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UNIVERSITY

Department of Economic History
Master Programme in Economic Demography

Childbearing Behavior after Migration:
The Experience of Immigrant Women in Taiwan, 1987-2003

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EKHR01
Master's thesis (15 credits ECTS)
Autumn 2009

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Abstract

This paper indentifies the factors that affect the childbearing behaviors for marriage immigrants in Taiwan during 1987 to 2003, measured by individual level data for 87,798 observations obtained from QLSFS (Quasi-longitudinal Study on Living Status of the Foreign Born Spouses in Taiwan). This survey contains the socio-demographic information for both immigrant women and their native husbands, which allows us to evolve a study concerning both the time since migration and the interrelatedness between marriage couples' SES (social economic status) and their childbearing. In our study, we found that women from different migration groups tend to display higher levels of childbearing. Instead of finding a disruption effect, we found migration and family building closely adhere to each other, that caused to an elevated fertility shortly after immigrant women had migrated to Taiwan. Besides, we also found the fluctuations of period trends in parity-specific fertility appear to be affected by the changing size of migration trend. One perhaps the most interesting finding in this study is that we found the childbearing behaviors of the immigrant women was largely determined by the native husbands' SES.

Keywords: Immigration; Fertility patterns; Transnational marriage; Family formation effect

Introduction

Since the authority of Taiwan had lifted the ban for Taiwanese traveling between cross strait¹ and legalized the regulations for international migration and transnational marriages in 1987, the interactions are accelerated and grown in a very steady speed and extend to various dimensions among Taiwan, Mainland China and Southeast Asian countries. With the increasing interflows of people, capital, and goods, the international marriages between Taiwan and its neighboring eastern countries has become more common than before. Up until the latest ten years, the number of the cross-country marriages has accelerated in a surprising speed. The number of migrants has increased each year, from 2,290 persons in 1998 and reached its peak to 54,634 persons in 2003, whose size had expanded around twenty four times compared to that of 1998. Along with the immensely increased number of immigrant couples, the transnational marriage couples had amounted to 15% of the total married couples in 2003. The booming of the marriage immigrants itself had not only directly contributed to the population size, but also indirectly enhanced the impetus for childbearing, especially when most of the marriage immigrants are migrated in their young and fertile age.

In Figure 1, it gives us a broad picture that all registered immigrant women in Taiwan, where a much higher fertility rate was observed compared to both the native women in Taiwan and their counterparts in their sending countries. Several previous studies have revealed how and why these immigrant women had considerable higher fertility rate compared to the natives. Some believe that the driving force behind the cross-country marriage was instead based on love but based mainly on the economic incentive. Immigrant women therefore are willing to render their freedom and be responsible for the duty for having a son to carry the family name of her husband (Chen and Chin 2008). One study focused on the health condition for Indonesian women and conclude that once the immigrant woman has decided to marry the Taiwanese man, she then already realizes her responsibility for bearing certain amount of children that her husband's family expected (Yang and Wang 2003). For reaching the expected number of children can not only strengthen family status of an immigrant woman, but also gaining the trust from her husband (Chou 2006).

For identifying the factors that cause to the heterogeneous child birth rates and childbearing patterns after migration, an examination with a quantitative method is required, which haven't been presented yet. Fortunately, a survey contains complete information about the historical events of child birth and the socio-economic background for both immigrant women and their Taiwanese husbands is allowed to access now. In the present study, we use the given micro level data extracted from this interviewed based survey, we thus can analyze the features of fertility patterns and also discuss how the specific patterns were performed for the immigrant women in Taiwan. Our investigation not only derive a picture of how the childbearing behaviors was performed in relation to the migration events, ages, working conditions, and education attainments for the very heterogeneous groups of women coming from countries outside Taiwan, but also, it lend us an opportunity to have a closer look at that of their native husbands.

This study has been divided into eight chapters, which would assist the readers to understand our research question, method and results in a step-by-step basis. In chapter one, we will first review the previous studies which have focused on the immigration fertility. Since each reviewed studies are different in their source and type of data, theories,

¹ Taiwan Strait which separates Taiwan and Mainland China.

methods, and the heterogeneity of the immigration groups in each investigating countries (area), the research review will provide us an insight that can be based to select a proper theories and hypotheses in this study. In chapter two, we are going to demonstrating the theories and explain why they were chosen to examine our estimated model. Thereafter, in chapter three and four, we will in one hand describe which and why specific data source and methods were used, and on the other hand, description of the limit and restriction of our data and methods will also be explained. The empirical result will be shown in chapter five. In this final chapter we will illustrate the size and composition of contemporary marriage immigrants by indicating their contribution to the population size and total number of the new arrivals in the last ten years. Subsequently, an examination to distinguish the different fertility rates between immigrant women and native women will be carried out to verify the widely perceived impression that immigrant women have higher fertility rate. In order to figure out the heterogeneity between different immigrant populations, a further inspection to look over the different fertility levels is necessary.

After the overlooking of different childbearing levels and patterns for these immigrant women, we then construct an econometric model through the already existing data and indentify the factors that may cause to different fertility levels for immigrants couples.

For understanding the size and composition of contemporary marriage immigrants and the different fertility level between immigrants and natives, several other administrative data sources were also used. Most of the information can be found from the official document published by the department of housing registration, Ministry of the Interior in Taiwan. We also obtain the macro level data that indicating the fertility level for immigrants' sending countries from the United Nations Population Information Network (POPIN). Then these macro indicators were used for comparing the fertility level between immigrant women and those counterparts in the sending countries.

Background and Research Review

The fertility patterns of immigrant women have been studied in most of the industrialized countries. Most of these countries have relatively long immigrant histories and large amount of immigrant in terms of size and percentage. Among the previous works that highlight in studying the immigrants' fertility, they had instructed us that the fertility patterns for those immigrant women can be influenced through several effects, which are effects of migration, period effects, and the effects of countries of origins.

Among the previous studies primarily depends on the availability of data, that researcher either solely centered in the effects after migration, or all the above effects can be covered into the studies. As for the studying objects, some of them focus on heterogeneous immigrant's groups in a single country, when the other targeted at the immigrants in one specific country of origin, for example, the immigrants with Mexican-origin in the US (Bean and Swicgood et al. 2000, Carter 2000). For some studies with rich information about immigrant's background, they are allowed looking further into the childbearing behaviors of their second or third generation (Bean and Swicgood et al. 2000).

Table1 shows the previous studies which centered on the immigrants' fertility. For different data restriction in each study, authors therefore use different techniques to measure the fertility patterns of immigrants. For those (Andersson and Scott 2005,

Andersson 2004, Carter 2000) who obtain the micro-level data for child birth records of different parities in a corresponding time period, they mostly likely to use a event history technique by using a proportional hazard model which can depict a clear picture of a immigrant women's fertility level transit from one child birth status to another, for instance from childless to first child. As for those who possess the macro level data (Schoenmaeckers and Lodewijckx 1999) or micro level (Bean and Swicegood et al. 2000, Mayer and Riphahn 1999, Ng and Nault 1997) which lack of detail information for the corresponding periods of time since migration and the child birth, usually choose either own-children/ own-infant method or the number of children ever born to depict the fertility level for foreign-born mothers instead.

Table 1. Reviewed Literatures for Immigrant's Childbearing Behaviors

<i>Author</i>	<i>Title</i>	<i>Analysis</i>	<i>Method</i>	<i>Data</i>
1 Andersson and Scott (2005)	Labor-Market Attachment and Entry into Parenthood: The Experience of Immigrant Women in Sweden	single-country analysis (immigrants with different countries of origins)	Event-History	registered based database, and income data from Swedish tax office
2 Andersson (2004)	Childbearing after Migration: Fertility Patterns of foreign-born women in Sweden	depict the patterns for three fertility effect for immigrants women	Event-History	registered-based database
3 Carter (2000)	Fertility of Mexican Immigrant Women in the U.S.: A Closer Look	depict fertility pattern for Mexican immigrant women in a parity perspective	proportional hazard model	1986 and 1988 Current Population Survey (CPS)
4 Bean and Swicegood et al. (2000)	Mexican-Origin Fertility: New Patterns and Interpretations	illustrate the fertility patterns for Mexican immigrants of present and former generations	data: child-ever-born/ own-child measurement model: regression (OLS)	1995 National Survey of Family Growth (NSFG)
5 Mayer and Riphahn (1999)	Fertility assimilation of immigrants: Evidence from count data models	single-country analysis	count data model (ML)	Panel data (GSOEP)

6	Schoenmaeckers and Lodewijckx (1999)	Marriages and Fertility among Turkish and Moroccan Women in Belgium: Results from Census Data.	single-country analysis (comparisons between two immigrant's groups and their later generations)	TFR and ASFR comparison between each groups and subgroups	1991 Belgium census data (1986-1990)
7	Ng and Nault (1997)	Fertility among Recent Immigrant Women of Canada, 1991: An Examination of the Disruption Hypothesis.	single-country analysis	own-infant method	1991 Canada census data

There is no universal-fit effect that was found from the results reported in these reviewed studies. Whilst a general assimilated pattern of childbearing was found for the immigrant women in Sweden for their second and third birth (Andersson 2004, pp.759-63), an evidence of second child birth assimilation was found for the second-generation Mexican Americans (Bean and Swicegood et al. 2000) in the US context. In the case of Canada, a disruption effect was observed for non-European immigrant women.

