RURAL-URBAN MIGRATION AND FERTILITY IN VIETNAM

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ABSTRACT

Large scale rural-urban migration has coincided with an apparent slow-down in Vietnam's fertility decline. During the period 1999-2004, rural fertility continued to decline slowly while the urban fertility decline stalled. Some government officials are concerned that rural-urban migrants, particularly temporary migrants, may have been having out-of-plan births which are not allowed under the two-child population policy. This study examines the relationship between rural-urban migration and fertility in Vietnam. The analysis considers two questions: (i) Do rural-urban migrants have higher fertility than urban non-migrants? and (ii) Do temporary migrants have higher fertility than permanent migrants?

The study used data obtained from the Vietnam Migration Survey conducted in 2004. The areas selected for the survey were geographically distributed throughout the country. The first analysis compared the number of children aged 0-4 between rural-urban migrants and urban non-migrants. The second analysis contrasted the number of specific-order births born after migration of temporary and permanent migrants. Both analyses applied logistic regression models with the same set of control variables.

The first analysis finds significantly lower fertility among migrants compared to non-migrants. Migrants appear to delay their fertility partly because of adaptation to the urban norm of lower fertility, but mainly because of household registration effects. The second analysis indicates that temporary migrants have a significantly lower probability of having a first birth than permanent migrants. There is no difference in probability of having a second and third or higher order birth among migrants. Temporary migrants are no more likely than permanent migrants to exceed the government's target of two births.

The results suggest that increased rural-urban migration is not slowing down the national fertility decline. Rural-urban migration is likely to have a negative relationship with fertility.

KEY WORDS: RURAL-URBAN MIGRATION / FERTILITY / TEMPORARY MIGRANTS / OUT-PLANNING BIRTH / HOUSEHOLD REGISTRATION / VIETNAM

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LIST OF ABBREVIATIONS

GSO	General Statistical Office
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund Assistance
PRB	Population Reference Bureau
TFR	Total Fertility Rate

CHAPTER I
INTRODUCTION

1.1 Rationale and justification

In many parts of Asia, including Vietnam, rural-urban migration is increasing, including large numbers of temporary migrants and female migrants (Guest, 2003). Vietnamese official data show that, in Vietnam during the period 1999-2004, the urban population grew by 20.2 percent or 3.7 million persons, to which rural-urban migration contributed about 35 percent. It is estimated that the proportion of rural-urban migrants, including the temporary migrants, make up around 10 percent of the total urban population. Because there is a significant difference between the age structure of migrants and non-migrants in urban areas, migrants account for around 25 percent of the urban population aged 15-34 (General Statistical Office (GSO), 2007; GSO and UNDP, 2001).

Large scale rural-urban migration has coincided with an apparent slow-down in Vietnam's fertility decline. Vietnam's Total Fertility Rate (TFR) fell sharply between 1989 and 1999, but only gradually since then. Considering rural and urban areas, rural fertility continued to decline, but slowly, while urban fertility was stalled during the period 1999-2004 (Table 1.1). According to the latest statistics, the TFR of the country was 2.1 children in 2007 (Population Reference Bureau (PRB), 2007). Vietnam still could not succeed to reduce its fertility to below the replacement level.

The Vietnamese government has launched the one-or-two child policy with implementing a strong family planning program since the early 1990s for the whole country including both urban and rural areas. The third or higher-order birth is not acceptable to the government policy (Goodkind, 1995). The figures presented in Table

1.1 imply that the demand for children among rural-urban migrants may be still above that which is compatible with a two-child family norm.

There are concerns, especially among some family planning officials, that rural-urban migrants may be contributing to the stalling of the urban fertility decline recently, because most migrants are out of reach of the family planning agencies. The migrants, particularly temporary migrants, may have been having out-of-plan births (out-planning births) which are not allowed under the population policy during their stay in cities. This problem will become worse in the future when the volume of migrants increases. This situation seems to be similar to that of China in the late 1980s where the economic reform combined with increased rural-urban migration led to a weakening of the birth control program (Zai and White, 1996; Yang, 2000).

Table 1.1 Trend of fertility change in rural and urban areas, Vietnam

Year	**Total Fertility Rate**		
	Urban	Rural	Whole country
1989	2.2	4.3	3.8
1994	2.0	3.4	3.1
1999	1.7	2.6	2.3
2004	1.9	2.4	2.2

Source: General Statistical Office 2001 and 2005.

Studies in developing countries have found that rural-urban migrants have lower fertility than urban non-migrants in short-term periods during the demographic transition to low fertility. The migrants tend to lower their fertility when they come to urban locations because the migrants have to adjust to the norm of lower fertility as well as to the various constraints of the urban life (Goldstein and Goldstein, 1981; Jensen and Ahlburg, 2004). However, previous studies have focussed mainly on permanent migrants (Goldstein et al., 1997).

Little is known about the fertility behaviors of temporary migrants. Temporary migration is considered as a new phenomenon of internal migration in Asian countries including Vietnam (Guest, 2003). Once the proportion of temporary migrants among rural-urban migrants is significant, the fertility behaviors of rural-urban migrants, in general, become uncertain. There are two possibilities. First, if the fertility of temporary migrants is equal to or lower than that of permanent migrants, the fertility of general rural-urban migrants would be lower than that of non-migrants as mentioned above. Second, it would be opposite if the fertility of temporary migrants is higher than that of permanent migrants.

Temporary migrants may have higher fertility than permanent migrants because temporary migrants do not register as permanent residents at their destination, and so are not governed by the family planning program. When temporary migrants could avoid the control of family planning agencies, they would bear more children than expected by the government. Yang (2000) found evidence of higher fertility among temporary migrants in his study in China, where the number of rural-urban migrants increased up to hundreds of millions of people during the 1980s.

Since the fertility behaviors of temporary migrants in urban Vietnam have not been explored, the current relationship between rural-urban migration and fertility appears uncertain in the context of an increasing proportion of temporary migrants. There is a need for more studies to address the current relationship between rural-urban migration and fertility in urban Vietnam, which is still less understood.

1.2 Study objectives and research questions

This study examines the relationship between rural-urban migration and fertility in Vietnam. While the government is making all efforts to lower fertility to below the replacement level, a comprehensive understanding of fertility behaviors of migrants is useful to formulate population and migration policies. If rural-urban migration makes the overall fertility decline of the country slower, as suggested by the

statistics above, the family planning agencies would need to devote extra resources to deal with the fertility behaviors of migrants. If not, it is not reasonable to allocate more resources for the family planning program and to implement a policy to discourage the move of rural migrants to urban areas. The first research question for this study is whether rural-urban migrants have higher fertility than urban non-migrants in Vietnam.

Considering the increasing proportion of temporary migrants and the difference between the fertility behaviors of temporary and permanent migrants (Yang, 2000; Goldstein et al., 1997), the fertility behaviors of temporary migrants are likely to affect the relationship between overall migration and fertility in the coming years. If the fertility of temporary migrants is higher than that of permanent migrants, as is the case in China, the trend of urban fertility would increase. This problem may undermine the family planning program. Therefore, this study also considers whether temporary migrants have higher fertility than permanent migrants during the rural-urban migration process.

In summary, the current study has two research questions:

- Do rural-urban migrants have higher fertility than urban non-migrants in Vietnam?

- Do temporary migrants have higher fertility than permanent migrants?

1.3 Source of data

The study uses data obtained from the Vietnam Migration Survey conducted in 2004. The survey was designed as a micro-level study of migration in areas that are major destinations for internal migrants in Vietnam. The areas selected for the survey were geographically distributed throughout the country and included both rural and urban areas. The data is approximately representative for the country. The dataset also

includes much additional information on migrants that is not generally available, including temporary versus permanent intentions.

1.4 Contribution of the study

The topic on the relationship between migration and fertility has not been explored much in Vietnam. In the related previous studies, it was found that the fertility of migrants was lower than that of non-migrants. However, in those related studies that were done so far, fertility was measured by number of children ever born, therefore, it was uncertain about the impact of migration on fertility in the country (GSO and UNDP, 2001). In addition, all conducted studies used data from censuses or surveys that contained information of permanent migrants only. Therefore, the knowledge of migration and fertility in Vietnam is rather poor compared to that in Thailand, China or elsewhere. The current study could provide a better understanding on relationship between migration and fertility in Vietnam setting by using appropriate indicators of fertility such as the most recent 5-year period fertility and post-migration fertility. The study includes both permanent and temporary migrants, which allows us to get more insights on migration and fertility.

Since temporary migration is a rather new phenomenon for internal migration in Asian countries (Guest, 2003), there are few studies focused on fertility behaviors of temporary migrants. Their fertility behaviors generally are less understood compared to those of permanent migrants. Therefore, this study could provide more understandings into the fertility behaviors of temporary migrants.

The results of the current study would have much policy implication since the fertility level of the country still is not yet below the replacement level while the government likely worries about out-planning fertility of migrants, especially temporary migrants. If the migrants have much out-planning fertility, the government would spend more resources to deal with that problem in order to achieve its population targets.

1.5 Limitations of the study

The Vietnam Migration Survey has no detailed information on the reproductive histories of urban non-migrants. Therefore, it is difficult to make comparisons between fertility of migrants and non-migrants at the destination. There is no information on the fertility of non-migrants at rural origin areas, so it is not possible to compare the fertility of migrants and non-migrants at the origin at all. It is not easy to discuss on the selectivity of migration. However, the fertility events from the life history matrix for all migrants provide the opportunity to relate the timing of births to the timing of migration, which allows an accurate analysis on difference between fertility of temporary and permanent migrants that could help to predict the trend of the relationship between rural-urban migration and fertility.

CHAPTER II
STUDY SETTING AND LITERATURE REVIEW

2.1 Study setting

2.1.1 Fertility trends in Vietnam

Vietnam is the fourteenth most populous country in the world, with 85.1 million people. The population density of Vietnam is 257 persons per square km. The population density is rather high compared to China and Thailand where the population density are 138 and 128 persons respectively (Population Reference Bureau (PRB), 2007). Population growth and fertility level have been concerns of the Vietnamese government over the last five decades.

Table 2.1 Population density of selected countries

Country	Population density (person per square km)
Vietnam	257
China	138
Thailand	128
Laos	25
Malaysia	82
Indonesia	122
The world	49

Source: Population Reference Bureau, 2007

Fertility trend from the late 1950s-1989

Similar to other developing countries, Vietnam had a rather high fertility level in the late 1950s. The country experienced sharp population growth approaching 4

percent per annum (Le and Rambo, 1993). The TFR was about 6 children at that time. During the period from the late 1950s to the late 1980s, the TFR had decreased from 6.2 to 3.8 children. This rate of fertility decline was recognized as being relatively fast among countries of the developing world. The fertility decline was due mainly to expanded education and reduced child mortality (Freedman, 1995). However, from the view of the Vietnamese government, the fertility level in the late 1980s was considered to be too high compared with the needs of socio-economic development as well as in comparison with fertility declines in some other countries, such as South Korea or Thailand. In the late 1980s, the rate of population growth was exceeding 2 percent. The Vietnamese government worried that its big population size of around 70 million people with unchecked fertility would contribute to the long-term perpetuation of poverty as well as to environmental degradation (Le and Rambo, 1993). The government expected to obtain a TFR below the replacement level during the 1980s, but it did not succeed (National Committee for Population and Family Planning, 1993).

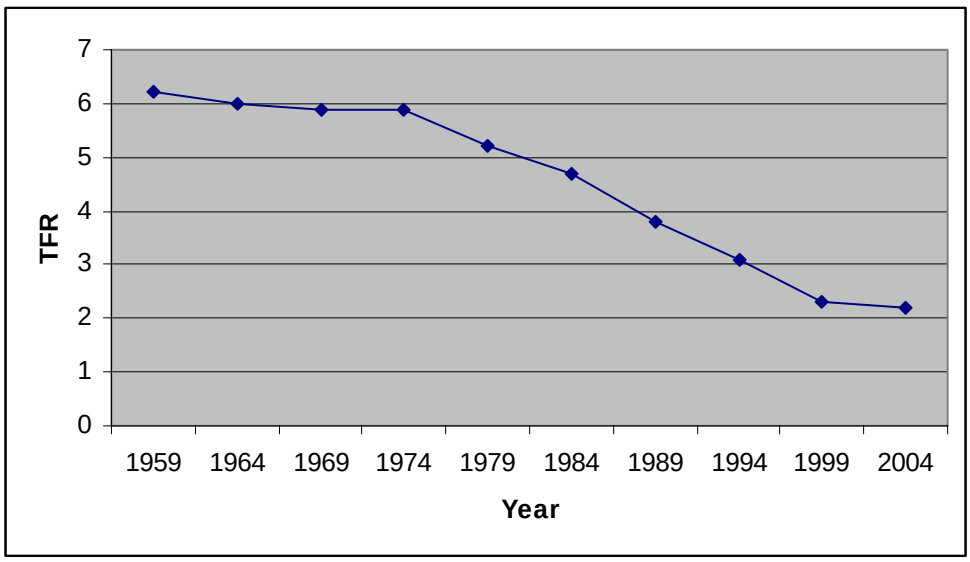

Figure 2.1 Trend of fertility in Vietnam 1959-2004

Source of data: General Statistical Office 1991, 2001 and 2005

Fertility trend in 1990-1999

The government recognized that the failure of obtaining a TFR below the replacement level during the 1980s was due to the lack of having a strict population policy. Therefore, as stated in Chapter 1, the Vietnamese government started the one-or-two child policy by implementing a strong family planning program since the early 1990s. Some researchers asked why the one-or-two child policy was chosen rather than some alternative? The Vietnamese government learned from China's experience, so the stricter one-child policy was not copied for at least two reasons. First, a one-child policy was unworkable, as Vietnam lacked the resources and institutional strength to enforce such a policy. Even in China, where authoritarian powers were arguably greater, most rural couples had a second birth (Feeney and Feng, 1993). To continue the promotion of a two-or-three child norm was likely to result in parents bearing three or four children. The nomenclature of "one-or-two" was seen as a practical compromise. It effectively legitimized the option of having only one child while offering the semblance of choice to have a second child if desired. Therefore, second births in Vietnam are officially allowed. This is in contrast to China where a one child policy is implemented. Secondly, Vietnamese planners were concerned about the harsh international reaction to the one-child policy. Given Vietnam's smaller size and limited resources, the potential loss of donor support would affect family planning efforts (Goodkind, 1995).

Under the current family planning program, contraceptive and abortion services are provided free of charge or at a rather low cost. The family planning program has made contraceptives common and available everywhere. Family Planning Offices were set up from the central level down to communes in the whole country in the early 1990s. Every village has 1-2 family planning collaborators who are responsible for conducting daily campaigns on family planning within the village. The collaborators are recruited from local residents and work on a part-time basis. They live in the same village where they work as family planning volunteers. Every family planning collaborator is required to supervise fertility behaviors of couples in

reproductive age for about 100-150 permanent households located nearby his/her house. The couples may undergo penalties for policy violations and get cash incentives for sterilizations (Ha, 2004; Haughton, 1997). In terms of penalties, for government cadres including officials, teachers, and other employees in state enterprises, the fines may include salary deductions or jobs lost for noncompliance to the government policy. The penalties vary widely from organization to organization. Farmers and other noncadres may be subjected to fines and strong social pressures in certain areas (Goodkind, 1995). It was noted that these measures of the family planning program were associated with a very rapid fall in fertility in both the urban and rural areas across the country. The TFR was reduced from 4.3 and 2.2 to 2.6 and 1.7 children in rural and urban areas, respectively, during the 1989-1999 period. The percentage of married women using any modern method of family planning was 57.9 in 1999 (GSO, 2001).

During the 1990s, the TFR was declining rather faster from about 3.8 in 1989 to 2.3 children in 1999 for the whole country. During the 1990s, the country also experienced rapid economic development after the economic renovation had begun since 1986. In the last two decades, the renovation process led to considerable improvements in overall well-being, with more than 7 percent GDP per capita annual growth rate (World Bank, 2005). Like in other developing countries, both the fast economic development and the implementation of a strong family planning program were considered as the main causes of a significant fertility decline during the 1990s in the country (Bongaarts, 2006).

