

Sustainable Urbanization and Religion in Southeast Asia

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Abstract

This study aimed to clarify the effects of religion on sustainable urbanization through women's status and their demographic and environmental attitudes and behaviors, drawing on the analysis of qualitative data from the fieldwork (in-depth interviews and focus group discussions) conducted in the cities of the Philippines, Thailand and Vietnam and quantitative data from the Demographic and Health Surveys conducted in Indonesia, the Philippines and Thailand. Filipino collaborators found that the accessibility to a mosque/church is a factor deciding the place to live for migrants and non-migrants, that for Muslims living close to other Muslims is an important reason for move, and that Muslims could seek support more easily from their neighbors in adapting themselves to the urban environment. They also found that Muslim women tended to discuss gender role views relating to environmental conditions of subordinate roles for women, that Islamic teachings emphasize hygiene and sanitation, and that Islam has women-specific roles pertaining to cleanliness. Thai and Vietnamese collaborators also found similar results for Muslims in Thailand and Catholics in Vietnam and some of them were confirmed by our logit analysis of DHS data.

1. Introduction

According to UN 1996 estimates and projections, many mega-cities in Southeast Asia experienced rapid population growth in the 1980s. While their populations were below the ten million mark in 1990, Metro Manila ranked the nineteenth largest in the world, Jakarta the twenty-third, and Bangkok the twenty-ninth. In 2015 all of them are projected to almost exceed the ten million mark and the cities are expected to rank thirteenth, sixteenth and twenty-seventh respectively in the world (United Nations, 1998). Even in Vietnam whose level of urbanization is one of the lowest in Southeast Asia, Ho Chi Minh City and Hanoi are growing rapidly due to spontaneous migration in recent years.

Worldwide urbanization has recently made the "brown agenda" (pollution, unhealthy living environment, etc.) in developing countries a global issue encompassing population, development and the environment. It has become a serious problem in mega-cities in Southeast Asia such as Bangkok, Jakarta and Metro Manila (Satterthwaite, 1995). Our preceding research (e.g., Kojima, 1997 a, 1999 b) has suggested that the inferior environmental health conditions in urban neighborhoods with high concentrations of rural-to-urban migrants have unfavorable effects on their demographic behaviors and health conditions in Asia and North Africa.

Rural-to-urban migrants tend to maintain high-fertility values and urbanization or urban population growth is brought about not only by rural-to-urban migration but also by a larger natural increase of population. Rural-to-urban migrants and their children are often deprived or excluded not only in social and economic dimensions (including poverty) but also in environmental and health dimensions (including

family planning) (Brockerhoff, 1995), which mutually aggravate and contribute to the vicious cycle of population growth and deprivation/exclusion persisting in the cities of developing countries. To stop this vicious cycle, it has become one of the most urgent policy agenda for the international community to enable sustainable urbanization to occur together with sustainable development in developing countries. Sustainable urbanization has become one of the most important policy agenda in primate cities of Southeast Asia including Bangkok, Jakarta and Metro Manila as well as a major city like Ho Chi Minh City where deprivation/exclusion in various dimensions has become obvious.

Against these backgrounds, this study aims to clarify the effects of interrelationship between demographic and other factors on deprivation or exclusion in the cities of Indonesia, the Philippines, Thailand and Vietnam, with the final objective in mind to contribute to amelioration of global environmental problems by exploring the feasibility of sustainable urbanization in developing countries. We emphasize the effects of religion through women's status on sustainable urbanization at the micro level because women's status as affected by religion exerts an influence on deprivation/exclusion and inhabitants' adaptation to the urban life and environment in the cities of developing countries through the attitudes and behaviors of women who maintain and preserve population, development and the environment. It is also because the rise of religious fundamentalism all over the world, which tends to encourage women to play traditional roles, has also become a major global issue with a potentially large impact on population, development and the environment.