However, the above mentioned studies have no control for immigrants' social-economic background; the reported results can thus hardly conclude how the childbearing pattern was formed. Three of our reviewed studies were able to access to the socio-economic background for their studying objects. One study which (Andersson and Scott 2005) concerns the impact of labor market attachment on immigrant women's parenthood, with a registered based information of fertility events and income information, the authors were allowed to study and result in a clear positive relationship between active labour-force participation and entry into motherhood in Sweden. This is inconsistent with the Beckerian economic theory that the labour market participation and childbearing should be viewed as competing careers (Andersson and Scott 2005, p.22). Another two studies highlighting in child birth patterns in the US and Germany were capable of controlling the socio-economic background (Carter 2000 and Mayer and Riphahn 1999), however, they are mainly focused on immigrant women's effect of migration and put only little emphasis on analyzing the interrelationship between socio-economic background and their childbearing behaviors.

For the given data in our study in Taiwan's context, a unique characteristic was depicted for those foreign born women in Taiwan, which a large percent of them immigrated to Taiwan for a purpose of family unification. Therefore, it constrains our analyses to accentuate on their family effects after migration. Moreover, with lack of parallel data of micro level for Taiwanese native women and the immigrant women counterparts in home country, which constraints our study for examining the interrelatedness between childbearing and socio-economic background between immigrant women and their native husbands in the existing data source. Nevertheless, the previous studies had approved that any analysis of migrant fertility rate is complicated by their events of migration, transitioning stages and socio-economic background. With the limitation of our data, our estimations will link with the labor market attachment effect and family formation effect. For the demographic indicators are available for immigrant's

sending countries in POPIN, an exploration of socialization effects will also be presented in this study.

Theories and Hypotheses

Here we will discuss about the theories that had been used from the previous studies that depict the different fertility patterns among the natives and the immigrants. There are three effects (effect of migration, period effect, and effect of countries of origin) which are used for explaining the fertility patterns of immigrants' fertility behaviors based on immigrants' background, duration of migration, and timing of migration over different calendar years. Besides, we also like to introduce five different hypotheses which have been used to explain why the immigrant women have disrupted fertility rate compared to their counterparts in their home country and the native women, with regarding to their countries' backgrounds and immigrant experiences.

I. Theories

Effect of Migration

To study the fertility patterns of immigrant families, it is very important to consider the impact of duration since migration on the fertility outcome. There are three scenarios which are categorized by Stephen and Bean (1992) and were labeled as the effect of *assimilation*, *adaptation*, or *disruption* to characterize the fertility behavior of immigrants. The *assimilation process* was first formulated to describe the phenomenon of the American “melting-spot” experience that with the increased exposure to the culture of that country increasingly will make the immigrant group resemble to the native population. One would expect a gradual convergence of fertility levels between the immigrants and native population in a relatively long period of time. Nevertheless, the convergence of fertility levels for both immigrants and natives have also been expected to occur after a relatively short period of time since migration in an *adaptation process*. But it does not necessarily imply a process of acculturation, but can merely be seen as an adaptation to the general situation in the new country, where political, social policy, labor market environment etc. may influence fertility behaviors. The *disruption process* demonstrates a disrupted fertility level for immigrants, which is usually occurred either in the premigration period or shortly after the migration. That can be attributed to several reasons under different hypotheses, which we will discuss them in the following topics titled as “hypothesis.”

Period Effect

While the effect of migration represents the risk of childbearing in association with the time since migration, the period effect explains the risk of childbearing in response with the calendar time. The fertility patterns, which usually demonstrated by a year-by-year basis, allow us to have a closer look at the change of fertility level each year and thus we can furthermore compare the trend of fertility fluctuation among different immigrants' groups and the native population over a period of time. The period analysis provides us a clear picture of how and which of the processes (assimilation, adaptation, and disruption) has brought into the full play.

Effects of Countries of Origin

Comparing the fertility trends for women of various immigrant groups is a popular approach to examine if there is a heterogeneous fertility levels existed among them. This

approach allows us to identify a different fertility level for women with different country of origins, which not only provide researchers a chance to generalize the fertility patterns of each specific country, but also give them some clues of how to classify the countries which have assimilated fertility level into the groups.

II. Hypotheses

Here we will introduce four interrelated factors are frequently identified to explain the disrupted fertility rate of certain immigrant groups.

Selection Hypothesis

The selection hypothesis emphasized that the distinct social characteristics of immigrants, such as their educational level, income, level of integration, and rates of intermarriage, may be conducive to an elevated fertility rate (Sobotka 2008, p.234). Carter (2000) indicated that the Mexican immigrant women have a low birth rate in the pre-migration period is associated with the selected factors, whereby childless women were more likely to migrate than others. However, the selection effects rarely can be adequately affirmed for lacking of data to further analyze the change of childbearing behavior for the non-migrants in the migrants' sending countries (Carter 2000, pp.1074-5; Schoenmaeckers and Lodewijckx 1999, p.908, 926).

Socialization Hypothesis

The socialization hypothesis (or 'culture hypothesis) emphasizes the effects of pronatalist culture, norms and values in the region of origin, which is mirrored in the reproductive behavior of immigrants after their arrival to a new country with low-fertility setting. Also relatively low fertility rates, typical of migrant groups coming from low-fertility countries Take Sweden for example, the immigrant women whose countries of origin are Moslem countries and are aged from 16 to 28, usually have a much higher fertility level in relative to the Swedish native women. And those immigrants who are from the "New World"² and West European countries generally have a lowered fertility level along their whole period of staying in Sweden (Andersson 2004, p.769 Table 4).

Family Formation /Disruption Hypothesis

Family formation hypothesis which assume the immigrant who migrate to the receiving country for a purpose of family formation usually have an elevated fertility rate in their early years of migration stage. In several cases in previous studies have lend an evidence of this hypothesis, the Turkish immigrants in Belgium for example, a large number of the migrants immigrated to Belgium for the purpose of family unification, whereby a phenomenon of arranged marriages are widespread among them, which have contributed to a great percentage of intermarriages and the number of immigrant population in Belgium (Schoenmaeckers and Lodewijckx 1999). The family disruption hypothesis contrast with the family formation hypothesis, that expect an decreased fertility pattern in the period shortly before or during migration stage due to a separation for the partnership that interrupt the childbearing behaviors (Sobotka 2008, p.235).

Minority Status' Explanation

The minority status' explanation can be proposed to explain both rapid fertility limitation among some groups of migrants as a way of achieving higher social mobility

² New World countries consist of Australia, New Zealand, Canada, and the United States.

and the persistence of higher fertility as a defensive response among the more disadvantaged communities with strong ethnic or religious consciousness and slow adaptation to local fertility ideals (Sobotka 2008, p.235). Carter (2000, p. 414 Table 4, pp.416-7) had illustrate some evidences for an ethnic resilience approach that the minority status had limited the effect of assimilation for Mexican-origin immigrants in the U.S.

Expected Results

For a large percent of the cross-border spouses who immigrated to Taiwan was arranged by an intermediary agency which have indicated that most of the immigrant reallocate themselves for a purpose of family unification. In addition, there are more than ninety percent of them are female and migrated at their fertile age, for a great number of them are from Mainland China, Vietnam, Indonesia and other Southeast Asian countries. Therefore, we first expect a pronatalist perspective that prevailed in Southeast Asian countries will determine the fertility patterns of the immigrant women to remain at a higher level. Second, we expect a selective effect whereby the Taiwanese husbands who pursuit a transnational marriage would usually less educated than those who married to the native women. We could thereafter expect an elevated fertility for the immigrant spouses. Third, though effects of countries of origin were usually believed to play a major role in fertility study, however, there is only minor effect will be expected for a great number of the immigrant women possess a homogeneous background, many of whom comes from a less developed rural village generally prevailed with pronatalist phenomenon. One exception is the migrated women from Mainland China where is known for its one-child policy regime (officially implemented since 1979), for them the expected effect is a bit vague. We have barely any idea of either they will adapt to the native women by increasing child birth or the socialization effect will dominate in their childbirth behaviors.