Fertility trends, 2000-2007

However, the fertility level of Vietnam is still not below the replacement level, although the high rate of economic development has been maintained and the government continues to keep a strong family planning program. The fertility decline of the country seems to be too slow since 1999 to the current period. The TFR was only down to 2.1 in 2007 from 2.3 children in 1999 (Table 2.2). As noted in Chapter 1,

the Chinese researchers found more out-planning births for temporary migrants compared to permanent migrants as well as urban non-migrants. If the same is true for Vietnam, the increased internal migration including rural-urban migration may slow the fertility decline during the current period.

Table 2.2 Total Fertility Rate, Vietnam 1999-2007

Year	TFR
1999	2.33
2000	2.29
2001	2.25
2002	2.28
2003	2.12
2004	2.23
2005	2.11
2006	2.09
2007	2.10

Source: General Statistical Office 2006 and 2007; PRB, 2007

Patterns of rural and urban fertility

Like most other developing countries, rural fertility in Vietnam is higher than urban fertility. In the setting of demographic transition to low fertility, as usual, both urban and rural fertility are declining but at various paces. It is surprising that, during the study period of 1999-2004, while rural fertility continued to decrease from 2.6 to 2.4 children, urban fertility had slightly increased from 1.7 to 1.9 children (Table 2.3).

The figures presented in Table 2.3 show that rural women have their peak of fertility at age of 20-24 while urban women reach their peak at a later age of 25-29. In general, rural women are characterized by both earlier and higher fertility across all age groups. However, in 2004, for women of age 30-34, urban women appear to show a higher fertility than rural women. And for women of age 35-39, urban women have the same fertility level as rural women. In the setting of increased rural migrants

arriving to large cities, this phenomenon may be due to rural women who migrate to urban areas and have more out-planning births before they leave their peak reproductive period.

Table 2.3 Age-specific fertility rates for rural and urban Vietnam, 1999-2004

Age groups	1999		2004	
	Rural	Urban	Rural	Urban
15-19	33	14	34	16
20-24	181	93	159	85
25-29	146	106	134	121
30-34	84	73	77	81
35-39	44	34	36	36
40-44	20	13	13	8
45-49	7	2	2	0.5
TFR	2.6	1.7	2.4	1.9

Source: General Statistical Office 2001 and 2005.

2.1.2 Trend of urbanization and rural-urban migration

During the 1970s and 1980s, urbanization in Vietnam increased very slowly. The percentages of urban population had increased slightly from 18.3 in 1970 to 19.3 in 1980 and 19.4 percent in 1989. During that period, the economy of the country was stagnant. Rural-urban migration was negligible because few people could move to urban areas, especially large cities. People could change their residence status only with permission from local government at both origin and destination. Meanwhile, the central government was following a policy to discourage the people from moving to cities through a system of household registration managed by the police (Desbarats, 1987; GSO and UNDP, 2001). Moreover, in economic perspectives, there was almost no demand for laborers from rural areas considering the stagnated urban economy. Therefore, during the 1980s, the proportion of urban population was almost not changed at all.

Table 2.4 Population growth rate in urban and rural Vietnam 1995-2004 (%)

Year	Urban	Rural	Whole country
1995	3.55	1.17	1.65
1996	3.23	1.19	1.61
1997	9.18	-0.46	1.57
1998	3.74	0.91	1.55
1999	3.53	0.90	1.51
2000	3.82	0.60	1.36
2001	3.72	0.60	1.35
2002	2.84	0.83	1.32
2003	4.23	0.55	1.47
2004	4.16	0.44	1.40

Source: General Statistic Office, 2007

From the early 1990s, urbanization has been increasing markedly in accordance with economic growth. By 2004, 26.5 percent of the population was living in urban areas. After a relatively long period with a low and stable proportion of the population living in urban areas, the recent period witnessed marked urban growth. The population growth rate increased much higher in urban relative to rural areas during the period 1995-2004 (Table 2.4). Rural-urban migration appears to be one of the main factors to make urbanization increase significantly. For Vietnam, a country where the proportion of rural population is still as big as more than 70 percent, rural-urban migration is expected to continue increasing in the coming period (GSO, 2007).

Since the increased rural-urban migration seems to pose a number of socio-economic constraints to urban management, the government still wants to limit rural-urban migration through keeping the household registration system. However, this system is rather relaxed compared to the previous period. Under the household registration system, every citizen has to visit the local police department to register his/her place of birth, place of residence and other basic demographic information,

such as age, sex, marital status, education and occupation. Everyone has to register at his/ her current place of residence as either a permanent or temporary resident. If migrants intend to stay at their destination for a long-term period, they may apply to get permanent registration. In big cities, like Hanoi or Ho Chi Minh City, permanent registration is available only to those recruited by local authorities or appointed to work in the cities by a Central Ministry. Permanent registration is also available to those migrants married to local permanent residents. Those who work in other enterprises or come for study can get permanent registration only when they have their own housing and long-term employment. This system of household registration is applied for both urban and rural areas. However, for rural areas, migrants seem to become permanent residents more easily (Nguyen and White, 2007; GSO and UNFPA, 2005).

Residential registration status of migrants, permanent or temporary, was closely tied to eligibility for social services at the current place of residence, such as health care, school for children, permission for business and so on when they use the service. While permanent residents could access these social services free of charge or at subsidized costs in their registered locality, temporary residents had to pay the full costs of the services (Nguyen and White, 2007).

Before the economic reform, it was very hard to obtain either the permanent or temporary registration in urban areas, particularly in large cities because the government did not encourage rural citizens to come and stay in urban locations. However, it has become much easier nowadays for rural migrants to register for, at least, short-term stay in urban Vietnam. At the same time, it is costly to purchase a house or arrange a good accommodation in urban areas for the poor migrants. Data from the Vietnam Migration Survey 2004 show that about 90 percent of migrants to rural areas are most likely to view their move as permanent while only about one third of migrants in Ho Chi Minh City have a similar intention. This explains partly why there is an increasing proportion of temporary migrants in large urban areas. In other words, the share of temporary migrants is becoming bigger and bigger (GSO and UNFPA, 2005; Tran, 2007). In this study, temporary migrants are those who possess

temporary household registration while permanent migrants have received permanent household registration at their current urban residence. Such concept of temporary and permanent migrants is used mainly in countries such as Vietnam or China, where the household registration system exists.

Significant differences were found between demographic and socio-economic characteristics of temporary and permanent migrants from data of the Vietnam Census 1999. A higher percentage of temporary migrants than permanent migrants were single in terms of marital status. Regarding socio-economic characteristics, temporary migrants tended to have rather lower education and were less likely to work for the government as well as in the formal sectors compared to permanent migrants. In other words, the temporary migrants appeared to have lower education as well as socio-economic status, in general (Tran, 2007). However, in Tran's study, temporary migrants were defined as only those migrants who had moved to the place of destination for less than 6 months and did not have permanent registration at the place of destination. Tran's study did not include a high proportion of those temporary migrants who had stayed at the destination places for more than six months and registered as short-term temporary residents. As mentioned above, temporary migrants have less access to social services compared to permanent migrants at the destination.

2.1.3 Rural-urban migration and population policy

Vietnamese economists believe that rural-urban migration is contributing much to the economic development of the country, in particular to urban areas of large cities. This helps to overcome deficits of laborers to implement industrialization. In addition, the rural-urban migration has positive effects on poverty reduction for rural farmers through sending the remittance, therefore, it may contribute to narrowing the gap in income between urban and rural areas. Industrialization could not be implemented without a huge amount of human resources, which largely comes from rural areas. For example, the textile industry could not be set up in urban areas to make products for export if there was not a huge number of young females that come from rural areas (Nguyen and White, 2007). It was noted that females comprise a high proportion

among rural-urban migrants and they are a core labor force for light industry sectors (GSO and UNFPA, 2005).

Besides the significant contribution to the general economic development of the country, rural-urban migration has brought with it some serious policy challenges for developing countries, including Vietnam. These challenges include managing higher population density, overload of required housing, clean water, health service, schools for children, traffic jams and other social problems such as poverty concentration, increasing crime rate and so on (Nguyen and White, 2007). This explains why the government keeps a policy to discourage the movement of rural laborers into large cities such as Ho Chi Minh City or Hanoi. Population policymakers are very concerned about the possible increase of out-planning births among rural-urban migrants. Since the population policy of Vietnam encourages each couple to stop having children when they have a two-child family, it may conflict with the desired number of children for many rural residents who traditionally prefer to have a large family size. Those rural residents may use migration to have more out-planning births. There was a similar concern of higher fertility from rural-urban migrants in China. The migrants, particularly temporary migrants, had been portrayed in the media as the avoiders of the one-child population policy and, therefore, they were blamed for the increase in out-planning births since the mid 1980s (Yang, 2000).

2.2 Theoretical and empirical background

2.2.1 Theories on the relationship between migration and fertility

Migration and fertility are two interrelated population processes. This study focuses on the impact of the migration process on fertility behaviors of migrants. When it addresses the impact of migration on fertility, it compares fertility levels between migrants and non-migrants at origin as well as destination areas. Most studies related to this issue have found fertility differences between migrants and non-migrants in both origin and destination areas. In general, four hypotheses are proposed to explain the different effects of migration on fertility. These effects include socialization, adaptation, disruption and selectivity.

2.2.1.1 Socialization effects

The socialization hypothesis suggests that the fertility behavior of migrants reflects the fertility preferences prevalent in their childhood environment. The migrants are expected to have fertility similar to those of origin non-migrants, while convergence towards the fertility levels of destination non-migrants is expected to occur only after at least a generation has elapsed. This would imply that the socialization helps to explain the long-run fertility impact of migration (Hervitz 1985). In Thailand, Goldstein (1973) found that the fertility levels of lifetime migrants were not very different relative to non-migrants in their place of destination. Goldstein and Goldstein (1981) also found the same results that the fertility patterns of long-term migrants differed only slightly from those of the non-migrants at their destination. Since the socialization effects may be measured only after a rather long period, this theory is not applied to the current study which deals with 5-year period migrants.

2.2.1.2 Adaptation effects

When migrants come into new communities, they can not avoid interacting with local people. To some degree, the migrants have to adapt to the conventions, values and norms of local communities at their destination places. The adaptation hypothesis assumes that 'the fertility preferences of migrants gradually adapt to the new economic, social and cultural environments at places of destination'. Adaptation may make the fertility of migrants higher or lower compared to non-migrants at origin. If the fertility level at their destination is higher than that at their origin, the migrants likely tend to have higher fertility, and vice versa (Jensen and Alhburg, 2004).

Regarding rural-urban migration, the adaptation hypothesis implies that the fertility of rural-urban migrants gradually declines compared to rural non-migrants at origins because they have to adapt new economic, social and cultural environment in urban areas including the norm of lower fertility. For the initial period, the rural-urban

migrants are likely to show a higher fertility than urban non-migrants. The difference in fertility between these two groups becomes narrower with duration of stay for migrants in urban areas. Convergence to the fertility levels of urban non-migrants is expected to take place within around ten years (Hervitz, 1985). Adaptation refers to the process in which an individual migrant adjusts fertility to the constraints in the destination area (Farber and Lee, 1984). Migrants who interact with groups who have low fertility norms are more likely to desire smaller families (Findley, 1982). From an economic perspective, adaptation may be considered as a change in demand for children generated by changes in prices such as woman's wages, cost of child care, cost of fertility regulation and changes in income (Jensen and Alhburg, 2004; Easterlin, 1975). Having the same point of view, Chongthawonsatid (2007) discussed that migration may bring migrants into a cash economy and expose them to modernization effects, including adaptation to new attitudes toward children, family, knowledge and use of modern contraception, contributing to low fertility. Brockerhoff and Yang (1994) found that the fertility of migrants to urban areas declined to levels at or below that of urban-born women in several sub-Saharan countries. They considered the change of fertility of the migrants to be due to adaptation effects. Farber and Lee (1984) also succeeded in finding evidence of fertility decline due to adaptation effects among Korean rural-urban migrant women.

The discussions above may be true for permanent migrants. By contrast, it was discussed that temporary migrants may adapt to the new economic, social and cultural environments of urban locations to a lesser degree compared to permanent migrants because temporary migrants intend to stay in urban areas for only a limited time (Goldstein et al., 1997). This implies that temporary migrants are likely to show a higher post-migration fertility than permanent ones. There is another argument to support the possibility of a higher fertility for temporary migrants relative to permanent migrants. In the context of the one or two-child policy in Vietnam, rural-urban migrants, particularly temporary migrants, may not adopt the rules to limit their fertility, then, they would bear even more children than expected because they could avoid the birth control program. This may imply that temporary migrants would show a lower rate of contraceptive use than permanent migrants. If it is true, then rural-

urban migrants would show even a higher fertility than rural non-migrants. Then, the difference between fertility of rural-urban migrants and urban non-migrants would not become narrower but bigger along with duration of stay for migrants in urban areas.

However, there is an opposing argument that in economic perspectives, temporary migrants have to adjust to the constraints of urban life in order to obtain a maximum of economic benefits because their stay in urban locations is temporary, therefore, temporary migrants would show a lower fertility than permanent migrants for comparable periods of time (Edmeades, 2006). This argument should be considered in the context of Vietnam, while there is evidence that migrants come to urban areas mainly for economic purposes (GSO and UNFPA, 2005). From an adaptation perspective, there is still uncertainty about the fertility behaviors of temporary migrants in urban Vietnam. Given an increasing significant proportion of temporary migrants among rural-urban migrants, the relationship between rural-urban migration and fertility is not clear, so far.

2.2.1.3 Disruption effects

Migration is the process in which the involved people have to change their residence and socio-economic environments from one area to another. This process certainly disrupts the smooth pace of their life cycle. Migrants' early stage of living in new areas is considered as a period of change in every aspect of their life. During the early stage of migration, the movers have to settle in their new residences and jobs. The disruption hypothesis suggests that, during the period immediately following a change of residence, fertility of migrants is depressed, but only temporarily, due to disruptive factors associated with the migration process (Hervitz, 1985; Carlson, 1985; Ng and Nault, 1997). It is accepted that the migrants have to adjust their living arrangement to be suitable to the new settings. Therefore, the migrants are likely to delay giving birth until they could stabilize their lives and continue a smooth life cycle.

In the settings of low fertility, during the first years of their stay, rural-urban migrants even have a lower fertility than urban non-migrants. Goldstein (1973) found that the fertility of lifetime migrants was not very different from that of urban residents, while the fertility of 5-year migrants was considerably lower. In another study, Goldstein and Goldstein (1981) also indicated a substantially lower fertility of recent migrants compared to that of long-term migrants. It was explained that, at the beginning, the migrants are likely to adjust their fertility to the high cost of urban living and other urban constraints. Rural migrants encounter rather stressful conditions in urban areas that are quite different from the rural ones. These stressful conditions may make the migrants interrupt their smooth fertility process. Physiological consequences of the stressful situation typically associated with movement and the separation of spouses resulting in reduce fecundity were considered as two reasons for low fertility of migrants for a short period after the move to their destination (Hervitz, 1985; Chongthawonsatid, 2007).

There is also another possibility that disruption may increase the migrants' fertility due to interruption in the supply of contraceptives in new urban areas (Jensen and Ahlburg, 2004). Given the existing household registration system in Vietnam, temporary residents may have less access to family planning services compared to permanent residents, therefore, migrants are likely to use contraceptives less than urban residents. Therefore, this practice may lead the migrants to having a higher fertility than the urban residents.

2.2.1.4 Selectivity effects

The selectivity hypothesis implies that 'migrants are different from non-migrants in a number of ways, both observable (for example, education and age) and unobservable (for example, motivation) that lead migrants to have lower or higher fertility than non-migrants' (Jensen and Ahlburg, 2004). In other words, selectivity of the migration process means that there is the tendency for a particular group (educational, age, sex, occupational, marital or family size preference) to be more

likely to migrate than other groups among the population (Farber and Lee, 1984). Those people who have low fertility would move to areas where the norm of low fertility is dominant while those people who prefer high fertility are likely to move to areas of high fertility (Hervitz, 1985).

Following this hypothesis, most of the fertility differences between migrants and non-migrants can be attributed to selectivity. This denies the effects of adaptation. For example, urban residents usually have higher education than rural-urban migrants. Since women with higher education tend to work in a career and postpone childbearing to a later stage, urban residents are likely to have lower fertility than migrants (Kantorova, 2004, cited in Chongthawonsatid, 2007). From a selectivity perspective, the rural-urban migrants are likely to have a higher fertility than urban non-migrants because the migrants are usually younger, have lower education or are less knowledgeable about contraceptive use. Moreover, those rural-urban migrants are highly influenced by the norm of a higher fertility in the rural settings, where they come from. The unexpected stalling of the fertility decline that has been observed in urban areas since 1999 may be attributable to the higher fertility of migrants who come from rural areas.