This study consists of a literature review and the results of qualitative and quantitative studies on Southeast Asia from a comparative perspective, which

are somewhat independent from one another partly due to the different timing of implementation and partly due to the severe lack of past studies on the relationship between sustainable urbanization and religion, providing a theoretical framework to integrate the three parts. The qualitative study is based on in-depth interviews (IDIs) and focus group discussions (FGDs) in six cities of the Philippines, Thailand and Vietnam. The quantitative study is based on logit analyses of individual data from the Demographic and Health Surveys (DHSs) in Indonesia, the Philippines and Thailand, in which child morbidity and mortality are used as proxy measures of deprivation/exclusion. The three countries studied in the last two parts are not exactly the same because we found it difficult to conduct our fieldwork in Indonesia during the time of political and economic instability and because the DHS data set for Vietnam was not readily available. Thus, this article has various limitations as a cohesive study due to its comprehensiveness and uniqueness.

2. Literature Review

2.1 Sustainable Urbanization

The Agenda 21 encouraged studies on the interrelationship between population dynamics and sustainability and the policies based on them. But, in Southeast Asian countries, including Indonesia, the Philippines, Thailand and Vietnam, economic growth, together with the pressure from population growth, has increased the influx of population into cities by bringing about economic prosperity mainly in urban areas and enlarging the rural-urban income disparity. Urbanization, in conjunction with rapid growth of industrial sectors, has caused serious environmental degradation in these cities. The growth of urban population has brought about aggravated sanitary conditions and increased pollution from daily life activities due to the delay in building urban infrastructure. At the same time, economic growth itself has increased industrial pollution and pollution from automobiles. Bangkok, Metro Manila, Jakarta and Ho Chi Minh City like other major cities in Southeast Asia face urban environmental problems, including high population density, poor housing environment, traffic congestion, air and water pollution, and industrial and dangerous wastes.

There is an increasing number of studies on environmental problems in cities of developing countries (e.g., Hardoy *et al.*, 1992), in which the words, "sustainable city" and "sustainable urbanization" are more commonly found. Research focusing on sustainable cities and urbanization has rapidly developed in recent years, particularly research on cities and urbanization in the context of sustainable development in both the developed and developing world (e.g., Young, 1996; Drakakis-Smith, 1997; Newman and Kenworthy, 1999; and Barnier et Tucoulet, 1999). There are also a few studies on sustainable urbanization in Southeast Asia, including Pernia (1992), Drakakis-Smith and Dixon (1997) and Pham (1997).

Sustainable cities and sustainable urbanization,

however, are defined by only a few authors. Godard (1999) compares definitions of sustainable cities, but he does not seem to mention his own definition. Haughton and Hunter (1994:27) give a working definition of a sustainable city as follows: "a sustainable city is one in which its people and business continuously endeavor to improve their natural, built and cultural environments at neighborhood and regional levels, whilst working in ways which always support the goal of global sustainable development." Accordingly, sustainable urbanization can be defined as the formation of a sustainable city as given above. We shall follow these definitions of sustainable city and sustainable urbanization in the discussion below although they are not specifically designed for developing countries.

At the same time, there are few works referring to the theoretical relationship between sustainable urbanization and religion. The UNEP-IETC (1996) theoretically refers to religious organizations at national and local levels as stakeholders in risk assessment for sustainable cities and points out the importance of paying attention to beliefs and religious systems in this regard. Drakakis-Smith (1997) discusses the sustainable urbanization in relation to the basic needs (including food and housing) and human rights and refers to the criticism against a Christian-centered idea of human rights from Islamic governments and non-governmental organizations.

2.2 Religion, Population and the Environment

Only a few studies, however, seem to have focused on the effects of religion on the interrelationship between population and the environment, which have revealed that religion significantly affects the attitudes and behaviors regarding population and the environment, respectively. Previous works tended to be based on Judeo-Christian values because many of them were conducted by researchers in the West or non-Western researchers educated in the West, and thus may have missed some points due to Judeo-Christian biases in their research. When we study the environmental values in Southeast Asia where non-Christians are a majority, we must explicitly take into account the religious differentials, particularly because religion seems to have significant effects on the role and status of women who tend to maintain and preserve population and the environment.