In regards to the assimilation/ disruption effect, we expect a minor family disruption effect will be found for the immigrant women. For the native husband normally play as a decision maker in a household when it comes to important family issues such as the timing of bearing a child and the expected number of children. In a certain extent that a traditional family value and framework still pre-dominated the childbearing behaviors in Taiwan, especially for whom (of healthy condition) he married to a bride from neighboring countries in Southeast Asia. He might have been strongly influenced by the traditional family norms and value, therefore have a strong motivation to have his first child in the very early stage of marriage and then contributed to a fertility level surpassed the average number of the natives.

With lack of individual level demographic data for the native women and the non-migrants in sending countries, we are not allowed to reference to the native women with corresponding characteristics. However, for a hug gap to the fertility rate between immigrant women and native women, the assimilation/ disruption effect is possible to measure by two analyzing approaches. One approach is actually to estimate and compare the risk of childbearing to all categories of duration of staying with a reference group of those who had their children at their early stage of migration (less than one year). The other approach is to measure the risk of childbearing with considering the period effect, which allows us a way to measure the extent of assimilation/ disruption effect.

Data

The data for this study were obtained from a 2003 Quasi-longitudinal Study on Living Status of the Foreign Born Spouses in Taiwan (QLSFS). The survey was undertaken by the Department of Household Registration in a period of twenty days of personal interviews.³ Its purpose is to investigate the living standards for all the registered immigrant couples staying in Taiwan. This survey data provides us complete childbearing histories of the foreign born women and allows for examining all births occurring after the migration. With abundant information for the immigrant couples socio-economic background, it enables us to obtain the information as age, current marriage status, immigration status, and working conditions for the marriage couples. The socio-economic features was investigated for the native companions and classify them into four different categories, such as aborigines, veterans, physically and mentally disabled, low income families etc.

Our calculations employ a secondary data included 175,303 samples registered as marriage couples in Taiwan before the 31st of August 2003. We focus on the childbearing behaviors for those immigrant women who migrated after the year of 1987, we thus restrict our samples for those who are specified as female and exclude the women who migrated before 1st January 1987. We also exclude those observations which have their birth order disarray. Since we have no information on children who have not lived in Taiwan, such as those who might have died before or were left behind in the country of origin, neither do we have those children who have recorded but were not married couples' own children, like those who might have produced by their previous marriages. In order to avoid he problem by such omissions and properly illustrate their childbearing patterns, we only include the women who married to a native husband before their age of 35 years in our study. This would guarantee that the vast majority of children born to these women show up in our data. The resulting samples include 87,789 women who have married before their age of 35. We further classify immigrant women into heterogeneous subgroups by their countries of origins (Mainland China 17,239, Vietnam 43,806, Indonesia 15,885, Thailand 2,634, Philippine 3,065 and Cambodia 2,827, etc.). The detailed features of data description can be found in Table A1 (see Appendix).

³ The investigation period of this survey had started from 17th of October to 7th of November, 2003.

Methods

For indentifying the factors that affect the childbearing event, the hazard regression model is frequently used as the tool for analysis (Andersson and Scott 2005, p.24). In this paper, the computation has been based on the number of live births recorded and the corresponding exposure time of risks for various subgroups of women and their native husbands. The purpose why we study the specific socio-economic backgrounds of both immigrant women and their native husband is to present trends in their childbearing intensities for the past twenty years. The indices are produced by estimating proportional-hazard models. Such regression models are often used to study the impact of various variables on demographic behavior. In our case, a simple model of the propensity for a mother give birth to an additional child can have the following form:

Model for fertility trend (by calendar time)

$$h(t) = Aw_i B_u C_t$$

Model for SES analysis:

$$h(t) = Aw_i Ah_j Ew_k Eh_l Oh_m Ow_n Hh_o Hf_p S_q YSM_r B_u$$

where $h(t)$ is a birth intensity which depends on the various levels of factors such as Aw (Age at childbearing of immigrant women), Ah (Age at childbearing of native husband), Ew (educational attainment of immigrant women), Eh (educational attainment of native husband), Oh (current occupational status of husband), Ow (current occupational status of immigrant women), Hh (health status of husband), Hf (health status of immigrant women), S (social and economic status of native husband), YSM (years since staying), B (birth order), C (calendar time). The same model can also be presented in the parametric model in Weilbull distribution. However, the estimated factors in this model are more focused on the time-varying variables. The Cox PH was thus used for avoiding the possible problems revealed by model misspecification or mismatched a data distribution function (Box-Steffensmeier 2004, pp.47-51, Andersson 1999, pp.4-5). Through the indices shown in constructed model, a clear trend of how immigrant women's childbearing behaviors could also be shown by the length of their duration period.

The analysis is based on a semi-parametric survival model with statistical tool. Our estimation is performed by means of a wide-known computer program STATA. We specify separate models for childless women and those mothers who already have more than one child. For women who have at least one child, we use the following covariates:

- Age at childbearing of immigrant mother (15-24, 25-34, 35-44), was calculated in a ten-year age interval
 - Education attainment of immigrant mother (illiteracy, <9, <12, >16)
 - Public health coverage of immigrant mother (insured, uninsured)
 - Occupational Status (full-time job, part-time job, jobless)
- For women who have at least one child, we use the following covariates:
- Age at childbearing of native husband (15-24, 25-34, and 35-44), was calculated in a

ten-year age interval

- Education attainment of native husband (illiteracy, <9, <12, >16)
- Social and economic status (aborigines, veterans, physically and mentally disabled, and low income families, none of above)
- Health status of immigrant mother (healthy, sick, disable, sick abed)
- Occupational Status (full-time job, part-time job, jobless)

Furthermore, in order to clarify our measurements be properly interpreted, a number of limitations were presented here. Firstly, due to a considerable administrative barrier that produced a long waiting period for marriage immigrants to receive a permanent residence permit,⁴ that has led a large number of the women employed in our study are actually yet been “officially” recorded as immigrants. Therefore, the term “immigrant women” we use in this study means the women who are foreign born.

Secondly, with the lack of information about the date of migration, we therefore use the date of marriage as the starting point for measuring the exposed time of risk for different child birth parity. For most of the immigrant women whose countries of origins are from South East Asian countries, the dates of marriage are more or less the same with the date of staying in Taiwan. It is because the criteria for applying a resident visa staying in Taiwan that an immigrant woman tends to apply for a resident visa once they get married, especially for those who matched by arrangement and migrated to Taiwan for a purpose of family unification.

Thirdly, considering the period effect we divide our study time into two periods. Whereas our first period as 1986 to 1997 will allow us to illustrate the childbearing behaviors for those early migrated women, the second period 1998 to 2003 will depict the picture for those women who migrated in the later migration wave. In addition, the period analysis technique also renders us an instrument to examine if there is any assimilation/disruption effects existed from one period to the other.

Lastly, the immigrant data we used in this study was undertaken by the governmental office, so that the available samples can merely restrict to those “legally” resident immigrant, who temporarily possessed the resident visa for the purpose of joining family or reunion and lived in Taiwan during the investigation period.

Results

The Foreign Born Women Sample

Table 2 presents selected socio-demographic characteristics of foreign born women and their native husbands in Taiwan. While 53% of the migrated women have finished their high school education, 47% of the native husbands have attained their education at high school level. Only few of the marriage couples had ever entered into the college (9% wives, 11% husbands). Our results indicate a lower educational level for native husbands who married the foreign women (see Appendix, Table A2). Moreover, homogamy and hypergamy marriage pattern seems to be prevailed in those transnational marriage couples (see Appendix, Table A3).

⁴ Normally it takes 4 years for marriage immigrant to attain a permanent resident permit, and immigrant have to stay in Taiwan at least 183 days per year. For the immigrant comes from Mainland China takes 6 years.

The reproductive characteristics suggest that 34% of foreign born wives are childless, when 66% of them had become parents already, which had provided a strong evidence for their purpose of family unification. For these women's age structure, nearly ninety five percent of the immigrant women are in their fertile age and concentrate largely in their ages between 15 to 34 years old during the investigation period. There is a considerable age gaps between immigrant women and their native husbands. Whilst the immigrant women's average age is 30, their husbands have their average age at 40. However, since people in Taiwan inherited the traditional social context that their perspectives for marriage and childbearing are closed to the broader Chinese context, which believes the combination of an elder husband and a younger wife, can benefits for strengthening the family tight (Cheng 2007). It thus makes the age gap between marriage couples is common in Taiwan.

