Health Status of Temporary Migrants in Urban Areas in Vietnam

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ABSTRACT

The rapid economic growth after economic reform, known in Viet Nam as “Doi Moi”, and the growing scope of urban migration raise specific questions for social policy, including migration and health policies. This paper compares issues of health status and its determinants as they affect temporary urban migrants versus permanent urban migrants and non-migrants. The analyses utilize multivariate logistic regression and data from the 1997 Vietnam Migration and Health Survey. The results show that temporary migrants staying in guest houses are most vulnerable to health problems. Though most of them are initially healthier, their reported health deteriorates faster than other groups of urban residents. The findings also present important implications for the current migration and health policies in Vietnam: 1) A special attention should be given to temporary migrants in guest houses; 2) Different priorities in health policy should be applied to different groups of migrants and non-migrants; 3) The current population management policy by registration system needs to be reviewed; 4) Providing clean water is one of the most important ways to improve health of temporary migrants; 5) Targeting educational investments and reducing unemployment would likely to improve overall health; 6) A higher priority on health policies targeting women would likely pay dividends, and; 7) Improving management and collaboration between government offices and interested partners is important to improving health status and reducing inequity.

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INTRODUCTION

The world’s urban population has more than tripled since 1950, and the rapid pace of urban growth has continued. The UN estimate predicts that almost two-thirds of the world’s population will live in urban areas by the end of 2030 (UN, 1998). A significant proportion of that urban population increase will be contributed by migration. This is especially so in developing countries, many of which have yet to experience the urbanization transition. Chen et al. (1998) estimate that, in the next 20 years, 92 per cent of urban population growth will take place in developing countries.

The rapid growth of urban areas has brought with it some serious policy challenges for developing countries, including Vietnam. These challenges include managing higher population density, providing adequate housing, and grappling with population heterogeneity, rising income inequality, poverty concentration, and residential segregation of social groups. In turn, these factors may directly or indirectly affect the health of urban residents. Health service accessibility, pollution, the spread of disease associated with high population density, and diverse demands of different groups of migrants on health services are some of the various concerns regarding urban migration and health in developing countries.

Urban health provision remains a challenge in developing countries. This is all the more so for migrants to urban areas, who may lack the social networks and formal administrative claims that would give them quicker access to health services. The fact that statistical profiles do not, in general, provide an accurate picture of migrants suggests that health programs in developing countries may need to pay special attention to the needs of urbanward migrants.

Despite the fact that migrants usually are in good health, they nevertheless can be considered a vulnerable group in urban areas in terms of access to health care. The unpredictability of the number of migrants to urban areas, and the rapid increase in those numbers during certain periods, increases the risk that their needs will not adequately be taken into consideration by urban planners and health service providers. Migrants’ lack of access to information, weak social networks, ignorance or limited knowledge of urban diseases, poor living conditions, and lack of access to clean water and sanitation are issues that typically increase their degree of vulnerability. Achieving “health for all” will, therefore, require that urban health policies assign a higher level of priority to the needs of migrants. There is an increasing concern about migration and health policy in developing countries, including Vietnam. However, a majority of the effort has been directed towards addressing the impact of migrants on urban areas; much less
has been given to addressing the wellbeing of the migrants. Regardless of some municipal governors’ anxiety about the negative impacts of migrants, Vietnam’s Independent Statement asserts that migration is the right of people to pursue a better life. Moreover, the movement of labour supply through migration is likely to contribute to the development of cities and perhaps also rural areas. Migrants are a part of urban life and their needs, especially needs for health care, must be considered.

THEORETICAL AND POLICY BACKGROUND

Recent migration and health policy in Vietnam

In contrast to many other countries, the population management policies of Vietnam limited urbanward migration flows through a household registration system and housing policies. Thanks to a large and effective population-coordinator network at the grassroots (i.e. commune) level, the government was able to control population and its mobility through this registration system. Under the system, every citizen had to visit the local Police Department or its representative to register his/her place of birth and place of residence, as well as other basic demographic information, such as age, sex, marital status, education, and occupation. All this information was recorded in a household registration booklet. If a person moved, s/he had to re-register at both the place of origin and place of destination. Everyone had to register at his/her current place of residence as either a permanent resident or a temporary resident. Usually, children could register as a permanent resident at the place where their mother registered as a permanent resident.

Migration was free but it was limited by strong socio-economic ties. Residential registration status, permanent or temporary, was closely tied to eligibility for social services at the current place of residence, such as health care and school for children. While permanent residents could access these social services for free or at subsidized costs in their registered locality, temporary residents had to pay in full for the costs of the services. Changing registration status was very limited depending on the policies of the central government or, in some cases, local governments.

In 1986, the National Assembly of Vietnam decided to revise the 1980 constitution and introduced reforms in the form of “Đoì Mới”, which led to an important shift in economic policy from central planning to a market-oriented economy. The reform process resulted in a significant change in socio-economic situations and an increase in migration to urban areas (Dang, 1998). One noticeable consequence
of this political and economic renovation has been the rapid growth of urbanward migration, as more and more people have been moving to urban places to seek employment and better quality of life. Concerns about urbanward temporary migrants were not posed in the past, but recently they have been getting more attention. Municipal governments are facing questions about the “floating” population: who are they; how should the government manage them; how do they affect local services (education, health, housing, sanitation, etc.); to what extent do they contribute economically to the city; how do they affect crime rate in the city; and so on. It is necessary to have a better understanding of urbanward migration and migrants, and revision in migration policy is to be expected.

The liberalization that resulted from “Doi Moi” had a strong impact on health and health policy. The health care system in Vietnam has long been cited as successful and well designed, derived, as it was, from a social service system based on equity (MOH, 1992). The result of this orientation was very positive: Vietnam made impressive gains, improving health status, extending health infrastructure throughout the country, including remote rural areas, and providing free health care to the entire population beginning in the 1970s (Ladinsky and Levine, 1985; Nguyen et al., 1995). However, these health achievements and conditions have been substantially changed by the process of political and economic renewal.

The new economic policies privatize health services and encourage free trade in medicine and drugs. Though “Doi Moi” may give people greater ability to access health care through increased income, the net impact is under question since health costs have also increased substantially. Health practices have shifted from the public towards the private sector and to self-medication.

One of the most important effects of “Doi Moi” is inequity in healthcare. Though several categories of people, such as the very poor, remain exempt from health service charges, a widening gap between people of different categories has been observed. Urban-rural and rich-poor differences are reinforced and aggravated by the new system (Nguyen et al., 1995; Bloom, 1998; Naterop and Wolffers, 1999; Johansson et al., 2000). Nguyen et al. (1995) argue that the underlying causes of this inequity are decreased financial support and weakened management capacity within the new health system.

Temporary migration – the emerging trend of recent migration in Vietnam

Typical of developing countries, a high proportion of Vietnam’s population lives in rural areas (76.52 %), (CCSC, 2000), but urbanization is increasing. It is argued that migration of this nature is a consequence of unequal investment in rural and
urban areas, and of relaxation of the population management policy (Dang et al., 1997; Guest, 1998; Doan and Trinh, 1998; Do and Trinh, 1999). In Hanoi, the capital, with more than 1.5 million urban residents (CCSC, 1999), population has increased on average by 55,000 persons every year since 1986, of which migration accounted for about 40 per cent (about 22,000 people). Three-fourths of those migrants settled in the centre of the city, resulting in an in-migrant population that is about five times greater than the out-migrant population.