However, Jensen and Ahlburg (2004) discussed that selectivity alone is generally not an important causal explanation of the contribution of migration to fertility decline because the lower fertility attributable to being the sort of individuals who elect to migrate presumably would be observed even if they were somehow prevented from migrating. Following this argument, adaptation effects could be observed when socio-economic and biological characteristics of migrants and non-migrants are controlled for (Farber and Lee, 1984). Selectivity could not explain why recent migrants showed substantially lower fertility than non-migrants in urban areas as found in some previous studies done in Thailand (Goldstein, 1973). Disruption effects seem to be a causal explanation for the difference between fertility of recent migrants and urban residents (Goldstein and Goldstein, 1981). Several researchers

have shown that, after controlling for the selectivity factors, migration status is a significant variable (Anker, 1977 cited in Findley, 1982).

Generally, most researchers agree that fertility of migrants is affected by all three factors discussed above, namely adaptation, disruption and selectivity. Evidences were found to support each of three hypotheses (Hervitz, 1985; Goldstein and Goldstein, 1981; Farber and Lee, 1984). Migrant fertility differentials appear to result from the joint effect of individual and contextual differences (Findley, 1982). The relationship between migration and fertility may be illustrated in Figure 2.2 as below:

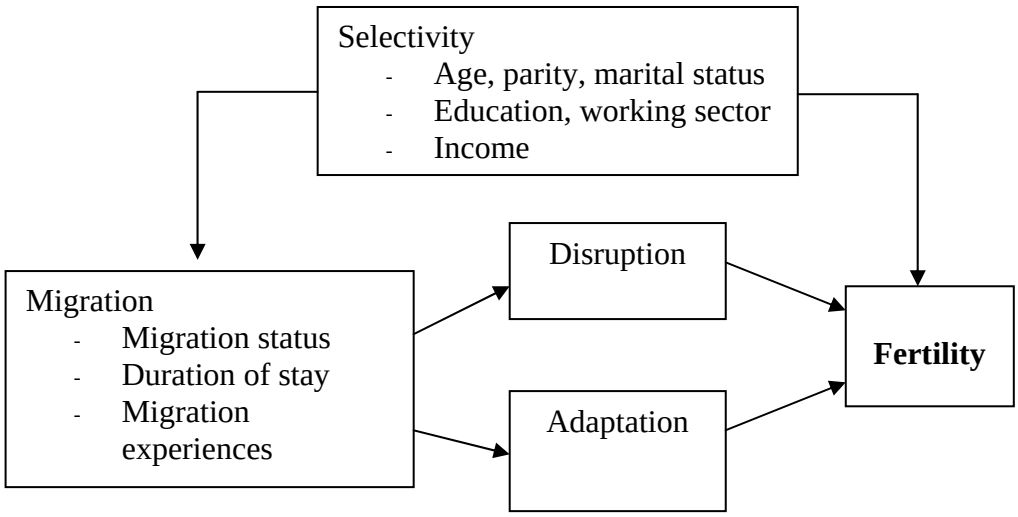

Figure 2.2 The relationship between migration and fertility

Source: adopted and modified from Chongthawonsatid (2007)

2.2.1.5 Detachment hypothesis

Besides the four conventional theories explaining the relationship between migration and fertility, Yang (2000) proposed a detachment hypothesis to specifically explain the difference between fertility behaviors of temporary and permanent migrants. The main point of the detachment hypothesis is that the detachment of

migrants from their usual social context, typical in temporary migration, leads to weakening of social and normative controls over fertility due to the temporary migrants' detachment from their usual social context at the place of origin and their lack of strong attachments to the place of destination. Based on this hypothesis, given the setting in China, temporary migrants were predicted to have a higher fertility than permanent migrants because local family planning workers in the place of destination were not interested in regulating the fertility of temporary migrants, and local workers in the place of origin had no way of keeping track of where the migrants were.

In Yang's study (2000), rural-urban temporary migrants were found to have a significantly lower probability of having a first birth than the comparable permanent migrants. Nevertheless, the probability of having a second birth was significantly higher for the temporary migrants relative to the permanent migrants. The temporary migrants also appeared to have a slightly higher probability of having a third or higher order birth than the permanent migrants. However, the difference was not significant. Chinese rural-urban temporary migrants exhibited more out-planning births than their permanent counterparts and urban non-migrants. This led to a higher general fertility for rural-urban migrants compared to urban non-migrants. The 'detachment' hypothesis is likely to apply only in countries with a birth control program and household registration system. Since Vietnam also implements a birth control program and keeps a household registration system similar to China, some Vietnam officials are concerned about whether this finding is true for the setting in Vietnam.

2.2.2 Factors affecting fertility

As discussed above, fertility behaviors of migrants are affected not only by migration factors related to adaptation and disruption effects, but also by selectivity factors including subjects' demographic and socio-economic characteristics. A set of demographic and socio-economic factors including age, marital status, parity, contraception, education, type of employment and income is widely included in fertility studies (Goldstein and Goldstein, 1981; Yang, 2000).

Age has a close relationship with fertility. It is generally accepted that women can give birth during the ages of 15-49. However, the fecundability of women is varied for various age groups. As shown in Table 2.3, women often have their peak of fertility at age of 20-29. They show a lower fertility at age of 15-19 or 30-34. Few women give births at age of 45-49. In Vietnam, rural women have their peak of fertility at age of 20-24 while urban women show their peak of fertility at age of 25-29. Age appears to have a curvilinear relationship with fertility. Population groups with various age structures are likely to exhibit differentials of fertility. Migrants are usually younger than non-migrants. Comparison of fertility between these two groups should be controlled for age.

Marital status is a proximate determinant of fertility since in most developing countries, including Vietnam, birth mainly occurs within marriage. Therefore, the percentage of ever-married women is often used as an indicator to predict the fertility trend for any population group. The percentage of single women is usually rather higher for migrants compared to non-migrants due to selectivity. Comparison of fertility between migrants and non-migrants would be not reasonable without taking their marital status into account.

Parity is an important factor affecting period fertility. Since having births is a conscious behavior of human beings, couples usually have a desired number of children. The decision to have additional children likely depends on the existing number of living children. In countries where a birth control program is carried out, the governments closely control the number of children. Having a third or higher order child is considered as an out-planning birth in Vietnam, while having a second child is taken as a violation of the Chinese government policy. In this study, controlling for parity is important in order to assess whether temporary migrants show higher fertility than permanent ones.

Contraception is another proximate determinant of fertility. The percentage of married women currently using any method of contraception is one of the primary

indicators that could predict the fertility trend in the coming period for any population group. Using contraception could help women to stop or space giving births (Bongaarts, 1978). Table 2.5 presents data of using contraception and level of fertility for the South-East Asian countries in 2004. Based on the data presented in Table 2.5, the coefficient of correlation between contraception and fertility is calculated to equal -.844 and it is statistically significant at $P<0.01$. Contraception use has a strongly negative association with period fertility. Analysis on contraception use of migrants would provide additional evidence of fertility behaviors among migrants.

Table 2.5 Percentage of married women using any modern method of contraception and level of fertility for countries in South-East Asia, 2004

Country	Contraception (%)	TFR
Cambodia	19	4.5
Indonesia	57	2.6
Laos	29	4.9
Malaysia	30	3.3
Myanmar	28	3.1
Philippines	33	3.5
Singapore	55	1.3
Thailand	70	1.7
Vietnam	64	2.2

Source: Population Reference Bureau, 2004.

Education has a stronger and more consistent relationship with fertility than any other socio-economic variable. Women's education is likely to increase the age at marriage as well as knowledge of contraception. Education tends to have a negative relationship with fertility (Bongaarts, 1994). Data from the Vietnam census 1999 also show a consistent inverse relationship between fertility and education. Women with no schooling had a fertility level double that of women with a university level or higher education (GSO, 2001). A major education-fertility linkage for migrants is the development of modern aspirations. These aspirations translate into schooling costs, thereby raising the cost of having children (Findley, 1982).

Type of employment. Women's labor force participation also tends to have an inverse relationship with fertility. Women's employment raises the opportunity cost of bearing children (Lucas and Meyer, 1994). In order to keep working in urban areas, migrant women would delay marriage or postpone giving birth by using contraceptives. In the Vietnamese setting, when most women work outside their home, working in different sectors of employment such as government, formal or informal may influence women's fertility due to various working conditions. The women who work for government or in the formal sector are likely to have more economic security. They will receive pensions when they retire. They also have more access to the health insurance system relative to those individuals who work in the informal sector. The percentage of the total Vietnam population covered by social health insurance was only 22.2 percent in 2004. Most of the insured people were working for the government or formal sector of the country's economy (Tran, 2005). Economic and health security factors may be related to people's attitude toward the number of children that they like to have.

There is another argument that migrant women have lower fertility if their jobs are incompatible with child-care responsibility. In other words, fertility falls if women work at jobs incompatible with the house wife role (Findley, 1982). The industrial tempo of jobs in the formal sector is likely not convenient for those women who intend to give birth and rear children (Rosen and Simmons, 1971).

Income is considered as an important indicator for socio-economic status of people. Persons of lower socioeconomic status have higher fertility. Women with higher income have lower fertility since they could access contraceptives easier (Freedman and Thornton, 1982, cited in Lucas and Meyer, 1994). However, very poor women may have lower fertility because they could not feed their children. They have to rely on contraception or abortion to escape unwanted births (Lucas and Meyer, 1994). If migrants come to urban areas mainly for economic purposes, their income would influence the decision about giving births. Migrants likely have to balance their economic resources and opportunity cost of having children.

2.3. Conceptual framework and study hypotheses

2.3.1. Conceptual framework

Based on the discussions above, it is noted that when rural migrants come to urban areas, the normal smooth progression of their fertility behaviors are likely affected by adaptation and disruption effects. The migrants have to adapt to stressful conditions of urban life and the migrants need to adjust to the norm of lower fertility among urban residents. Migrants with various durations of stay adapt differently to the new living conditions. Temporary migrants may adapt differently than permanent migrants because they stay temporarily. Household registration status is considered as a proxy indicator of migrants' intention of stay at their destination. Considering the disruption effects, recent migrants should show a lower fertility than long-term migrants. The selectivity effects are taken into account by controlling for a set of related variables including age, parity, education, working sector and income. For the homogeneity of the sample, only ever-married women are included into the analysis. The conceptual framework for this study is developed based on the literature review discussed above and other available information. It is illustrated below:

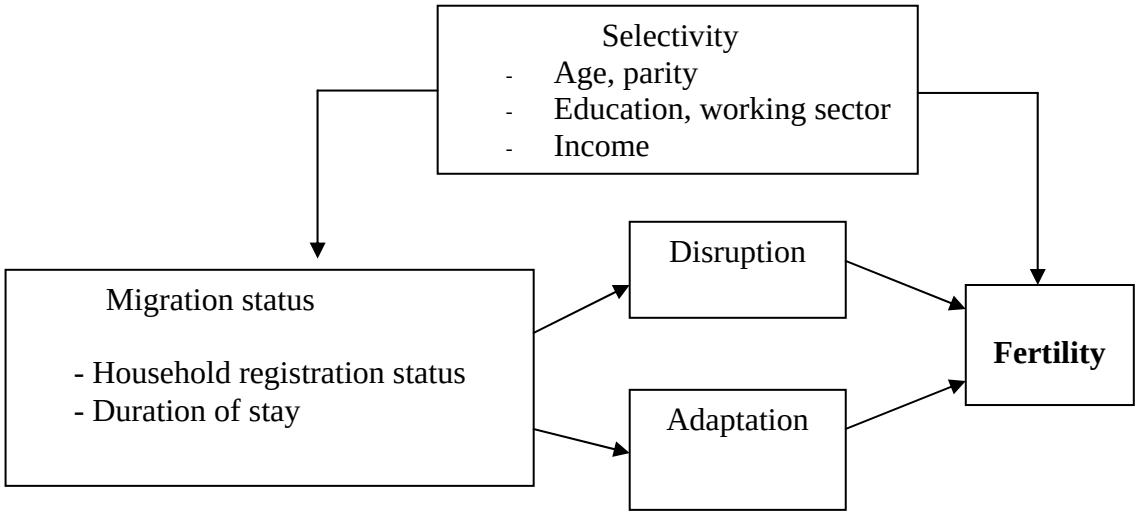

Figure 2.3 Conceptual framework on rural-urban migration and fertility

2.3.2 Study hypotheses

This study includes two analyses. In the first analysis, fertility of rural-urban migrants and urban non-migrants is compared. The second analysis compares fertility between temporary and permanent migrants.

In the first analysis, there are two competing hypotheses to be tested since it is not conclusive about whether migrants should have lower or higher fertility than the urban non-migrants. *The first* hypothesis predicts that migrants have higher fertility than urban non-migrants because rural migrants come to urban areas with a norm of higher fertility and they are likely to possess lower socio-economic status compared to urban non-migrants. In addition, the migrants may have less access to family planning services than non-migrants and they are not as strictly controlled over their fertility behaviors by the government as the urban non-migrants. *The second* hypothesis predicts a lower fertility of migrants compared to urban non-migrants given arguments that migrants have to delay giving birth in urban areas due to both adaptation and disruption effects. The stressful conditions of urban life would reduce migrants' demand for children. Economic effects combined with adaptation and disruption effects would likely force migrants to have a lower fertility than non-migrants.

In the second analysis, it is unclear before hand whether temporary migrants have a higher fertility than permanent migrants in urban Vietnamese settings. Therefore, there are also two competing hypotheses to be tested in the second analysis. *The first* hypothesis predicts that temporary migrants have higher fertility than permanent migrants because the temporary migrants stay only temporarily in urban areas, so they do not have to adapt to the urban norm of lower fertility. Temporary migrants could avoid the birth control program and would likely have less access to family planning services. *The second* hypothesis predicts a lower fertility of temporary migrants compared to permanent migrants given arguments that temporary migrants have to delay giving birth in urban areas in order to maximize economic benefits. The high cost of raising children forces temporary migrants rather to delay having children

compared to permanent migrants because temporary migrants are likely to have lower income.

In summary, there are totally four hypotheses to be tested in this study. They are numbered from 1 to 4 and shown below:

- Hypothesis 1: Migrants have a higher fertility than non-migrants
- Hypothesis 2: Migrants have a lower fertility than non-migrants
- Hypothesis 3: Temporary migrants have a higher fertility than permanent migrants
- Hypothesis 4: Temporary migrants have a lower fertility than permanent migrants

CHAPTER III
RESEARCH METHODOLOGY

3.1 Survey sampling

The current study uses data obtained from the Vietnam Migration Survey conducted in 2004. The target population of this survey consisted of the adult population, including both males and females, aged 15-59 living in the main urban and rural destination areas. The survey sample consisted of 10,000 respondents. One half was of migrants and another half included non-migrants. Migrants are defined as those who have had residence for at least one month in a new district within 5 years prior to the time of the survey in 2004. Those respondents who have stayed in their local areas for more than 5 years are considered as non-migrants.

As stated in Chapter I, the survey was designed as a micro-level study of migration in selected areas that are major destinations for internal migrants in Vietnam. The areas selected for the survey were geographically distributed throughout the country and included both rural and urban areas. The sample for the survey was selected using a stratified multi-stage method. First, based on data from the 1999 population census and other surveys conducted thereafter, five areas with high levels of in-migration were selected. Second, villages/urban blocks of the provinces/cities selected in the first stage were categorized by type of household registration held by residents. Based on this listing, 20 communes/wards with the highest numbers of long-term and short-term temporary residents were selected in each area. Third, in each commune/ward defined in the second stage, four villages/urban-blocks with the highest numbers of long-term and short-term temporary residents were selected. In each of the selected units at this stage, a listing of residents by household was undertaken. Fourth, from the listings of household members, migrants and non-migrants were randomly selected (GSO and UNFPA, 2005).

