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Shifts in vulnerability landscapes: young women and internal migration in Vietnam

1. INTRODUCTION

In contrast with South Asia, young women in East and Southeast Asia enjoy a higher degree of social autonomy, which most noticeably translates into higher migration rates. Female mobility in Southeast Asia is only partly determined by collective family decisions or by marriage, and individual migration decisions linked to employment opportunities and education are very common beginning at an early age.

Migration places young women in a different environment and makes them especially vulnerable. The concept of vulnerability is usually a multidimensional measure of the exposure of individuals to various sources of external stress, ranging from economic downturns to environmental changes and political unrest. More precisely, social vulnerability may be expressed as risk of livelihood stress or of welfare loss[1]. Gender inequality, compounded by widespread poverty, means that women in developing countries are far more at risk, and this is well-reflected in the existing literature. Young migrating women are a case in point and have often been identified as an especially vulnerable group[2].

Nevertheless, the notion of vulnerability, when applied to young women and migrants, mostly refers to very specific aspects, namely trafficking, prostitution and HIV/AIDS, particularly in urban areas[3]. Studies have, for example, documented how vulnerability (often conflated with poverty) of young women in urban areas is a prime determinant of risks of trafficking or of reproductive tract and HIV/AIDS infections[4]. The purpose of our paper is to change the focus of the analysis of young women in Vietnam in two ways. First, we want to expand the perspective to include not only metropolitan areas but also other regions in Vietnam and especially to compare the situation between migrants

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[1] Useful discussions of existing notions of vulnerability can be found in Alwang *et al*. (2001), Hogan and Marandola (2005) and in Delor and Hubert (2000). Due to the nature of our investigations, we focus here on individual factors of vulnerability and only indirectly examine some dimensions of household- or community-level vulnerability.

[2] See for instance Whitehead and Hashim (2005), Erulkar *et al*. (2005), Chant (1998), Kim *et al*. (2012), GSO (2004), Dang *et al*. (2008).

[3] See for example Nguyen and White (2007).

[4] See notably Rushing *et al*. (2005), Mabala (2006), Whitehad and Hashim (2005), Go *et al*. (2002), Beyrer and Stachowiak (2003). Smith-Estelle and Gruskin (2003), Dang *et al*. (2008).

and non-migrants as well as that between rural and urban residents. Second, we want to explore more everyday dimensions of social, economic and demographic vulnerability affecting a larger proportion of women, taking into account the influence of female migration[5].

The first section of this paper summarizes how we want to reframe the notion of vulnerability. The second section presents the methodology and the dataset used in our analysis. In the third section, we present the results of our analysis and highlight some of the most salient variations in vulnerability across Vietnam. The fourth section of our paper offers a disaggregated analysis of vulnerability and illustrates the various "vulnerability regimes" observed in the country. The paper concludes with a profile of the three main types of vulnerability faced by young women in Vietnam and a discussion of the link between migration and risk-taking among young women.

2. MAPPING VULNERABILITY ACROSS VIETNAM

Drawing on previous research, we will use the concept of vulnerability in a multidimensional way, identifying positive and negative impacts of migration and urbanization, taking into account not only the individual characteristics and the social context in which young women live, but also the possible intersections of different types of vulnerabilities. However, as previously indicated, field-based literature describing vulnerability contexts among young women tends to concentrate on the most extreme forms of risk, abuse and exploitation such as HIV-AIDS infection and trafficking. Whilst serious issues in their own right, they affect only a small proportion of the female population. The emphasis on these aspects tends to underplay more common social, family and economic forms of vulnerability that affect a sizeable number of young women. In addition, available studies often focus on specific areas and mostly concern female migrants in cities. They are based on local surveys and in-depth fieldwork, and do not provide a bigger picture of the "vulnerability landscape" within which spatial mobility takes place[6]. By vulnerability landscape we mean different contexts in which young women operate and the diversity of corresponding risks they face. For instance, when considered over a larger region or an entire country, risks faced by rural young women staying with their parents until marriage are, for instance, quite different from those faced by young women migrating independently to urban areas. To follow the logic of migration processes, it is therefore important to be able to differentiate between origin and destination

[5] Some studies focus on specific sources of vulnerability such as female household headship (see for example Klasen *et al*., 2011, Scott, 2003 but the influence of migration is taken into account only as a source of remittances for non-migrants.

[6] In some local studies, migration is analyzed in the life cycle of the migrant women. See for example Vu (2013).

areas in order to evaluate some of the risks and benefits associated with mobility decisions. Vulnerability emerges as a salient dimension in this assessment, along with better-known contextual factors of migration, such as poverty, employment opportunities, wage differentials, and the presence of migratory networks.

This paper is therefore based on the hypothesis that assessing vulnerability requires a more systematic description of the variety of local situations in light of the heterogeneity of livelihood systems found across the country. The mapping of this vulnerability landscape will allow us to better understand the shifting nature of risks associated with migratory strategies (i.e. when young women leave small towns or the countryside in order to get a job in a city). While urban life makes migrants more vulnerable to a new set of factors, spatial mobility is also the principal way of escaping an environment characterized by entrenched poverty and other social and demographic risks. In fact, urbanization and regional variations are key elements in exploring the changing vulnerability landscapes for Vietnamese women. We will therefore compare vulnerability levels observed within the country and, in particular, seek to describe the migration-urbanization nexus by measuring changes in several vulnerability indicators.

Furthermore, we want to show that a country can be divided into different regions characterized by various regimes of vulnerability, i.e. a set of locally interdependent dimensions of vulnerability. In particular, we will show how some indicators of vulnerability tend to correlate with each other in specific areas and therefore to reinforce each other. This intersectional perspective will allow us to identify potential distinct vulnerability regimes present in contemporary Vietnam. This is a crucial element in understanding what migration entails in terms of the changing nature of the risks for female youth. Migration in particular highlights the trade-off between old forms of social and economic vulnerability typical of rural livelihoods and new risks and opportunities for migrants settling in urban areas. However, the variety of forms of spatial mobility documented in our sample allows us to go beyond the opposition between urban and rural livelihoods to describe the more complex scenarios observed across Vietnam.

The paper also makes the assumption that, in the absence of a nationally representative sample which would capture some of the more commonly used notions of vulnerability, such as risks related to trafficking, violence and infection, a large census sample can provide an adequate source for mapping the vulnerability landscape in geographical detail. Whereas studies on young women's vulnerability rely on sample surveys with a narrow geographic and thematic focus, the use of a large national sample has the precise aim of describing, in depth, the diversity of vulnerability types observed across regions and localities. In spite of the limitations of census data, we will cover a wide spectrum of vulnerability dimensions, ranging from family isolation to unemployment, handicap and early motherhood.

Vietnam offers a perfect example to study the migration process and resultant vulnerability. A large proportion of its population lives in relative poverty and its population remains mostly rural (70%). This results in a strong migration potential towards urban areas where most of the recent economic growth has been concentrated. Migration towards rural areas is also important, most notably because of the colonization of the Central Plateaus by peasants from the plains. At the same time, the official barriers to migration have declined as the *Ho Khau* system of residential household status has been gradually relaxed[7]. This mobility has been fueled, in particular, by the new employment opportunities created by the rapid growth since the economic reforms of the late 1980s (*Doi Moi*)[8].