Similarly, Ho Chi Minh City, the country’s largest city, with more than 4 million urban residents (CCSC, 1999), received on average 100,000 migrants every year from 1997 to 1999 (Do and Trinh, 1999). Some other official sources, such as the 1989 Census, the Inter-Censal Demographic Survey 1994, and the 1999 Census have also noted the increase of migration to urban areas. The 1999 Census indicated that 23.5 per cent of the population lived in urban areas, an increase of 19.4 per cent since 1989 (1989 Census). Between 1989 and 1999 the urban population expanded at an annual rate of 3.63 per cent compared with a population growth rate of 1.18 per cent in rural areas (CCSC, 1999).

Another consequence of the reform process has been a change in the form of urbanward migration, or the emergence of temporary migration (Truong, 1996; Dang, 2000; Djamba et al. 2000). The economic development which accompanied further relaxations of migration restrictions is likely to result in a still larger-scale urbanward movement (Dang et al., 1997). It is important to know more about temporary migrants in Vietnam because they are becoming a significant part of the urban environment but, as yet, little is known about them.

As noted by Guest (1998), available data on the urban population might not be comprehensive because there are a large number of unregistered temporary migrants in urban areas. Surveys on migration to Ho Chi Minh City estimated that about 200,000 seasonal migrants or short-term visitors resided in the area, and in the 1990s the seasonal migrant population in Hanoi was estimated at between 40,000 to 60,000 persons (Do and Trinh, 1999). While migration to urban areas is increasing, there exists little related data, knowledge, or social policy. In 1998, the government responded by approving guidelines for urban management and development based on estimates that urbanization would increase from 20 per cent to 45 per cent by 2020, at an urban growth rate of approximately 5 per cent per year. This guideline, however, is only a first step towards improving the management and development of urban areas.

Findings from studies in China (Dupeng, 1998; Liang and Ma, 2004; Smith and Fan, 1995) showed that the “floating” population had both negative and positive impacts on urban residents. On the positive side, the “floating” population
provided cheap labour to supplement the deficit labour force of urban areas and encouraged rural-urban connections. On the negative side, the presence of a “floating” population created greater demands on local services and infrastructure. Among the various concerns regarding possible negative effects of the “floating” population are accommodating their needs for urban sanitation and hygiene, health care, crime rates, fertility, urban housing, and children’s education. These studies also raise policy issues as to how to manage the “floating” population, provide services to them, and protect their rights. It is, therefore, desirable to gain a good understanding of urbanward migration and migrants, so as to revise migration and social policies for urban areas accordingly.

The number of studies on temporary migration in Vietnam remains limited, although important related information does exist. This limitation is mainly due to the lack of data that is both adequate and accurate. Both the 1989 and the 1999 census posed very basic questions regarding place of birth, place of residence five years prior to the census, and current place of residence. Based on these data sources it is only possible to estimate the net, rather than the real, flow of migration, and no information regarding temporary migration is available. Other surveys were undertaken on a local scale, and related data is limited to the economic aspects of migration. Lack of adequate and accurate data is one of the major constraints faced by recent migration studies. Furthermore, though economic reform enhances differentials not only between rural and urban areas but also within urban areas, to date a majority of attention has been paid to rural-urban differences; heterogeneity within urban areas is usually neglected.

### Migration and health

Most of the available evidence leads to the inference that migrants tend to be young people who are healthier than the population they left behind, a manifestation of the selective nature of migration. In one classic study, however, Freedman (1947) pointed out that there are contradictory findings to the hypothesis that migrants are healthier than the population they join. He also points to age and income as important variables affecting health differences between migrants and non-migrants.

Discussions on urbanward migration and health can be found at length in previous studies (Fillenbaum, 1979; Jeffrey, 1987; Craig, 1990; Wessen et al., 1992). A number of those studies highlight the benefits afforded by urban living – such as access to health services, information, education, safe drinking water, and cash income – but the association between urbanward migration and health is not consistent. Other studies have found that poverty, housing and living environment, inadequate water supply, and unsafe waste disposal limit the benefits of urban environments and exacerbate health problems (McDade and Adair, 2001).
Nonetheless, those studies share three common findings: 1) migrants and non-migrants tend to have different health status; 2) socio-economic factors, such as age, sex, income, education, race, housing, population density and labour force status, determine the health status of both migrants and non-migrants, but at different levels; and 3) the adequacy of migration definition and measurement is a critical issue while looking at the relationship between migration and health, since alternative conceptualizations might lead to dissimilar conclusions on health differentials.

Though most of the studies carried out to date on migration and health have compared the health status of migrants and non-migrants at a given point in time, no study has as yet considered the health status of migrants over an extended period of time. Since migration is in fact a process, monitoring the health status of migrants should also be regarded as a process that, to the extent possible, takes into account the difficulties inherent in tracking the migration process and in arriving at a satisfactory definition of the term “migrant” itself.

In short, the relaxation of migration controls, the increase of rural-to-urban temporary migration, and the new health system in Vietnam all originate and interact through the same root: the political and economic reforms. The reforms have accelerated urbanward temporary migration and brought about economic growth, but also a greater degree of inequity, along with problems with health care access and utilization for migrants. Together with the poor, temporary migrants to urban areas may suffer negative consequences from the reforms. Temporary migrants may be worse off than the urban poor since they don’t belong to any of the categories that remain exempt from health costs, nor can they receive free health services.

**Determinants of health**

Various studies have been done to investigate the socio-economic determinants of health. Among health determinants, sex and age have been acknowledged as important factors in understanding patterns of disease, and are recognized by investors and policy makers as providing insight into the control of infectious diseases (Johansson et al., 2000). Gilmore and colleagues (2001) found that physical health declined with age, to a greater extent in women than in men, and that sex differentials increased with age. The notion and evidence that women are “sicker” than men are commonly found in reviews on gender inequalities in health (Braveman and Tarimo, 2002; Denton et al., 2004; Green and Pope, 1999; Johansson et al., 2000; McDounough and Walters, 2001; Unruh, 1996). Such studies also usually found that the pattern of gender differences in health varies depending on the symptoms, conditions of illness, measures of health, and phase of life cycle.
However, explanations for the higher morbidity rates among women are contradictory. Green and Pope’s review (1999) indicates that women are more sensitive to symptoms, have better recall, are more willing to report health problems, and are more willing to adopt the sick-role. In addition, this review found women to be more willing to use preventive services, to seek help for medical problems, and to adopt illness behaviours, and posited that women have greater experience of illness as a function of their social and nurturing roles. In contrast, the review by Johansson et al. (2000) shows that women have less access to information and therefore fail to recognize early symptoms, tend to wait longer to seek treatment when ill and are less likely to consult modern health services, and hesitate to seek health treatment because they tend to receive a lower degree of attention from health staff and because women’s work related to productivity and reproduction is unlikely to be fully taken over by other members of the family. It is probable that women’s health status depends not only on the conditions of their illness and life cycle phase, but also on the community context.

Reviews and discussions of the relationship between employment and health indicate that unemployment is consistently associated with poor health (Beland et al., 2001; Denton et al., 2004; Gilmore et al., 2001; Zimmer and Amornisisomboon, 2001). Related studies find that, in addition to the selection effect, healthier people are more likely to be employed, a situation that protects and fosters health (Ross and Mirowsky, 1995; Beland et al., 2001).

Income and poverty have consistently been found to be important determinants of health status (Coburn, 2004; Braveman and Tarimo, 2002; Denton et al., 2004; Hoffman et al., 1997; Wilkinson, 1996; Zimmer and Amornisisomboon, 2001). In addition to possessing a low level of health knowledge, the poor have less access to good health care. They cannot afford the high cost of various medicines, health care options (particularly when provided by private medical practitioners), and supplementary expenses, such as those related to transportation. Gilmore and colleagues (2001) found material deprivation to be an important health determinant, whilst income from principal employment was not. However, given the importance of the informal economy, the association between health and income is not always to be expected. Hidden income may play a critical role in affecting the health of the poor, though it will not be reflected in official records.