The native husbands who married the immigrant women are usually perceived as the minority group with lower social and economic status. For this, we have already found a relatively lower educational level for those native spouses in the previous part of this study. Now, when we look at their SES (socio-economic status), there are 1% of them were specified as aborigine. Those who are specified as veterans, physically and mentally disabled, and low income families are represented respectively as 5%, 9% and 2%, which are relatively higher compared with their composition rate in the total population (veterans 4%, physically and mentally disabled 4%, low income 0.89%) ([Statistical Yearbook of Interior, Veterans Affairs Commission](#))

The marital status reports that almost all foreign born women in our samples are currently married, which lend us the information that the divorce rate are quite low among them. The marital status would therefore unlikely to be a source of variation for childbearing among the other characteristics.

These above mentioned features of socio-demographic characteristics for foreign born mothers and their husbands have depicted a general picture of specific marital culture and social context for cross-country marriages in Taiwan. For further examination to the relationship between these factors and childbearing behaviors will be shown in the following parts of this study.

Table 2. Sociodemographic Characteristics of the Foreign-Born Women Sample

	<i>Immigrant Women (N=87798)</i>	<i>Native Husbands (N=87798)</i>
Age		
15-24	39%	1%
25-34	44%	26%
35-44	12%	51%
Average	30 years	40 years
Educational Attainment		
Illiteracy	1%	1%
Basic Education (<9)	46%	53%
High School (<12)	44%	36%
University (>16)	9%	11%

	Immigrant Women (N=87798)	Native Husbands (N=87798)
Working Condition		
permanent job	18%	76%
temporary job	12%	11%
jobless	68%	9%
Social and Economic Status		
aborigines (ave. age= 35 years old)		1%
veterans (58 years old)		5%
physically and mentally disabled (36 years old)		9%
below poverty (42 years old)		2%
none of above (35 years old)		85%
Current Marital Status		
married	97%	
divorced, separated, or widowed	3%	
Ave. Age at Marriage	23 years	37 years
Current Fertility Parity		
0	34%	
1	38%	
2	24%	
3	4%	
3+	1%	
Country of Origin		
Mainland China (incl. Hong Kong and Macau)	23%	
Vietnam	46%	
Indonesia	18%	
Thailand	3%	
Philippine	4%	
Cambodia	3%	

The Heterogeneous Fertility Level for Foreign-Born Women in Taiwan

Table 3 presents the age-specific fertility rates of foreign born women in Taiwan. We separate these women into several groups by their countries of origins, and integrated the information from POPIN, we are thus allowed to compare the heterogeneous levels of fertility of these immigrant women with that of women who are in their home country. Since nearly all immigrant women are married, the measurements of fertility level for each subgroup are unnecessary to be adjusted to obtain the total marital fertility rate (TMFR), while that of the Taiwanese native women required to be adjusted with their age specific marriage rates to attain the proper measurements. However, for lacking of the information about the marital status for most of the immigrants sending countries in South Eastern Asia, the data extracted from POPIN only provide us the measurement in a form of total fertility rate (TFR).

In Table 3, we found that the TMFR for foreign born women (30.12) is much higher than that of the Taiwanese native women (9.73). And when age-specific marital fertility rate (ASMFR) are highest between age group 25-29 and 30-34 for women from different immigrant groups, that of the native women have reached its peak at the beginning of their fertile ages between 15 to 19. The momentum of the childbearing for the foreign born women seems remaining at a very strong level before their age at 40. The childbearing momentum for married native women, however, has started decreasing at a very young age at 19.

The fertility levels of immigrant women's sending countries shown in Table 3 have illustrated the childbearing patterns of immigrant's sending country. A tendency we have been observed that the higher the fertility level is in their sending country, the higher the TMFR will be for the immigrant women in Taiwan (except for Cambodian women), at least in the short run.⁵ Though our finding suggest that the immigrant women who are from the high-fertile countries will remain higher fertility level when they have arrived in Taiwan. But, when we look closer at their ASFR, the childbearing momentum of immigrant women reveals a more dynamic pattern in an age-specific perspective, and it has lasted until the later stage of their fertile ages.

For this childbearing patterns represent here, it suggests us to do a further examination for indentifying how and why the childbearing patterns of foreign born marriage spouses was formed. With the given micro level data for their socio-economic background, we are going to estimate the relationship between these features and their childbearing behaviors with a hazard model, and it will be reported in the next sections.

⁵ The arrival cohort of our observed immigrant women are largely concentrated between year 1999 to 2003.

Table 3 Age Specific Fertility Rate (ASFR) and Marital Fertility Rate (MTFR) for Immigrant Women and Taiwanese Native Women (ref. TFR of Immigrants' Sending Countries)

Age group	Taiwanese	Foreign	China			Vietnam		Indonesia ⁶		Thailand		Philippine		Cambodia
	Natives	Born	Mainland ⁷	Hong-Kong	Macao									
			China	Kong										
15-19	1104	274	231	(3)	(5)	(5)	242	(20)	535	(51)	111	(44)	333	(49)
20-24	482	879	523	(113)	(33)	(31)	854	(107)	1153	(131)	649	(104)	1200	(167)
25-29	229	1173	903	(106)	(68)	(57)	1144	(174)	1552	(143)	997	(97)	1370	(182)
30-34	102	1216	948	(43)	(61)	(52)	1141	(96)	1670	(99)	1141	(72)	1551	(135)
35-39	26	1075	663	(10)	(23)	(21)	1002	(44)	1491	(66)	1108	(33)	1497	(1)
40-44	4	826	429	(2)	(4)	(4)	605	(1)	1153	(19)	945	(9)	1352	(40)
MTFR	9.73	30.12	20.05	(1.39)	(0.98)	(0.84)	26.18	(2.25)	40.96	(2.57)	28.18	(1.81)	41.77	(3.34)

Source:

- Ministry of the Interior of Taiwan, Demographic and Health Surveys
- Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision, <http://esa.un.org/unpp>

Notes: The value in parentheses () means the TFR level of migrant women's sending countries

⁶ Data was extracted from the World Fertility Report 2003, UN Population Division
http://www.un.org/esa/population/publications/worldfertility/World_Fertility_Report.htm

⁷ Data was extracted from the World Fertility Patterns 2007, UN Population Division
<http://www.un.org/esa/population/publications/worldfertility2007/worldfertility2007.htm>

This section presents our results from proportional hazard models for each of the first three birth transitions, which provide a more rigorous and closer examination of these immigrants' fertility. Table 4 displays the hazard ratios associated with the variables included in the models. The hazard trends over successive durations of stay in Taiwan for each birth transition are depicted in Figure 1 and 2.

Period effect of childbearing

An estimation of period effect on childbearing is measured in combinations of mother's age at birth and calendar time (see Appendix, Figure A1, A2, A3 and Table A5). In each figures we also put the annual migration cycle, which denote the change of migration trend in accordance with the calendar year, to see the possible causality between migration cycle and childbearing trend over time. Figure A1 gives us some interesting results. First, the migrated women in age group 15-24 tend to have higher childbearing intensities compared to that of in age group 25-34. Second, we found the trend of first-birth childbearing is mostly in line with migration cycle during the period after 1992. Third, the childbearing trend for women in age 15-24 is more fluctuated than those in age 25-34. The possible explanations for these variations can be attributed to the increasing size of the immigrant women after 1992. For these women, they have relative young ages when migrated (23 years old at average, Table 2) that their childbearing has directly contributed to the age group of 15-24.

In Figure A2, three features that have mentioned above can also be found here. However, when the migration cycle has reached its first peak at 1993, the trend of second-birth childbearing has reached its peak at 1994. An approximated one-year time lag was found between the trend of second birth childbearing and migration cycle. Meanwhile, the trend of third-birth childbearing shown in Figure A3 has shared the same features as first and second birth, with exception for that it has a longer time delay after the migration cycle. However, the interrelatedness between migration cycle and period trend would require a more detail data and proper method as a time series analysis to be confirmed.

Countries of Origins

In our estimate for the effect of countries of origins, we only compare the women from Mainland China and those who are from South Asian countries. Our measurements in Table A4 demonstrate a higher fertility level for those childless women from Mainland China compared to those women who are from South Eastern countries in the period 1987-1997. The most interesting result is when they have a higher first-child fertility level, their second and third childbearing, meanwhile, is somewhat been depressed. This wasn't surprise us when women from Mainland China have been influenced by the One-Child policy that has implemented by Chinese government since 1979. However, it does surprise us when the gap has been reduced in the later period between 1998 and 2003. A possible reason can be attributed to the reason that the traditional concepts of prolific family still preserved in Chinese society. The depressed fertility level of migrated Chinese women at their second and third child birth during 1987-1997, it is just the aftermath left over by the One-Child policy.