3.2 Study sample

Since this study examines fertility differentials of rural-urban migrants and urban non-migrants, the sample includes only those women who are rural-urban migrants or urban non-migrants. Given that the proportions of single women are much different for the rural-urban migrants compared to urban non-migrants and the events of birth are recorded mainly among ever-married women, only ever-married women aged 20-49 were selected. Women aged 15-19 were excluded because there were few ever-married women in this group (7 cases) and many of them were not exposed to the possibility of childbirth during the previous five-year period at the survey time. The study sample includes 2,017 cases, of which there are 687 rural-urban migrants and 1,330 urban non-migrants.

Table 3.1 Number of cases of the study sample by migration status and age group

Migration status	Age group				Total
	20-24	25-29	30-34	35-49	
Migrants	168	186	137	196	687
Non-migrants	54	251	278	747	1,330
Total	222	437	415	943	2,017

3.3 Operational definitions

3.3.1 Fertility

In previous studies related to the relationship between migration and fertility, researchers have used three measures of fertility as follow: (i) cumulative fertility as number of children ever born; (ii) 5-year period fertility as number of children aged 0-4 and (iii) one-year period fertility as number of births during a fixed year or the last 12 months at the time of the survey or census.

The indicator of the number of children ever born has been used in few studies because it does not reflect the fertility as impacts of the migration process considering the temporal order (Goldstein et al., 1997; Yang, 2000) though this indicator may be used to compare fertility between recent migrants and non-migrants for young but not for older women. When young migrant women delay giving birth due to migration, it is likely to influence their number of children ever born. For the older women, in contrast, migration may not influence their cumulative fertility because they are nearing the end of their childbearing years. Fertility reduction is more likely for younger migrant women (Goldstein, 1973).

For the indicator of number of children aged 0-4, it is relatively sensitive compared to cumulative fertility because it measures the number of births that have occurred within the 5-year period prior to the time of the survey or census. The indicator of number of children aged 0-4 may be applied in case of no information on period fertility for separate years or the last 12 months. Using this indicator, researchers have to take into account whether or not the events of birth had occurred before, during or after migration (Ng and Nault, 1997). Goldstein and Goldstein (1981) noted that migration could affect fertility intentions of migrants during short periods both before and after the time of migration. In their study on the relationship between migration and fertility done in Thailand, the number of children aged 0-4 was used as a measure of fertility. However, this indicator is not the best one because it does not necessarily reflect the temporal order linkage between migration and fertility.

Two measures of fertility are used in this study. In the first analysis, fertility refers to number of children aged 0-4 measured at the time of the survey in 2004. In the second analysis, fertility is considered as post-migration fertility of migrants, which includes only events of live birth that occurred after the migrants came to urban areas during the study period from 1999-2004.

3.3.2 Migration status

Migration status is the main independent variable for all analyses of this study. Some common aspects of migration are often taken into account such as: (i) migration experience; (ii) duration of stay at destination; (iii) timing of migration or migration year; and (iv) type of destination (rural or urban) (Jampaklay, 2003; Rumana et al., 2006). In those countries where the household registration system is applied to control citizens' residence, in addition to the other characteristics mentioned above, migration status is often based on the registration status including temporary and permanent registration (Goldstein et al., 1997; Yang, 2000). According to this study's objectives, the migration status of this study is defined by: (a) migration experience (migrant or non-migrant); (b) household registration status (permanent or temporary); and (iii) duration of stay (recent or long-term).

For the current study, migrants refer to individuals who came from rural areas and have had residence for at least one month in a new urban district within 5 years prior the time of the survey in 2004. Non-migrants are defined as those individuals who have stayed in their original urban areas for more than 5 years.

Definitions of temporary and permanent migrants are based on their household registration status. Temporary migrants are those migrants who possess temporary household registration of their current residence. Permanent migrants are those migrants who possess permanent household registration of their current residence in local urban areas. As stated earlier in Chapter 2, household registration status is considered as a proxy indicator of migrants' intention of stay at their destination. The definitions of temporary and permanent migrants are not based on data on the intention of stay because of some reasons. Firstly, for the data on the intention of stay, there was a high percentage of missing cases. Of 687 cases of the migrants, 341 women expressed their intention of permanent stay (49.6 %), only 91 (13.3 %) women said their intention of stay as temporary. The remaining 255 women had their answers as 'do not know'. If I refer the last group as of intention of temporary stay, it would be not valid information. Secondly, previous studies identified temporary and permanent migrants based on the household registration status. The information on household

registration status is reliable. When this study used household registration to define temporary and permanent migrants, the results could be comparable. Thirdly, if there were few missing cases related to the intention of stay, two variables of household registration status and intention of stay could be highly correlated.

Regarding duration of stay, the study divides migrants into recent and long-term migrants. Recent migrants refer to those migrants who came to their destinations during 2002-2004. Long-term migrants are those migrants who came to their destinations during 1999-2001.

In order to see whether migrants' fertility is affected by the constraints of urban life rather than the urban norm of lower fertility, household registration status combined with duration of stay is taken into account for their migration status. Therefore, migration status of the study population consists of five categories including recent temporary migrant; long-term temporary migrant; recent permanent migrant; long-term permanent migrant; and non-migrant.

Recent temporary migrants are defined as those temporary migrants who came to their destination during 2002-2004. Long-term temporary migrants refer to those temporary migrants who came to their destination during 1999-2001. Similarly, recent permanent migrants are those permanent migrants who came to their destination during 2002-2004. Long-term permanent migrants refer to those permanent migrants who came to their destination during 1999-2001. Non-migrants are those who stayed in urban areas for more than 5 years before the survey.

3.3.3 Other individual background characteristics

Other individual background characteristics of the study population include age, parity, education, working sector and income. Age means the current age of the respondents at the time of the survey in 2004. Parity refers to the number of living

children that a woman had in 1999. Since the study compares number of births given during the 5-year period after 1999, the parity in 1999 likely affects the women's probability of giving additional birth for the period 2000-2004. Education is the number of years of schooling that a woman has completed at the time of the survey. Working sector refers to the economic sections that the woman's current jobs belong to. In this study, government sector includes government organizations and government capital organizations. Formal sector refers to private capital and foreign investment organizations. And the informal sector includes collective organizations and self-employed individuals. Income means the current monthly salary of respondents at their working place.

3.4 Analysis on fertility differentials of migrants and non-migrants

3.4.1 Measurement of variables

Dependent variable. For the first analysis, the dependent variable is number of children aged 0-4 and is measured as an ordinal categorical variable having three values as 0, 1 and 2. Those women who have not had any births during the most recent 5-year period are coded as 0; those women who have one birth are coded as 1; and those women who have 2 or more births are coded as 2.

Independent variables. Migration status is the main independent variable and has five categories. Recent temporary migrants are coded as 1; long-term temporary migrants are coded as 2; recent permanent migrants are coded as 3; long-term permanent migrants are coded as 4; and non-migrants are coded as 5.

Control variables. The first analysis uses a set of control variables including age, parity, education, working sector and income as major background characteristics.

Age is used as a categorical variable of various groups because age has curvilinear relationship with fertility and women show much different fertility behaviors in accordance with their life cycles. This variable includes four categories. Women aged 20-24 are coded as 1; women aged 25-29 are coded as 2; women aged 30-34 are coded as 3; and women aged 35-49 are coded as 4.

Parity is a ratio variable. The existing number of living children measured in 1999 would have an influence on women's decision to stop or have additional children during the period 2000-2004.

Education is a ratio variable indicating single schooling years. Education is expected to have a negative relationship with fertility.

Working sector is a categorical variable with three categories including the government, formal and informal. It is expected that employment in the government sector is associated with the lowest fertility because the government has the greatest control over its employees (Yang, 2000). Those women who work in the government sector are coded as 1; those women who work in the formal sector are coded as 2; and those women who work in the informal sector are coded as 3.

Income is treated as a ratio variable. Income reflects economic ability of migrants, which may also significantly influence the probability of having birth among poor migrants. The minimum level of income set up by law for employees working in government organizations is about 500,000 VND per month. The exchange rate between VND and US dollar was about 15,000 VND per dollar. The value of one thousand VND is negligible. Therefore, for the current study, those individuals who get a monthly salary of 500,000 VND or less are coded as 1. Those individuals who get from 501,000 to 600,000 VND are coded as 2 and so on. Each interval of income is equal to 100,000 VND. There are 13 intervals for income. Those individuals who get more than 1,600,000 VND per month are recoded as 13.

3.4.2 Description of the study sample by variables

Table 3.2 shows a description of the study sample by variables used in the first analysis.

Dependent variable. Nearly two-thirds of women in the study sample (both migrants and non-migrants) did not have any children aged 0-4 (62.3 %). The proportion for women who have one child aged 0-4 is 34.4 percent. The proportion for women who have two or more children under 5 is only 3.3 percent. In the context of low fertility, there are few women who have three or more children.

Table 3.2 Description of the study sample by variables used in the first analysis

	N	Percent
Dependent variable		
Number of children aged 0-4		
0	1258	62.3
1	693	34.4
2 or more	66	3.3
Total	2017	100.0
Independent variable		
Migration status		
Recent temporary migrant	202	10.0
Long-term temporary migrant	157	7.8
Recent permanent migrant	140	6.9
Long-term permanent migrant	188	9.3
Non-migrant	1330	65.9
Total	2017	100.0
Control variables		
Age		
20-24	222	11.0
25-29	437	21.7
30-34	415	20.6
35-49	943	46.7
Total	2017	100.0

Table 3.2 Description of the study sample by variables used in the first analysis **(Continued)**

	N	Percent
Parity		
0	605	30.0
1	511	25.4
2	622	30.8
3	191	9.5
4 - 7	88	4.3
Total	2017	100.0
Education		
Illiterate	16	0.8
Grades 1 – 5	157	7.8
Grades 6 – 9	1002	49.6
Grades 10 – 12	701	34.8
College & University	141	7.0
Total	2017	100.0
Working sector		
Government	325	16.1
Formal	377	18.7
Informal	1315	65.2
Total	2017	100.0
Income		
Low (Under 601,000 VND)	413	20.5
Average (601,000 – 1,000,000 VND)	1121	55.6
High (above 1,000,000)	483	23.9
Total	2017	100.0

Independent variable. About 66 percent of the sample is non-migrants while the proportion of migrants is only around 34 percent. Two aspects of migration including household registration status and duration of stay are explored in the study. Therefore, migrant women are divided into four categories, namely, recent temporary, long-term temporary, recent permanent and long-term permanent migrants. The proportions for recent and long-term temporary migrants are 10.0 and 7.8 percent, respectively, while the proportions for recent and long-term permanent migrants are 6.9 and 9.3 percent, accordingly.

Control variables.

Age. About half of the sample are women aged 35-49 (46.7 %). The proportions for women in groups aged 20-24, 25-29 and 30-34 are 11.0, 21.7 and 20.6 percent, respectively. This means that more than half of the sample are women who are at the peak of their reproductive period.

Parity. The proportions of women who had 0 or 1 child before the last five-year period of study is 55.4 percent. The proportions of women who had 2 and 3 children are 30.8 and 9.5 percent, accordingly. Few women had 4 or more children (4.3 %).

Education. The majority of women had a low secondary (grades 6-9) or high secondary education (grades 10-12). The proportion of women who had grades 6-12 is 84.4 percent. Few women were illiterate (0.8 %). The proportion of women who completed grades 1-5 is 7.8 percent while 7.0 percent of women obtained a college or university degree.

Working sector. About two-thirds of the sample are women who were working in the informal sector (65.2 %). Similar proportions of women were working in the government and formal sectors as 16.1 and 18.7 percent, respectively.

Income. More than half of women had a current monthly income of more than 600,000 to 1,000,000 VND (55.6 %). The proportion for women who had an income of 600,000 or less is 20.5 percent, while 23.9 percent of women received more than 1,000,000 VND per month. Generally, in this study, the majority of women received less than 2 US dollars per day for their income.

3.4.3 Analysis strategies

3.4.3.1 Bivariate analyses

Bivariate analyses are used to compare fertility across age groups in order to see overall differences between fertility of migrants and non-migrants. As stated above, in the first analysis, the fertility refers to the number of children aged 0-4 per woman measured at the time of the survey. Bivariate analyses are also used to compare selected demographic and socio-economic characteristics of migrants and non-migrants.

3.4.3.2 Multivariate analyses

Multivariate analyses were used to examine the impact of migration on fertility while the selected demographic and socio-economic characteristics were controlled for. Models of multinominal logistic regression were applied to predict the probability of having births over the study period. If migrants have higher fertility than non-migrants, they would have higher probability of having more versus less children relative to non-migrants. The dependent variable has three values as 0, 1 and 2, which is why the multinominal logistic regression models are appropriate to predict which group of women have higher or lower fertility. At first, the multinominal logistic regression was run for both migrants and non-migrants together in order to compare fertility difference between migrants and non-migrants. Then, the analysis was carried out separately for age groups in order to see whether the obtained results of the general model are similar to those of age-specific models. Afterward, in order to look at how the socio-economic factors affect fertility of migrants, the logistic regression models were run separately for migrants and non-migrants.

3.5 Analysis on fertility differentials of temporary and permanent migrants

3.5.1 Measurement of variables

Dependent variable. For the second analysis, post-migration fertility is measured by the event of specific order births. The dependent variable is a dummy

variable. Those women who have any birth are coded as 1 and other women are coded as 0.

Independent variables. Migration status is the main independent variable with four categories. Recent temporary migrants are coded as 1; long-term temporary migrants are coded as 2; recent permanent migrants are coded as 3; and long-term permanent migrants are coded as 4.

Control variables. In order to have comparable results with the first analysis, the second analysis uses the same set of control variables including age, education, working sector and income, except parity, as major background characteristics. The control variables are measured the same as in the first analysis.

3.5.2 Description of the study sample by variables

Table 3.3 shows a description of the study sample by variables used in the three models of the second analysis.

Dependent variables. For model 1, which is an analysis of whether or not a woman experiences a first birth, the sub-sample includes 236 women who had never experienced their first birth before moving. The proportion of those women who had their first birth after their move to urban areas is 55.9 percent, while it is 44.1 percent for those women who did not have their first birth. For model 2, the sub-sample consists of 198 women who had one child before the move or gave a second birth at their destination. The proportions of women who had their second birth and did not have their second birth are 32.3 and 67.7 percent, respectively. For model 3, the sub-sample includes 262 women who had two children before the move or gave a third birth at their destination. The majority of women in the sub-sample did not have their third birth (95.4 percent). Only 4.6 percent of women had their third birth. As

mentioned above, in the context of low fertility, there are few women who have three children or more.

Table 3.3 Description of the study sample by variables used in the second analysis

	Model 1 First birth		Model 2 Second birth		Model 3 Third or higher order birth	
	N	Percent	N	Percent	N	Percent
Dependent variables						
Model 1: have 1st birth						
Yes	132	55.9				
No	104	44.1				
Total	236	100.0				
Model 2: have 2nd birth						
Yes			64	32.3		
No			134	67.7		
Total			198	100.0		
Model 3: have 3rd birth						
Yes					12	4.6
No					250	95.4
Total					262	100.0
Independent variable						
Migration status						
Recent temporary	55	23.3	64	32.3	84	32.1
Long-term temporary	76	32.2	39	19.7	44	16.8
Recent permanent	48	20.3	40	20.2	52	19.8
Long permanent	57	24.2	55	27.8	82	31.3
Total	236	100.0	198	100.0	262	100.0
Control variables						
Age						
20-24	126	53.4	39	19.7	5	1.9
25-29	79	33.5	86	43.4	24	9.2
30-34	24	10.2	48	24.2	69	26.3
35-49	7	3.0	25	12.6	164	62.6
Total	236	100.0	198	100.0	262	100.0
Education						
Illiterate	1	0.4	3	1.5	3	1.1
Grades 1 - 5	15	6.4	18	9.1	30	11.5
Grades 6 – 9	123	52.1	113	57.1	165	63.0
Grades 10 - 12	83	35.2	52	26.3	58	22.1
College & University	14	5.9	12	6.1	6	2.3
Total	236	100.0	198	100.0	262	100.0

Table 3.3 Description of the study sample by variables used in the second analysis **(Continued)**

	Model 1 First birth		Model 2 Second birth		Model 3 Third or higher order birth	
	N	Percent	N	Percent	N	Percent
Working sector						
Government	27	11.4	22	11.1	19	7.3
Formal	97	41.1	56	28.3	40	15.3
Informal	112	47.5	120	60.6	203	77.4
Total	236	100.0	198	100.0	262	100.0
Income						
Low	49	20.8	29	14.6	79	30.2
Average	160	67.8	125	63.1	136	51.9
High	27	14.4	44	22.2	47	17.9
Total	236	100.0	198	100.0	262	100.0

Independent variables. For model 1, the proportions of recent and long-term temporary migrants are 23.3 and 32.2 percent, accordingly, while the proportions of recent and long-term permanent migrants are 20.3 and 24.2 percent, respectively. The proportions of the four groups are relatively equal. For model 2, the proportions of four groups are changed a little. The proportions of recent and long-term temporary migrants are 32.3 and 19.7 percent, accordingly, while the proportions of recent and long-term permanent migrants are 20.2 and 27.8 percent, respectively. For model 3, the proportions of long-term temporary and permanent migrants are 16.8 and 31.3 percent, accordingly, while they are 32.1 and 19.8 percent for recent temporary and permanent migrants, respectively.