Along with other structures of social inequalities, most studies found that education is an important determinant of health and disease (Denton et al., 2004; Gilmore et al., 2001; Hoffman et al., 1997; Zimmer and Amornisisomboon, 2001). Indirectly, education is linked to other socio-economic variables, such
as income, that are more direct determinants of health. Directly, education also
affects health by increasing awareness of illness and disease, the use of modern
health care services, and favourable behaviours.

Living conditions and environmental pollution have been proposed as causes
of poor health. The relationship between water, sanitation, hygiene, and disease
has been widely discussed in public health and health transition studies. Housing
and population density are similarly essential elements of sound public health.
Shears and Lusty (1987), for instance, have shown that inadequate water and
sanitation, combined with crowding, result in high transmission rates for most
infectious diseases. Doyal (1979) has also shown that access to safe water is vital
to the reduction of infectious diseases in urban areas of developing countries.
Furthermore, Doyal found that clean water is not equally available to all groups
of urban residents. This finding suggested that the accessibility and availability
of clean water might have different effects on the health status of migrants and
non-migrants.

**Objectives of the current study**

This study is an effort to explore the health status of urban residents in Vietnam.
Since economic reform has introduced a degree of uncertainty into the previous
knowledge about migrants’ health status, the current study looks specifically at
health differentials between different types of migrants and non-migrants. This
approach highlights specific aspects of urban environments that are related to
health outcomes. It also overcomes the limitations of much work which looks
only at a rural-urban dichotomy, by analyzing the heterogeneity that exists within
urban areas.

Two major related questions are: whether health status varies across migrants
of different types and non-migrants, and; if so, in what way? The study pays
special attention to the health situation of temporary migrants in urban areas,
in recognition of the rapid increase in their numbers as a result of the economic
reforms, as well as their particularly vulnerable position. The argument for this
focus is also that a majority of the poor temporary migrants are worse off than the
urban poor since they do not belong to any specific exemption group. Temporary
migrants’ health situation might even be worse than that of rural inhabitants
as a result of their hard work, and poor living and environmental conditions.
Moreover, though they live in urban areas, many of them fit more easily within
the rural category in the urban-rural contrast, since they cannot afford the high
cost of health services in urban areas and must return to their rural origins if they
become sick. Observations that result from this study appear to contradict the
view that temporary migrants are physically strong and that they tend to be in
better health than urban natives and permanent migrants.
The study also attempts to look at health status as a process over an extended period, rather than as a snap-shot taken at a specific moment in time. This approach can provide a more comprehensive long term picture of the health transition of migrants as compared with non-migrants. We argue that the working behaviour and living conditions of temporary migrants leads to a lowering of their health status at a faster rate than for urban residents. This is true regardless of whether they were in better health than their urban counterparts at the outset.

While we must rely on retrospective reporting of health conditions, and while many covariates are measures of the survey, we argue that the basic ability of respondents to recall their health changes, and the stability of some basic traits we use as health predictors, gives us considerable insight on the issue. To be sure, temporal sequences (even continuous!) measures of health and socio-economic characteristics would be preferable. However, given the lack of information about health and migration in many developing settings, especially the transition setting of Vietnam, we argue that our work uncovers important basic associations for a range of migrant categories, and points the way to initial policy attention and further, more sophisticated data collection.

The study also examines comparative differentials in health determinants among the four groups under study. The argument is that different groups of migrants have different socio-economic backgrounds and thus experience urban life differently. Their health is affected in different ways. Besides common determinants, some of the factors that are strong health determinants to one group might have no effect on other groups. Consequently, health policy may want to take this heterogeneity into account.

**Data and methods**

The current study uses data from the Vietnam Migration and Health Survey, one of the first surveys in Vietnam to provide information on the health status of the country’s different types of migrants and sophisticated details of the migration process. In making use of the survey data, this study expects to gain further insights into previous, more limited studies, and to make recommendations that will be of use during the course of migration and health policy formulation.

The survey in question was carried out in 1997 by the Institute of Sociology of Vietnam and the Brown Population Studies and Training Center (United States) in two rural, and four urban, areas. The four urban sites were selected on the basis of their regional representation: Hanoi, as the capital city, in the north; Danang, as the largest city of the centre of the country; Buonmethuot (Dak Lak
province), a smaller city located in the Central Highlands; and Thudaumot (Binh Duong province), a small but developing city in the south (See Appendix 1 for map and study sites).

The sample includes non-migrants and two main groups of migrants: permanent and temporary. In each group, the respondents were randomly selected, but with certain quotas in mind, to insure that there would be an adequate number in each category. This, in turn, enabled meaningful comparisons to be made. Among 1,730 eligible respondents in urban areas 500 were non-migrants, 525 were permanent migrants, and 703 were temporary migrants, of which 290 (of the 703) were guest-housed temporary migrants (see below definitions). Multi-level questionnaires were constructed to cover a wide range of background characteristics of both non-migrants and migrants, as well as the mobility experiences of the migrants.

Definitions of “migrants” used in the study, as well as in other works published on the basis of the same data source, were derived from intensive discussions between Brown University researchers and their colleagues in Vietnam (White et al., 2001). Non-migrants are defined as people who were born and registered as permanent residents in the place of interview and never spent more than six months continuously outside that place (i.e. a district or town) since age 13. Permanent migrants are those who registered at the place of interview as permanent residents, but were born elsewhere. Temporary migrants are defined as people who were neither born nor permanently registered at the place of residence at time of the interview. For the purpose of this study, guest-housed temporary migrant is the term used for temporary migrants who lived in a guesthouse at the time of the interview. In actuality, there is one more group of migrants – return migrants – who were born at the place of interview, and registered there as permanent residents, but who lived elsewhere for at least six consecutive months after age 13. However, this group of migrants is excluded from the present analysis because of its small sample size.

The outcome variable of primary interest in the analysis is health status, as ascertained by a self-reported question: When was the last time you were sick enough to stay home? Only sicknesses severe enough to make respondents stay home were recorded, so minor health problems were excluded from health status reports. Four response categories were constructed: 1) Within the last 3 months; 2) From 3 months to a year ago; 3) More than a year ago; and 4) Never.

We use frequency and cross-tabulation to identify basic aspects of the health status of migrants and non-migrants. We employ direct questions on health status. Logistic regression is used to analyze health determinants, given the fact that health status (i.e. the outcome variable) is dichotomized. Those who had
been sick within the last three months prior to the survey were considered to be in relatively poorer health, while the rest were considered to be in better health. Although three cut-off points were available – within 3 months, 3-12 months, and more than 12 months – health status during the most recent three month period was used in the logistic regression analysis to mitigate problems associated with temporal dimension and causal effects. Within this shortest period of time, it is likely that some determinants of health status remain fixed and others would be unlikely to change significantly.

Nevertheless, we have to acknowledge that the problem of timing still persists as some determinants (e.g. employment status) may change quickly. For example, the respondents’ employment status may not have been the same at the time of the interview as at the time they got sick. Another reason to use the 3 month cut-off point is that it may increase the accuracy of the responses. People are likely to remember recent events better than events that happened in the more distant past (Unruh, 1996). Since the study looks at health status and health care in urban areas, only those who never got sick, and those whose sickness occurred after their last move to their present urban place of residence, were selected for analysis.

FINDINGS

Health status

Figure 1 shows the reported probability of being sick at three points prior to the survey: three months, twelve months, and more than twelve months. Those who reported never being sick are included in the last group. Although the data set used in this paper is not longitudinal, the approach here parallels retrospective event history analysis. The resulting figure provides a crude picture of health transitions over time, and illustrates a significant difference between various groups of migrants. Though permanent migrants are more likely to report themselves sick than temporary migrants at any given point in time, the difference in the probability of getting sick is largest at “more than twelve months”, smaller at “twelve months or less”, and smallest at “three months or less”.