Recent census results confirm that urbanization levels have increased in Vietnam continuously since 1980, reaching 29.6% in 2009, and are expected to continue to rise in the future. Ho Chi Minh City's population is already nearing 6 million people, while Hanoi's now exceeds 2.5 million. Similarly, the proportion of migrants in the total population has risen over the last 20 years (GSO, 2011a). Today, inter-provincial migrants represent 4.3% of the population compared to 2.5% in 1989[9]. This migrant population has increased by 5.4% from 1999 to 2009 compared to a growth of 1.1% for non-migrants, with the Southeast region around Ho Chi Minh City receiving by far the largest share of these migrants. Amongst them, the proportion of women has increased from 1999 to 2009, and they now predominate among all types of migrations (Anh *et al*., 2012). This situation can be explained by the fact that female migrations include both marriage migrations,which are extremely common in a mostly patrilocal-virilocal society, and labor migrations that are almost as frequent among women and men (Locke *et al*., 2008). Female migrants provide, in particular, assembly-line workers and work in the textile, garment and footwear industries where they are perceived to be diligent and submissive (Le and Nguyen, 2011; ADB, 2005). Interestingly, women tend to migrate at a younger age than men do, and especially below the age of 25. Therefore, spatial and social mobility seem to provide Vietnamese women with new opportunities in a country that is otherwise characterized by severe forms of gender discrimination[10]. Yet, urban migration is no panacea to escape deprivation and poor living conditions. Migrants are often marginalized in the destination areas, for economic, social and administrative reasons. In particular, they suf-

[7] See for instance Dang *et al*. (2003), Loi (2005), Nguyen *et al*. (2010), Le *et al*. (2012). The registration system is also described in Locke *et al*. (2008). Some aspects of risks linked to rural-to rural migrations are discussed in Winkels (2012).

[8] On Doi Moi reforms and vulnerability, see in particular Beresford (2008).

[9] Viet Nam comprises 6 macro-regions, 63 provinces (*tinh*) and 685 districts (*huyen*). Lower-level units such as rural communes or urban wards are not available from the census sample.

[10] One case in point relates to the recent emergence of prenatal sex selection in Viet Nam (Guilmoto, 2012). Domestic violence is another illustration (Rydstrøm, 2003).

fer from a substantial risk of economic exploitation due to the absence of labor protection, and they are often restricted to the most vulnerable segments of the labor market. Living conditions in the migrants' residential areas are also often deplorable for lack of proper urban infrastructure and a supply of decent housing. In addition, young women moving away from their original communities may be particularly at risk for lack of family and community support (IOM, 2012; Hoang, 2011). Our survey will show that all these factors combine to make young women more vulnerable in many ways[11].

3. METHODOLOGY

Our research focuses on the situation of young women aged 10-19 years in Viet Nam. The data set used here is derived from the 15% sample of the 2009 census. What the census data lack in terms of detailed information - as found in dedicated surveys or local qualitative research - will be counterbalanced by the exceptional size of the sample and its systematic geographical and socioeconomic coverage.

3.1 *Census and other data sources*

Published census results provide only incomplete information on the adolescent population. The tabulations are mostly restricted to a five-year age distribution and cross-tabulations by education or marital status. The dissemination of a 15% census sample by the GSO (General Statistics Office) has entirely changed the situation for two reasons. First, the sample is especially large, with about one seventh of the country's population. Secondly, raw data allows for customized tabulations and statistical processing. The original census sample comprises 14.2 million individual observations from which a female subpopulation of 1.3 million adolescents and young women aged 10-19 years is drawn.

Previous surveys focusing on adolescence or youth may be mentioned in this connection. The "Adolescents and Social Change in Vietnam" survey (VASC) was conducted in 1999 and it covered 2,100 young people of both sexes. The latest 2010-2011 MICS survey included 3,597 adolescent girls aged 10-19. The SAVY surveys, which remain, to date, the most detailed quantitative surveys on adolescent behavior, were based on 7,584 interviews of youth aged 14-25 years in 2003 (SAVY, 2005) and 2,460 youths aged 14-25 years in 2008 (Nguyen *et al*., 2010). The more recent 2006 family survey included a subsample of 2,452 youths (Ministry of Culture, Sports and Tourism *et al*., 2008). The Young Lives international study follows 1000 children born in

[11] For an overview of internal migration in Viet Nam, see UN (2010). The best recent review of young women's migration is Temin *et al*. (2013).

1994-5 in Viet Nam (Le *et al*., 2008). None of the aforementioned surveys focused on migrants[12]. The size of the census sample is, of course, hardly comparable with these other surveys since it is several hundred times larger and allows for in-depth disaggregated analysis.

3.2 *Census variables and vulnerability indicators*

The main limitation of the census micro-data relates to the number and nature of available variables. Items covered by the census remain restricted to the usual coverage of the census: basic demographic, social and economic characteristics and birth history, with additional variables describing the household composition and amenities, as well as housing variables. A total of 45 individual-level variables and 25 household-level variables are available for statistical treatment, but fewer than 15 of them are relevant for the vulnerability analysis carried out here.

One of our main challenges was to identify ways to develop indicators of vulnerability based on census variables, keeping in mind that no census or survey adequately covers issues related to infection or trafficking. The list of the selected vulnerability indicators is given in the Appendix, along with their definition and their specificity level (Table A1). They have also been reclassified in three broad categories: health (HeV), social (SoV) and socioeconomic (SeV) variables. In some cases, original census variables directly pointed to vulnerability aspects. This, for instance, is the case of the SoV4 and SeV4 variables, which are the census variables on ethnicity and illiteracy, respectively. In other cases, however, we had to combine different individual or household variables to generate new vulnerability variables. This, for instance, is the case for the HeV3 "unmarried mother" variable (defined as unmarried women who reported a birth) or the SeV2 "unemployed" variable (women not studying and looking for a job). In the case of the SeV5 poverty indicator, we used the lowest quintile, a variable previously defined at the household level through a preliminary factor analysis (GSO, 2011b). The variables and methodology followed are also described in more detail in the Appendix.

4. THE INFLUENCE OF MIGRATION AND URBANIZATION ON VULNERABILITY

Migration and urbanization have different effects on vulnerability. In this section, we will measure the influence of migration and urbanization on vulnerability separately, and their relative contribution will be subsequently identified.

[12] One recent study examines the interaction of marriage and migration and provides interesting insights into the strategies of young women (Locke *et al*., 2008).

[13] Due to the nature of data available, we will focus on migration status rather than on the migration process (see details in appendices).