Coward (1995 b) seems to be the only book focusing on the effects of religion on the interrelationship between population and the environment from the perspective of major religions of the world. According to his own chapter (Coward, 1995 a), all religions tend to see nature as having its own values, and Eastern religions, including Hinduism and Buddhism, have a stronger tendency in this regard than Western religions, including Christianity, Judaism and Islam. Thus, Christianity in today's West is largely responsible for imposing an unsustainable form of development on the earth as a whole because Christianity tends to regard the nature as something created by God at least partly to serve human needs. Ochiai (1997),

however, suggests that this is a stereotypical view of the environmental ethics of world religions, that Eastern religions are not necessarily environment-friendly in both theory and practice and that the ultimate prescription for today's environmental problems is the revival of real religions which sustain the tension between God and human beings and maintain a balance between the two. On the other hand, all the world religions except Buddhism are pronatalist and tend to encourage high fertility by imposing a "traditional" role and status on women, but the effects on environmental preservation through this mechanism are not necessarily clear (Coward, 1995 a).

Ness (1997) suggests that religion tends to affect the interrelationship between population and the environment by concentrating a religious group in a specific local environment, by the former's control over the latter, or by the encouragement of specific conservative or destructive behaviors. Duncan and Auer (1995) describe the environmental health activities of Christian organizations in the Philippines, which exemplify an actual effect of religion on the interrelationship in a developing country setting. Ross (1996) refers to the role of non-establishment Buddhist leaders and NGOs as stakeholders in the improvement of Bangkok's environmental conditions.

2.3 Religion, Women and Migration

While Coward (1995a) and Whyte (1995) discuss the effects of religion on population and the environment, they do not refer to the effects on cities or urbanization. Actually, there are not many works discussing the view of religions toward migration and spatial distribution of population or towards cities and urbanization. Aldeeb Abu-Sahlieh (1996) is exceptional in discussing the Islamic conception of migration based mainly on classical Islamic law, although he often deals with migration between regions in terms of their dominant religions. The implications of this work are uncertain due to the uncertainty in the understanding of Islamic teachings by ordinary Muslim migrants and non-migrants. However, a comment on this article by Williams (1996) puts forth five insightful propositions regarding the relationship between religion and migration: "religion is a powerful force for immigrants in the formation and preservation of personal and group identity," "push-pull factors in migration...create new, unique religious and social groups," "these new groups are involved in boundary construction and preservation," "immigrants...form religious groups and other social groups in order to...negotiate from a stronger position with other social groups regarding their new social location," and "contemporary migrations are different." These propositions seem to be applicable to internal migration and also to non-Islamic religions.

However, as Guest and Uden (1994) point out, there is a lack of attention given to religious differentials in internal migration. According to them, the prevailing opinion is that Muslims, particularly women are less mobile than Buddhists in southern Thailand although

this has not been based on empirical analyses. They applied logistic regression to 1970, 1980 and 1990 census micro data and found that Muslims were about 37 percent less likely than Buddhists to migrate before controlling for demographic and socioeconomic variables, but that after controlling for these variables, the two groups had about the same probability of migration, except for in 1990 when Muslims had a much lower probability. They also conjecture that Muslims are less likely to migrate due to the restricted opportunities for migration related to employment and community identity (preference to live closer). Chamratrithirong *et al.* (1980) found that, among female migrants to Bangkok, those who stayed participated more often in religious activities than those who re-migrated based on repeated surveys. Hayase (1999) also found a higher propensity for Christian women to migrate than for Muslim women in the Philippines based on her analysis of data from the Demographic and Health Survey conducted in 1993.

A lower propensity to migrate among Muslim women was also found for women in Southeast Asia and South Asia including the Philippines and Thailand by a multivariate analysis of survey data conducted by Mason *et al.* (1998). They found that Muslim women do not necessarily have less decision-making power than non-Muslim women in these countries, but that they are more restricted in migration probably because of Islamic teachings and law on women's modesty and obedience to their husbands, providing empirical support for the religion's effects on migration in relation to women's status.

Actually, there is an increasing number of works on the interrelationship between women and sustainable cities or urbanization. For example, Eichler (1995) includes several studies from non-sexist or eco-feminist perspectives in the context of developed countries, particularly North America. Thill (1997) emphasizes the importance of women in sustainable urban development, saying that women form the center of organization and that they bring about intense creativity in sustainable urban development. In the context of Thailand, there is a qualitative study by Sittirak (1998) on the relationship among women, development and the environment at the micro level, but it seems difficult to derive direct implications from this study.