This figure also shows a great heterogeneity among temporary migrants: those who are guest-housed have much worse reported health than those who are not, and that health gap gets larger with the passage of time.
The most intriguing difference is to be found between guest-housed temporary migrants and other groups. Although guest-housed temporary migrants have a smaller probability of ever reporting sick (0.68) than either non-migrants (0.77) or permanent migrants (0.78), the probability of their reporting sick during the twelve months prior to the time of the survey (0.46) is similar to that of non-migrants (0.44) and of permanent migrants (0.45), while the probability of their reporting sick during the three months prior to the time of the survey (0.35) is higher than that of non-migrants (0.25) and of permanent migrants (0.28). The results suggest that guest-housed temporary migrants may be the most vulnerable group in cities in terms of health problems. Though most of them are initially healthier – which is probably a result of selectivity – their reported health deteriorates faster relative to other groups of urban residents.

Determinants of health: general models

Table 1 presents the results of logistic regression models for health status of non-migrants and migrants, using the VMHS data. The dependent variable is health status (i.e. sick versus non-sick) during the three months preceding the survey. This is the outcome for which the impact of recall bias and selection through return migration should be least in evidence. Results from Model 1 in this table show that there is no significant difference among permanent migrants, temporary migrants, and non-migrants.
### TABLE 1: PARAMETER ESTIMATES (ODDS RATIOS) FROM LOGISTIC REGRESSION MODELS - HEALTH STATUS DURING THREE MONTHS PRECEDING THE SURVEY (1997 VMHS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model (1)</th>
<th></th>
<th>Model (2)</th>
<th></th>
<th>Model (3)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>SE</td>
<td>Odds Ratio</td>
<td>SE</td>
<td>Odds Ratio</td>
<td>SE</td>
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<td>Migrant status</td>
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<tr>
<td>Non-migrants (a)</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Permanent migrants</td>
<td>0.913</td>
<td>0.159</td>
<td>1.028</td>
<td>0.157</td>
<td>1.105</td>
<td>0.163</td>
</tr>
<tr>
<td>Temporary migrants</td>
<td>1.003</td>
<td>0.133</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Non-Guest-housed</td>
<td>-</td>
<td>-</td>
<td>0.746 *</td>
<td>0.120</td>
<td>0.866</td>
<td>0.143</td>
</tr>
<tr>
<td>Guest-housed</td>
<td>-</td>
<td>-</td>
<td>1.486 *</td>
<td>0.311</td>
<td>1.529 *</td>
<td>0.334</td>
</tr>
<tr>
<td>Age in year</td>
<td>1.003</td>
<td>0.005</td>
<td>1.006</td>
<td>0.006</td>
<td>1.009 *</td>
<td>0.006</td>
</tr>
<tr>
<td>Female</td>
<td>1.217 *</td>
<td>0.143</td>
<td>1.253 *</td>
<td>0.148</td>
<td>1.271 **</td>
<td>0.153</td>
</tr>
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<td>Education</td>
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<tr>
<td>Illiterate and Primary (a)</td>
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<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Junior secondary</td>
<td>0.764</td>
<td>0.133</td>
<td>0.772</td>
<td>0.135</td>
<td>0.910</td>
<td>0.165</td>
</tr>
<tr>
<td>Senior secondary</td>
<td>0.685 **</td>
<td>0.120</td>
<td>0.724 *</td>
<td>0.128</td>
<td>0.847</td>
<td>0.155</td>
</tr>
<tr>
<td>Employment status</td>
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<td></td>
</tr>
<tr>
<td>Not working (a)</td>
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<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Student</td>
<td>0.718</td>
<td>0.216</td>
<td>0.688</td>
<td>0.208</td>
<td>0.792</td>
<td>0.243</td>
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<tr>
<td>Currently working</td>
<td>0.781 *</td>
<td>0.114</td>
<td>0.775 *</td>
<td>0.113</td>
<td>0.778 *</td>
<td>0.115</td>
</tr>
<tr>
<td>Household size</td>
<td>0.970</td>
<td>0.028</td>
<td>1.025</td>
<td>0.034</td>
<td>1.015</td>
<td>0.034</td>
</tr>
<tr>
<td>Pipe-water</td>
<td>0.803 *</td>
<td>0.102</td>
<td>0.778 **</td>
<td>0.099</td>
<td>1.150</td>
<td>0.164</td>
</tr>
<tr>
<td>Roof type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (a)</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Tiled Roof</td>
<td>0.794 *</td>
<td>0.099</td>
<td>0.776 **</td>
<td>0.097</td>
<td>0.783 *</td>
<td>0.114</td>
</tr>
<tr>
<td>Cement Roof</td>
<td>0.340 ***</td>
<td>0.060</td>
<td>0.351 ***</td>
<td>0.062</td>
<td>0.579 **</td>
<td>0.128</td>
</tr>
<tr>
<td>Place of residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hanoi (a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DaNang</td>
<td>2.428 ***</td>
<td>0.532</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daklak</td>
<td>2.271 ***</td>
<td>0.568</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Binhduong</td>
<td>4.503 ***</td>
<td>1.052</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: se = standard errors; * significant at 10%; ** significant at 5%; *** significant at 1%

In Model 2 of Table 1, guest-housed temporary migrants are separated from non-guest-housed temporary migrants. Results from this model again show the heterogeneity among temporary migrants: the odds of reporting sickness among
guest-housed temporary migrants are almost two times larger than that of non-guest-housed temporary migrants, after controlling for other variables. At a marginal level of significance (0.10), it was found that the odds of guest-housed temporary migrants reporting sickness were 1.49 and 1.45 times larger than for non-migrants and permanent migrants, respectively, holding other variables constant.

That the highest odds ratios were found among guest-housed temporary migrants suggests that they are the most vulnerable group with respect to health status, and they might require special attention in urban health policies. In contrast, non-guest-housed temporary migrants appeared to have superior health: the odds of reporting sickness among them are 27 and 25 per cent less than that of permanent migrants and non-migrants, respectively, holding other variables constant.

Among the study population, females were significantly more likely to report sickness than males, after controlling for migrant status and other variables. Being female increased the odds of reporting sickness by 22 to 25 per cent, respectively, in the first and second model. As expected, higher education was significantly associated with better health, after controlling for other factors. The odds of reporting illness among those with senior secondary education were 31 per cent less, in the first model, and 28 per cent less, in the second model, as compared with those possessing only primary education or those who were illiterate. Also as expected, roof type, which is used as an indicator of wealth, had a clear association with health status. The odds of reporting sickness among those living in houses with cement roofs and tiled roofs were 66 and 21 per cent less, respectively, compared with those living in houses with a temporary or lower quality roof.

Results from these first two models in Table 1 consistently showed that having access to clean water was a route to improved health status. The odds of reporting sickness among those who had access to pipe-water, including pipe-water in a compound and from the public tap, were about 20 per cent less than those who had access to other sources of water, such as well, rain, river, and lake water. No significant association was found between household size and the incidence of sickness.

Among migrants, students and the military constitute two special groups strongly affecting migration patterns which should be treated differently, controlled, or excluded. The current survey does not include those who are in the military. In order to control for any difference caused by students, occupation was categorized into three groups: students and pupils; non-students currently working, and non-students currently not working. At a borderline level statistical significance,
the odds of those currently working reporting sickness were 22 per cent less compared to those not currently working, after controlling for the student effect and holding other variables constant.