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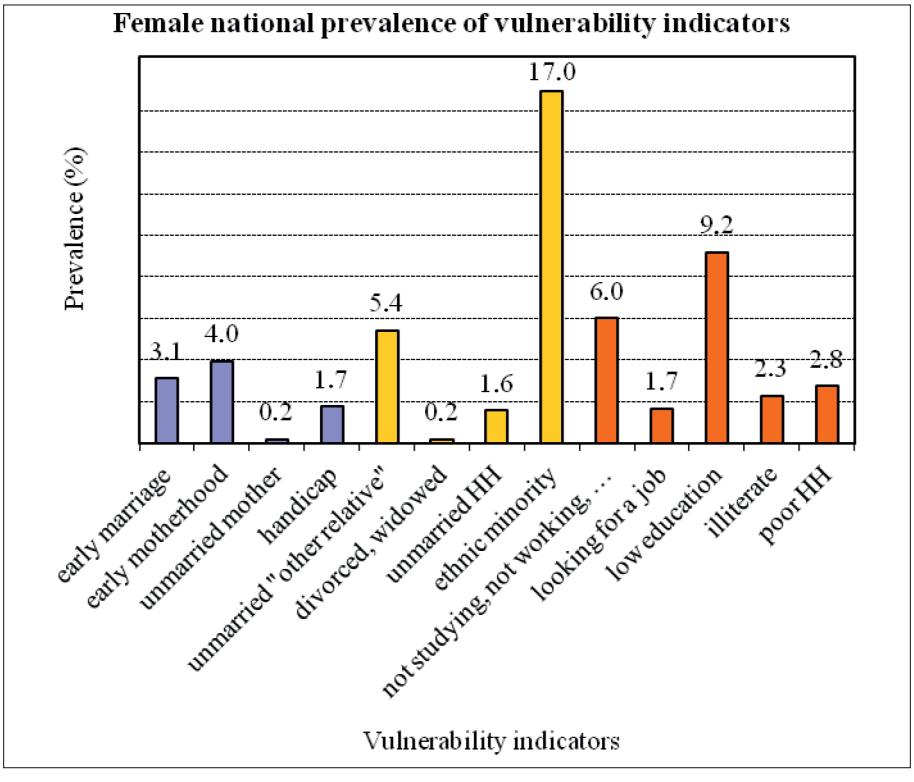
4.1 *Vulnerability prevalence and migration*

Figure 1 provides the national prevalence of the indicators of vulnerability detailed above among women aged 10-19 (see Appendix for definition). Some show a relatively high prevalence, such as belonging to a minority ethnic group (17%) and having a low level of education (9%). Each of them account for more than 9% of young women. In contrast, the prevalence of divorce or widowhood and motherhood out of wedlock is below 1%. The other proportions vary between 1% and 6%.

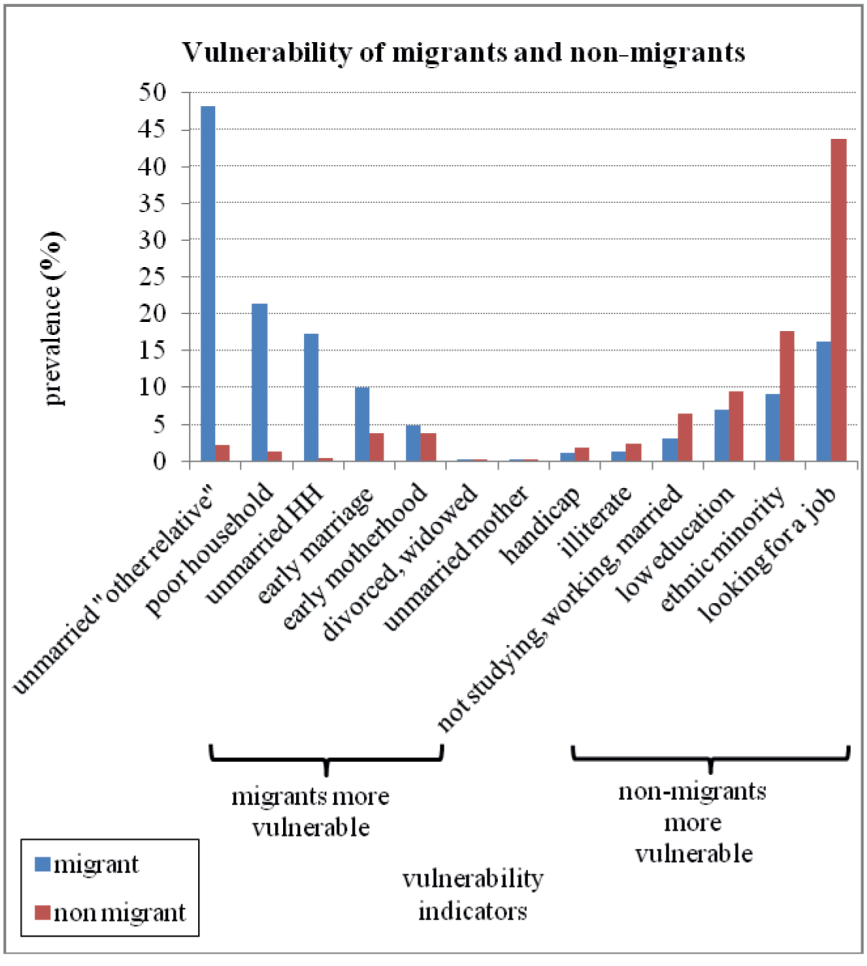
Figure 1 – *National prevalence of vulnerability indicators for women aged 10-19*



Source: Computed from 2009 Census microdata.

Figure 2 provides a picture of the prevalence of each vulnerability indicator among migrants and non-migrants. It shows that migrants are more vulnerable regarding indicators dealing with their place in the household, their living standard and their family situation, whereas non-migrants are more vulnerable with regard to their economic activity, ethnic membership and education.

Figure 2 – *National prevalence of vulnerability indicators for women aged 10-19 according to migration*



Note: Vulnerability indicators to the left refer to higher vulnerability among migrants, while indicators to the right point to higher vulnerability among non-migrants.
Source: Calculated from 2009 Census microdata.

The relationship with the head of household is looser for migrants than for non-migrants: 48% of migrants are other relatives (other than the spouse, child, grandchild or parent) of the head of household, whereas this proportion is only 2% among non-migrants. The proportion of heads of household is also higher among migrants than among non-migrants (17% versus less than 1%).

Migrant women are also more at risk than non-migrant women of living in a poor household: 21% of them live in a household in the lowest quintile , whereas this is the case for only 1% of non-migrant women. This is due to the fact that migrant women may set up a new household or join an existing one led by hosts with whom they may not have a familial relationship, or only an indirect one.

Migration is also associated with early marriage, but this phenomenon is less prevalent: 10% of migrants compared to 3% of migrants have experienced an early marriage. Migrants also tend to be more likely to have experienced early motherhood, but to a lower extent (5% of migrant versus 4% of non-migrant).

Conversely, migration is associated with less vulnerability with regard to work and education. More women are looking for a job among non-migrants than among migrants (44% versus 16%). Non-migrants are also more likely than migrants to not be students, unemployed and unmarried (6% versus 3%). This must be analyzed in light of better work opportunities and education infrastructure in urban versus rural areas.

The proportion of women belonging to an ethnic minority is higher among non-migrants (18% versus 9%). Non-migrants also have a lower level of education than migrants. Among them, the proportion of women with a low level of education is higher (10% versus 7%) as is the proportion of illiteracy (2% versus 1%). They are also more likely to be disabled (2% versus 1%). Social environment, health, education may enable or facilitate migration, which explains part of these trends.

The other vulnerability indicators include a low proportion of the population. They show that non-migrant women are more likely to be unmarried mothers than migrant women (0.2% versus 0.1%). They are more likely to be divorced, widowed or separated (0.2% versus 0.1%).