Duration of Staying

Since we already know the foreign born women have a heterogeneous fertility pattern by comparing their MTFR and ASFR with the native women in the previous section. In this section, we will focus more on the effect of migration to childbearing behavior. The first message from Figure 1 and Table 4 is that birth parity conditions the influence of residential duration on foreign born women's fertility. The patterns across each stages of residential duration are lending distinct evidences in favor of the family formation hypothesis (Sobotka pp.234-5). In Figure 1, it shows the effect of years since migration on immigrant women's childbearing behaviors during the period 1987-1997. We found an elevated fertility level for those childless immigrant women in their early phase of migration period (stayed in Taiwan for less than one year). For one-child immigrant mothers, they are most likely to have their second children after they have stayed for 1-2 years. This gives us little support to the notion of disruption effect that the immigrant women may have disrupted fertility due to a considerable time of adapting to the new environment and culture in the receiving country. Figure 2 shows us an even strong effect of years since migration for migrated women who give birth during 1998-2003 and provide no support for disrupted fertility in their early migration stage. However, the most interesting finding from Figure 2 is the pattern of short birth interval is prevailed in this period. The peak of the relative risk for first, second and third birth order, have moved from <1 to 1-2 and then to 2-4, which means a large number of the foreign women have their birth interval less than 16 month.

This finding envisions an effect of family formation that an elevated fertility was found for these women spouses in their early stages of the immigration period, and it is consistent with our finding in the previous section that the childbearing dynamics are rather strong compared to the counterparts in their home country and are remaining vigorous until the third or maybe later birth parities.

Figure 1. Hazard Ratios of Immigrant Women for Each Duration of Residence

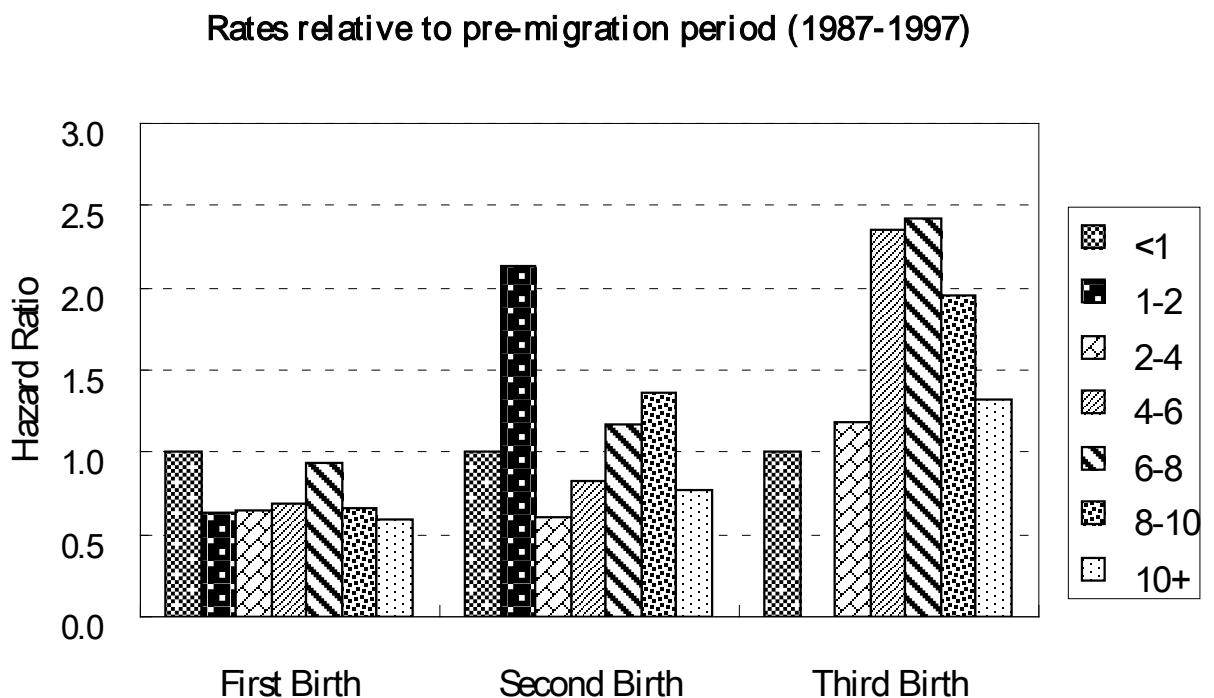
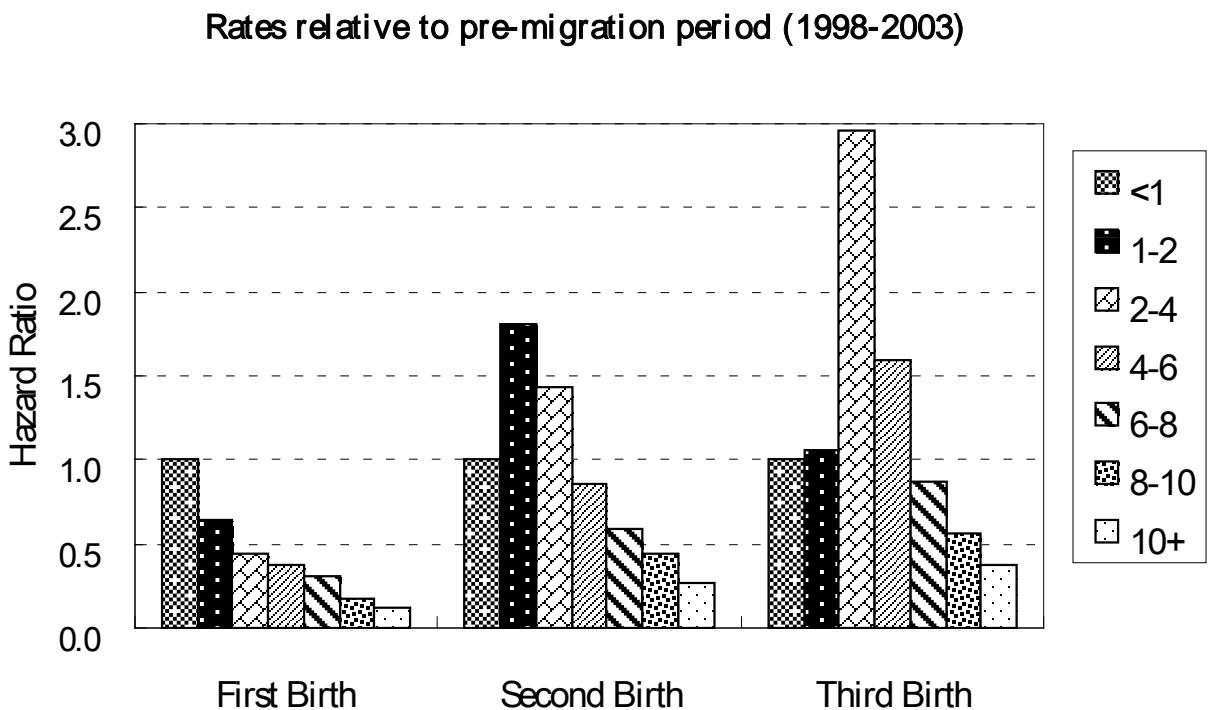


Figure 2. Hazard Ratios of Immigrant Women for Each Duration of Residence



Labour Market Participation

Enrollment has usually been seen as incompatible with reproduction for women, which have proven to be wrong in some previous studies in Swedish context (Dribe and Stanfors 2009, Andersson and Scott 2005, Hoem 2000). In Dribe's study for investigating the fertility behaviors between young men and women in Sweden, the interrelatedness for the labor market attachment and childbearing behaviors is found to be positive for both young Swedish men and women. Moreover, the women who are temporarily enrolled have much higher tendency for entering into the parenthood compare with those who are unemployed. The enrollment status for men's reproductive behavior has less a problem as they have stable fertility rate for either currently enrolled or unemployed (Dribe and Stanfors 2009, pp.36-40). A study focusing on reproduction patterns for immigrant women in Sweden (Andersson and Scott 2005, pp. 29-34) has also found a positive effect between labor force participation and the tendency entering into the parenthood.

In Taiwanese context, even though we have found a distinct labor market effect for those immigrant women across the period. However, our estimated variable as current occupation status cannot reflect the time-varying features of employment condition over time. We thus can only conclude that the immigrant women who are currently employed at the investigation period have higher tendency of childbearing. In our measurement presented in Table 4, the estimated effect of native husbands' current enrollment status is vague.