In order to identify the effects of macro-level variables, or community effects, Model 3 of Table 1 adds controls for place of residence. Although a very crude measure, the results in this model demonstrate great regional variation in health status. All else being equal, those who lived in Binhduong were much more likely to get sick than those living in Danang and Daklak, and those who lived in Hanoi were the least likely to get sick. No significant differences were found between Danang and Daklak regarding the incidence of sickness. Except for the effects of access to pipe-water, the coefficients and significant levels of all other variables changed only modestly after the inclusion of place of residence. After the inclusion of place of residence, access to pipe-water no longer had a significant association with the incidence of sickness.

It should be noted that place of residence had moderate correlations with other variables in the last model: Hanoi had the highest rate of population attending secondary school or higher, the highest usage rates of piped water, and the highest number of residents living in cement roof houses; Binhduong always had the lowest rates. These results indicate that there were great regional variations among the study sites and these variations contributed to health differentials among the regions. These regional variations include education, access to clean water, wealth, and other uncontrolled variables. The results in Model 3 suggest that future efforts to identify community traits that might influence health might pay analytical dividends.

**Determinants of health by migrant status**

Table 2 presents logistic regression models of the determinants of health for non-migrants and every group of migrants, taken separately. Thus, these models allow covariates to operate in unconstrained fashion on the prediction of health status for each of the migration subgroups. (At the same time, reduced sample size in each regression results in less statistical power to estimate effects of covariates that operate similarly across groups.) Return migrants are not included due to their small numbers. Results from these models expand upon what we have learned from the three models in Table 1. Variables that had significant effects on health in the first three models still had significant effects in at least one of the models in Table 2. However, determinants, as well as the strengths of the effects, change from group to group for most of the other variables.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Non-migrants</th>
<th>Permanent Residents</th>
<th>Temporary Migrants</th>
<th>Non-guest-housed temporary migrants</th>
<th>Guest-housed temporary migrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Model)</td>
<td>(1)</td>
<td>(3)</td>
<td>(5)</td>
<td>(7)</td>
<td>(9)</td>
</tr>
<tr>
<td>Age in year</td>
<td>1.002</td>
<td>1.000</td>
<td>1.003</td>
<td>1.011</td>
<td>0.981</td>
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<tr>
<td></td>
<td>(0.011)</td>
<td>(0.010)</td>
<td>(0.009)</td>
<td>(0.010)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Female</td>
<td>1.219</td>
<td>1.019</td>
<td>1.487 **</td>
<td>1.388</td>
<td>1.518</td>
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<tr>
<td></td>
<td>(0.276)</td>
<td>(0.221)</td>
<td>(0.279)</td>
<td>(0.374)</td>
<td>(0.430)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illit. and Primary (a)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Junior secondary</td>
<td>0.450 **</td>
<td>0.987</td>
<td>0.847</td>
<td>0.877</td>
<td>0.844</td>
</tr>
<tr>
<td></td>
<td>(0.153)</td>
<td>(0.337)</td>
<td>(0.226)</td>
<td>(0.313)</td>
<td>(0.391)</td>
</tr>
<tr>
<td>Senior secondary</td>
<td>0.457 **</td>
<td>0.831</td>
<td>0.736</td>
<td>1.007</td>
<td>0.587</td>
</tr>
<tr>
<td></td>
<td>(0.156)</td>
<td>(0.275)</td>
<td>(0.204)</td>
<td>(0.357)</td>
<td>(0.297)</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not working (a)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Student</td>
<td>0.769</td>
<td>-</td>
<td>1.017</td>
<td>0.910</td>
<td>1.490</td>
</tr>
<tr>
<td></td>
<td>(0.372)</td>
<td>(b)</td>
<td>(0.470)</td>
<td>(0.613)</td>
<td>(1.268)</td>
</tr>
<tr>
<td>Currently working</td>
<td>0.832</td>
<td>0.566 **</td>
<td>1.172</td>
<td>1.043</td>
<td>1.711</td>
</tr>
<tr>
<td></td>
<td>(0.219)</td>
<td>(0.136)</td>
<td>(0.321)</td>
<td>(0.340)</td>
<td>(1.140)</td>
</tr>
<tr>
<td>Household size</td>
<td>1.020</td>
<td>0.925</td>
<td>0.982</td>
<td>1.113 *</td>
<td>1.722 ***</td>
</tr>
<tr>
<td></td>
<td>(0.057)</td>
<td>(0.059)</td>
<td>(0.041)</td>
<td>(0.072)</td>
<td>(0.325)</td>
</tr>
<tr>
<td>Pipe-water</td>
<td>0.675</td>
<td>1.046</td>
<td>0.732</td>
<td>1.193</td>
<td>0.378 ***</td>
</tr>
<tr>
<td></td>
<td>(0.164)</td>
<td>(0.239)</td>
<td>(0.150)</td>
<td>(0.359)</td>
<td>(0.117)</td>
</tr>
<tr>
<td>Roof type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (a)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Tiled Roof</td>
<td>0.513 ***</td>
<td>1.130</td>
<td>0.835</td>
<td>0.674</td>
<td>0.960</td>
</tr>
<tr>
<td></td>
<td>(0.124)</td>
<td>(0.262)</td>
<td>(0.166)</td>
<td>(0.194)</td>
<td>(0.301)</td>
</tr>
<tr>
<td>Cement Roof</td>
<td>0.322 ***</td>
<td>0.398 ***</td>
<td>0.307 ***</td>
<td>0.313 ***</td>
<td>0.211 **</td>
</tr>
<tr>
<td></td>
<td>(0.103)</td>
<td>(0.121)</td>
<td>(0.095)</td>
<td>(0.119)</td>
<td>(0.143)</td>
</tr>
<tr>
<td>N</td>
<td>500</td>
<td>525</td>
<td>703</td>
<td>413</td>
<td>290</td>
</tr>
</tbody>
</table>

Note: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%
(a) reference category; (b) number of cases is less than 10
Among the determinants of health, roof type consistently had a significant effect for all groups of urban residents. The findings ran in the same direction as for the pooled sample. In general, the effect of this variable is strong; health status substantially improved moving from one to the next higher-order roof category. However, there is a noticeable distinction between migrants and non-migrants. While there were significant differences among non-migrants who lived under a tiled roof versus anything of lesser quality (including metal, tin, fibro, thatch, leaves, bamboo, or oil paper), the same differences were not significant in the case of migrants, both permanent and temporary. Also, while health status of those living in tiled roof or cement roof houses was not significantly different among non-migrants, this difference was significant among every group of migrants. Odds ratios across groups of migrants further showed that roof type was more important for temporary migrants, especially guest-housed temporary migrants, than non-migrants or other groups of migrants. For every group, education also affected health in the same direction as the pooled sample. However, significant effects were found only among non-migrants.

Among permanent migrants, being employed significantly decreased the likelihood of reporting sickness, while it made no difference for temporary migrants and non-migrants. Although no significant association was found, it is worthwhile to note the coefficients of employment status among guest-housed temporary migrants, especially since the sample size for the model with this group was small. The coefficients of this variable suggested that guest-housed temporary migrants who were working might have had a higher likelihood of sickness than their counterparts who were not currently working. The coefficients of the sex variable suggest that females were more likely to report sick than males during the three months preceding the survey regardless of their migrant status. However, significant gender differences were found only among temporary migrants: being a female temporary migrant increased the odds of reporting a sickness by almost 50 per cent, holding other variables constant. No differences between males and females were found among non-migrants or permanent migrants.

Interestingly, having access to pipe-water is strongly associated with superior health for guest-housed temporary migrants, while it has no significant predictive power for the health of other groups. This finding has implications for social policies for migrants and will be discussed at greater length below. Similarly, while household size has no significant effect on the incidence of sickness for permanent migrants and non-migrants, it has strong and positive effects on the incidence of sickness for guest-housed temporary migrants. Although household size also has significant effects on the health of non-guest-housed temporary migrants, its magnitude is small and the significance level is marginal. Household size for guest-housed temporary migrants most likely reflects the burdens of urban
life rather than family supports and, to some extent, social networks. In fact, the average household size of guest-housed temporary migrants is less than two while it is between four to five for all other groups. The results suggest that household structure and the relationships among involved persons, including household members and those from the extended family or social networks, might play an important role in health conditions.