Several relative risks of vulnerability reach unusually high levels. This is the case of the risk of being unmarried head of household (47.5), of being unmarried “other relative” of the household head (22.0) and of living in a poor household (15.7) for migrants compared to non-migrants (Table 1). These high levels are due to the very low percentage (almost 0%) of non-migrants who experience any of these situations. Therefore, these indicators represent specific situations encountered almost exclusively by migrants. Conversely, no such high level of relative risk exists for non-migrants, which means that non-migrant women do not experience these specific vulnerable situations compared to migrant women.

Table 1 – *Relative risks of vulnerability associated with migration for women aged 10-19 (value of relative risk above 2)*

Women more vulnerable (relative risk) when:			
Migrant		Non-migrant	
Vulnerability indicator	Relative risk	Vulnerability indicator	Relative risk
Unmarried head of HH	47.5	Unmarried mother	3.0
Unmarried "other relative"	22.0	Looking for a job	2.7
Poor household	15.7	Divorced, widowed, separated	2.5
Early marriage	3.6	Not studying, working, unmarried	2.0

Source: computed from 2009 Census microdata.

The relative risk of experiencing early marriage (3.6) and early motherhood (3.0) are high for migrant women. Conversely, non-migrant women are more than twice as likely as migrant women to be looking for a job and to belong to an ethnic minority. These results show that migration provides opportunities for work and study, but that migrant women are in a more vulnerable position in their household.

The influence of migration differs according to its scale. Among migrants, those who have migrated between provinces are more vulnerable regarding their household membership and level of life, whereas those who have migrated between districts are more vulnerable with regards to family and education. The proportion of women who have the position of an unmarried other relative of the head of household is higher among migrants between provinces than among migrants between districts (54% versus 33%), as is the proportion of female heads of household (18% versus 16%). The trend is the same for the proportion of women living in a poor household (22% versus 19%). This relative vulnerability of migrants between provinces compared to migrants between districts is similar to the relative vulnerability of migrants compared to non-migrants.

Conversely, migrants between districts are more vulnerable with regards to family and education. Among them, the proportion of women belonging to an ethnic minority is higher (12% versus 5%). Women migrating between districts are also more likely to have experienced early marriage (14% versus 8%) and early motherhood (8% versus 4%). Among them, the proportion of disabled women is higher (2% versus 1%) as is the proportion of illiterate women (2% versus 1%). The other distinctions refer to a lower proportion of the population. Migration between districts is also associated with a higher percentage of unmarried mothers and divorced, widowed or separated women, although these categories include a very low proportion of the popu-

lation (0.1% each). The other vulnerability indicators such as looking for a job, having a low level of education and not currently studying, being unemployed and out of wedlock do not show significant difference between migrants, according to the scale of their migration.

The levels of relative risk of vulnerability, according to the type of migration remain low when compared with the preceding levels. This means that the population of migrant women is more homogeneous than the whole population with regard to vulnerability. However, some differences appear. Women migrating between districts are at least twice as likely as women migrating between provinces to belong to an ethnic minority (2.5), to be an unmarried mother (2.2) and to have experienced early motherhood (2.0). Conversely, the relative risks for migrant women between provinces do not reach these levels. This shows a higher vulnerability of inter-district migrants.

The link between migration and vulnerability can be explained by separation from the family, lack of social support for migrants, but also by more socioeconomic opportunities in favor of migrants.

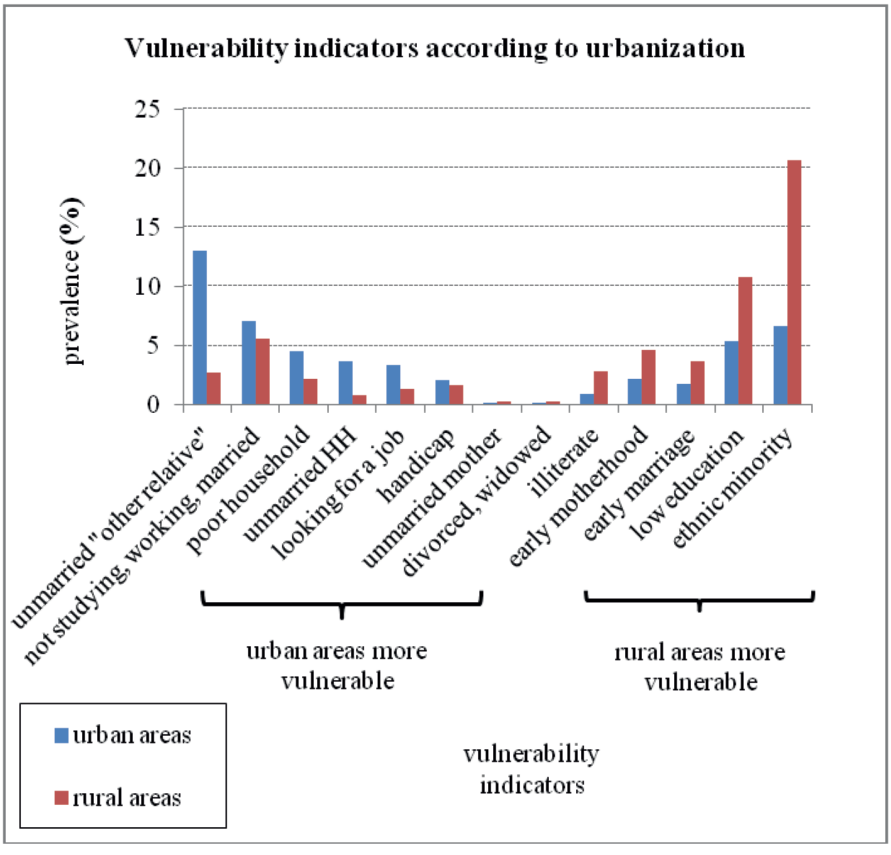
4.2 *Rural or urban vulnerability?*

Our methodology allows us to draw a contrasted picture and identify vulnerabilities of rural areas compared to urban areas, but also vulnerabilities of urban areas compared to rural areas. Figure 3 shows that women living in urban areas are more vulnerable in regard to their household membership, economic activity and living standard. On the other hand, women living in rural areas more often tend to belong to an ethnic minority, to be illiterate and to have experienced early marriage and motherhood.

The proportion of unmarried "other relative" of the household head is higher among women living in urban areas than among their counterparts in rural areas (13% versus 3%). This is also the case for the proportion of unmarried heads of household (4% versus 1%). Women in urban areas are also more likely to live in a poor household (5% versus 2%). More of them are not studying, unemployed and out of wedlock (7% versus 6%) and looking for a job than in rural areas (3% versus 1%).

Conversely, the rural area is associated with specific kinds of vulnerability. The proportion of women belonging to an ethnic minority is higher (21% versus 7%). More women have a low level of education (11% versus 5%) and more of them are illiterate (3% versus 1%). The other kinds of vulnerability relate to family events. Women in rural areas more frequently experience early marriage (4% versus 2%) and early motherhood (5% versus 2%), which tends to occur more often out of wedlock than in urban areas, although the proportion of women affected is very low, as is the proportion of divorced, widowed or separated women.

Figure 3 – *National prevalence of vulnerability indicators for women aged 10-19 according to urbanization*



Note: Vulnerability indicators to the left refer to higher vulnerability among migrants, while indicators to the right point to higher vulnerability among non-migrants.
Source: Calculated from 2009 Census microdata.