Sarr (1997) describes women's initiatives and ability in organizing to get social infrastructure, control the environment and develop economic activities under their new form of community control in a suburban area of Senegal. According to Sarr, women marginalized by Islam and colonization can adapt the logic of organization to the new realities and face economic and social crises, but men cannot because Islam (religious associations) and colonization (cooperatives) separate them from the logic of traditional solidarity. This may not be totally applicable in the context of Southeast Asia, but has some implications regarding the relationship among sustainable urbanization,

women's status and religion. In sum, this literature review suggests that there have been few studies focusing either theoretically or empirically on this relationship possibly due to the difficulties in integrating the three research interests.

3. Qualitative Study

3.1 Methods : Focus Group Discussions and In-Depth Interviews

In order to study the micro-level interrelationship among sustainable urbanization, women's status and religion in Southeast Asia, we have employed focus group discussions (FGDs) which are more often used these days in demography to complement quantitative analyses. Interested readers should refer to textbooks (e.g., Morgan, 1997) for details on this technique and Knodel *et al.* (1990) for demographic applications. We also conducted in-depth interviews (IDIs) with community leaders, religious leaders and leaders of women's groups to supplement and complement FGDs.

As a study of the views on the urban environment using FGDs in Southeast Asia, the study by Pongso-mlee and Ross (1993) in Bangkok was a pioneering work. Although their FGDs did not divide the groups by migration experience or religion and did not address migration or religion themselves, they obtained interesting results in these regards. They found that inhabitants of the community did not know one another well partly because many people moved in and out of the community and partly because the spread of television played an important role in separating inhabitants of the same community and that the lack of interaction made it difficult for older inhabitants to integrate new migrants. They also found that "Buddhist-influenced relaxed acceptance" discouraged public participation in solving urban problems.

On the other hand, this study aimed to clarify the effects of religion on sustainable urbanization through women's status and their demographic and environmental attitudes and behaviors based on the fieldwork (IDIs and FGDs) conducted by the University of the Philippines Population Institute (led by Prof. Nimfa B. OGENA) in the Philippines in 1998/99, by the College of Population Studies, Chulalongkorn University (led by Prof. Bhassorn LIMANONDA) in Thailand in 1998/99, and by the Institute of Sociology (led by Prof. Anh N. DANG) in Vietnam in 1999/2000. In the Philippines and Thailand the fieldwork was conducted in Islamic and non-Islamic communities in two major cities with higher and lower concentration of Muslim population (Metro Manila and Davao in the Philippines and Bangkok and Hat Yai in Thailand) in order to delineate the effects of religion. In Vietnam they were conducted in Catholic and non-Catholic communities in the two major cities, Hanoi and Ho Chi Minh City. Migrant and non-migrant (married) women of reproductive age had separate FGDs in each community.

The FGDs focused on the adaptation of migrant and non-migrant women to the urban life and environment

and the help and support for their adaptation extended by their neighbors and community organizations, including administrative, religious and women's organizations. This study also conducted IDIs with community leaders, religious leaders and leaders of women's groups to collect more general information as well as more specific information about the activities of these groups (cf. Kojima, 1999a for the FGD guideline and the IDI questionnaire).

3.2 Results

Filipino collaborators (Ogena, Marquez and Quiray, 1999) found the following results regarding the effects of religion on rural-to-urban migration. First, accessibility to churches/mosques is a factor in determining the place to live for migrants and non-migrants. Among Muslims, living close to other Muslims is an important reason to move. Second, Muslims sought support from Muslim leaders in adapting themselves to the urban life and environment. Muslims experienced fewer adaptation problems since neighbors and community leaders (fellow Muslims) extended them support.

They also obtained the following results regarding the effects of religion on environmental behaviors and attitudes of women. First, non-Islamic women tended to discuss gender role views relating to environmental conditions not only regarding subordinate but also dominant roles for women, while Islamic women tend to focus more on the former. Second, while non-Islamic religious teachings have indirect references to the environment, Islamic teachings emphasize hygiene and sanitation. Third, while non-Islamic religions have no gender-specific roles pertaining to the environment, Islam has women-specific roles pertaining to cleanliness. In sum, there are clear religious differences (between Muslims and Catholics) in women's roles in sustainable urbanization in the Philippines.