Control variables.

Age. For model 1, majority of women in the sub-sample are young. There are 53.4 percent of women aged 20-24. For model 2, the patterns of age for women are not similar to those of model 1. The highest proportion is women aged 25-29 (43.4 %). For model 3, among the sub-sample, the highest proportion is women of age 35-49 (62.6 %). The lowest proportion is women aged 20-24 (1.9 %).

Education. For model 1, the patterns of education attainment for migrants appear to be similar to that of those respondents described in the first analysis. Most of women completed low and high secondary school as grades 6-12. There is only a small proportion of women who completed only grades 1-5 or were illiterate. For models 2 and 3, the education characteristics of women in the sub-samples are rather similar to that of model 1.

Working sector. For model 1, the proportions of women in the sub-sample who work in the formal and informal sectors are 41.1 and 47.5 percent, accordingly. Similarly, for models 2 and 3, most women in the sub-samples work in the formal and informal sectors. Migrant women tend to work in the informal sector rather than the formal sector.

Income. For all of three models, the majority of migrant women received an average monthly income of more than 600,000 up to 1,000,000 VND. Only around 15 percent of migrant women received a monthly income of more than one million VND while about 20 percent of migrant women received a monthly income of 600,000 VND or less.

3.5.3 Analysis strategies

3.5.3.1 Bivariate analysis

Bivariate analysis is used to compare post-migration fertility across age groups in order to see overall differences between fertility of temporary and permanent migrants. As mentioned above, in the second analysis, fertility refers to the number of children born per woman after their move to urban areas during the study period 1999-2004. This technique is also applied to contrast the percentage distribution of specific order births among migrants. The analysis is supposed to examine differences between

the main selected demographic and socio-economic characteristics of temporary and permanent migrants.

3.5.3.2 Multivariate analysis

In order to have comparable results, binary logistic regression models with the same set of control variables are also applied for the second analysis. Unlike the first analysis, the sub-sample includes only temporary and permanent migrants. Three logistic regression models are used to estimate the probability of having first, second and third or higher order births. The combining of third and higher order births is based on the consideration that the government of Vietnam is very concerned only about the out-planning births, which refer to the third and higher order births under its one-or-two child policy. The birth control program would fail if many temporary migrants tend to have the third or higher order births. The logistic regression models are also run separately for age groups in order to see whether the results obtained from the general models are similar to those of age-specific models.

CHAPTER IV
FERTILITY OF MIGRANTS AND NON-MIGRANTS

The purpose of this chapter is to compare the fertility between rural-urban migrants and urban non-migrants. Fertility refers to number of children aged 0-4 at the time of the survey in 2004.

4.1 Background characteristics of migrants and non-migrants

4.1.1 General background

The figures presented in Table 4.1 show that the rural-urban migrants appear to be rather younger than urban non-migrants. The mean age is 30.8 and 36.3 years for migrants and non-migrants, respectively. Considering fertility, while migrants show a higher mean number of children aged 0-4, they appear to have a lower mean number of children ever-born. The mean number of children aged 0-4 is 0.45 and 0.39 for migrants and non-migrants, respectively. The mean number of children ever-born is 1.48 and 1.90, accordingly, for migrants and non-migrants. Regarding education, migrants seem to be less educated, but the difference is not large. The number of average years of completed education is 8.9 and 9.7 years for migrants and non-migrants, respectively. As expected, migrants are less likely to work for the government sector, but more likely to work in the formal sector. It is not surprising that migrants have lower incomes than non- migrants. Migrants appear to be rather poor with an average income of around two US dollars per day. It will be interesting to see how income relates to fertility of migrants in urban areas by using multivariate analysis. The proportion of migrant women who moved without their spouse is 43.2 percent. It is noted that migrants have the same rate of contraceptive use as non-migrants. The rate of contraceptive use is 53.3 percent for both groups. This may imply that migrants are not likely to have a higher fertility than non-migrants. However, based on the demographic and socio-economic characteristics of women in the sample as described above, migrants are expected to show a higher fertility than non-migrants.

Table 4.1 Selected demographic and socio-economic characteristics of ever-married women by migrants and non-migrants

Characteristics	Migrants	Non-migrants	Total
Age (mean)	30.8	36.3	34.4
Number of children ever born (mean)	1.48	1.90	1.76
Number of children aged 0-4 (mean)	0.45	0.39	0.41
Average years of completed education	8.9	9.7	9.4
Working sector (%)			
Government	9.9	19.3	16.1
Formal	28.5	13.6	18.7
Informal	61.6	67.1	65.2
Average monthly income (Vietnam Dong)*	935,000	1,232,000	1,127,000
Migrant women moved without spouse (%)	43.2	-	-
Currently modern contraceptive use (%)	53.3	53.3	53.3
Number of cases	**687**	**1330**	**2017**

Note: *The exchange rate between US dollars and Vietnam Dong was about 1/15,000 in 2004.

4.1.2 Access to family planning services

In urban areas, women of various migration statuses may have more or less access to the government sector of family planning services. Since this sector provides services free of charge or with lower cost relative to the private sector, the study examines whether the household registration status of migrants influences their access to the government sector of family planning services relative to the local urban residents.

The figures presented in Table 4.2 indicate that there are almost no differences in access to family planning services among various groups of migrants. Both the household registration status and duration of stay do not influence access to the government family planning services for migrants in urban areas at all. All four groups of migrants including recent temporary, long-term temporary, recent permanent and long-term permanent migrants tend to get services at the government sector rather than

non-migrants, particularly for women who had two children or more. This may be because non-migrants have higher economic abilities and they could afford higher cost of services in the private sector, but of a better quality.

The data analysis reveals the popularity of the current family planning program in Vietnam with the high availability and low cost of contraceptive supply so that the poor migrants could have easy access to meet their needs in terms of controlling fertility behaviors. The results suggest that the existing household registration system may not create any obstacles to implement distribution of family planning services for both temporary and permanent migrants in urban areas. Generally, the contraceptive supply to migrants is not interrupted, a factor which could lead to a higher fertility of migrants relative to non-migrants.

Table 4.2 Percentage of respondents who ever used the government family planning service, among ever-married women, by migration status and parity

	All parity			Parity = 2 or more		
	All women in the sample	Women ever used the service	Row total	All women in the sample	Women ever used the service	Row total
Recent temporary	10.0	9.3	37.1	7.1	8.7	55.8
Long-term temporary	7.8	8.3	42.7	4.3	6.4	67.3
Recent permanent	6.9	7.1	40.7	4.5	6.0	61.1
Long-term permanent	9.3	10.2	43.6	8.5	8.6	45.6
Non-migrant	65.9	65.1	39.5	75.6	70.3	42.3
Total	100.0	100.0	40.0	100.0	100.0	45.5
N	**2017**	**806**	**806**	**1207**	**549**	**549**

4.2 Fertility differentials between migrants and non-migrants in urban areas

4.2.1 Bivariate analyses

Figure 4.1 presents data on average numbers of children aged 0-4 for migrants and non-migrants by age groups. The results show a consistent pattern of fertility difference across age groups between migrants and non-migrants. For all comparisons, the fertility of migrants is lower than that of non-migrants. The fertility difference appears to be large for age groups 20-24; 25-29; 30-34; and 35-39. The fertility difference seems to be very small for age groups 40-44 and 45-49. The obtained results with age decomposition are opposite to those of the descriptive statistics shown in Table 4.1. This illustrates the importance of age decomposition when fertility is compared among population groups. The fertility patterns of women in the sample match those fertility patterns for the general population given in Table 2.2. The fertility levels are highest for women aged 20-24 and 25-29. Afterward, the fertility declines quickly in accordance with age increase. However, for the general population, the fertility of rural residents is higher than that of urban residents while the fertility of rural-urban migrants is lower than that of urban non-migrants, for women in the sample.

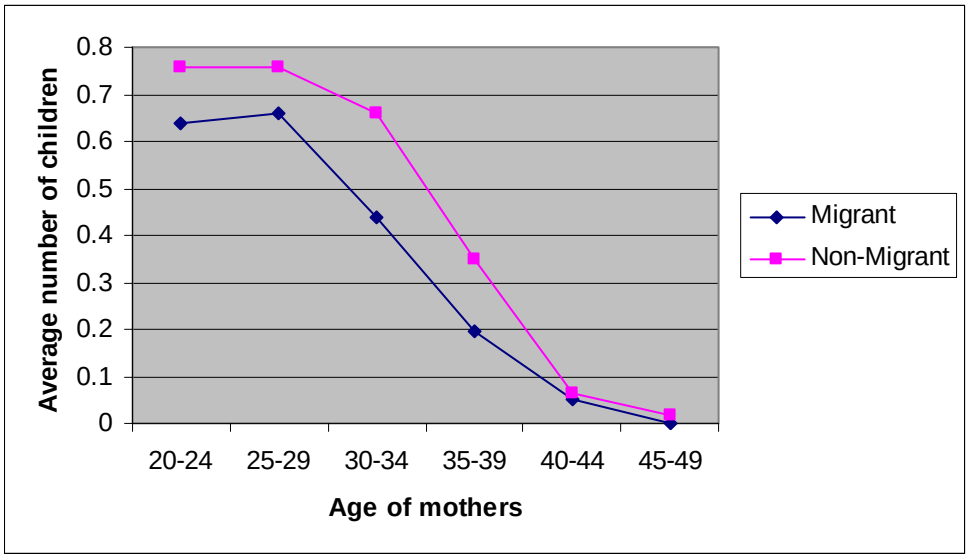

Figure 4.1 Average number of children aged 0-4 of ever-married women by age of mothers and migration status

4.2.2. Multivariate analyses

General models

As mentioned above, in order to fully assess the fertility impact of rural-urban migration, the study makes use of multinominal logistic regression while the socio-economics background is controlled for. The odds ratios from general logistic regression model for the likelihood of having children aged 0-4 are shown in Table 4.3.

For comparison 1, the probability of having one birth versus no births among women in the sample is compared. Both recent temporary and long-term temporary migrants have a significantly lower fertility than non-migrants ($P<0.01$). Temporary migrants appear to have lower fertility. The odds of having children decrease by 57.2 and 58.7 percent for recent temporary and long-term temporary migrants relative to non-migrants, respectively.

Recent permanent and long-term permanent migrants also have a lower fertility compared to non-migrants, however, the difference is not significant. Generally, permanent migrants have a similar pattern of fertility as non-migrants.

As expected, age has a significant effect on fertility. Women in groups aged 20-24; 25-29; and 30-34 have significantly higher fertility compared to women aged 35-49. The odds of having children increase by 93.6, 192.5 and 227.3 percent for women aged 20-24, 25-29 and 30-34, respectively, relative to women aged 35-49. The youngest women (20-24) are likely to delay having children compared to the older women (25-29 and 30-34). Parity also has a significant relationship with fertility. The higher the parity, the lower the number of children aged 0-4. When a woman has the desired number of children, she is likely to stop bearing additional children.

Among the other control variables, education, working sector and income have no significant effects on fertility.

Table 4.3 Odds ratios from general multinominal logistic regression for likelihood of having children aged 0-4 of ever-married women by migration status, controlling selected background characteristics

	1 vs 0 child		**2 vs 0 child**		**2 vs 1 child**	
	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E.
Migration status						
Recent temporary	.428**	.211	.139**	.583	.324*	.569
Long-term temporary	.413**	.225	.145**	.648	.351	.636
Recent permanent	.678	.231	.234*	.648	.346	.629
Long-term permanent	.903	.212	.925	.434	1.024	.407
Non-migrants ®						
Age						
20-24	1.936**	.237	1.185	.649	.612	.637
25-29	2.925**	.182	3.674*	.546	1.256	.539
30-34	3.273**	.164	8.244**	.532	2.519	.527
35-49 ®						
Parity	.247**	.096	.050**	.327	.202**	.320
Education	.973	.025	.913	.058	.939	.056
Working sector						
Government	.857	.174	.223**	.529	.260**	.515
Formal	.764	.155	.299**	.375	.392**	.360
Informal ®						
Income	1.035	.018	.996	.043	.963	.041
-2LL			1815.641			
Cox and Snell R^2			.371			
N			2017			

Note: ** significant at P<0.01; * significant at P<0.05
® Reference group

For comparison 2, the probability of having two births versus no births among women in the sample is compared. The results also indicate a significant lower fertility of both recent temporary and long-term temporary migrants relative to non-migrants (P<0.01). The odds of having two children decrease by 86.1 and 85.5 percent, accordingly, for recent temporary and long-term temporary migrants compared to non-migrants. The odds of having two children decrease by 76.6 percent for recent permanent migrants relative to non-migrants (P<0.05). Like the comparison 1, the

fertility of long-term permanents migrants is not different from that of non-migrants. For both comparison 1 and comparison 2, temporary migrants have a consistent significantly lower fertility than non-migrants while permanent migrants generally indicate a similar pattern of fertility to non-migrants. The household registration status of migrants in urban areas, temporary or permanent residents, has a significant effect on fertility of migrants rather than the duration of stay.

Regarding age, women aged 30-34 show a rather higher fertility than women aged 35-49. The odds of having two children increase by 724.4 percent for women aged 30-34 relative to women aged 35-49 ($P<0.01$). The odds of having two children increase by 267.4 percent for women aged 25-29 compared to women aged 35-49 ($P<0.05$). The odds of having two children slightly increase by 18.5 percent for the youngest women aged 20-24 relative to the oldest women aged 35-49, but the difference is not significant. The difference is also not significant. The fertility effect of parity is similar to that of the first comparison above.

For comparison 2, education and income have no effects on fertility while working sector has a significant effect on fertility. The women who work in the government and formal sectors are less likely to have two children relative to those women who work in the informal sector.

For comparison 3, the probability of having two births versus one birth among women in the sample is compared. Only recent temporary migrants have a significantly lower fertility than non-migrants ($P<0.05$). Among the control variables, age and education have no effects while parity and working sector show strongly significant effects on fertility.

In general, for all three comparisons, migrants have a significantly lower fertility than non-migrants (Table A.1). The obtained results provide support to hypothesis 2, which predicts lower fertility of migrants relative to non-migrants. The findings do not provide support to hypothesis 1, which predicts higher fertility of migrants compared to non-migrants.

Age-specific models

In order to see whether migration has the same effects for various age groups, age-specific models are run separately for two groups of women aged 20-29 and 30-39. There are few cases of migrant women aged 40-49, therefore, the analysis is not done for this group of women. The results of multinominal logistic regression analysis on fertility differentials between migrants and non-migrants according to age groups are presented in Tables 4.4

Model for women aged 20-29

For comparison 1, both recent temporary and long-term temporary migration have significantly lower fertility compared to non-migrants ($P<0.01$). The odds of having one child decrease by 69.7 and 61.3 percent, respectively, for recent temporary and long-term temporary migrants relative to non-migrants. Recent permanent migrants also have lower fertility than non-migrants. The odds of having one child decrease by 45.9 percent for recent permanent migrants compared to non-migrants ($P<0.05$). Long-term permanent migrants have a slightly higher fertility than non-migrants, but the difference is not significant.

As expected, parity continues to have effects on fertility while education and working sector do not have effects on fertility for women aged 20-29. However, income appears to have some effects on fertility of young women. The results show a positive association between income and fertility.