The risk of being an unmarried "other relative" of the household head, as well as the risk of being an unmarried head of household, is more than four times higher for women living in urban areas than for women living in rural areas. Women in urban areas are also more than twice as vulnerable as women in rural areas in terms of unemployment and household poverty. In contrast, women in rural areas have more than three times the risk of women in urban areas of being illiterate and belonging to an ethnic minority. Their risk of experiencing early marriage and an early motherhood is also more than doubled when compared with women in urban areas (Table 2).

Table 2 – *Main relative risks of vulnerability associated with living in urban areas for women aged 10-19 (value of relative risk >= 2 and national prevalence >= 1%)*

Women more vulnerable (relative risk) when:			
Urban areas		Rural areas	
Vulnerability indicator	Relative risk	Vulnerability indicator	Relative risk
Unmarried "other relative"	4.8	Illiterate	3.2
Unmarried head of HH	4.6	Ethnic minority	3.1
Looking for a job	2.7	Early marriage	2.1
Poor household	2.1	Early motherhood	2.1

Source: computed from 2009 Census microdata.

The vulnerability indicators of migrants and women living in urban areas have many points in common. Migration and living in urban areas are associated with a higher level of vulnerability regarding household membership and poverty, whereas non-migrants and living in a rural area are linked to belonging to an ethnic minority and having a low level of education. In contrast, some vulnerability indicators are associated with less prevalent situations. The absence of migration and living in urban areas are both associated with looking for a job. In addition, the levels of other vulnerability indicators increase with migration, and also with living in rural areas. This is the result of early marriage and early motherhood. In order to measure the relative contributions of migration and urbanization, these two factors have to be taken into account simultaneously, with a distinction between migrants according to the type of migration.

4.3 *Migration or urbanization?*

Migration and urbanization are not interdependent from one another since the proportion of migrants is higher in urban areas. The analysis of the relative roles of migration and urbanization - using a multivariate logistic regression - provides us with a classification of these indicators (Table 3).

The first kind of vulnerability indicator is increased simultaneously by both migration and living in urban areas. It is the case of being the unmarried "other relative" of the household head and being the unmarried head of household, which appear mainly as consequences of migration. The opposite situation, characterized by the absence of migration and living in rural areas, is associated with a higher risk of being an unmarried mother, having experienced divorce, widowhood or separation, belonging to an ethnic minority and having a low level of education. These situations are likely to constitute impediments to migration. The other two profiles, which refer to fewer

women, lead to other kinds of vulnerability. Living in an urban area without being a migrant is associated with a higher probability of being disabled, looking for a job and being out of school, unemployed and unmarried. Finally, being a migrant living in a rural area is associated with a higher risk of having experienced an early marriage, an early motherhood and living in a poor household. Illiteracy shows a specific profile, as it is associated both with living in rural areas and with contradictory effects of migration. Migration between districts tends to increase the risk of illiteracy, whereas migration between provinces decreases this risk.

Table 3 – *Vulnerability profile according to place of residence and migration, results of logistic regression model, women aged 10-19*

	Rural areas more vulnerable	Urban areas more vulnerable
Migrants more vulnerable	Early marriage Early motherhood Poor household	Unmarried "other relative" Unmarried head of household
Non-migrants more vulnerable	Unmarried mother Divorced, widowed Ethnic minority Low education	Handicap Not studying, working, married Looking for a job
Only migrants between districts more vulnerable	Illiterate	-

Source: computed from 2009 Census microdata.

The levels of the various vulnerability indicators cannot be fully estimated using only data on migration and urbanization. However, several of them have a relatively high level of correlation with the models which include only these two factors. This is most noticeable in the case of being an unmarried head of household (pseudo r^2 = 31%) and being an "other relative" of the household head (pseudo r^2 = 25%). This means that the logistic regression analysis is particularly relevant for these two indicators, although it also provides us with information regarding the other indicators with respect to the relative contribution of migration and urbanization. This relevancy of migration and urbanization to predict the position in the household is not surprising. As demonstrated earlier, these vulnerability indicators specifically concern migrants. It is also consistent with the fact that migration is the most prominent factor of these two vulnerability indicators (Table 4).

Table 4 – *Odds ratio associated with vulnerability indicators according to place of residence and migration, logistic regression models for each vulnerability indicator, women aged 10-19 (pseudo r^2 >= 4%)*

Predictive Strength (pseudo r^2)	Vulnerability indicator	Independent variables		
		Migration between provinces	Migration between districts	Urban-ization
31%	Unmarried head of household	31.9	27.6	2.5
25%	Unmarried "other relative"	18.8	10.5	3.0
5%	Poor household	5.8	5.4	0.8
5%	Ethnic minority	0.4	0.8	0.2
4%	Early marriage	5.0	9.0	0.3

Note: all the odds ratios have a significant effect at the 5% probability level.
Source: computed from 2009 Census microdata.

The odds of being an unmarried head of household are multiplied by 31.9 when the women have migrated between provinces, and by 27.6 when they have migrated between districts. This is consistent with the previous results showing a relative risk of becoming a head of household as being slightly higher for migrants between provinces compared with migrants between districts. The new information here is the contribution of urban areas, which more than double the odds of this vulnerability indicator, even when the migration is taken into account. The same trend operates for being an unmarried "other relative". This vulnerability indicator has an 18.8 fold odds when the woman has migrated between provinces and a 10.5 fold odds when they have migrated between districts, whereas the effect of living in urban areas remains high.

The other vulnerability indicators, such as living in a poor household, belonging to an ethnic minority and having experienced an early marriage, pertain to other categories of indicators with regard to the influence of migration and urbanization. These two phenomena do not operate in the same way as with the position in the household. They also differ because of the lower predictive strength of the related models (4% versus 5%). The odds of living in a poor household increase with inter-provincial and inter-district migration. In this case, migration is also linked to a higher level of vulnerability. However, this effect is partly offset by urbanization, which slightly decreases the odds. This does not compensate for the higher odds of migrating but it mitigates its effect.

The odds of belonging to an ethnic minority are low for migrants, as well as for women living in urban areas. The model shows that the effect of urbanization on this indicator is stronger than the effect of each type of migration. Early marriage has the highest level of predictive strength (4%) among the remaining vulnerability indicators. Its level is higher both for migrants and for women living in rural areas (Table 4). Here migration and urbanization have contradictory effects.

These results complement the previous classification of vulnerability indicators according to the effect of migration and urbanization, by measuring their relative contribution. They show that migration and urbanization have contrasting effects and different relative contributions on vulnerability indicators.

5. MULTIDIMENSIONAL ASPECTS OF VULNERABILITY

No regression analysis is feasible on individual vulnerability data as age parameters do not coincide across variables. Therefore, we have aggregated our individual indicators of vulnerability, migration and urbanization among all female adolescents at various regional levels. We have performed district-level (n = 650) and province level (n = 63) analysis, using correlation analysis and factorial analysis.