Thai collaborators (Limanonda, Nokyoongthong and Sabaiying, 1999) obtained similar results. First, Muslim women seemed to establish closer ties between the long-term residents and migrants than did Buddhist women, and provided more assistance to the newcomers. When Muslims in the two cities were compared, however, those in Bangkok felt much less obliged to help the in-migrants and they tended to give only what they were asked for under the resource and time constraints probably because they were more relaxed in following religious teachings. Second, while Muslim women accepted that religion did not confine their freedom to play roles in either their own family or the community as much as had been perceived by others, they admitted that somehow they had a limit on certain aspects of what they could or could not do, and what they should or should not do according to religious teachings. Third, women tended to agree that Islam had touched upon the issues of environmental protection more explicitly than Buddhism. Actually, Islamic leaders in some communities taught people about the environment (mostly cleanliness) by including it into religious teachings, while no

category dependent variables. The analysis was limited to women in their first marriage. The dependent variables were their migration experience after age 12 and their experience of any deaths of own children and that of diarrhea of very young children aged 6–23 months during the preceding two weeks before the survey. In addition to women's education and religion, we included in the models, as control variables, demographic, socioeconomic and regional characteristics as well as environmental characteristics at the micro level such as the kind of drinking water and floor material and the availability of toilet, soap and electricity. They can be found in Tables 1, 2 and 3 respectively for the Philippines, Thailand and Indonesia. We estimated models for the whole country and urban areas. The dummy coding was used to facilitate the interpretation.

4.2 Results

The results of binomial logit analyses are presented in Tables 1, 2 and 3 in the form of log odds. In the Philippines (Table 1) married women's primary and secondary education (relative to no education) have significant and positive effects on the experience of migration. Muslims are much less likely to move than Catholics, supporting a similar finding from focus

group discussions. In Thailand (Table 2) married women's primary education has a negative effect on migration, the opposite of the positive effect in the Philippines. However, their husbands' education has a positive effect on migration, as expected. Thus, the negative effect may suggest a high prevalence of attached migration. The odds of migration, however, are much lower among Muslims than Christians. In Indonesia (Table 3) education has positive effects on migration. Hindus and Christians have much higher probabilities of migrating than the Muslim majority, suggesting that Islam itself (instead of Muslims' minority status) has a negative effect on migration.

In the Philippines, neither married women's education nor religion has any significant effects on their children's deaths, while in Thailand, married women's secondary and higher education has negative effects but religion does not have any significant effects. In Indonesia married women's primary and secondary education as well as being Buddhist, Hindu or Christian have negative effects on their children's deaths. In the Philippines and Thailand Muslim mothers are more likely to see their very young children experience diarrhea. The results for urban areas are generally similar and they sometimes show clearer effects of religion. These results reveal that

Table 1 (continued)