Regional variations were considered, but the findings did not offer much beyond what we described from Table 1. Again, there was found to be great regional variation. Regardless of migrant status, Binhduong stood out as having the highest likelihood of reported sickness compared to the other regions investigated in this study; Hanoi has the best health profile.

**Temporal effects and selection**

We now discuss the influence of duration. We acknowledge that as the retrospective interval grows longer there is more opportunity for self-selection to affect the results, although the direction of selection effects is not absolutely pre-determined.\(^{10}\) Duration of residency was added to the models for migrants (results not shown) under the hypothesis that the longer the duration of residence, the better knowledge migrants might have on the availability of health services and facilities in urban areas. Migrants who have been in residence longer have higher accessibility to health services, which leads to better health.

However, duration of residence neither improved the explanatory power of the model nor had any significant effect on health for permanent migrants and guest-housed temporary migrants. A significant and negative effect – longer duration in the destination associated with greater rates of reporting sickness – was found only for non-guest-housed temporary migrants, a differential that may have resulted from differences between the three groups of migrants. For example, as a majority of the guest-housed temporary migrants are poor, they cannot afford the expensive health services available in urban areas. In addition, their health insurance, if available, does not cover health expenses in the place of residence. Once guest-housed temporary migrants get sick, they may have to return home for treatment, in which case this study sample would not have captured them. This selection effect would explain the non-significant effect of duration of residence on guest-housed temporary migrants. This finding raises a question as to why duration of residence appears to increase awareness of the availability of health services but does not increase accessibility to health services available to guest-housed temporary migrants.
Non-guest-housed temporary migrants are affected somewhat differently, as they have stronger ties to urban areas. The fact that a majority of non-guest-housed temporary migrants own a house in urban areas\(^1\) indicates their intention to stay permanently. They can thus be seen as the transition group between guest-housed temporary migrants and permanent migrants. It is not surprising to find that duration of residence does not have an effect on the health of permanent migrants, since those migrants usually possess a great deal of accurate information on health services, obtained either through better preparation or from social networks. Moreover, most permanent migrants are long term residents of urban areas\(^2\) and, therefore, duration of residence is no longer a factor in the regression.

The next adjustment is for selection effect. As was mentioned earlier, there may be significant numbers of guest-housed temporary migrants who return home for treatment when they get sick and, as a result, are not captured in the sample. At the same time, a very low number of non-guest-housed temporary and permanent migrants return home when they get sick, and nearly all non-migrants seek treatment in urban areas. As a result they are all captured in the sample. Using some simple mathematical tools (see appendix 2 for an illustration) it is possible to simulate a likely selection scenario. First, if selection effect is taken into account, and if it is presumed that all returned sick migrants are in fact included in the sample, the probabilities of capturing the sick migrant population during both the short and the long periods right before the time of survey are higher, while the probability of capturing the sick non-migrant population remains the same. Also, after including returned sick migrants, the probabilities of sickness are much higher among guest-housed temporary migrants and only slightly higher among non-guest-housed temporary and permanent migrants.

Second, the more interesting finding is that after controlling for selection effect, migrants are not only worse off in terms of their reported health status but their health also deteriorates at a faster rate than non-migrants. Again, under the assumption that guest-housed temporary migrants are more likely to return home when sick, the health status of guest-housed temporary migrants in urban areas deteriorates at a faster rate than other groups of migrants, after controlling for this selection effect.

Theoretically there may be a second type of selection effect, which is the result of over-sampling those who moved to urban areas for health reasons. Those who moved to urban areas specifically for health treatment reasons – who were primarily located in institutions (i.e. hospitals and health clinics) – were excluded from the sample. Consequently, only very small numbers of sampled migrants were likely to have migrated to urban areas for health reasons.\(^3\)
Finally, since we controlled for age, the age compositional differences (among migrant groups and associations with health) are unlikely to have driven the net statistical results seen across groups. Thus we have even further support for the findings in Figure 1 that show the vulnerability of migrants, especially guest-housed temporary migrants, in urban areas.

CONCLUSIONS

Rapid economic growth after the adoption of “Doi Moi” in 1986 strongly affected access to health services. Increase in income inequality and the shift in the basis of health services from free-of-charge to pay-per-service are two major mechanisms that influence the relationship between economic reforms and health. Economic reforms not only enable people to buy what were previously state subsidized health services, but also increase the amount they must pay for health services. Under the new system, urban-rural and rich-poor differences are reinforced and aggravated. The poor are not becoming less impoverished as quickly as the rich are becoming wealthier (Tipping, 2000). Decrease in financial support for the state health system and inadequate management capacity within the new health system are other considerations that increase this inequality (Nguyen et al., 1995). Though exemption mechanisms are in operation, inequity is exacerbated by ineffective targeting, as well as by significant administrative, economic, and informational barriers to their implementation (Russel and Gilson, 1997).

Most studies of this genre have in the past focused on the obvious rich-poor and urban-rural contrasts. Yet, migrants, especially those who are temporary or short-term, have not been given adequate attention, particularly given the rapid rate of increase in their numbers and their vulnerability in times of economic transition. Ignorance of issues related to short-term or temporary mobility has been widely discussed in criticisms of the immobility thesis (De Jong and Gardner, 1981; Skeldon, 1997). In urban areas, these migrants are usually left out of master plans since they do not appear in migration statistics.

In Vietnam, urbanward migration has increased substantially as a result of economic reforms. Fewer ties to local services give people more freedom of movement, and economic development gives them resources to turn their intentions into action. The pull factor posed by urban bias investment in the new market-oriented economy, and the push factor linked to more rapid increases in the rural population, also augment rural-to-urban migration. Such movements are mostly temporary, as migrants work in low-paid jobs that often are rejected by native workers (Dang, 1998; White et al., 2001). At recent migration conferences in Vietnam, concerns were raised about urban temporary migrants, but they remain a group about which little is known.
China may offer some lessons and insight in this regard. Many features of socio-economic change in China and Vietnam are parallel, including dramatic economic restructuring and urbanward migration. In China the “floating” population, which is defined similarly to the temporary migrant population in this study, increased sharply after the economic restructuring and the “floating” population is largely under-estimated (Liang and Ma, 2004). We know that the floating population is substantial and of concern for policies regarding access to services and well-being of urban residents. Yet, analysis of the Chinese case is similarly hampered by the lack of longitudinal information about the health of various migrant groups and comparative populations.

Results of the present study challenge the common impression that temporary labourers in urban areas are generally of superior health status than urban natives. There are several reasons for this myth, the first being the self-selectivity of the group. Most temporary migrants are young and highly self-selected. Youth would tend to be associated with health, but the migrants might be less healthy after controlling for age. Secondly, most observers see health status as a “snap-shot” taken at a specific moment in time, rather than as a process that extends over a continuous time frame. It would likely prove true that temporary migrants are strong and healthy if observed at the time they are actually at work. On the other hand, those who got sick and returned home or were hospitalized usually are not observed or are ignored. Failure to distinguish weak-urban-tie temporary migrants (guest-housed) from strong-urban-tie temporary migrants (non-guest-housed) is another reason for this misperception. Most of the strong-urban-tie temporary migrants are, in fact, not too different from either urban permanent migrants or non-migrants and they should not be categorized as temporary migrants. The consolidation of strong-urban-tie and weak-urban-tie temporary migrants into one group artificially diminishes the vulnerability of those who are really temporary.