5.1 *District-level vulnerability*

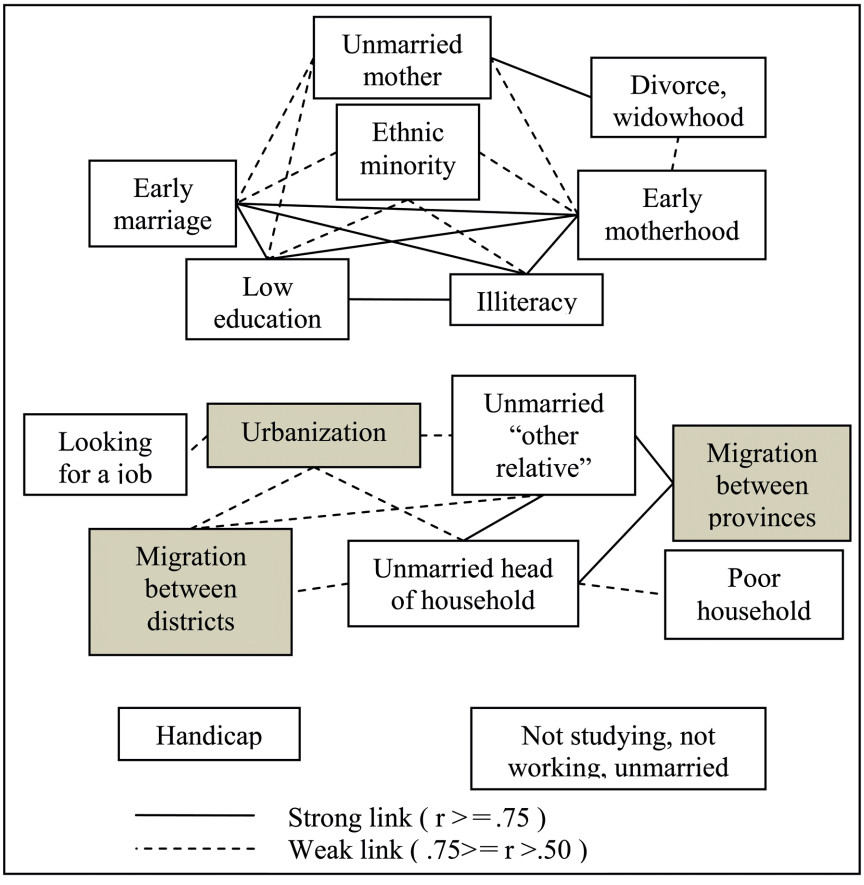
At the district level, the correlation matrix indicates the way different dimensions of vulnerability and migration tend to cluster. The correlation is often significant, and, in most cases, the relationship between vulnerability indicators is positive, which suggests that the risks facing young women may be cumulative in many districts. This analysis of the clustering of these variables leads to the identification of three broad sets of vulnerability indicators (Figure 4).

The first set includes the highest number of vulnerability indicators and illustrates strong links between reproductive behavior and education. Early marriage, early motherhood, illiteracy and a low level of education are strongly correlated, since all these indicators are strongly linked with one another. Other vulnerability indicators are linked more weakly to one or several of these components. The only indicator correlated with all the previous variables of the first set is ethnicity.

Another indicator included in this vulnerability set is the proportion of unmarried mothers. At district level, the prevalence of unmarried mothers is associated, in particular, with the prevalence of early motherhood, early marriage and low education. However, the analysis also indicates that the proportion of unmarried mothers is less significantly correlated with illiteracy and eth-

nic minority. This suggests that unmarried mothers constitute a distinct category and that birth out of wedlock is less frequent among minorities, in spite of the established links with early nuptiality and maternity. The frequency of divorce and widowhood appears strongly correlated with unmarried motherhood, which is understandable since many unmarried mothers are widows or divorcees. It is also weakly associated with early motherhood.

Figure 4 – *Sets of multidimensional vulnerability at the district level, correlation analysis*



Source: Calculated from 2009 Census microdata.

While this first set of multidimensional vulnerability at the district level encompasses marriage, motherhood and education, it is interesting to note that it is not associated in any meaningful way with migration and urbanization. This set of vulnerability indicators refers to the specific features of Vietnam's old

reproductive regime, illustrated among minorities by some of its traditional traits, such as higher fertility and early female marriage.

The second set of statistical links is very distinct from the previous one. It notably includes none of the education or fertility variables that have been previously examined. It revolves around migration, urbanization and their specific vulnerability correlates. The core variables in this set are unmarried women who are "other relatives" in the household, unmarried household heads, inter-district and inter-provincial migrants, and district urbanization levels. But the strongest link is observed between inter-provincial migration and the two indicators of vulnerable household position. Obviously, long-distance migration entails a specific risk to women as they lose family support, either by living in a marginal position in their new household, or by being forced to head a household in spite of their young age. This situation applies in particular to "migrant household", comprising a variable number of young women sharing a residence in urban areas after migration. These atypical households headed by young women are also closely associated with poverty. The absence of an older household member may account for this specific socioeconomic vulnerability. The vulnerability of young women unable to find a job in the labor market is an additional dimension found in this cluster, but it is mostly related to urbanization and therefore to jobs in the industry or service sectors.

These two nexuses of vulnerable situations are not closely associated. They correspond to distinct,but not opposing,configurations related both to reproductive health and to urban marginality. It may also be relevant to stress that two of our vulnerability indicators, impairment and inactivity, remain somewhat isolated, with no clear correlation with any other indicator. The specific case of disabled women was already examined with our maps: disability appears to be almost randomly distributed throughout Vietnam, with no obvious relationship with any of our vulnerability or migration indicators.

5.2 *Province-level vulnerability*

Another approach for examining linkages between vulnerability indicators consists of exploring the similarities between the 63 provinces through a factor analysis. Each province is characterized by various levels of vulnerability among adolescent women, and we have already seen in our previous mapping analysis how spatial patterning varies according to indicators . We can perform a more systematic analysis of this statistical proximity with a principal component analysis (PCA) that will highlight the existing positive or negative correlations between sets of individual vulnerability variables. The findings of this analysis provide a more systematic examination of the regional diversity of vulnerability landscapes in Vietnam.

[15] A similar analysis can be performed at district level.

