Do Rural-Urban Migrants Have Higher Fertility than Urban Non-Migrants in Vietnam?

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Introduction

In many parts of Asia, rural-urban migration is increasing, including large numbers of temporary migrants, and large numbers of female migrants (Guest, 2003). Vietnam is not an exception. Vietnamese official data show that, 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 (General Statistical Office (GSO), 2007).

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. It is surprising that, during this period, 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 1).

Table 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.

Large scale rural-urban migration may be attributable to the stalling of the fertility decline in urban areas because rural-urban migrants may have higher fertility than urban non-migrants. This may be due to the fact that the migrants were likely to follow a rural norm of higher fertility. Moreover, the migrants, particularly temporary migrants, may have been having out-of-plan births which are not allowed under the two-child population policy during their stay in cities. Rural-urban migrants could have out-of-plan births because most of them are out of reach of the family planning agencies. However, some previous studies suggest that in the settings of low fertility, rural-urban migrants are not likely to have higher fertility than urban non-migrants (Goldstein, 1973; Goldstein and Goldstein, 1981).

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. While the government is making all efforts to lower fertility to below the replacement level, a comprehensive understanding of fertility behaviors of rural-urban migrants is useful to formulate population and migration policies.

Since the relationship between rural-urban migration and fertility in Vietnam has not been explored, the fertility behaviors of rural-urban migrants in the country are still far from conclusive. The primary objective of this study is to examine whether rural-urban migrants have higher fertility than urban non-migrants in Vietnam. Do migrants stall the fertility decline? The study uses data obtained from Vietnam Migration Survey carried out in 2004.

Study background

Theoretical and empirical perspectives

Theoretically, rural-urban migrants are expected to delay childbearing because they have to adapt to a new economic, social and cultural environment in urban areas including the norm of lower fertility (Jensen and Alhburg, 2004). Urbanization usually has an anti-natal impact on fertility (Yang, 2000). Rural-urban migrants are likely to delay childbearing at their destination because their jobs are often incompatible with

child-care responsibilities (Findley, 1982). Chongthawonsatid (2007) discussed that rural-to-urban migration may bring migrants into a cash economy and expose them to modernization effects, including adaptation of new attitudes toward children, family, knowledge and use of modern contraception, contributing to low fertility.

Goldstein (1973) found that, in Thailand, 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. Previous studies done in Thailand suggest that, in the settings of low fertility, during the first years of their stay, when rural-urban migrants were likely to delay childbearing, they even had a lower fertility than urban non-migrants. However, Chinese researchers found evidence of higher fertility for rural-urban migrants compared to urban non-migrants for a short-term period (Yang, 2000). In China, increased rural-urban migration led to a weakening of the birth control program in the late 1980s (Goldstein, White and Goldstein, 1997). The same may be true for Vietnam because the country implements a birth control program and household registration system (discussed later) similar to those of China.

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.

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. 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).

Household registration system and migrants' fertility behaviors

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). Nevertheless, fertility behaviors of temporary residents may be not under the control of local family planning workers at their destination.

Yang (2000) discussed that, in China, temporary migrants may have higher fertility than permanent migrants because local family planning workers in the place of destination were not interested in regulating fertility behaviors of temporary migrants, and local workers in the place of origin had no way of keeping track of where the migrants were. The same may be true in Vietnam. When the demand for children among rural-urban migrants may be still above that which is compatible with a two-child family norm, temporary migrants are likely to use migration as a good opportunity to have out-of-plan births to obtain their desired number of children. Since temporary migrants are a large portion of general rural-urban migrants, their high fertility may make the overall fertility of migrants higher than that of urban non-migrants. Consequently, increased rural-urban migration may stall the urban fertility decline over the period 1999-2004.

Data and Methods

Data

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.

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).

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 2: Number of cases of the study sample by migration status and age group

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

Method of Analysis

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 has higher or lower fertility. Four models of multinominal logistic regression were run in this study in order to determine the effects of various aspects of the migration process on fertility. Model 1 (Table 4) compares fertility difference between migrants and non-migrants.

Then, in model 2 (Table 5), fertility is compared among temporary migrants, permanent migrants and non-migrants in order to measure the effects of household registration status on fertility of migrants.

In model 3 (Table 6), 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 the migration status. Fertility is compared among recent temporary migrants, long-term temporary migrants, recent permanent migrants, long-term permanent migrants and non-migrants.

In the last model (Table 7), in order to look at how the socio-economic factors affect fertility of migrants, the logistic regression model is run separately for migrants and non-migrants.

Operational definitions

Fertility. In this study, fertility refers to number of children aged 0-4 measured at the time of the survey in 2004. The indicator of number of children aged 0-4 is used because there is 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.