Guest-housed temporary migrants were consistently found to be the most vulnerable group in urban areas. After controlling for other socio-economic determinants, permanent migrants and non-guest-housed temporary migrants did not significantly differ from non-migrants in terms of reported health. However, the study found that guest-housed temporary migrants were significantly more likely to report a sickness within three months prior to the time of the survey, and that the health status of this group decreased even further after adjustments were made for selection effect.

Findings from this study suggest that the time dimension should be considered if a comprehensive health status picture is to be obtained. Our results strongly support the idea that different subgroups of the population manifest varying
health patterns in a recent (three-month) retrospective interval. Most notable is the disparity observed between guest-housed and non-guest-housed temporary migrants. Our results and simulations also give credence to the idea that self-selection – particularly the return of sick temporary migrants to their rural origins – may operate. Our results thus point to important new findings about social differentials in health. At the same time, our work clearly suggests that longitudinal data would provide even clearer insights into the relationship between initial migration, onward migration, return migration, and rural-urban residence on the health patterns of the population in a transition economy.

Our results also offer considerations for policy. The wide gap between guest-housed temporary migrants and non-guest-housed temporary migrants suggests that the current population management policy, which is carried out by registration system, needs to be revisited. Though both groups find themselves in the same category of “temporary resident”, they are, in fact, quite different in many ways. Some temporary residents have settled in urban areas for a considerable length of time but they are still “temporary” since they cannot register in their current place of residence. One possible solution would be to introduce a dual registration system by which both non-temporary and temporary migrants would be registered separately at a common office.

Results of the multivariate analysis suggest that providing clean water is one of the most important solutions to improving the health of guest-housed temporary migrants. While the benefit of access to clean water is not a new finding in the health field, the particular impact of provision to temporary migrants is clear from our results. Guest-housed temporary migrants tend to segregate in areas that have poor access to water and sanitation. In Hanoi, for instance, most migrants and temporary residents live along the Red River and in sub-urban areas where the water supply is poor. Since guesthouse owners have to pay for in-compound piped water, they often are unwilling for renters to use it, and the renters themselves are reluctant to pay for that service. As a result, lower quality water, such as water obtained from rivers and wells, is used as an alternative. Guest-housed temporary migrants in urban areas seem to be trapped in a cycle that results from poor living conditions, poor hygiene and sanitation, poor health, and low income in the long-run. Providing water at subsidized prices and installing larger numbers of public tap stands in poorer or migrant segregated areas would be a solution to improving the health and income of the migrant and non-migrant poor.

There is evidence to show that female temporary migrants are more likely to report sicknesses than their male counterparts, after controlling for other socio-economic variables, despite the fact that the status of Vietnamese women has considerably improved during the course of the past half century. We note that
women are the traditional care-givers, and the likelihood that they have greater health awareness may increase their reporting. Still, policymakers may wish to consider these findings and the role of gender as it intersects with migration in the provision of health services.

Besides providing clean water and prioritizing women’s health, promoting education and reducing unemployment can also mitigate health problems in urban areas. These factors, however, do not have the same effect on the health of people with different migrant statuses. Though the effects of these factors may move in the same direction, their significance levels and strengths are different. For example, employment status significantly affects only permanent migrants (in our results), and education significantly affects only non-migrants. The non-significant effect of education for migrants may come from the lack of access among migrants; that is, education is not as important for migrants as they, whether educated or not, do not know where and how to get health care services in urban areas. Therefore, providing healthcare-related, sanitary, and hygiene information to urbanward migrants is probably important to improving migrants’ health and urban environment. Nevertheless, this hypothesis needs to be tested in further studies. While roof type, which might proxy both wealth and living conditions, significantly affects all groups, its effect is stronger for guest-housed temporary migrants than for non-migrants and permanent migrants. These results suggest that different priorities should be given to different groups of urban residents in order to effectively improve their health.

This paper also shows that macro-level variables affect health status but, unfortunately, the results did not specifically indicate which macro-level factors matter. The results, however, do imply that further research may appropriately be directed at specific macro-level determinants of health and their interaction with micro-level determinants. The results show that there appears to be a need for regional flexibility in the development of health policies, and priorities should be given to high-risk regions.

The results of this paper show that there is no single factor that determines health status. The implication is that health policy makers would be well advised to not only address the health sector but other sectors as well, along with the manner in which sectors interact in order to arrive at a more comprehensive understanding of health determinants. Such knowledge may help them develop more effective, low cost health policies that are better adapted to the circumstances of a developing country like Vietnam. The effect of a lack of effective coordination and cooperation among different health investment partners, including the government, has been discussed elsewhere (Nguyen et al., 1995). The results imply that improved collaboration between different government offices and interested partners is required in working towards improved health status.
Last but not least is the gap between theory and practice, or the government’s attitude and ability to deal with temporary migrants. In China, local authorities have demonstrated that they do not want to arrange health care for the “floating” population, and even if they really wanted to, they are not capable of doing so due to their limited resources (Solinger, 1999). Finance for health care is also a constraint in Vietnam; temporary migrants cannot rely on this channel. Having their own health clinics and hospitals as the Zhejiang migrants did in Beijing (Solinger, 1999) is one solution, but evaluation of the quality, effectiveness, and management of these “floating” health clinics is needed.

As it appears that temporary migrants care more about their income than their health, and do not think of long-term effects, health policies may want to target employers rather than migrants themselves. Requiring employers in both public and private sectors to provide basic health care and health insurance to their employees, including migrant employees, could be a solution. However, that solution does not work well for a large proportion of temporary migrants who do home-based and temporary jobs. These constraints lead us to return to the suggestion that Vietnam continue to provide free basic health care, not only for non-migrants but also migrants. Again, however, the question is whether the financial resources exist to provide such free basic health care.

NOTES

1 An earlier version of this paper was presented at the IUSSP Conference on ‘Southeast Asia’s Population in a Changing Asian Context’ held at the Siam City Hotel, Bangkok, Thailand, 10-13 June 2002. The research reported here has been carried out as part of a larger project on Interrelations Among Migration, Economic Changes, Women’s Status, Reproduction, and Health in Countries Undergoing Economic, Political, and Demographic Transitions. The project covers four countries and is funded by the United Nations Population Fund (Vietnam, Ethiopia, and Guatemala) and the Andrew Mellon Foundation (South Africa). We would like to express our gratitude to Sidney Goldstein, Alice Goldstein, Anh Dang, other colleagues at the Population Studies and Training Center – Brown University and Demography Department – Vietnam Institute of Sociology, and colleagues at the Asian MetaCenter of the National University of Singapore for their great comments and support.

2 This program is very similar to the household registration (or hukou) operating in China.

3 Other reviews also fit partially into these explanations.
4 Level of significance was 0.01.
5 The model was refitted so that every group of migrants, one at a time, was the reference category. Results not shown, available from the authors.
6 Marginal level of significance was 0.10.
7 The presented figures came from the first model. Similar figures were found in the second model as shown in the Table.
8 The odds of sickness being reported among those who live in Binhduong are 1.85 and 1.98 times larger, respectively, compared to Danang and Daklak, holding other variables constant. Results not shown, available from the authors.
9 The percentages of population with secondary education or higher are: Hanoi, 64 per cent; Danang, 53 per cent; Daklak, 47 per cent; Binhduong, 31 per cent. Per centages of population with access to piped water: Hanoi, 99 per cent; Danang, 38 per cent; Daklak, 27 per cent; Binhduong, 20 per cent. Per centages of population with cement roof houses: Hanoi, 74 per cent; Danang, 14 per cent; Daklak, 5 per cent; Binhduong, 4 per cent.
10 For example, some migrants to the cities might have acquired an illness and returned to their home areas, while others might specifically come to urban areas because of illness-related reasons, perhaps seeking treatment, as described below.
11 Seventy eight per cent of non-guest-housed temporary migrants own a house.
12 The mean number of months permanent migrants have lived in urban areas is 189, the mean is 70 months for non-guest-housed temporary migrants, and 21 months for guest-housed temporary migrants.
13 Less than 2 per cent according to our data set.