INDEPENDENT VARIABLE Category	MIGRATION EXP		CHILD DEATH		CHILD DIARRHEA	
	TOTAL	URBAN	TOTAL	URBAN	TOTAL	URBAN
	Ever Never	Ever Never	Ever Never	Ever Never	Ever Never	Ever Never
RELIGION						
(Catholic)	1.00	1.00	1.00	1.00	1.00	1.00
Protestant	0.87	0.77#	0.76*	0.76	1.22	1.12
Islam	0.38***	0.51***	0.96	1.17	1.19	1.88*
Others	0.94	1.28#	1.24#	1.18	0.86	0.71
DRINKING WATER						
Tap	1.17**	1.14#	0.97	0.92	1.00	0.80
(Well)	1.00	1.00	1.00	1.00	1.00	1.00
Others	1.09	0.88	0.97	1.32#	1.07	1.11
TOILET AVAILABLE						
(Yes)	1.00	1.00	1.00	1.00	1.00	1.00
No	0.91	1.08	1.52***	1.47*	0.94	0.51*
ELECTRICITY ACCESS						
(Yes)	1.00	1.00	1.00	1.00	1.00	1.00
No	1.12#	1.18	1.19*	1.17	1.38**	1.21
FLOOR MATERIAL						
Dirt, Sand, etc.	0.99	0.92	1.15	1.47#	0.86	1.00
(Others)	1.00	1.00	1.00	1.00	1.00	1.00
RESIDENCE						
Urban	1.32***	-	0.99	-	1.24*	-
(Rural)	1.00	-	1.00	-	1.00	-
REGION						
Metro-Manila	3.90***	4.10***	1.64**	1.69*	1.13	1.32
N. Luzon	1.18#	1.17	1.56**	1.22	1.95***	1.77#
(C. Luzon)	1.00	1.00	1.00	1.00	1.00	1.00
S. Luzon, etc.	1.85***	1.85***	1.40*	1.27	2.11***	2.12**
Visayas	1.10	1.18	1.35*	1.31	1.19	1.23
Mindanao	1.72***	1.74***	1.54**	1.40#	1.39#	1.62#
MIGRATION EXPERIENCE						
Yes	-	-	1.10	0.97	1.16#	1.12
(No)	-	-	1.00	1.00	1.00	1.00

(Source) Philippines Demographic and Health Survey 1993, Individual Recode File.

(Note) # $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

maintaining cleanliness in the family, but its relevance to environmental protection is not clear.

The quantitative study found that Islam discourages migration of women in the Philippines, Thailand and Indonesia. It was also found to have a negative effect on adaptation in terms of child health even though it emphasizes the role of women in maintaining cleanliness as evidenced by focus group discussions in the first two countries. This may be related to the lower socioeconomic status of the Muslim minority in these countries. This hypothesis has to be tested against more detailed analysis of the DHS data. But the DHS has limitations regarding information related to migration and migrants' and non-migrants' adaptation to the urban life and environment. Thus, we have to wait for the analysis of surveys in progress in the six cities of the three countries in Southeast Asia in cooperation with local researchers.

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Table 2 (continued)

INDEPENDENT VARIABLE Category	MIGRATION EXP		CHILD DEATH		CHILD DIARRHEA	
	TOTAL	URBAN	TOTAL	URBAN	TOTAL	TOTAL
	Ever Never	Ever Never	Ever Never	Ever Never	Ever Never	Ever Never
RELIGION						
(Buddhist)	1.00	1.00	1.00	1.00	1.00	1.00
Muslim	0.45***	0.52**	1.30	0.96	1.86***	0.84
Hindu	0.91	#####	1.26	#####	1.99	#####
Christian	1.39	1.27	1.51	1.59	0.62	0.94
DRINKING WATER						
Tap	1.19#	1.90**	0.88	0.74	1.09	1.14
(Well)	1.00	1.00	1.00	1.00	1.00	1.00
Others	1.18*	0.83**	0.81#	0.62	1.01	0.62
TOILET AVAILABLE						
(Yes)	1.00	1.00	1.00	1.00	1.00	1.00
No	0.92	1.53	1.14	0.89	1.30#	1.00
SOAP POSSESSION						
(Yes)	1.00	1.00	1.00	1.00	1.00	1.00
No	1.10	1.22	0.97	3.32**	1.01	0.63
ELECTRICITY ACCESS						
(Yes)	1.00	1.00	1.00	1.00	1.00	1.00
No	1.52***	1.49	1.07	2.44	1.06	3.05#
FLOOR MATERIAL						
Dirt, Sand, etc.	0.90	0.87	1.22	0.79	0.99	4.29#
(Others)	1.00	1.00	1.00	1.00	1.00	1.00
RESIDENCE						
Urban	1.50***	-	0.97	-	0.79	-
(Rural)	1.00	-	1.00	-	1.00	-
REGION						
North	0.70***	0.77	1.47**	1.53	1.09	0.90
Northeast	0.59***	0.69#	1.21	1.34	0.89	0.65
(Central)	1.00	1.00	1.00	1.00	1.00	1.00
South	1.18	2.46**	0.90	1.31	0.69#	0.36
Bangkok	0.53***	0.54***	0.65*	0.84	1.10	1.06
MIGRATION EXPERIENCE						
Yes	-	-	1.00	1.10	1.01	0.94
(No)	-	-	1.00	1.00	1.00	1.00

(Source) Thai Demographic and Health Survey 1987, Individual Recode File.