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, White and Goldstein, 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).

*Rural-urban migrants and urban non-migrants***.** For the current study, rural-urban 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. Urban non-migrants are defined as those individuals who have stayed in their original urban areas for more than 5 years.

Temporary and permanent migrants. 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.

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. Therefore, 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.

Other individual background characteristics of the study population include age, parity, education, working sector and income. These standard variables are widely used in fertility studies. 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 5-year period after 1999, the parity in 1999 likely affects the women's probability of giving additional births 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.

Measurement of variables

Dependent variable. The dependent variable is number of children aged 0-4 and is measured as a nominal variable having three values as 0, 1 and 2. All models use the same dependent variable.

Independent variables. Migration status is the main independent variable for all models. In model 1, the independent variable has two categories including rural-urban migrants and urban non-migrants. In model 2, the independent variable includes three categories such as temporary migrants, permanent migrants and non-migrants. In model 3, the independent variable has five categories including recent temporary migrants, long-term temporary migrants, recent permanent migrants, long-term permanent migrants and non-migrants.

Control variables. The study 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. 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). 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.

Results

Background characteristics of migrants and non-migrants

The figures presented in Table 3 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 average number of 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. 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 3: Selected demographic and socio-economic characteristics of ever-married women by migrant and non-migrant status

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
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.

Comparison of fertility between rural-urban migrants and urban non-migrants

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

For comparison 1, the probability of having one child versus no children among women in the sample is compared. Migrants have a significantly lower fertility than non-migrants. The odds of having children decrease by 41.2 percent for migrants relative to 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 one child increase by 86.6, 196.0 and 228.3 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 birth 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, working sector and income also have effects on fertility. The odds of having one child decrease by 27.4 percent for women in the formal sector compared to women who work in the informal sector. Income appears to have some effects on fertility. The results show a positive association between income and fertility. Education has no effect on fertility.

Table 4: Odds ratios from general multinominal logistic regression model 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**	.528	.261**	.515
Formal	.726*	.153	.282**	.372	.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.
® denotes reference category.

For comparison 2, the probability of having two children versus no children among women in the sample is compared. The results also indicate a significantly lower fertility of migrants relative to non-migrants. The odds of having two children decrease by 70.4 percent for migrants compared to non-migrants.

Regarding age, women aged 30-34 show a rather higher fertility than women aged 35-49. The odds of having two children increase by 707.3 percent for women aged 30-34 relative to women aged 35-49. The odds of having two children increase by 267.6 percent for women aged 25-29 compared to women aged 35-49. The odds of having two

children slightly increase by 14.4 percent for the youngest women aged 20-24 relative to the oldest women aged 35-49, but the difference is 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 women who work in the informal sector.

For comparison 3, the probability of having two children versus one child among women in the sample is compared. Migrants continue to have a significantly lower fertility than non-migrants. Among the control variables, age, education and income 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. Nevertheless, the figures presented in Table 4 could not explain the effects of household registration status on fertility behaviors of migrants.

Comparison of fertility among temporary migrants, permanent migrants and non-migrants

The results of model 2 are shown in Table 5. In this model, fertility is compared among temporary migrants, permanent migrants and non-migrants.

For all three comparisons, temporary migrants have significantly lower fertility than non-migrants while permanent migrants show a similar pattern of fertility to non-migrants. The obtained results suggest that household registration status has significant effects on migrants' fertility.

Table 5: Odds ratios from general multinominal logistic regression model 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			
			2017			

Note: ** significant at P<=0.01; * significant at P<=0.05.
® denotes reference category.

Comparison of fertility among women by household registration status combined with duration of stay

The results of model 3 are shown in Table 6. In this model, fertility is compared among recent temporary migrants, long-term temporary migrants, recent permanent migrants, long-term permanent migrants and non-migrants.

Table 6: Odds ratios from general multinominal logistic regression model 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.

® denotes reference category.

For comparison 1, both recent temporary and long-term temporary migrants have a significantly lower fertility than non-migrants. Temporary migrants appear to have lower fertility. The odds of having one child decrease by 57.2 and 58.7 percent for recent temporary and long-term temporary migrants, respectively, relative to non-migrants.

Recent permanent migrants also have a lower fertility compared to non-migrants, however, the difference is not significant. The fertility of long-term

permanent migrants is not significantly different from that of non-migrants. Generally, permanent migrants have a similar pattern of fertility to non-migrants.

For comparison 2, the results also indicate a significantly lower fertility of both recent temporary and long-term temporary migrants relative to non-migrants. 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. Like 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.