Education Attainment

In the previous studies, a negative effect between education attainment and reproduction was widely been observed in most of the developed and developing countries. For those studies undertaken in Swedish context, they have indicated that education attainments have negative effect on childbearing for both men and women (Dribe and Stanfors 2009, pp.36-40, Hoem 2000). Well-educated women are more likely to postpone their first child birth and therefore lead to a lower fertility rate, compared to those less-educated counterparts (Hoem 2000). For our findings in Taiwanese context, the negative effect of education attainments on reproduction was found for both immigrant women and their native husbands in various periods and birth orders. A distinct low fertility rate for second and third birth was present for the well-educated immigrant mothers and their native husbands during the period 1987-1997. The negative effect of education attainments, nevertheless, had performed rather modest for both marriage couples in the period 1998-2003. This can be attributed to the special family norms, cultures and values in broad Chinese society, Taiwanese husbands and their parents have played a paramount role for the childbearing decisions, such as the expected numbers of children and the birth intervals between each child (Yang and Wang 2003). The migrated women therefore have no choice but attaining the number of children whose husband expected and caused to an assimilated fertility pattern among women with different educational level. An evidence of negative effect can be illustrated in Table A4 (see Appendix), that the well educated husbands tend to have a much lower childbearing intensity in our both study periods.

Health, Social and Economic Status

Table A4 shows the effect of SES of native husbands, measured native husbands' health condition and their socio-economic background, had a strong impact on their migrated wives' childbearing behaviors when considering other conditions simultaneously. Those native husbands with aborigine background have low fertility compared to other SES groups during the period 1987-1997, however, their propensity for first and second birth increase immensely during 1998-2003. One exception is that the tendency of third child remains low for aborigine fathers in both periods. An elevated fertility pattern the same prevailed in those veteran husbands. The propensity to have second and third birth increased considerably for veteran fathers across the time period. Contrary to that of veterans fathers, physical and mentally disable have their second and third birth diminished after entering into the later period. For those who living under the poverty line, they have performed an increased birth rate at their third birth when transiting to the second period.

A possible reason for explaining the high tendency for those veteran fathers entering to the fatherhood can be attributed to the prevailing of cross strait marriage after 1997. For many of these single veterans married at their late ages (average 57 years old). In considering of both reaching their expected number of children and watching their children growing up, they might create a childbearing strategy to shorten the childbearing interval and thus raised the effect of being a veteran. Whereas disabled husbands might think of securing the genetic health by reducing their propensities of childbearing. Nevertheless, a more detailed study combined with their childbearing attitudes and income information would be required for further examinations.

The finding regarding health status effect, we have discovered an interesting picture

that those who are sick (daily care required) and sick abed performed a considerably higher risk in their second and third childbearing during 1997-2003.

Summary and Discussion

In our study we have used individual data on childbearing derived from an interviewed based survey (QLSFS) undertaken by Ministry of the Interior. Our analyses have been based on the demographic information and the SES for both immigrant women and their native husbands came to Taiwan between 1987 and 2007, with the help of event history analysis we are allowed to perform not only how but why the childbearing patterns was formed. From our estimating results, we found several features which illustrate the specific patterns of childbearing for immigrant women lived in Taiwan. First, the married immigrant woman has higher fertility level compared to their native counterparts and each subgroup has heterogeneous fertility patterns connecting to fertility level in their sending countries, which is consistent with our expectations for several interrelated effects interplayed. Second, it is very common for immigrant women to marry at their young ages and having children shortly after their migration, which have directly contributed to a higher propensity for young age mothers. Third, the elevated fertility shortly after migration has been transmitted from first- to second-, and then to the third child birth, in a systematic way. It has featured that the fertility patterns for migrated women is usually accompanying with strong momentum and short birth interval.

Our analyses have also featured the effects of SES for both immigrant women and native husbands, and they have provided the evidences about the complexity of the fertility-immigration relationship for foreign born women in Taiwan. Perhaps unsurprising, no simple story of family formation or disruption effect emerges to describe this relationship. No obvious disruption effect was observed along each of immigrant women's birth order. A selective effect remains a strong candidate for explaining the immigrant-fertility relationship. While the women in the sending countries had started diminishing fertility rate after their age of 30, the migrated women in Taiwan meanwhile remain at a high birth level. Moreover, we have discovered that native husbands' socio-economic background seem plays a crucial role for immigrant women's childbearing behaviors. Immigrant women with well-educated husbands tend to perform a lower fertility rate compared to those who have attained their basic education level. Overall, while the unreliable information of women's working condition constraints the confidence of our results presented here, it is reasonable to conclude that the relationship between immigration and fertility among foreign born women seems mainly depends on their native husbands' (or native husbands' parents') desired number of children.

To sum up, in this paper we have observed the new immigration wave after 1987 which composed mainly by the female marriage spouse. For these women, their fertility level is partly linked to the culture and values from their sending countries. Nevertheless, their childbearing behaviors after migration are largely determined by their native husbands' education levels and SES. Since we have no information of both immigrant women and native husbands' altitude and values toward childbearing, and thus could hardly know how socio-economic variables, for instance the native husbands' social and health interact with their childbearing behaviors. It would require a further study looking into their childbearing concepts and altitudes in the future research. It would be interesting to also include the socio-demographic information of the native women, which may allow us to converge to a closer picture of how immigrant women adapt into the broader process

of economic integration in Taiwan.

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Statistical Sources

1. POPIN ((United Nations Population Information Network)
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2. QLSFS (Quasi-longitudinal Study on Living Status of the Foreign Born Spouses in Taiwan)
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3. Fertility Rates of Childbearing Age Women, Statistical Yearbook of Interior, Taiwan
<http://sowf.moi.gov.tw/stat/year/y02-04.xls>
4. Population by Marital Status, Statistical Yearbook of Interior, Taiwan
<http://sowf.moi.gov.tw/stat/year/y02-03.xls>
5. Veterans Affairs Commission
<http://www.vac.gov.tw/en/cxls/index.asp?pno=55>

Appendix

Table A1. Number of observations between 1987-2003

	<i>1987-1997</i>	<i>1998-2003</i>	<i>Total</i>
Mainland	12671	4568	17239
China			
Vietnam	39767	4039	43806
Indonesia	9489	6396	15885
Thailand	1521	1113	2634
Philippine	1379	1686	3065
Cambodia	2396	431	2827
Myanmar	465	351	816
Malaysia	90	366	456
Singapore	25	36	61
Japan	206	231	437
Korea	74	127	201
USA	26	64	90
Canada	18	12	30

Table A2. The distribution of educational level (native Taiwanese)

Age	<i>Native Men</i>				<i>Native Women</i>			
	Universit y (>16)	High School (<12)	Basic Educatio n (<9)	Illiterate	Universit y (>16)	High School (<12)	Basic Educatio n (<9)	Illiterate
15-19	10%	71%	19%	0%	12%	71%	17%	0%
20-24	38%	54%	8%	0%	43%	52%	5%	0%
25-29	36%	51%	12%	0%	37%	55%	8%	0%
30-34	32%	52%	16%	0%	30%	56%	14%	0%
35-39	27%	49%	24%	0%	24%	52%	24%	0%
40-44	24%	42%	34%	0%	18%	43%	39%	0%
45-49	23%	37%	40%	0%	14%	33%	52%	1%
Total	28%	51%	22%	0%	26%	52%	23%	0%

Table A3. The marriage gradient for foreign women and native husbands

Wives \ Husbands	<i>Illiteracy</i>	<i>Basic Education</i>	<i>High school</i>	<i>University</i>
Illiteracy	7%	65%	25%	4%
Basic Education	1%	52%	41%	6%
High school	0%	14%	82%	4%
University	0%	22%	40%	38%

Figure A1.