(注) # p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

Too few cases.

Application of Methods to Evaluate Environmental Security in Asia.”

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Table 3 Determinants of Married Woman's Experience of Migration and Children's Death (Odds Ratio): Indonesia

INDEP VAR Category	MIGRATION EXP		CHILD DEATH	
	TOTAL	URBAN	TOTAL	URBAN
	Ever Never	Ever Never	Ever Never	Ever Never
AGE				
15–19	0.48***	0.26***	0.72	0.24#
20–29	0.71***	0.51***	0.65***	0.59***
30–39	0.79***	0.64***	0.69***	0.66***
(40–49)	1.00	1.00	1.00	1.00
MAR AGE				
15<	0.99	0.98	1.28***	1.45**
(15–19)	1.00	1.00	1.00	1.00
20–24	0.93	0.99	0.88#	0.76*
25+	0.77*	0.79	0.70*	0.75
CEB				
0	1.24*	1.52*	–	–
1	1.06	1.23	0.06***	0.07***
2	1.17*	1.22#	0.19***	0.18***
3	1.11	1.24#	0.33***	0.26***
(4+)	1.00	1.00	1.00	1.00
EDUCATION				
(No)	1.00	1.00	1.00	1.00
Primary	1.43***	1.51***	0.88#	0.71*
Secondary	1.89***	1.83***	0.55***	0.47***
Higher	3.87***	3.78***	0.68	0.68
H'S EDUC				
(No)	1.00	1.00	1.00	1.00
Primary	1.25**	1.25	0.88	0.70#
Secondary	1.56***	1.27	0.70***	0.57*
Higher	1.86***	1.59#	0.59**	0.48*
EMPLOYMENT				
Employed	0.97	0.97	1.04	0.88
(Non-Empl.)	1.00	1.00	1.00	1.00
H'S OCCUP				
Farmer	0.81**	0.59***	1.07	0.85
Prof./Manager	1.11	1.06	1.03	0.94
Blue Collar	0.96	0.88	1.04	1.06
(Others)	1.00	1.00	1.00	1.00

Table 3 (continued)

INDEP VAR Category	MIGRATION EXP		CHILD DEATH	
	TOTAL	URBAN	TOTAL	URBAN
	Ever Never	Ever Never	Ever Never	Ever Never
RELIGION				
(Muslim)	1.00	1.00	1.00	1.00
Buddhist	1.22	1.15	0.18***	0.13***
Hindu	1.65**	0.57*	0.55**	0.31**
Christian	1.67***	1.70***	0.80#	0.87
DRINK WATER				
Tap	1.17*	1.14	0.91	1.01
(Well)	1.00	1.00	1.00	1.00
Others	0.60***	0.53***	1.04	1.70**
TOILET AVAIL				
(Yes)	1.00	1.00	1.00	1.00
No	0.71***	0.80*	1.40***	1.46**
ELECTRICITY				
(Yes)	1.00	1.00	1.00	1.00
No	0.87**	1.10	1.13#	1.01
FLOOR MATER				
Sand, Dirt, etc.	1.37***	1.20	0.97	1.60**
(Others)	1.00	1.00	1.00	1.00
RESIDENCE				
Urban	1.63***	–	1.02	–
(Rural)	1.00	–	1.00	–
REGION				
Jakarta	1.27**	1.31***	0.95	0.95
West Java	0.66***	0.60***	1.14	1.14
Central Java	0.36***	0.30***	0.61***	0.57**
Yogyakarta	0.50***	0.66*	0.52***	0.46**
East Java	0.54***	0.66**	0.70***	0.80
Bali	0.46***	0.98	1.17	1.48
(Others)	1.00	1.00	1.00	1.00
MIGRATION EX				
Yes	–	–	0.99	1.04
(No)	–	–	1.00	1.00

(Source) Indonesia Demographic and Health Survey 1991, Individual Recode File.

(Note) # p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

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