For comparison 2, both recent temporary and long-term temporary migrants also have significantly lower fertility than non-migrants. The odds of having two children decrease by 94.3 and 91.0 percent, respectively, for recent temporary and long-term temporary migrants compared to non-migrants. The odds of having two children decrease by 85.8 percent for recent permanent migrants relative to non-migrants ($P<0.05$). Long-term permanent migrants have a similar pattern of fertility to non-migrants.

Table 4.4 Odds ratios from age-specific multinominal logistic regression models for likelihood of having children aged 0-4 of ever-married women by migration status, controlling selected background characteristics

	Women aged 20-29						Women aged 30-39					
	1 vs 0 child		2 vs 0 child		2 vs 1 child		1 vs 0 child		2 vs 0 child		2 vs 1 child	
	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E
Migration												
Recent temporary	.303**	.275	.057**	.789	.189*	.769	.628	.365	.400	.906	.637	.873
Long temporary	.387**	.289	.090**	.791	.234	.769	.228**	.446	.137	1.137	.604	1.125
Recent permanent	.541*	.306	.142*	.799	.262	.770	.636	.410	.303	1.135	.477	1.100
Long permanent	1.179	.323	.841	.562	.713	.500	.499*	.336	.627	.736	1.257	.708
Non-migrants ®												
Parity	.196**	.188	.053**	.625	.268*	.615	.223**	.133	.038**	.403	.172**	.388
Education	.966	.041	.901	.086	.933	.080	.974	.038	.912	.086	.936	.645
Working sector												
Government	.780	.283	.090*	1.077	.115*	1.057	1.291	.266	.544	.667	.421	.637
Formal	.779	.207	.402*	.444	.517	.417	.602*	.255	.119**	.793	.198*	.774
Informal ®												
Income	1.067*	.031	1.014	.070	.951	.066	1.024	.025	1.042	.058	1.018	.055
-2LL	752.688						737.028					
Cox and Snell R^2	.200						.311					
N	659						737					

Note: ** significant at P<0.01; * significant at P<0.05

® Reference group

Table 4.5 Odds ratios from separate multinominal logistic regression models for likelihood of having children aged 0-4 of ever-married women, controlling selected background characteristics for migrants and non-migrants

	Migrants						**Non-migrants**					
	1 vs 0 child		2 vs 0 child		2 vs 1 child		1 vs 0 child		2 vs 0 child		2 vs 1 child	
	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E
Age												
20-24	1.743	.386	1.8E+07**	.734	1.1E+07**	.710	1.675	.373	1.071	.780	.639	.746
25-29	2.641**	.355	6.7E+07**	.633	2.5E+07**	.610	2.866**	.215	3.075	.578	1.073	.568
30-34	2.121*	.344	-		-		3.756**	.190	7.135**	.558	1.900	.551
35-49 ®												
Parity	.280**	.165	.047**	.791	.168*	.785	.240**	.117	.048**	.368	.202**	.358
Education	1.012	.038	.930	.104	.919	.102	.969	.032	.950	.071	.980	.068
Working sector												
Government	.740	.327	.189	1.145	.255	1.127	.958	.207	.233*	.606	.244*	.588
Formal	.693	.215	.179*	.684	.259*	.671	.787	.221	.351*	.460	.446	.431
Informal ®												
Income	1.073*	.032	1.223**	.077	1.140	.074	1.021	.021	.917	.055	.898*	.053
-2LL			636.539						1075.596			
Cox and Snell R^2			.329						.386			
N			687						1330			

Note: ** significant at P<0.01 and * significant at P<0.05
® Reference group

For comparison 2, while parity continues to be significant, education and income do not have effects on fertility. Unlike comparison 1, the women who work in the government and in the formal sector are less likely to have two children compared to those women who work in the informal sector. The odds of having two children decrease by 91.0 and 59.8 percent for women in the government and in the formal sector, respectively, compared to those women who work in the informal sector.

For comparison 3, the obtained results are similar to those results from the general model presented in Table 4.3 except that, the women who work in the formal sector have a similar fertility to those women who work in the informal sector.

Generally, the results shown in Table 4.4 for women aged 20-29 appear to be similar to those results from the general model presented in Table 4.3. Two groups of temporary migrants have significantly lower fertility than non-migrants in both comparisons 1 and 2. Temporary migrants likely have lower fertility than non-migrants in comparison 3. Permanent migrants tend to have a similar pattern of fertility to non-migrants in all three comparisons.

Model for women aged 30-39

The comparison of the likelihood of having children aged 0-4 between migrants and non-migrants among women aged 30-39 are also shown in Table 4.4. For comparison 1, recent temporary migrants have lower fertility than non-migrants, but the difference is not significant. However, long-term temporary migrants have significantly lower fertility than non-migrants. The odds of having one child decrease by 77.2 percent for long-term temporary migrants compared to non-migrants ($P<0.01$). Recent permanent migrants also have lower fertility than non-migrants but it is not significant while long-term permanent migrants have significantly lower fertility relative to non-migrants. The odds of having one child decrease by 50.1 percent for long-term permanent migrants compared to non-migrants ($P<0.05$).

For comparisons 2 and 3, the difference of fertility among comparable groups is not significant at all. However, three groups including recent temporary, long-term temporary and recent permanent migrants seem to have lower fertility while long-term permanent migrants almost have the same fertility as non-migrants although the differences are not significant.

For all three comparisons, parity has significant effects on the fertility of women aged 30-39. Regarding working sector, those women who work in the formal sector appear to have significantly lower fertility than those women working in the informal sector for all three comparisons. Education and income have no effects on the fertility of women aged 30-39.

The comparison of the likelihood of having children aged 0-4 between migrants and non-migrants across groups clearly indicates that migration does not have the same effects on fertility of various groups of women regarding age. However, migration has significant effects on the fertility of young women aged 20-29 who are at the peak of their reproductive period. Given the fact that most migrant women are rather young from the perspective of reproduction, the fertility impact of migration appears to be significant since young migrant women tend to delay childbearing. The delay of childbearing would contribute to lower the overall period fertility.

The results from the age-specific models also provide support to hypothesis 2, which predicts lower fertility of migrants relative to non-migrants. The obtained results do not provide support to hypothesis 1, which predicts higher fertility of migrants compared to non-migrants.

Separate models for migrants and non-migrants

In order to see how the selected socio-economic characteristics of respondents influence fertility behaviors of migrants and non-migrants, the first analysis was carried out separately for each group. The odds ratios from separate multinominal

logistic regression models for likelihood of having children aged 0-4 are shown in Table 4.5.

Model for migrants

Regarding age, for comparison 1, this variable has a significant effect on fertility of migrants. The odds of having one child increase by 164.1 and 112.1 percent, respectively, for those women aged 25-29 and 30-34 compared to women aged 35-49. For comparisons 2 and 3, age also has significant effects on fertility of migrants. For parity, this variable has significant effects on fertility of migrants for all three comparisons, while education does not have any significant effect.

For working sector, those migrant women who work in the formal sector appear to have lower fertility than women who work in the informal sector (comparisons 2 and 3). The factor of economic security may be a cause to make the fertility between women of the two economic sectors different. In the formal sector, migrant women may lose their jobs if they give birth. Therefore, the migrants, particularly temporary migrants, are likely to delay giving birth in order to keep their permanent jobs in the formal sector while they stay in urban areas.

For income, this variable seems to have a positive association with fertility of migrants. In comparison 1, the odds of having one versus no child increase by 7.3 percent for each added interval of income ($P<0.05$). Lower income may force migrants to delay childbearing. In comparison 2, the odds of having two children versus no child increase by 22.3 percent for each added interval of income ($P<0.01$). In comparison 3, income loses its significance.

Model for non-migrants

For age, in comparisons 1 and 2, this variable has a significant effect on the fertility of non-migrants. Comparison 1 indicates that the odds of having one child

significantly increase by 186.6 and 275.6 percent, respectively, for those women aged 25-29 and 30-34 compared to women aged 35-49. The fertility of women aged 20-24 is not significantly compared to those women aged 35-49. For comparison 2, it is noted that the odds of having two children for those women aged 30-34 significantly increase by 613.5 percent relative to women aged 35-49. The fertility of other groups of women aged 20-24 and 25-29 is not significantly different from that of women aged 35-49. For comparison 3, age has no significant effects on fertility.

As expected, parity has significant effects on the fertility of non-migrants, while education does not have any effect on fertility.

Regarding working sector, this variable has a significant effect on fertility. For comparison 2, the odds of having two children decrease by 76.7 and 64.9 percent, accordingly, for those women who work for the government and formal sectors compared to women who work in the informal sector. For comparison 3, women in the government also have significant lower fertility than women who work in the informal sector. The employees of the government and formal sectors can have pensions when they retire. The value of children in terms of support for old age is less important for them compared to those employees who work in the informal sector. They are more likely to have a smaller family. This explains why, for comparison 1, there is no difference among employees of various working sectors in terms of having one child. However, for comparisons 2 and 3, there is a significant difference among them in terms of having two children.

Considering income, this variable also has a significant effect on fertility of non-migrants. The odds of having two children decrease by 10.2 percent for each added interval of income (comparison 3). It is interesting that income seems to have a positive association with fertility for migrants while it appears to have negative association with fertility for non-migrants. The low income would force migrants to delay their fertility. In contrast, income does not have such an impact on fertility of urban residents. For local urban residents, income would be a proxy indicator of their

socio-economic status. The higher the socio-economic status, the fewer children that women would have.

In the first analysis, migrants are generally found to have significantly lower fertility than non-migrants, particularly for women aged 20-29 (Table A.1). This is meaningful for the population and family planning program because the majority of migrant women are young and they are at the peak of their reproduction period. When migrants delay childbearing, they would contribute to lower the overall period fertility. Both general and age-specific models are consistent in findings of lower fertility for migrants relative to non-migrants. The results provide support to hypothesis 2 predicting a lower fertility of migrants compared to non-migrants. The results do not provide support for hypothesis 1 predicting a higher fertility of migrants relative to non-migrants.

CHAPTER V
FERTILITY OF TEMPORARY AND PERMANENT MIGRANTS

Since temporary migrants are a large portion of general rural-urban migrants and their proportion is increasing, comparison of fertility between temporary and permanent migrants is important. Taking advantage of information on the fertility history of both temporary and permanent migrants, the second analysis could contrast the number of specific-order births born after migration of these two groups so that clarify whether temporary migrants have higher out-planning births than permanent migrants. This is the purpose of Chapter 5.

5.1 Background characteristics of temporary and permanent migrants

The figures presented in Table 5.1 show that temporary migrants are mostly the same age as permanent migrants. The mean age is 30.2 for temporary migrants and 31.4 for permanent migrants. Considering fertility, temporary migrants have a lower fertility in both cumulative fertility and 5-year period fertility. The number of children ever born is 1.37 and 1.60, accordingly, for temporary and permanent migrants. The number of children aged 0-4 is 0.40 and 0.50 for temporary and permanent migrants, respectively. Regarding education, temporary migrants seem to be less educated than permanent migrants. The number of average years of completed education is 8.0 and 9.8 years for temporary and permanent migrants, accordingly. The findings are similar to those results shown in Tran's study (2007). As expected, temporary migrants are less likely to work for the government sector while they tend to work in the formal sector relative to permanent migrants. It is not surprising that temporary migrants have a lower income compared to permanent migrants. However, both groups of migrants appear to be rather poor with an average income of around two US dollars per day. The proportions of migrant women who moved without their spouses are 46.0 and

40.2 percent, respectively, for temporary and permanent migrants. Regarding contraception, temporary migrants have a rate of contraceptive use similar to that of permanent migrants. The rate of contraceptive use is 52.7 and 53.9 percent for temporary and permanent migrants, respectively. This may imply that the factor of contraceptive availability may not have effects on fertility differences between temporary and permanent migrants.

Table 5.1 Selected demographic and socio-economic characteristics of ever-married women by temporary and permanent migrants

Characteristics	Temporary	Permanent	Total
Age (mean)	30.2	31.4	30.8
Number of children ever born (mean)	1.37	1.60	1.48
Number of children aged 0-4 (mean)	0.40	0.50	0.45
Average years of completed education	8.0	9.8	8.9
Working sector (%)			
Government	3.6	16.8	9.9
Formal	36.5	19.8	28.5
Informal	59.9	63.4	61.6
Average monthly income (Vietnamese Dong)	883,000	994,000	935,000
Migrant women moved without spouse (%)	46.0	40.2	43.2
Currently modern contraceptive use (%)	52.7	53.9	53.3
Number of cases	**359**	**328**	**687**

Note: *The exchange rate between US dollars and Vietnam Dong was about 1/15,000 in 2004.

Regarding number of children ever-born and number of children aged 0-4, temporary migrants appear to have lower fertility than permanent migrants. However, from a selectivity perspective, based on demographic and socio-economic characteristics of women in the sub-sample as described above, temporary migrants are expected to have a higher fertility than permanent migrants. By comparing post-migration fertility from both bivariate and multivariate analyses, it would clarify whether temporary migrants have higher fertility than permanent migrants.

5.2 Fertility differentials of temporary and permanent migrants

5.2.1 Bivariate analyses

Figure 5.1 presents data on the average number of children born after migration for temporary and permanent migrants by age groups. The results show a consistent pattern of fertility difference across age groups between temporary and permanent migrants. For all comparisons, the fertility of temporary migrants is lower than that of permanent migrants. The fertility difference appears to be significant for age groups 20-24 and 25-29. The fertility difference becomes narrower for age groups 30-34 and 35-49. The results with age decomposition are consistent with the descriptive statistics shown in Table 5.1 because the two groups of migrants have rather similar age structures.

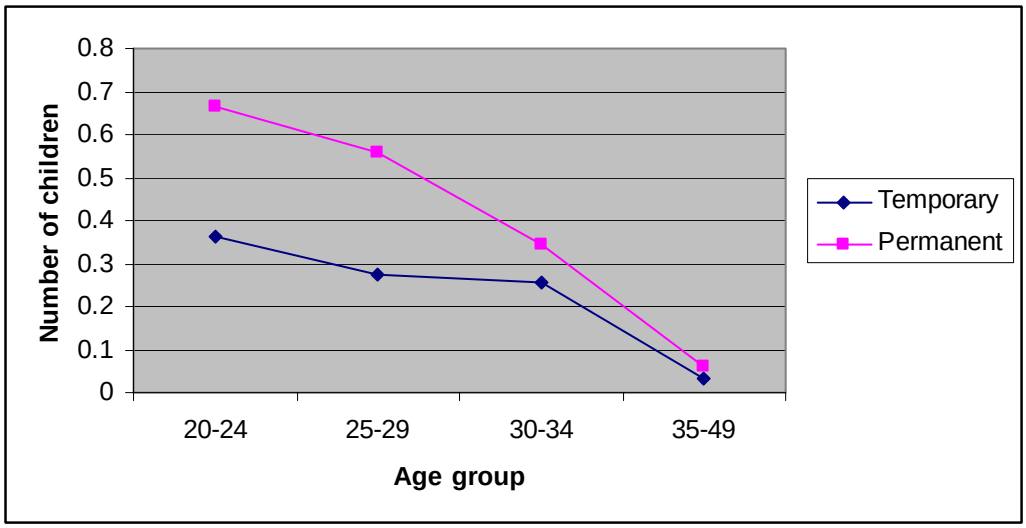

Figure 5.1 Average number of children born after migration of ever-married women by mothers' age and migration status

According to the current population policy, a main concern of the study is the number of specific-order births. Comparison of specific order births between temporary and permanent migrants is shown in Table 5.2.

The results show that the proportion of first births is higher for temporary migrants compared to permanent migrants. Meanwhile, the proportion of second births

is lower among temporary migrants relative to permanent ones. Particularly, the proportion of third births is only 2.4 percent for temporary migrants while it is 8.0 percent for permanent migrants.

Table 5.2 Percentage distribution of specific-order births of ever-married women by migrants' household registration status

Specific-order birth	Temporary	Permanent	Total
First birth	71.1	58.4	63.4
Second birth	26.5	33.6	30.8
Third birth	2.4	8.0	5.8
Total	100.0	100.0	100.0
N	**83**	**125**	**208**

5.2.2. Multivariate analyses

The results of the first analysis have shown a lower fertility of temporary migrants compared to permanent migrants. However, in the first analysis, fertility is measured as 5-year period fertility and the events of childbirth had occurred both before and after migration. Therefore, the obtained results are limited in explaining the fertility difference between the two groups of migrants. Taking advantage of the migration and fertility history information included in the survey data for both temporary and permanent migrants, I could conduct an analysis based on the births that occurred after migration. Therefore, the comparison would be more useful. At first, general models are run for temporary and permanent migrants for all women in the sample. Then, age-specific models are run for separate age groups in order to examine whether separate age-specific models have the same results as the general models.