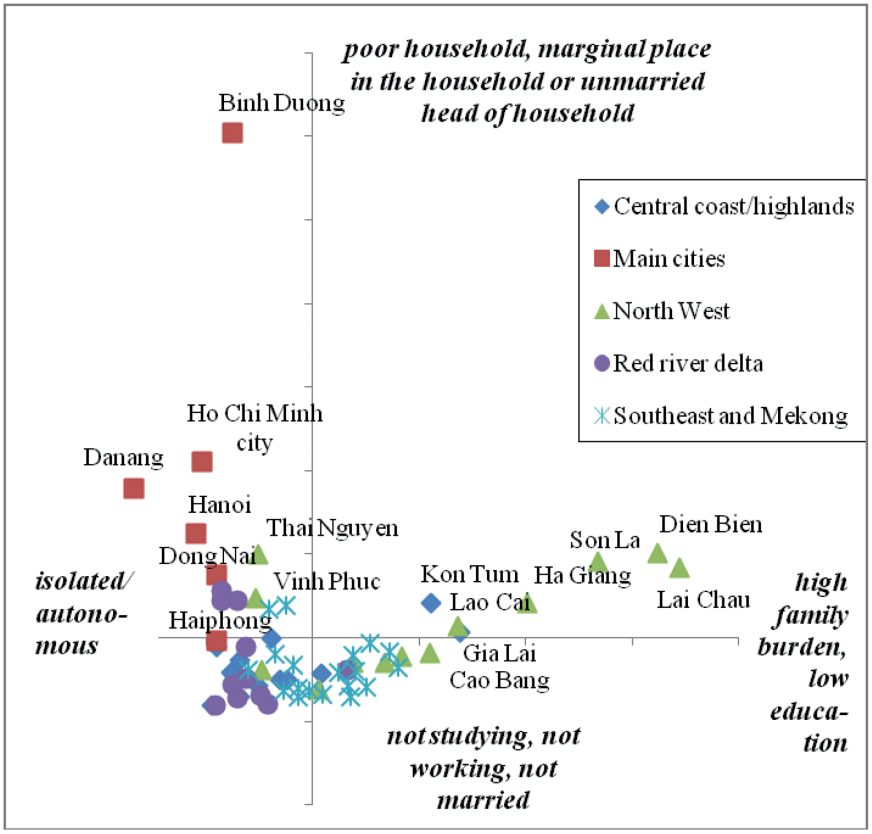
The PCA identifies two main factors - combinations of the original vulnerability variables - that account for more than two thirds of the heterogeneity of our vulnerability indicators. The first factor accounts for 45% of the total variance of the provincial sample. It is a combination of several indicators, opposing early marriage, low education, illiteracy and early motherhood on the one side, and looking for a job and being an unmarried head of household on the other. This factor divides young women into two groups: one with a heavy family burden and low resources and the other with more isolated, jobless but also more autonomous women. The second factor explains 20% of the variance. It marks the opposition between, on the one hand, women living in poor households and in a vulnerable household situation, and, on the other hand, single women disconnected from productive activities (no job, no school enrolment).

We use these two factors to summarize the situation of individual residence by placing each province on the factor scatter plot (Figure 5). We have also summarized the main components of the horizontal and vertical factors. Interestingly, provinces tend to cluster both by spatial proximity and by socioeconomic profile. On the right side of the chart, there is a distinct, elongated cluster of provinces mostly defined by the intensity of vulnerability captured by the first PCA factor (early motherhood and low education). These are the mountainous provinces of the North West part of Vietnam such as Lai Chau, Dien Bien, Son La, Ha Giang Lao Cai, Gia Lai and Cao Bang. This dimension obviously subsumes classical indicators of economic and social development, with the more developed provinces shown on the left side.

In the upper left quadrant of the chart, we recognize the main metropolitan areas of the countries: Ho Chi Minh City, Hanoi, Da Nang, and Binh Duong (suburb of Ho Chi Minh City). This cluster may also be extended to include other important urban localities such as Haiphong that are close to these provinces. They obviously also have similar vulnerability patterns.

We also realize that all provinces of the Mekong River Delta and of the Red River Delta form a separate cluster, in close proximity to the metropolitan cluster. In fact, these provinces provide most of the migrants attracted by the booming economies of the South Industrial Zone of Ho Chi Minh City and Binh Duong and of the capital region where women work in industrial parks and processing zones. These are also saturated rural provinces predominantly based on intensive agriculture, where economic development has not caught up with population growth. The vertical opposition with the more prosperous urban regions seems to come down to an opposition between fragile household situations on the upper side of Figure 5 and inactive young women on the lower side. It is as if the choice for would-be female migrants was a trade-off between two types of vulnerability.

Figure 5 – *Factor analysis of vulnerability by province (first and second factors)*



Source: Calculated from 2009 Census microdata.

6. DISCUSSION

Vietnam is an ideal location to re-examine vulnerability among young female migrants. It is a country characterized by extremely rapid economic and social change over the last 20 years. These transformations have opened up new opportunities for the population, especially its youth. However, regional inequalities are pronounced in the country and have been somewhat exacerbated since the Doi Moi policies of reform; they tend to oppose booming regions to traditionally historical agricultural areas on the one hand and to remote, hilly regions on the other (Glewwe *et al*., 2004, Raghav *et al*., 2007). Along with education, migration is therefore a key strategy for seizing these new opportunities. The high level of mobility among the youth is a testimony to their ability to adjust to the changing regional scenarios.

The challenge for our study was to harness the recent 2009 census data to explore the specific dimensions of vulnerability among young women across the country, when other common dimensions such as sexual activity or drug abuse are not covered by the census. However, the access to disaggregated micro-data from the census has enabled us to develop new, original indicators of vulnerability in domains as varied as reproductive health, family relations, employment or socioeconomic levels. It therefore provides a more systematic mapping of the vulnerability landscape in Vietnam from both a thematic and geographical perspective.

The main lessons from our analysis are precisely the diversity of risks to which young women are exposed in today's Vietnam, and the role migration plays in changing this vulnerable scenario. Our correlation analysis also demonstrates the high level of congruence between various dimensions of vulnerability. For instance, this shows that several forms of vulnerability faced by sedentary women are typical of backward rural areas and are not observed in urban areas or among migrants. Similarly, provinces can be divided into three groups representing distinct types of vulnerability. This illustrates how misleading the description of young women's vulnerability, when limited to metropolitan settings, could be for the rest of the country. But we may now place these indicators into larger social and economic contexts in order to understand the profile of concerned young women and their environments. Doing so will take us to a tripartite view of the country, which even if demographically imbalanced (the first group of young women considered here comprises a smaller number of women), accurately reflects some of the main challenges faced by adolescent women in Viet Nam.

At one end of the spectrum, we have identified a first cluster of young women, born and living in the most disadvantaged regions of the country. Local opportunities are mostly limited to agriculture, in areas where land productivity is modest because of the unfavorable terrain. These areas have been hardly touched by the agricultural revolution over the last fifty years, and the development of the non-agricultural sector is slow. At the same time, local young women suffer from very low levels of social development, most noticeably manifested by the lowest education levels in the country, and a sometimes incomplete command of the Vietnamese language. Local health and education infrastructures are sparse and often difficult to access because of the nature of the terrain. In addition, the traditional family systems that prevail in these minority-dominated areas encourage early marriage and childbearing, which severely restricts young women's mobility and autonomy. Many of them find themselves taking care of several children in their early twenties. A host of factors combines to prevent them from migrating to more prosperous regions to escape poverty: family situation, low human capital, lack of migratory networks in urban areas, minority status, etc. These young women therefore suffer from some of the most classical aspects of vulnerability[15].

[15] The strong dependence of prospective Vietnamese female migrants on networks and other family support is clearly documented by OIM (2012).

A larger number of young women belong to a second, mostly rural, cluster. They were born in the plains, in areas where rice growing has long been at the center of economic activity. Sustained demographic growth over the 20th century has created some of the highest rural population densities in the world, especially in the Red River Delta. Economic development in these often saturated regions has not kept pace with the rise of expectation generated by the economic reform of the late 1980s, or by educational expansion. These are also the regions with the largest proportion of dependent and inactive women, who are neither married, active nor studying. These women might constitute a drain on their parental resources. This population is at a crossroads. Spatial mobility will remain the chief option for them as burgeoning towns and cities are often close-by. Unless development spillovers affect areas adjacent to Vietnam's growth poles, migration will be the only solution to their socioeconomic predicament.