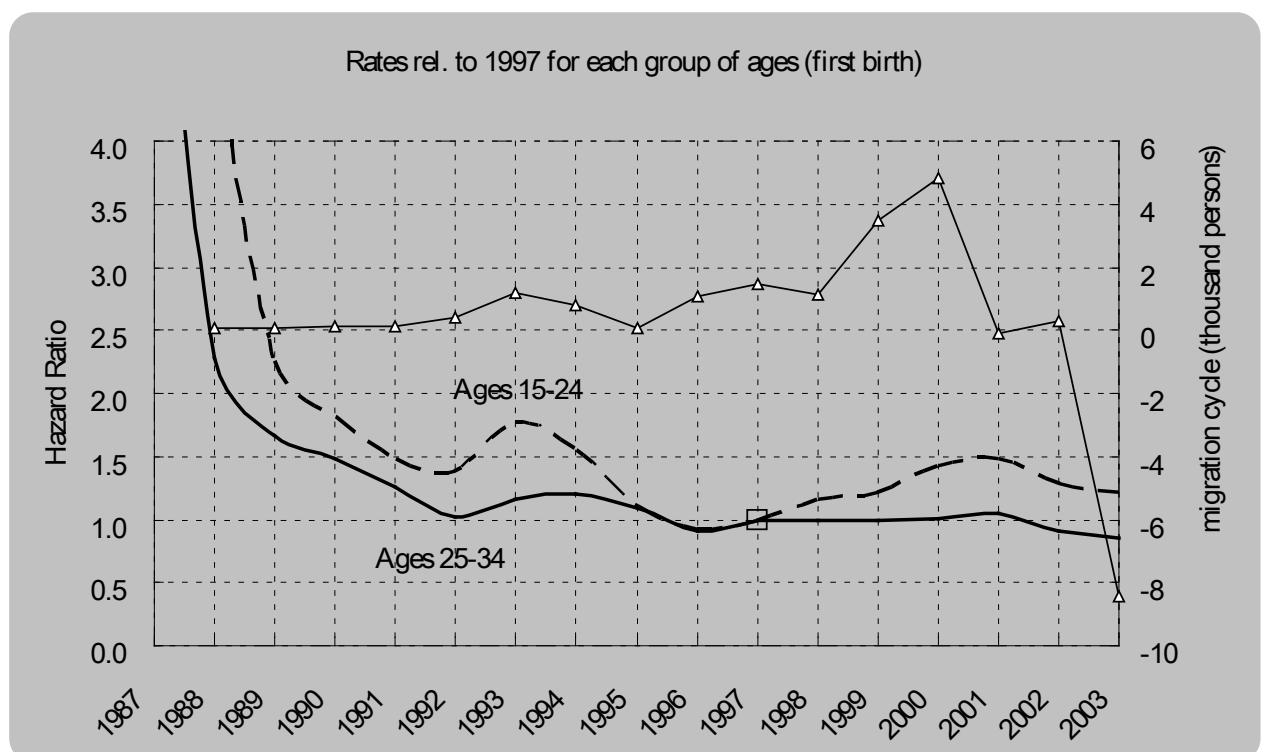


Figure A2.

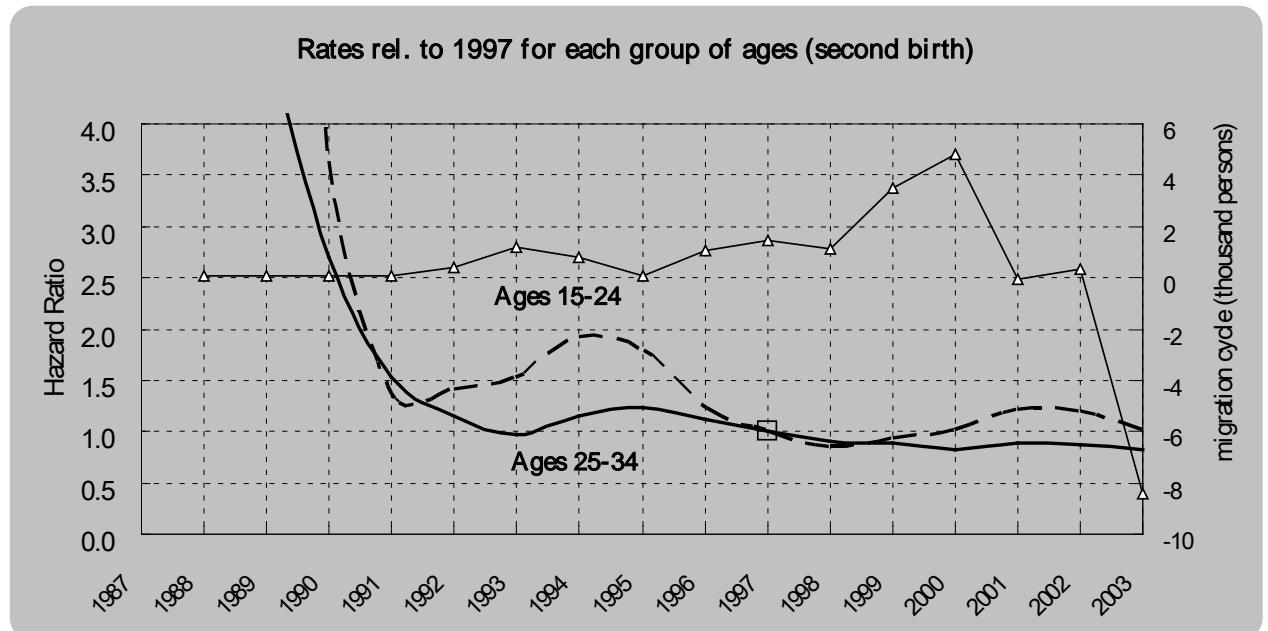


Figure A3.