General models

The results of the general logistic regression models analyzing the fertility differentials between temporary and permanent migrants are presented in Table 5.3. The figures are odds ratios. The obtained results show strong support for the results of the first analysis done earlier. Temporary migrants have significantly lower fertility than permanent migrants for all order-specific births. For model 1, the odds of giving a first birth decrease by 93.2 and 73.0 percent for recent temporary and long-term temporary migrants compared to long-term permanent migrants after other relevant background characteristics are controlled for. Two groups of temporary migrants have statistically significant lower fertility than long-term permanent migrants ($P<0.01$). The results suggest rather strong adaptation effects in terms of economic motivation. Recent permanent migrants also have significantly lower fertility than long-term permanent migrants. This implies that there are disruption effects on the fertility of recent migrants.

Among the control variables, age, education and income are not significant. The employees of the government sector have a lower probability of giving the first birth than employees of the informal sector. Population policy may have a certain influence on the fertility of women who work in the government sector and it leads women to delay giving the first birth.

For the shift from the first to second birth, migration status continues to keep its significance in predicting the odds of having a second birth. The odds of giving the second birth for recent temporary and long-term temporary migrants decrease by 82.5 and 64.5 percent, respectively. Like model 1, the recent permanent migrants show significantly lower fertility than the long-term permanent migrants.

For model 2, education and income are also not significant. Women aged 20-24 show significant higher fertility compared to women aged 35-49. The employees of the formal sector appear to have the lowest probability of having the second birth. The odds of giving the second birth decrease by 62.5 percent for the employees of the formal sector relative to those employees who work in the informal sector. Women who work in the formal sector have more economic and health security compared to

women who work in the informal sector, therefore, women in the formal sector are likely to have a stronger attitude toward to small family size relative to migrant women in the informal sector. In addition, the working conditions in the formal sector are more stressful. Women may lose their jobs if they give birth. Therefore, they tend to delay giving births. Conversely, women in the informal sector are more flexible in managing their time, therefore, they are less likely to delay childbearing.

Table 5.3 Odds ratios from logistic regression models for the likelihood of giving an order-specific birth of ever-married women after the move by migration status, controlling selected background characteristics

	Model 1 First birth		**Model 2** Second birth		**Model 3** Third or higher birth	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Migration status						
Recent temporary	.068**	.502	.175**	.493	.057*	1.265
Long-term temporary	.270**	.459	.355*	.484	.151	1.225
Recent permanent	.201**	.476	.294*	.484	.238	.925
Long-term permanent ®						
Age						
20-24	3.340	.969	3.972*	.660	.000	14519.930
25-29	3.847	.980	2.036	.592	36.937**	1.103
30-34	4.340	1.064	2.295	.631	17.521**	.910
35-49 ®						
Education	1.066	.066	1.039	.072	1.131	.169
Working sector						
Government	.277*	.515	.877	.547	.221	1.305
Formal	.631	.328	.375*	.425	.000	5291.464
Informal ®						
Income	1.000	.060	1.024	.050	1.330**	.102
-2LL	275.319		216.868		62.080	
Cox and Snell R^2	.186		.151		.126	
N	236		198		262	

Note: ** significant at P<0.01 and * significant at P<0.05;
® Reference group

For model 3, migration status continues to have its significance in predicting the odds of having the third or higher order birth. Recent temporary migrants have significantly lower fertility than long-term permanent migrants. There is evidence that

long-term temporary and recent permanent migrants are likely to have much lower odds of giving a third birth compared to long-term permanent migrants. The odds of giving the third or higher order birth now decrease by 84.9 and 76.2 percent for long-term temporary and recent permanent migrants, accordingly, relative to long-term permanent migrants though the figures are not significant.

Among the control variables, age and income have effects on fertility while education and working sector have no effects on fertility. Women of age groups 25-29 and 30-34 have a significantly higher probability of having the third or higher order birth compared to women aged 35-49. These groups of women are completing their peak reproductive period, therefore, they may try to give birth in order to get their desired number of children.

Income has a positive significant association with fertility in terms of giving the third or higher order birth. The odds of giving the third or higher order birth increase by 33.0 percent for each added interval of income. This suggests that, in the context of high living cost of urban locations, raising children is costly and it may make poor migrants consider the timing for bearing children. It would depend on their current savings. If they do not have sufficient resources, they would delay giving birth.

The results of three general models in the second analysis provide support to hypothesis 4 predicting lower fertility of temporary migrants relative to permanent migrants, while the obtained results do not support hypothesis 3, which predicts higher fertility of temporary migrants compared to permanent migrants.

Age-specific models

In order to examine whether migration has the same effects on fertility of temporary migrants relative to permanent migrants for various age groups of women, the second analysis is carried out separately for two groups of women aged 20-29 and 30-39. There are few cases of migrant women aged 40-49, therefore, the second

analysis is not done for this group of women. The results of logistic regression analysis on fertility differentials between temporary and permanent migrants according to age groups are presented in Tables 5.4.

Models for women aged 20-29

The comparison between post-migration fertility of temporary and permanent migrants for women aged 20-29 is shown in Table 5.4. For model 1, the odds of giving the first birth decrease by 94.4 percent for recent temporary migrants (P<0.01) while they decrease by 68.0 percent for long-term temporary migrants (P<0.05) compared to long-term permanent migrants. The fertility difference is statistically significant. Recent permanent migrants also have a significantly lower probability of giving the first birth than long-term permanent migrants. The odds of giving the first birth decrease by 77.1 percent for recent permanent migrants relative to long-term permanent migrants (P<0.01).

Regarding control variables, education and income are not significant in predicting the probability of giving the first birth for women aged 20-29. Working sector has some significant association with the fertility. The odds of giving the first birth decrease by 75.1 percent for women who work in the government sector relative to women who work in the informal sector.

For model 2, the odds of giving a second birth decrease by 88.0 percent for recent temporary migrants (P<0.01) while they decrease by 80.3 percent for long-term temporary migrants (P<0.05) compared to long-term permanent migrants. Recent permanent migrants also have significantly lower fertility than long-term permanent migrants. All control variables are not significant in terms of giving the second birth.

For model 3, it is noted that all independent and control variables have no effect on fertility in terms of giving the third or higher order birth. This may be due to the small sub-sample size for model 3. The number of cases is only 29.

Table 5.4 Odds ratios from separate logistic regression models for the likelihood of giving an order-specific birth of ever-married women after the move by age and migration status, controlling selected background characteristics

	Women aged 20-29						Women aged 30-39					
	Model 1 First birth		**Model 2** Second birth		**Model 3** Third or higher birth		**Model 1** First birth		**Model 2** Second birth		**Model 3** Third or higher birth	
	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E
Migration status												
Recent temporary	.056**	.541	.120**	.600	.000	12675.10	.245	1.882	.716	.981	.353	1.214
Long-term temporary	.320*	.490	.197*	.674	.000	15939.68	.115	1.518	.698	.864	.838	1.282
Recent permanent	.229**	.506	.283*	.613	23.922	2241.90	.028	2.053	.456	1.090	.568	.976
Long permanent ®												
Education	1.093	.073	1.095	.103	.204	1120.95	1.043	.207	1.097	.119	1.312	.196
Working sector												
Government	.249*	.548	.523	.809	.000	9165.51	.589	1.651	1.264	.939	.571	1.280
Formal	.609	.356	.490	.524			.582	1.034	.170*	.861	.000	8766.665
Informal ®												
Income	.999	.070	1.090	.070	15289.56	1698.55	1.237	.190	.982	.090	1.277*	.112
-2LL	235.272		130.042		5.545		32.902		70.666		49.225	
Cox and Snell R^2	.200		.192		.377		.199		.142		.080	
N	205		125		29		29		60		129	

Note: ** significant at P<0.01; * significant at P<0.05
® Reference group

Models for women aged 30-39

The comparison between post-migration fertility of temporary and permanent migrants for women aged 30-39 is also shown in Table 5.4. The results of model 1 appear to be not significant. This may be due to the small sample size for migrant women of age of 30-39.

For model 2, all independent and control variables have no significance except working sector. The odds of giving the second birth decrease by 83.0 percent for women who work in the formal sector compared to those women who work in the informal sector. The results are consistent with the findings discussed earlier. The women in the formal sector tend to delay giving birth more than women in the informal sector because they may lose their job if they bear children, particularly for temporary migrants. Since temporary migrants do not stay permanently in urban areas, they must keep their jobs until they leave the cities. They should not easily quit their jobs when they want to save money. Permanent migrants who work in the formal sector have fewer children because they could rely on their pensions when they retire. Motivation for having children as support for old age is not as strong for those individuals in the formal sector relative to those ones in the informal sector.

For model 3, all independent and control variables have no significance except income. Like general models, this variable has a positive significant association with fertility in terms of giving the third or higher order birth. The odds of giving the third or higher order birth increase by 27.7 percent for each added interval of income.

The results of the age-specific models are rather consistent with the results of the general models discussed above. The obtained results also provide support for hypothesis 4 predicting a lower fertility of temporary migrants relative to permanent migrants, while the results do not support hypothesis 3, which predicts higher fertility of temporary migrants compared to permanent migrants.

The results of the second analysis are complimentary to the findings of the first analysis. The second analysis lends support to the fact that temporary migrants have lower fertility than permanent migrants, particularly for women aged 20-29.

CHAPTER VI
DISCUSSION

6.1 Fertility differentials of migrants and non-migrants

The first analysis shows significantly lower 5-year period fertility for temporary migrants compared to urban non-migrants. Unlike temporary migrants, permanent migrants generally show a pattern of fertility similar to that of non-migrants. The results suggest that temporary migrants deliberately delay giving birth when they stay in urban areas. As discussed in chapter 2, temporary migrants show a rather low fertility relative to permanent migrants because they have to adjust to the constraints of urban life in order to obtain a maximum of economic benefits (Edmeades, 2006). A rather low fertility of temporary migrants likely contributes to a lower general fertility for rural-urban migrants compared to urban non-migrants (Tables 4.3 & A.1). The analysis is confined to ever-married women. The results could be even stronger if all women were included since migrants are less likely to be married than non-migrants. The obtained results may be somewhat surprising. Fertility of rural-urban migrants was not expected to be lower than that of urban non-migrants because the urban fertility increased during the period 1999-2004.

For the first analysis, the study could not assess the disruption effects on fertility because the events of birth had occurred before, during and after migration. It is noted that adaptation effects of the urban norm of lower fertility are not strong. The figures presented in Table 4.3 indicate that both recent and long-term temporary migrants have a significantly lower fertility than non-migrants in almost all comparisons. Duration of stay is likely to have negligible effects on fertility of temporary migrants. Nevertheless, recent and long-term permanent migrants show a pattern of fertility similar to that of non-migrants in comparison 1 regarding the probability of having one child versus no children. In comparisons 2 and 3, when the

probability of having two children versus no children or one child is compared, recent permanent migrants are likely to have a lower likelihood of having two children than long-term permanent migrants. This is similar to the findings in Goldstein's study (1981). Recent permanent migrants were likely to delay childbearing. The analyses suggest that duration of stay has some effects on fertility of permanent migrants. While recent permanent migrants have a lower fertility than urban non-migrants, long-term permanent migrants have almost the same pattern of fertility as urban non-migrants.

The results suggest that household registration status has significant effects on migrants' fertility. Migrants who possess temporary registration have disadvantages in accessing several services in urban areas compared to those who have permanent registration. Temporary migrants could pay more of their resources in order to access some services in their destination. Therefore, they are more vulnerable to the stressful conditions of urban life since they have a rather low income. From this point of view, delay of fertility for a short period of stay in urban areas seems to be a rational option for temporary migrants in order to obtain their economic gain. This is consistent with previous studies suggesting that adaptation to hard economic conditions in cities probably reduces fertility of temporary migrants (Edmeades, 2006).

Given that the fertility of urban residents is lower than that of rural residents, the fertility of rural-urban migrants appears also to be lower than that of rural non-migrants at origins. The obtained results above suggest a negative relationship between rural-urban migration and fertility in Vietnam. Considering the increasing rural-urban migration with a growing proportion of temporary migrants, and the fact that the fertility of temporary migrants is lower than that of permanent migrants, the negative trend in the relationship between rural-urban migration and fertility is unchanged, therefore, rural-urban migration is expected to contribute to further overall period fertility decline of the country in the near future.

The results clearly indicate that Vietnamese contemporary women are likely to have few children. Parity has a strong significantly negative relationship with the

probability of having births under the study period. Regarding the age pattern of fertility, the findings show a trend of late childbearing among women in the sample. The women in the group aged 30-34 exhibit a significantly higher fertility than the older women aged 35-49 in both comparison 1 and comparison 2 (Table 4.3). The results suggest that having few children and late childbearing are features of a society in which a norm of low fertility becomes popular (GSO, 2005).

A low fertility of migrants suggests that they intend to delay childbearing due to the constraints of the urban life. The significantly positive association between income and fertility of migrants could lend support to this argument (Table 4.5). Migrants are involved into a cash economy in urban settings (Chongthawonsatid, 2007). Therefore, with an average income of around two dollars per day, migrant women could not afford urban costs of living if they give birth and take care of small children. Income is an important factor that migrants have to consider when making their decision of whether they should have children in cities. The subjective intention of delaying fertility may be a dominant factor to determine the fertility of migrant women in urban settings of Vietnam in terms of economic perspectives.

Both the overall and separate models by age groups of women could show some evidence that the fertility of the women who work in the government and formal sectors tend to be significantly lower than that of women who work in the informal sector (Table 4.3 & Table 4.4). This may imply that the demand for children is still rather high for those people who work in the informal sector compared to those people who work in the government or formal sectors. Women who work in the informal sector seem to be less secure in terms of economic and health security. Most of them do not have pensions or health insurance. The data analysis indicates that, among women in the sample, 88.3 and 68.2 percent of employees, who work in the government and formal sectors, respectively, have a health insurance card, while only 7.2 percent of those who work in the informal sector have such security. Therefore, the women in the informal sector are likely to rely only on children for old age support.

It is noted that all three comparisons for women aged 30-39 (Table 4.4) show a significantly lower fertility for women who work in the formal sector relative to the women who work in the informal sector. The industrial working tempo of jobs is a general feature for enterprises in the formal sector. These working conditions may be incompatible with child-care responsibilities of women. Therefore, women who work in the formal sector have a significantly lower fertility than those in the informal sector. Migrants tend to get jobs in the formal sector compared to non-migrants because they have few choices. The results suggest that the working conditions related to the formal sector are an important factor in reducing the fertility of migrants.

Given the lower fertility of rural-urban migrants compared to non-migrants, rural-urban migration is not a cause of the stalled fertility decline in urban areas during the study period 1999-2004. Rather, the migrants appear to contribute to lower fertility in cities and could have an impact on the overall period fertility decline of the country. The cause of the stalled fertility decline in urban areas and overall slow fertility decline in the country, generally, may be related to the weakness of the current social security system. As stated in Chapter 2, the percentage of the total Vietnam population covered by social health insurance was only 22.2 percent in 2004. Most people still rely on children for the old age support. The current fertility level seems to be very closely related to the demand for children in the general population. It is difficult to have further fertility decline without a strong expansion of the social security system of the country.

The current family planning program enforcing the one-or-two child policy appears to be effective in terms of contributing human resources, especially female labors, to implement industrialization, since rural migrant women could move to cities to participate in the labor force easily when they have few children and delay childbearing. As discussed above, contemporary women tend to give few births and have a pattern of late childbearing. The changing attitude toward a small family size obviously is important, and due to the big efforts of family planning workers since the early 1990s (GSO, 2001).