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APPENDIX

APPENDIX 1: MAP OF VIETNAM AND FOUR URBAN STUDY SITES

Note: Thu Dau Mot = Central town of Binh Duong Province
Buon Me Thuot = Central town of DakLak Province

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APPENDIX 2: SIMULATIONS FOR SELECTION EFFECTS

Selection effect type 1: Migrants who got sick and had already returned to their homeland before the time of interview were not captured in the sample.

The total number of migrants is N.

Suppose that we look at two periods, period $t_1$ is a short period right before the time of the interview and period $t_2$ is a longer period before time of interview.

Let the total number of migrants who got sick in period $t_1$ be $a$.

Let the total number of migrants who got sick in period $t_2$ be $b$.

Since $t_1 < t_2$ and the two periods overlap, so $a < b$.

Let the duration from the mid-point of period $t_1$ to the mid-point of period $t_2$ be $t$.

Let the total number of migrants who are missing by selection effect be $c$.

Before controlling for selection effect, the proportion of migrants who get sick in period $t_1$ is: $\frac{a}{N}$

The proportion of migrants who get sick in period $t_2$ is: $\frac{b}{N}$

After controlling for selection effect, the proportion of migrants who get sick in period $t_1$ is: $\frac{a + c}{N + c}$

The proportion of migrants who get sick in period $t_2$ is: $\frac{b + c}{N + c}$

* Comparing positions of the reference lines before and after controlling for selection effect:

Since $a \leq N \Rightarrow ac \leq Nc$ (as $c$ is an integer and $c \geq 1$) $\Rightarrow ac + aN \leq Nc + aN$ (as $aN \geq 0$)

$$\Rightarrow \frac{ac + aN}{N(c + N)} \leq \frac{cN + aN}{N(c + N)} \Rightarrow \frac{a(c + N)}{N(c + N)} \leq \frac{N(c + a)}{N(c + N)}$$

$$\Rightarrow \frac{a}{N} \leq \frac{a + c}{N + c}$$

Similarly, we can prove $\frac{b}{N} \leq \frac{b + c}{N + c}$

Conclusion 1: The results mean that the reference line shifts up after controlling for selection effect. In other words, the probability of capturing sick migrants during both the short period $t_1$ and the long period $t_2$, right before the time of survey, is higher after including returned sick migrants to the sample.
* Comparing the slopes of the reference lines before and after controlling for selection effect:

The slope of the reference line before controlling for selection effect:

$$\sin \alpha = \frac{b - a}{t} = \frac{b - a}{tN}$$

After controlling for selection effect, the slope is:

$$\sin \beta = \frac{b + c - a + c}{t} = \frac{(b + c) - (a + c)}{t(N + c)} = \frac{b - a}{t(N + c)} > \frac{b - a}{tN} = \sin \alpha$$

as tc > 0, so \((tc+tn) > tN\) or \(t(N+c) > tN \Rightarrow \beta < \alpha \)

**Conclusion 2:** The results mean that the reference line before controlling for selection effect is steeper. In other words, after controlling for selection effect, migrant health deteriorates at a faster rate than that of non-migrants.

**Figure 2:** Simulation for selection effect

**Selection Effect Type 2:** Migrants went to urban areas for health services and sick migrants were over-sampled.

This effect was eliminated or very small since institutions (i.e. hospitals and health clinics) were excluded from the sample and only a very small portion of migrants go to urban areas for health reasons (less than 2 per cent).

Note: the simulation can be extended to include many periods, e.g. \(t_1 < t_2 < t_3 < t_4\), etc.
L’ÉTAT DE SANTÉ DES MIGRANTS TEMPORAIRES DANS LES ZONES URBAINES DU VIETNAM

La rapidité de la croissance enregistrée au lendemain de la réforme économique mise en place au Vietnam et connue sous le nom de “Doi Moi”, et le phénomène croissant de l’exode rural posent des questions spécifiques pour les politiques sociales - notamment dans les secteurs de la migration et de la santé. Les auteurs comparent l’état de santé - et ses déterminants - de personnes qui migrent provisoirement vers les villes, de celles qui s’installent en ville de manière permanente et de non migrants. L’analyse s’appuie sur la régression logistique à variables multiples et sur les chiffres provenant de l’Enquête vietnamienne sur la migration et la santé réalisée en 1997. Les résultats montrent que ce sont les migrants temporaires qui logent en pension de famille qui sont les plus exposés aux problèmes de santé. En effet, si, dans un premier temps, la plupart d’entre eux sont en bonne santé, leur état se détériore plus rapidement que celui des autres groupes de citadins. Ces constatations soulèvent des questions importantes au plan des politiques vietnamiennes en matière de migration et de santé: 1) il conviendrait de porter une attention toute particulière aux migrants temporaires logeant en pension de famille ; 2) aux différents groupes de migrants et de non migrants devraient s’appliquer des priorités différentes au niveau des politiques de santé; 3) il faudrait revoir la politique actuelle en matière de gestion des populations, qui fait actuellement appel à un système d’enregistrement; 4) l’accès à l’eau potable constituerait l’un des moyens les plus efficaces d’améliorer la santé des migrants temporaires; 5) un investissement dans le domaine de l’enseignement et une réduction du chômage entraîneraient sans aucun doute une amélioration de la santé ; 6) il est fortement recommandé d’accorder une priorité plus élevée aux politiques de santé visant spécifiquement les femmes, et 7) l’amélioration de l’administration et une meilleure collaboration entre les organismes publics et les différents protagonistes sont des facteurs propres à améliorer l’état de santé général et à réduire les inégalités.
ESTADO DE SALUD DE LOS MIGRANTES TEMPORALES EN LAS ÁREAS URBANAS DE VIET NAM

El rápido crecimiento económico que ha seguido a la reforma económica, conocida en Viet Nam como “Doi Moi”, y el alcance cada vez mayor de la migración urbana plantean interrogantes específicos en relación con la política social, incluidas las políticas relativas a la migración y a la salud. En este documento se cotejan cuestiones sobre la situación de la salud y sus determinantes, puesto que afectan a los migrantes urbanos temporales, con los colectivos urbanos de migrantes permanentes y de no migrantes. Los análisis se han hecho mediante técnicas de regresión logística de varias variables y utilizando datos de la encuesta de migración y salud realizada en Viet Nam en 1997. Los resultados muestran que los migrantes temporales que se alojan en hogares de huéspedes están muy expuestos a problemas de salud. Aunque la mayoría suelen estar más sanos en un principio, según los datos de que se dispone, su salud empeora más rápidamente que la de otros grupos de residentes urbanos. Las conclusiones también revelan implicaciones para las políticas actuales en materia de migración y de salud en Viet Nam: 1) Debería prestarse especial atención a los migrantes temporales que se alojan en hogares de huéspedes; 2) Deberían aplicarse distintas prioridades en materia de política sanitaria a los distintos grupos de migrantes y no migrantes; 3) Es necesario revisar la política actual de gestión de la población basada en el registro; 4) Uno de los modos más importantes de mejorar la salud de los migrantes temporales es proporcionándoles agua potable; 5) La inversión en educación y la reducción del desempleo contribuirían probablemente a mejorar la salud de la población en general; 6) Es altamente recomendable conceder mayor prioridad a las políticas de salud para las mujeres, y 7) Es importante mejorar la gestión y la colaboración entre las oficinas gubernamentales y los asociados interesados para mejorar el estado de salud de la población y reducir las desigualdades.