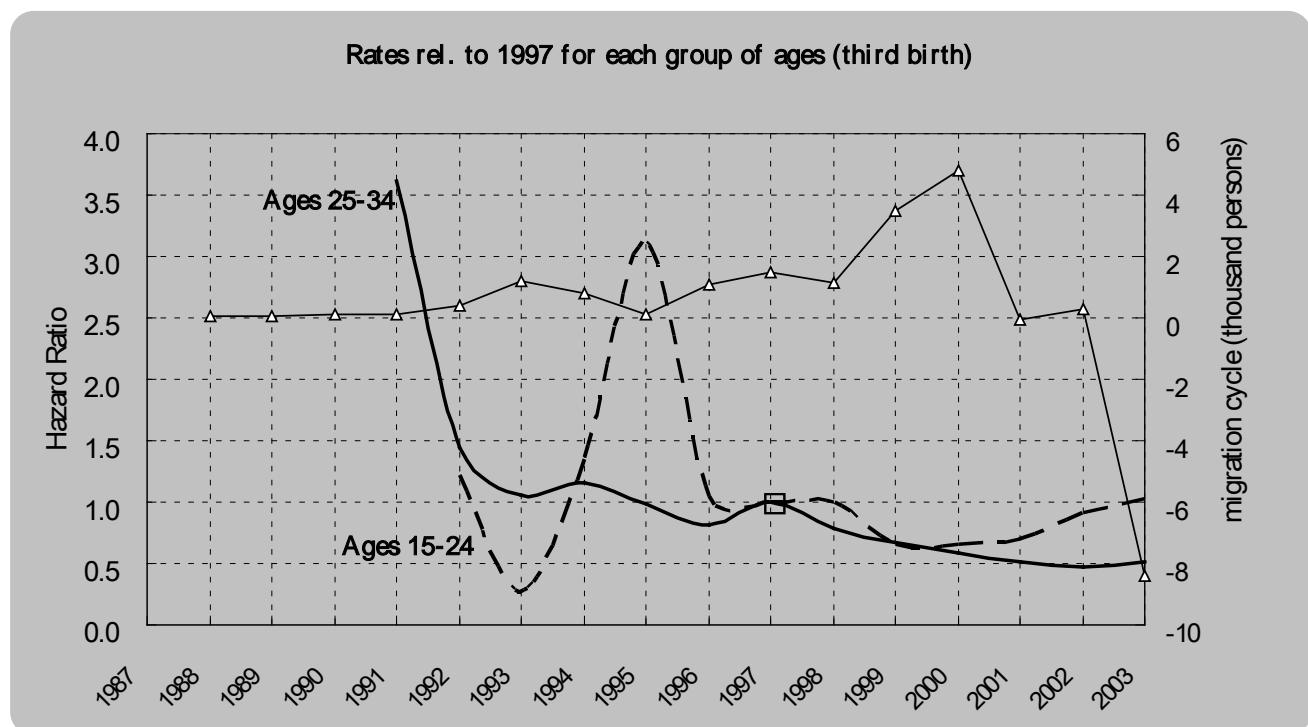


Table A4
Regression Results for Births 1, 2 and 3

	1987-1997			1998-2003		
	First Birth	Second Birth	Third Birth	First Birth	Second Birth	Third Birth
Duration of staying						
<1	1.00	1.00	1.00	1.00	1.00	1.00
1-2	0.63* (0.04)	2.14 (0.26)	-	0.64* (0.00)	1.80* (0.00)	1.05 (0.89)
2-4	0.65* (0.03)	0.61 (0.31)	1.18 (0.89)	0.45* (0.00)	1.44* (0.00)	2.96* (0.00)
4-6	0.69* (0.05)	0.83 (0.69)	2.36 (0.44)	0.37* (0.00)	0.86 (0.18)	1.59 (0.16)
6-8	0.93 (0.70)	1.17 (0.73)	2.43 (0.43)	0.30* (0.00)	0.59* (0.00)	0.87 (0.67)
8-10	0.66* (0.02)	1.36 (0.50)	1.95 (0.54)	0.17* (0.00)	0.44* (0.00)	0.57* (0.08)
10+	0.59* (0.00)	0.77 (0.56)	1.33 (0.79)	0.11* (0.00)	0.27* (0.00)	0.37* (0.00)
Age of mother at birth						
15-24	1.17* (0.00)	1.62* (0.00)	1.84* (0.00)	1.33* (0.00)	1.66* (0.00)	2.10* (0.00)
25-34	1.00	1.00	1.00	1.00	1.00	1.00
35-44	0.69* (0.00)	0.76* (0.00)	0.55* (0.01)	0.61* (0.00)	0.71* (0.00)	0.63* (0.00)
Education Attainment (immigrant women)						
Illiteracy	1.00	1.00	1.00	1.00	1.00	1.00
basic education	0.99 (0.85)	0.83* (0.09)	0.43* (0.01)	0.99 (0.62)	0.99 (0.84)	0.94 (0.46)
high school	1.05 (0.52)	0.82* (0.10)	0.40* (0.01)	0.97 (0.31)	1.00 (0.94)	0.88 (0.19)
university	1.00 (0.98)	0.66* (0.00)	0.32* (0.00)	0.96 (0.22)	0.90* (0.02)	0.94 (0.57)
Occupational Status (immigrant women)						
Permanent job	1.00	1.00	1.00	1.00	1.00	1.00
Temporary job	0.98 (0.52)	0.87* (0.03)	0.85 (0.37)	1.04* (0.04)	1.02 (0.48)	1.04 (0.50)
Jobless	1.01 (0.79)	0.93 (0.16)	0.96 (0.80)	0.98* (0.10)	0.94* (0.00)	0.91* (0.04)
Health Insurance (immigrant women)						
Uninsured				1.00	1.00	1.00
Insured				1.09* (0.00)	1.06* (0.09)	1.22* (0.05)

	1987-1997				1998-2003				First Birth	Second Birth	Third Birth	
	First Birth	Second Birth	Third Birth	First Birth	Second Birth	Third Birth	First Birth	Second Birth				
Age of husband at birth												
15-24	1.40*	(0.00)	0.81	(0.30)	-		1.17*	(0.00)	1.71*	(0.00)	1.72	(0.29)
25-34	1.00		1.00		1.00		1.00		1.00		1.00	
35-44	0.90*	(0.00)	0.88*	(0.01)	0.66*	(0.00)	0.92*	(0.00)	0.87*	(0.00)	0.87*	(0.00)
45-64	0.88*	(0.03)	0.96	(0.68)	0.78	(0.46)	0.84*	(0.00)	0.78*	(0.00)	0.78*	(0.00)
65+	0.68*	(0.02)	0.37*	(0.01)			0.64*	(0.00)	0.81	(0.26)	0.54	(0.21)
Education Attainment (native husbands)												
Illiteracy	1.00		1.00		1.00		1.00		1.00		1.00	
basic education	0.65*	(0.00)	0.64*	(0.02)	1.35	(0.55)	0.99	(0.91)	0.96	(0.75)	1.28	(0.44)
high school	0.64*	(0.00)	0.58*	(0.01)	0.92	(0.88)	0.95	(0.52)	0.91	(0.40)	1.26	(0.47)
university	0.52*	(0.00)	0.41*	(0.00)	0.81	(0.70)	0.88*	(0.10)	0.79*	(0.04)	0.84	(0.60)
Social Status (native husbands)												
Aborigines	0.83	(0.92)	0.84	(0.97)	0.10*	(0.01)	1.16*	(0.02)	1.06	(0.91)	0.58*	(0.03)
Veterans	1.06*	(0.09)	0.98	(0.56)	0.97	(0.41)	1.01	(0.46)	1.12	(0.63)	1.53	(0.33)
Physically and mentally disabled	0.97	(0.26)	1.31*	(0.04)	1.97	(0.97)	0.94	(0.72)	0.97	(0.24)	0.90*	(0.10)
Low incomes	0.94	(0.25)	1.11*	(0.08)	0.90	(0.15)	1.03	(0.18)	1.10	(0.75)	1.22	(0.98)
None of above	1.00		1.00		1.00		1.00		1.00		1.00	
Health Status												
Healthy	1.00		1.00		1.00		1.00		1.00		1.00	
Sick/ Handicapped (economically active)	1.14*	(0.03)	0.80*	(0.03)	0.66	(0.18)	1.01	(0.82)	1.04	(0.30)	1.03	(0.76)
Sick (daily caring required)	1.08	(0.59)	0.75	(0.28)	0.72	(0.81)	0.94	(0.38)	1.13	(0.28)	1.47*	(0.10)
Sick abed	0.86	(0.59)	0.70	(0.41)			1.56*	(0.07)	1.39	(0.28)	1.74	(0.34)
Occupational Status (native husbands)												
Permanent job	1.00		1.00		1.00		1.00		1.00		1.00	
Temporary job	0.98	(0.67)	1.11*	(0.09)	1.27	(0.22)	1.03*	(0.02)	1.04*	(0.07)	0.93	(0.18)

Jobless	0.96	(0.34)	1.05	(0.56)	0.82	(0.51)	1.03	(0.18)	1.02	(0.47)	0.97	(0.67)
<i>1987-1997</i>												
	First Birth		Second Birth		Third Birth		First Birth		Second Birth		Third Birth	
Countries of origins												
South East Asia	1.00		1.00		1.00		1.00		1.00		1.00	
Mainland China	1.15*	(0.00)	0.77*	(0.00)	0.67	(0.19)	1.05*	(0.00)	0.95*	(0.01)	0.83*	(0.00)

Notes: *= significant at 10% level

For variables as educational level, social and economic status, and the current work condition are given relative to the reference level, indicated as 1. The p-value of the each factor are marked in a parentheses () beside each adjusted hazard ratio.

Table A5 The relative risk of childbearing, by calendar year, birth parity, and age interval. (1987-2003)

year	<i>First birth</i>		<i>Second birth</i>			<i>Third birth</i>		
	age 14-24	25-34	age 14-24	age 25-34	age 14-24	age 25-34	age 14-24	age 25-34
1987	15.06* (0.00)	6.42* 0.00	-	-	-	-	-	-
1988	5.24* (0.00)	2.28* 0.00	-	(0.00)	-	-	-	-
1989	2.25* (0.00)	1.67* 0.00	10.84* (0.00)	4.89* (0.00)	-	-	-	-
1990	1.82* (0.00)	1.49* 0.00	3.63* (0.00)	2.71* (0.00)	-	-	-	-
1991	1.48* (0.00)	1.26* 0.01	1.37 (0.19)	1.53* (0.00)	-	-	3.62* (0.01)	
1992	1.39* (0.00)	1.01 0.86	1.41* (0.04)	1.15 (0.26)	1.22 (0.71)	1.44 (0.35)		
1993	1.78* (0.00)	1.16* 0.01	1.54* (0.01)	0.98 (0.83)	0.27 (0.19)	1.06 (0.84)		
1994	1.55* (0.00)	1.20* 0.00	1.93* (0.00)	1.16* (0.06)	1.36 (0.41)	1.16 (0.49)		
1995	1.10* (0.02)	1.10* 0.03	1.80* (0.00)	1.24* (0.00)	3.11* (0.00)	0.98 (0.91)		
1996	0.93* (0.06)	0.91* 0.02	1.23* (0.00)	1.12* (0.04)	1.05 (0.87)	0.81 (0.13)		
1997	1.00	1.00	1.00	1.00	1.00	1.00		
1998	1.17* (0.00)	0.99 0.83	0.86* (0.01)	0.90* (0.02)	1.01 (0.98)	0.79 (0.02)		
1999	1.22* (0.00)	0.99 0.68	0.94 (0.26)	0.88* (0.00)	0.66* (0.03)	0.68* (0.00)		
2000	1.43* (0.00)	1.01 0.80	1.03 (0.64)	0.83* (0.00)	0.66* (0.02)	0.59* (0.00)		
2001	1.49* (0.00)	1.05* 0.10	1.21* (0.00)	0.90* (0.01)	0.70* (0.06)	0.51* (0.00)		
2002	1.28* (0.00)	0.91* 0.00	1.20* (0.00)	0.87* (0.00)	0.91 (0.59)	0.47* (0.00)		
2003	1.21* (0.00)	0.85* 0.00	1.03 (0.57)	0.82* (0.00)	1.03 (0.86)	0.51* (0.00)		