At the other end of the spectrum we find the third cluster of women: those living in the largest metropolitan areas of the country. Their profile is in many respects very different from that of the young women previously described. Not only are they slightly better educated, but they also tend to marry later and have the smallest number of children. Critically, this category also includes a large proportion of recent migrants, many of them coming from a different province or region. To most of them, living in a rapidly developing city has been accompanied by a range of obvious social and economic rewards, to which our vulnerability-centered analysis has not done justice: access to better health infrastructure or other public services, access to a dynamic, more diversified labor market, higher wages, etc. As such, at first sight, they probably do not feature as the most vulnerable segment of Vietnam's society. However, there is no need to paint a rosy picture of urban life for migrants in Vietnam. The institutional barriers to spatial mobility have not been completely abolished, and temporary migrants may find themselves in a disadvantageous situation regarding their access to urban resources. Many of the risks incurred by young women in urban environments have been documented by other studies. They constitute distinct features of urban life in which many types of violence, exploitation and gender abuse are rife[16]. For instance, there are 19,000 estimated street children in Vietnam and a higher number of trafficked children in and out of the country (RSH, 2006; Dang *et al*., 2003). In addition, many among them work in the informal sector as street hawkers or as other self-employed workers. Young women are also often domestic employees, a rather stigmatized occupation in Vietnam. Many do not have work contracts and cannot afford health insurance. They are most vulnerable to exploitation by their employers when they work in factories and workshops, and to harassment by local authorities (Locke *et al*., 2008; Le and Nguyen, 2011).

[16] SAVY (2005) provides the best single quantitative survey of risk behaviors among adolescents in Viet Nam. See also Xenos *et al*. (2009).

Our analysis has emphasized some lesser-known dimensions of social vulnerability, in particular, related to the situation of women in their household and to their economic circumstances. Many migrants have lost the protective family structure. They live either as a marginal member in households headed by a distant relative, or more often in temporary households constituted by fellow migrants. Many migrants live crammed into small rooms in migrants' shantytowns, if not in abject poverty or squalor. We have also noticed that migration to urban areas has not entirely protected them from joblessness, and that many of them fall into the poorest socioeconomic category, as defined by lack of amenities and household equipment.

As a final word, we should add that our study also illustrates the need for more a systematic review of the vulnerability situation across regions and countries. Using larger samples should make it possible to better contrast smaller social groups and regions. The growing availability of census microdata through the IPUMS project should allow scholars to expand their analysis beyond socioeconomic surveys. But this will also require the design and testing of adequate and comparative indicators of vulnerability status that would ideally capture health conditions, family situation, economic circumstances and social status.

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Appendix

1. DATA

Most vulnerability indicators devised for this exercise have a straightforward interpretation. Yet some comments are necessary for a few others. HeV1 is based on the legal age at marriage (18 years), but married women aged 18 and over during the census may very well have married before the legal age, since we have no information on the actual age at marriage. HeV3 captures single motherhood, but it also includes divorced or widowed mothers. SoV1 designates women who have a marginal role in the family or who are members of a non-familial household. The census conflates both other relatives and non-relatives into a single category. This variable can be understood only by contrasting it with young women who are members of a more typical extended nuclear family as a daughter, wife, mother, daughter-in-law or grandaughter. SoV3 also refers to non-familial households (e.g. women from the same village sharing a residence in cities), but also includes single mothers. SeV1 is a composite variable and reflects women who are "idle" or "disconnected" from productive activities[17]. Married women were excluded from this category since they could be pregnant or the mother of a child.

It may be noted that some of variables tend to partly overlap (such as SoV1, SoV2 and SoV3). Some are also age-specific; i.e.the "early married" (HeV1) indicator relates only to married women aged less than 18 years, which is the minimum legal age at marriage. Similarly, all variables related to marital status and work are available only for the population aged 15 and older.

Finally, these different variables do not share the same level of specificity. Some variables correspond to a rather broad degree of identification of vulnerability and thus may lack specificity. This is the case of the "ethnic minority" variable (SoV4), which defines vulnerability irrespective of individual or household characteristics. This indicator also includes ethnic groups - such as the Hoa or the Khmer Kron - that may not be significantly worse-off in economic terms than the majority Kinh. In contrast, some variables such as "unmarried mother" (HeV3) may have high specificity, but they correspond to a small fraction of the sample (0.1%). They lack sensitivity, since many other dimensions characterizing adolescent vulnerability are not captured by this variable.

Migration is defined as a change of residence during the last 5 years. This definition ignores return migrants (no apparent change of residence), temporary migrants[18] and long-term migrants (when the move took place more than 5 years

[17] Several of our indicators such as "disconnectedness", early motherhood and disability can be compared with the (often higher) levels computed on 2000 US census data. See Jekielek and Brown (2005).

[18] On the influence of temporary migration on vulnerability, see for example Nguyen and Hill (2008).

ago). Migrants are further classified according to their place of former and current residence: intra-district, inter-district (within the same province), inter-province and international migrants. For this analysis, we have reduced the number of migration types to three:

1. Non-migrants: persons who were in the same district in 2004.
2. Inter-district migrants (or short-distance migrants).
3. Inter-provincial migrants (or long-distance migrants) International migrants have been added to this category.

Data does not allow us to know whether the migrant has migrated alone or with one's family, either one's parents or members of a new family. Therefore, some distinctions between migratory patterns cannot be made. However, the relationship with the household head provides information about the place of each member in the household. It will be used to document specificities of migrants regarding their family situation.

2. METHODOLOGY

The influence of migration and urbanization will be measured separately using relative risks. We will therefore systematically compare vulnerability rates of migrants vs. non-migrants and of the rural population vs. urban population. The relative contribution of migration and urbanization to each type of vulnerability will subsequently be analyzed using a logistic regression model. The regression results gives us the odds ratios of vulnerability by migration and place of residence. Therefore, one logistic model will be used for each vulnerability variable. In each model, three independent factors are included: migration between provinces, migration between districts and urbanization.

The correlation analysis is based on the analysis of the correlation coefficients of the vulnerability factors at a district level. The rationale behind this analysis is to construct disaggregated variables for all vulnerability indicators. This is a more effective tool to test inter-variable correlation than individual data, since several indicators are age-specific and cannot therefore be computed for all sample observations. In the correlation analysis, we have retained two threshold levels: correlation coefficients equal to or over 75% that show a strong link between indicators and coefficients between 50% and 75%. Correlation coefficients below 50% will be ignored.

Table 1A – *Definition, frequency and specificity of vulnerability indicators for young women*

Variable	Definition	Age-group	Specificity
	Health dimensions		
HeV1	Early marriage (before 18)	15-17	**
HeV2	Early motherhood	15-19	**
HeV3	Unmarried mother	15-19	***
HeV4	Any disability (walking, hearing, seeing, mental)	10-19	***
	Sociodemographic dimensions		
SoV1	Unmarried and "other relative or non-relative"	10-19	*
SoV2	Divorced or widowed	15-19	**
SoV3	Unmarried household head	10-19	**
SoV4	Minority (non-Kinh)	10-19	**
	Socioeconomic dimensions		
SeV1	Not studying, not working, not married	15-19	*
SeV2	Looking for a job (not studying)	15-19	**
SeV3	Primary education or lower	15-19	**
SeV4	Illiterate	10-19	***
SeV5	Lowest socioeconomic quintile (household level)	10-19	**

Note: Specificity as assessed by the authors from lowest (*) to highest (***) levels.