For comparison 3, only recent temporary migrants have a significantly lower fertility than non-migrants. Other groups of migrants are not different from non-migrants regarding fertility.

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 analyses were carried out separately for each group. The odds ratios from separate multinominal logistic regression models for the likelihood of having children aged 0-4 are shown in Table 7.

Table 7: 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.

® denotes reference category.

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 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 of women in 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 child versus no children increase by 7.3 percent for each added interval of income. Lower income may force migrants to delay childbearing. In comparison 2, the odds of having two children versus no children increase by 22.3 percent for each added interval of income. 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 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 different than that of women aged 35-49. For comparison 2, it is noted that the odds of having two children for those women aged 30-34 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 different from that of women aged 35-49. For comparison 3, age has no effect 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 significantly 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, so they are more likely to have a small 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 the sectors 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 a 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 women would have.

Discussion

The analyses show significantly lower 5-year period fertility for temporary migrants compared to 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. A rather low fertility of temporary migrants likely contributes to a lower general fertility for rural-urban migrants compared to urban non-migrants (Table 4). The analyses are 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.

The results presented in Table 5 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. Adaptation to hard economic conditions in cities probably reduces fertility of temporary migrants.

The figures presented in Table 6 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, only. In comparisons 2 and 3, recent permanent migrants are likely to have a lower probability 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 compared to long-term permanent migrants. The analyses suggest that duration of stay has some effects on fertility of permanent migrants. Long-term permanent migrants have almost the same pattern of fertility as non-migrants. They are likely to adapt to the urban norm of lower fertility.

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 origin. 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 contemporary Vietnamese women are likely to have few children. Parity had a strong significantly negative relationship with the probability of having births during the study period. Regarding the age pattern of fertility, the findings show a trend of late childbearing among women in the sample. The results suggest that having few children and late childbearing are features of a society in which a norm of low fertility becomes popular. These results provide additional support to the fact that the two-child family is a dominant fertility norm for younger generations in Vietnam. Therefore, temporary migrants are not forced to have out-of-plan 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. This is mainly due to the fact that the fertility level is close to the replacement level.

In contrast, in China, where a one-child population policy is implemented, there was evidence of higher fertility among temporary migrants compared to permanent migrants. This likely led to a higher fertility for rural-urban migrants compared to urban non-migrants. In other words, increased rural-urban migration led to a weakening of the birth control program, as stated earlier. 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-of-plan births to obtain their desired number of children (Yang, 2000). The difference between fertility behaviors of temporary migrants in Vietnam and China is likely related to the varied degree of strictness of population policy in each country.

An unexpected low fertility of migrants suggests that they intend to delay childbearing due to the constraints of urban life. The significantly positive association between income and fertility of migrants could lend support to this argument (Table 7). Migrants are involved in a cash economy in urban settings. Therefore, with an average income of around two dollars, 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.

All models could show some evidence that the fertility of the women who work in the government and formal sectors tends to be significantly lower than that of women who work in the informal sector. 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.

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 (Tran, 2005). This figure implies that the majority of Vietnamese people still perceive children as their old age support. Given the lower fertility of rural-urban migrants compared to non-migrants, rural-urban migration was 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. 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.

Conclusion

Using Vietnam Migration Survey data in 2004, this paper examines the relationship between rural-urban migration and urban fertility. The study question is whether rural-urban migrants have higher fertility than urban non-migrants in Vietnam. The analyses applied multinominal logistic regression models to compare number of children aged 0-4 among various groups of migrants and non-migrants. Migrants show a significant lower fertility than non-migrants. They tend to delay their fertility not mainly

due to adaptation to the urban norm of lower fertility, but due to household registration effects. Rural-urban migrants, particularly temporary migrants, are not likely to have out-of-plan births when they stay in urban areas. Rural-urban migration was not a cause of the stalled fertility decline in urban areas during the study period 1999-2004. In contrast, the migrants appear to contribute to lower fertility in cities and may have impact on overall fertility decline of the country.

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Appendix

Table A1: **Numbers of respondents by migration status who had 0 children, 1 child and 2 or more children in the last five years**

	0		1		2 or more		
Migration status	N	Percent	N	Percent	N	Percent	Total
Recent temporary	126	62.4	72	35.6	4	2.0	202
Long-term temporary	95	60.5	59	37.6	3	1.9	157
Recent permanent	74	52.9	63	45.0	3	2.1	140
Long-term permanent	103	54.8	76	40.4	9	4.8	188
Non-migrants	860	64.7	423	31.8	47	3.5	1330
Total	**1,258**	62.3	**693**	34.4	**66**	3.3	**2,017**