2 years +	0 - 9 year	9 yr - Some College	College+
Post 04	0.0338***	0.0621***	0.0444***	0.0340***	0.0162***
	(0.00154)	(0.00206)	(0.00318)	(0.00223)	(0.00217)
2nd Quar * Post 04	-0.000791	-0.00129	0.000644	-0.000758	-0.00274
	(0.00114)	(0.000969)	(0.00288)	(0.00173)	(0.00168)
3rd Quar * Post 04	0.00206	0.000996	0.00345	0.00263	-0.00125
	(0.00142)	(0.00108)	(0.00316)	(0.00187)	(0.00169)
4th Quar * Post 04	0.00117	0.000759	0.00511	-0.000427	-0.000380
	(0.00157)	(0.00120)	(0.00406)	(0.00203)	(0.00222)
2nd Quar	0.0238***	0.0209***	0.244***	0.0618***	0.00959***
	(0.00105)	(0.00263)	(0.00733)	(0.00118)	(0.00139)
3rd Quar	0.0432***	0.00856***	0.0236***	0.0301***	0.0151***
	(0.000895)	(0.00111)	(0.00276)	(0.00109)	(0.00223)
4th Quar	0.0368***	0.0265***	0.131***	0.0311***	0.0139***
	(0.00128)	(0.00261)	(0.00544)	(0.00115)	(0.00278)
Observations	361,844	724,377	109,399	181,579	70,866
R-squared	0.106	0.056	0.099	0.112	0.103

All regressions control for individual characteristics such as age, education, duration of marriages, never have son, never have daughter, village fixed effect, year fixed effect. Standard errors clustered at the village level

Table 8: Linear Probability of Having a Child

	(1)	(2)	(3)	(4)	(5)
			Husband's Education Level		
	1 year +	2 years +	0 - 9 year	9 yr - Some College	College+
Post 04	-0.0138***	-0.0211***	-0.0115**	-0.0180***	-0.00854
	(0.00303)	(0.00330)	(0.00493)	(0.00418)	(0.00776)
2nd Quar * Post 04	0.00682**	0.00964***	0.000474	0.0106**	0.00758
	(0.00332)	(0.00309)	(0.00521)	(0.00517)	(0.00804)
3rd Quar * Post 04	0.0114***	0.0125***	0.00657	0.0145***	0.0128*
	(0.00340)	(0.00327)	(0.00583)	(0.00468)	(0.00776)
4th Quar * Post 04	0.00978**	0.0168***	-0.00390	0.0165***	0.0150
	(0.00408)	(0.00349)	(0.00666)	(0.00542)	(0.00952)
2nd Quar	0.0910***	-0.0290***	-0.0858***	0.0881***	0.0825***
	(0.00248)	(0.00827)	(0.0134)	(0.00284)	(0.00320)
3rd Quar	0.0776***	-0.0259***	-0.00451	0.0652***	0.147***
	(0.00204)	(0.00329)	(0.00496)	(0.00256)	(0.00609)
4th Quar	0.0402***	0.0237***	-0.0461***	0.166***	-0.104***
	(0.00329)	(0.00810)	(0.00971)	(0.00310)	(0.00757)
Observations	361,844	724,377	109,399	181,579	70,866
R-squared	0.047	0.070	0.041	0.049	0.050

All regressions control for individual characteristics such as age, education, duration of marriages, never have son, never have daughter, village fixed effect, year fixed effect