6.2 Fertility differentials of temporary and permanent migrants

The second analysis shows a significantly lower likelihood of having the first birth for temporary migrants relative to comparable permanent migrants. The odds of giving a first birth significantly decrease by 73.0 percent for long-term temporary migrants compared to long-term permanent migrants. Similarly, the odds of giving a first birth significantly decrease by 66.2 percent for recent temporary migrants relative to recent permanent migrants (Table 5.3 & A.4). The analysis also indicates that temporary migrants do not exhibit a higher likelihood of having the second and the third or higher order birth than permanent migrants. The odds of giving a second birth significantly decrease by 64.5 percent for long-term temporary migrants compared to long-term permanent migrants. The results suggest that temporary migrants generally do not have a higher fertility than permanent migrants under the rural-urban migration process. By contrast, temporary migrants tend to show a lower general fertility than their permanent counterparts. Based on their socio-economic characteristics, temporary migrants are expected to have a higher fertility than permanent migrants (Hervitz, 1985). The lower fertility of temporary migrants suggests that they deliberately intend to delay giving birth during their relatively short stay in urban locations. The higher cost of urban living and other urban constraints are likely to force temporary migrants to delay fertility compared to permanent migrants who are settled permanently (Edmeades, 2006). Since rural-urban migrants are rather young, the delayed fertility of temporary migrants explains why they have a lower mean number of children ever born than permanent migrants (Table 5.1).

To some degree, the study can assess the duration effects of fertility based on the results of the second analysis because the events of birth had occurred after migration. The results indicate that recent permanent migrants have a significantly lower likelihood of giving a first birth or second birth than long-term permanent migrants (Table 5.3). Recent temporary migrants also have a significantly lower likelihood of giving a first birth than long-term temporary migrants (Table A.3). The analysis clearly indicates duration effects. As discussed in Chapter 2, the smooth

progression of migrants' fertility pace is probably interrupted due to disruption effects. Physiological consequences of the stressful situation typically associated with movement were considered as a reason for low fertility of migrants for a short period after the move to their destination (Hervitz, 1985; Carlson, 1985; Chongthawonsatid, 2007).

However, adaptation effects to a norm of lower fertility are not strong. Both recent and long-term temporary migrants show a similar pattern of fertility in Model 2 as well as Model 3 (Table A.3). The results lend support to the argument discussed above that migrants are not forced to adapt to the urban norm of lower fertility. Migrants merely have to adapt to the constraints of the urban life. That is why temporary migrants tend to delay childbearing compared to permanent migrants.

The second analysis also provides evidence that contemporary women have few children. In the current setting of Vietnam, few women still give the third or higher order birth. Among the events of birth that occurred after migration, the proportion of third births is only 5.8 percent (Table 5.2). There are only slight differences among age groups of women regarding the probability of having the first and the second birth. These results provide additional support to the fact that the two-child family is a dominant fertility norm for younger generations in Vietnam (GSO, 2005). Therefore, temporary migrants are not forced to have out-planning births when they stay in urban areas. Since the desired number of children for most of couples is around two, the current slow-down in Vietnam's fertility decline may be understandable. As stated above, this is due mainly to the fact that the fertility level is close to the replacement level.

The second analysis shows a positive significant relationship between income and the likelihood of having a third birth among rural-urban migrants, particularly for women aged 30-39 (Table 5.4). This result means that the migrants' low income influences their decision of having the third birth while they stay in cities. The migrant women of this age of 30-39 generally may not delay having the first birth or second birth because they nearly complete their peak of reproductive age. Nevertheless, the

migrants have to consider having a third child due to their economic situation. It may imply that due to the two children norm, income does not matter for the first and the second child for this group of women aged 30-39. It has a significant effect when it comes to the third child.

The analysis also indicates that women who work in the formal sector show a significantly lower likelihood of having a second birth compared to those who work in the informal sector. This is consistent with the findings mentioned earlier. The factor of incompatible working conditions may force women to delay having a second birth since temporary migrants tend to work in the formal sector rather than permanent migrants (Table 5.1). This factor may contribute to reduce the fertility of temporary migrants compared to permanent ones.

The results lend support to the earlier findings that temporary migrants generally have lower fertility than permanent migrants. The increasing temporary rural-urban migration could further lower the fertility of rural-urban migrants compared to urban non-migrants.

The second analysis also suggests that the existing household registration system may create some difficulties for most temporary migrants. As stated above, temporary migrants may pay more of their resources in order to access some services in cities, compared with the permanent migrants. Therefore, they may encounter more pressure in terms of income generating. The urban cash economy likely forces temporary migrants delay childbearing. In addition, the existing family planning program appears to facilitate the delay of childbearing for temporary migrants because they could easily access the government services in urban areas regarding the supply of contraceptives. A rather high rate of contraceptive use among temporary migrants also suggests that they purposely delay childbearing for the sake of the economic gains.

In China, where a one-child population policy is implemented, there was evidence of higher fertility among temporary migrants compared to permanent migrants. Because the desired number of children for Chinese people may be around two and this number is higher than the target number of the Chinese government, the temporary migrants likely use migration as a good opportunity to have out-planning births to obtain their desired number of children (Yang, 2000). Unlike China, temporary migrants in urban Vietnam show a lower fertility than permanent migrants. This implies that the one-or-two child policy in Vietnam seems to be more flexible and acceptable for most people. It is not necessary to temporarily migrate in order to escape the family planning program. They can have two children whenever they like, therefore, the temporary migrants tend to delay childbearing in order to get maximum economic benefits during their stay in cities. The difference between fertility of temporary migrants in Vietnam and China is likely related to the different degree of strictness of population policy in each country.

This study indicates a significantly lower general fertility among temporary migrants compared to permanent migrants. However, the obtained results may have some biases because not included in the study sample were temporary migrants who went back to their rural homes to give birth during the study period 1999-2004. The available information did not allow the researcher to identify and follow these migrants. Nevertheless, the findings are considered to be acceptable because: (i) If the temporary migrant women had a higher general fertility than the permanent ones, they would have more third or higher-order births, therefore, they could not go back to their rural homes due to the control of local family planning workers; (ii) the results indicate that a two-child family norm has become popular for younger generations in the country, therefore, temporary migrants generally do not have any motivation to give out-planning births in urban areas; and (iii) the rather low income and stressful conditions of urban life are incompatible with child-care responsibilities for temporary migrant women.

CHAPTER VII
CONCLUSION AND RECOMMENDATION

7.1. Conclusion

This study examines the relationship between rural-urban migration and fertility in Vietnam. All analyses attempt to provide answers to the two research questions: (i) Do rural-urban migrants have higher fertility than urban non-migrants in Vietnam? and (ii) Do temporary migrants have higher fertility than permanent migrants? Two separate analyses were performed in accordance with these two questions.

The first analysis found that temporary migrants exhibit significantly lower 5-year period fertility than non-migrants. Both migrant and non-migrant women tend to have a small desired number of children and late childbearing. If temporary migrants were not involved in the rural-urban labor flow, they would exhibit a slightly higher fertility than non-migrants. The TFR was 2.4 children for rural residents and 1.9 children for urban residents in 2004. Temporary migrants are likely to delay childbearing in order to achieve their economic goals. They seem to have no other choice but to delay fertility. A rather low income appears to limit their choices and stressful conditions of urban life are incompatible with child-care responsibilities for migrant women. Because temporary migrants delay childbearing, they exhibit a significantly lower period fertility than non-migrants. Since temporary migrants are a large portion of general rural-urban migrants, their low fertility makes the overall fertility of migrants lower than urban non-migrants (Table A.1). In addition, since migrants have the same rate of modern contraceptive use as non-migrants, they are not likely to have higher fertility than non-migrants.

For the second analysis, logistic regression analyses were carried out for each birth order that occurred after migration. Temporary migrants show a significantly lower probability of having a first birth than permanent migrants. There is no significant difference in the probability of having a second and a third or higher order birth among migrants. The results are complimentary to the findings shown in the first analysis. The study found strong evidence that temporary migrants have significantly lower fertility than permanent migrants (Table A.6). This confirms the fact that rural-urban migration has a negative relationship with fertility.

Temporary migrants do not tend to give out-planning birth because their desired number of two children is the same target as the Vietnamese government. It is not necessary for them to escape the family planning program. Temporary migrants move to cities for generating income, only. The results contradict the concern of some family planning officials that large scale temporary migration from rural to urban areas may be stalling the fertility decline. In contrast, the migrants' deliberate intention of delaying childbirth could contribute to lower the overall period fertility of the country.

All the analyses show that women who work in the government and formal sectors tend to exhibit a significantly lower fertility than women who work in the informal sector. The weakness of the current social and health security system is probably a cause of fertility differentials among women in various types of employment. The proportion of the total Vietnamese population covered by social health insurance was only 22.2 percent in 2004. This figure implies that the majority of Vietnamese people still perceive children as their old age support. Therefore, the cause of the overall slow in the fertility decline in the country, generally, may be related to the fact that the current fertility level is very close to the demand for having two children among younger generations in the country.

7.2 Recommendations

Besides being an important contribution to economic development, industrialization expansion and urban growth, rural-urban migrants also contribute to achieving the government's target to lower fertility by significantly delaying childbirth. Since the negative trend in the relationship between rural-urban migration and fertility is not reversed, further urbanization and increasing rural-urban migration in the coming years would contribute to the fertility decline of the country. Therefore, it is not reasonable to keep the current household registration system that limits migrants' access to social services in urban areas. It would be better to allow all migrants to have the opportunities equal to those of urban permanent residents of access to all services in cities.

In order to promote the attitudes toward and behaviors of a small family size, the government should expand the social security system to all people regardless of their working sector. The target of a fertility level below the replacement level would be difficult to achieve if most people still rely mainly on children for their old age support.

This study is only an initial effort to explore the relationship between rural-urban migration and fertility for the country. The study could not compare the difference between fertility of rural-urban migrants and rural non-migrants at origin. The selectivity effects of migration on fertility are unclear. In order to get a more comprehensive understanding of the fertility impact of migration, there is a need to conduct further research in this area by collecting and using longitudinal data rather than cross-sectional data.

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APPENDIX

Table A.1 Odds ratios from general multinominal logistic regression for likelihood of having children aged 0-4 among ever-married women by migrants and non-migrants, controlling selected background characteristics

	1 vs 0 child		2 vs 0 child		2 vs 1 child	
	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E.
Migration status						
Migrants	.588**	.139	.296**	.325	.503*	.312
Non-migrants ®						
Age						
20-24	1.866**	.236	1.144	.645	.613	.635
25-29	2.960**	.182	3.676*	.543	1.242	.537
30-34	3.283**	.164	8.073**	.528	2.459	.524
35-49 ®						
Parity	.252**	.095	.052**	.326	.208**	.319
Education	.990	.024	.945	.057	.954	.055
Working sector						
Government	.866	.173	.226**		.261**	.515
Formal	.726*	.153	.282**		.389**	.357
Informal ®						
Income	1.035*	.017	1.003	.043	.969	.042
-2LL			1729.928			
Cox and Snell R^2			.365			
N			2017			

Note: ** significant at P<0.01; * significant at P<0.05
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Table A.2 Odds ratios from general multinominal logistic regression for likelihood of having children aged 0-4 among ever-married women by migration status, controlling selected background characteristics

	1 vs 0 child		**2 vs 0 child**		**2 vs 1 child**	
	Odds ratio	S.E	Odds ratio	S.E	Odds ratio	S.E.
Migration status						
Temporary migrants	.424**	.175	.143**	.463	.338*	.451
Permanent migrants	.795	.169	.548	.379	.689	.360
Non-migrants ®						
Age						
20-24	1.921**	.237	1.194	.647	.621	.636
25-29	2.932**	.182	3.675*	.545	1.253	.539
30-34	3.276**	.164	8.334**	.531	2.544	.526
35-49 ®						
Parity	.249**	.095	.051**	.326	.206**	.319
Education	.973	.025	.914	.058	.939	.055
Working sector						
Government	.855	.174	.225**	.528	.264**	.514
Formal	.766	.155	.307**	.374	.401*	.359
Informal ®						
Income	1.035*	.018	1.001	.043	.966	.041
-2LL			1766.510			
Cox and Snell R^2			.369			
N			2017			

Note: ** significant at P<0.01; * significant at P<0.05
® Reference group

Table A.3 Odds ratios from logistic regression models for the likelihood of giving an order-specific birth of ever-married women after the move by migration status, controlling selected background characteristics

	Model 1 First birth		**Model 2** Second birth		**Model 3** Third or higher birth	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Migration status						
Recent temporary	.252**	.395	.493	.513	.380	1.543
Recent permanent	.745	.408	.826	.543	1.581	1.294
Long-term permanent	3.697**	.459	2.813*	.484	6.638	1.225
Long-term temporary ®						
Age						
20-24	3.340	.969	3.972*	.660	.000	14519.930
25-29	3.847	.980	2.036	.592	36.937**	1.103
30-34	4.340	1.064	2.295	.631	17.521**	.910
35-49 ®						
Education	1.066	.066	1.039	.072	1.131	.169
Working sector						
Government	.277*	.515	.877	.547	.221	1.305
Formal	.631	.328	.375*	.425	.000	5291.464
Informal ®						
Income	1.000	.060	1.024	.050	1.330**	.102
-2LL	275.319		216.868		62.080	
Cox and Snell R^2	.186		.151		.126	
N	236		198		262	

Note: ** significant at P<0.01 and * significant at P<0.05;
® Reference group

Table A.4 Odds ratios from logistic regression models for the likelihood of giving an order-specific birth of ever-married women after the move by migration status, controlling selected background characteristics

	Model 1 First birth		**Model 2** Second birth		**Model 3** Third or higher birth	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Migration status						
Recent temporary	.338*	.451	.596	.531	.241	1.293
Long-term temporary	1.343	.408	1.211	.543	.632	1.294
Long-term permanent	4.965**	.476	3.406*	.484	4.197	.925
Recent permanent ®						
Age						
20-24	3.340	.969	3.972*	.660	.000	14519.930
25-29	3.847	.980	2.036	.592	36.937**	1.103
30-34	4.340	1.064	2.295	.631	17.521**	.910
35-49 ®						
Education	1.066	.066	1.039	.072	1.131	.169
Working sector						
Government	.277*	.515	.877	.547	.221	1.305
Formal	.631	.328	.375*	.425	.000	5291.464
Informal ®						
Income	1.000	.060	1.024	.050	1.330**	.102
-2LL	275.319		216.868		62.080	
Cox and Snell R^2	.186		.151		.126	
N	236		198		262	

Note: ** significant at P<0.01 and * significant at P<0.05;
® Reference group

Table A.5 Odds ratios from logistic regression models for likelihood of giving an order-specific birth after the move among ever-married women by migration status, controlling selected background characteristics

	Model 1 First birth		**Model 2** Second birth		**Model 3** Third or higher birth	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Migration status						
Temporary migrants	.280**	.347	.478	.381	.187	.941
Permanent migrants ®						
Average duration of stay						
0.5 year	.079**	.481	.175**	.487	.000	3510.590
1.5 year	.292**	.394	.588	.492	.304	.891
2.5 year	.528	.417	.569	.457	.224	1.174
3.5 year ®						
Age						
20-24	2.526	1.062	4.637*	.674	.000	13569.790
25-29	2.552	1.076	2.257	.598	40.223**	1.132
30-34	3.147	1.152	2.395	.634	18.463**	.935
35-49 ®						
Education	1.052	.067	1.030	.073	1.083	.166
Working sector						
Government	.262*	.534	1.019	.561	.224	1.354
Formal	.629	.333	.409*	.432	.000	5088.336
Informal ®						
Income	1.000	.064	1.051	.051	1.326*	.111
-2LL	265.144		210.480		56.531	
Cox and Snell R^2	.220		.178		.145	
N	236		198		262	

Note: ** significant at P<0.01 and * significant at P<0.05;
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Table A.6 Odds ratios from logistic regression models for likelihood of giving birth after the move among ever-married women by migration status, controlling selected background characteristics

	Model 1		Model 2	
	Odds ratio	S.E.	Odds ratio	S.E.
Migration status				
Temporary migrants	.608**	.178	.370**	.242
Permanent migrants ®				
Average duration of stay				
0.5 year	.175**	.275	.138**	.321
1.5 year	.688	.228	.446**	.285
2.5 year	.787	.235	.561*	.288
3.5 year ®				
Parity			.247**	.184
Age				
20-24			4.040**	.475
25-29			3.978**	.445
30-34			3.716**	.443
35-49 ®				
Education			1.029	.047
Working sector				
Government			.502	.369
Formal			.549*	.252
Informal ®				
Income			1.056	.036
-2LL	758.497		544.593	
Cox and Snell R^2	.095		.337	
N	687		687	

Note: ** significant at P<0.01 and * significant at P<0.05;
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