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Abstract

Objective: To examine the extent to which an association exists between health of older parents and return migration of children in rural Thailand. **Method:** Data come from the 2006 Migration Impact Survey specifically designed to obtain information on the impact of migration on older adults in rural areas. Associations are examined from both the perspectives of parents ($N = 883$) and migrating children ($N = 2,150$) using equations that adjust for demographic characteristics of parents and children and factors that may indicate unmet support needs. **Results:** A robust association with poor health promoting migration returns from both parent and child perspective exists and remains even with controls that might attenuate the relationship. **Discussion:** Although media discussions have pointed out dangers of out-migration for older adults, little systematic evidence exists. This study supports the viewpoint that accommodations for older adults can be made despite social changes promoting out-migration and demographic aging of the population.

Keywords

demography, living arrangements, Asians, families, migration

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Out-migration of adult children from rural areas is an inexorable component of the socioeconomic change taking place throughout the developing world. How this migration affects the well-being of the older aged parents of the migrants who remain in rural areas is a matter of considerable debate (Knodel & Saengtienchai, 2007). International forums concerned with advocacy, and mass media accounts, often portray the dispersion of children, especially to urban areas, as undermining intergenerational support, which has been the mainstay of security in old age. Indeed, the Plan of Action of the United Nations 2nd World Assembly on Aging exemplified this view by stating, "In many developing countries . . . the ageing population is marked in rural areas, owing to the exodus of young adults. Older persons may be left behind without traditional family support" (United Nations, 2002, para. 29). A number of scholarly articles have also highlighted the loss of support and harmful psychological effects of migration for older people "left behind" (Coles, 2001; Hendricks & Yoon, 2006; Kosberg & Garcia, 2004; Nguyen, Yeoh, & Toyota, 2006). This point was illustrated by Van der Geest, Mul, and Vermeulen (2004) as follows:

Migrations of young adults cause multiple problems for the care of older people in many parts of the world. The absence of children and grandchildren is painful for older people even in affluent welfare states, where they may be materially well off but are believed to suffer loneliness and boredom, partly through the lack of involvement with younger relatives. The absence of the young is even more problematic and acute in societies without state-provided 'social protection' and institutions for older people and in which the care of frail and sick older people is almost entirely family based. (p. 444)

Although such views are common in both the advocacy and academic literature, alternate and more sanguine standpoints have also been put forward by social scientists, especially with regard to material support. Some theoretical conceptualizations as well as empirical studies depict migration as benefiting both children and older aged parents who remain behind through remittances sent back to rural parents from their children with relatively prosperous employment (Cai, 2003; Osaki, 2003; Stark & Lucas, 1988; Vanwey, 2004). A number have stressed the ability of families to adapt to the changing circumstances that bring about increased dispersion of family without forfeiting a sense of intergenerational solidarity and with many relationships maintained, at times through alteration of the means through which support is provided (Baldock, 2000; Knodel & Saengtienchai, 2007; Litwak,

1987; Litwak & Longino, 1987; Smith, 1998). Moreover, a few studies have questioned the extent to which a mass exodus of adult children has left older adults physically alone in rural areas (Kreager, 2006; Zimmer & Korinek, 2008).

Yet even those who have talked about the benefits of migration of adult children generally recognize serious challenges that rural to urban moves pose for older adults in the developing world. Clearly, the dispersion of children removes the proximity needed for the maintenance of long-term personal care in societies that have traditionally assigned responsibility for support of older members to families themselves and where alternative arrangements are largely unavailable (Knodel & Saengtienchai, 1996). Although some of this care, and certainly a degree of support, can be provided at a distance (Baldock, 2000), there is little substitution for the kind of assistance that can be provided by close proximity. In addition, any threat posed by migration to the well-being of older adults is exacerbated by declining family sizes, a result of past rapid declines in fertility, and increasing life expectancy of older adults, which may potentially extend periods of disability in the final years of life (Kinsella & Phillips, 2005).

Current Study

In the current study, we begin with the notion that individuals have agency and can respond to the challenges discussed above in a number of ways. Given the added mobility that adult children of older people now enjoy in some developing societies, one potential response would be to return to the home or village of an older adult during a time of need, for instance, when the health of a parent deteriorates. This notion concurs with theoretical arguments concerning family altruism that suggest needs of parents exert an influence on the behavior of their children (Giles & Mu, 2007; Hermalin, 2002; Lee, Parish, & Willis, 1994; Piotrowski, 2007; Zimmer & Kwong, 2003). The altruistic perspective recognizes that family members do not act independently of each other and even sometimes act as a single unit and thus some characteristics of the children, such as being married, could discourage return migration, whereas other factors related to support needs, such as the absence of other children living in close proximity to the older parent, could further entice these acts.

To date, the issue of the impact of migration on older people in rural areas in developing countries has been understudied. Moreover, investigations that do exist rarely consider the health of the older adult as a determinant of return migration. Notable examples of extant literature include Zhao's study in China (Zhao, 2002) and Piotrowski's investigation in Thailand (2007), both

of which focus on economic determinants of return migration, and Giles and Mu's (2007) examination of the impact of the health of an elderly parent on labor migration decisions of adult children. Sliverstein (1995) did examine the impact of health on the change of distance between parents and children without specifically considering which of the dyad does the moving and his analysis was not specific to developing societies. Another line of investigation has been on the effect of health of the older adult on their own migration patterns (Al-Hamad, Flowerdew, & Hayes, 1997; Coles, 2001; Silverstein & Angelelli, 1998; Sorensen, 1986), a notion that Charles Longino Jr. designated as part of a developmental perspective of migration (Longino, Jackson, Zimmerman, & Bradsher, 1991).

The current study fills a void in the literature by examining the extent to which there is an association between the health of parents and the return migration of their children. We analyze data from the 2006 Migration Impact Survey, a unique source from Thailand that allows for the examination of the issue from both the perspective of the parent and the child. Based on a notion that links the needs of parents with the behaviors of adult children and characteristics of family members (Giles & Mu, 2007; Hermalin, 2002; Lee, et al., 1994; Piotrowski, 2007; Zimmer & Kwong, 2003), we hypothesize that older adults who have children who migrated will be more likely to experience the return of a child if they and/or their spouse are in poor health. We also hypothesize that adult children who have ever migrated away from the district in which their parents live will be more likely to return than to remain away when one of the parents is in poor health. Our models also test the idea that associations between health of a parent and return migration will be attenuated when controlling for alternate availability for care, such as a non-migrant child still living in the parental household or a larger number of siblings who can share the burden of care.

Thai Setting

Thailand provides a particularly intriguing context for a study of return migration and health of older parents. Substantial population aging is underway, migration of adult children is increasing, and family sizes of those reaching older ages are on the decline. The share of the population 60 years and older has increased from only 5% in the 1960s to over 12% currently and is anticipated to constitute more than one in four in just a few decades (Knodel & Chayovan, 2008). At the same time, improvements in older age mortality are leading to longer periods of shared life between generations while adult children have fewer siblings to help take responsibility for elderly parents. Rural to urban migration has been extensive for decades in Thailand

contributing to continuing urbanization. Currently, approximately a third of the total population lives in urban areas (United Nations, 2009). Not only do many adult children of older persons live outside the province, especially among older people in rural areas, but the percentage has increased substantially in recent years. For example, the percentage of children of rural parents age 60 years and older who lived outside the province rose from 29% in 1995 to 38% in 2007 (Knodel & Chayovan, 2008).

Although there are a number of reasons that lead adult children of older aged rural parents in Thailand to migrate, undoubtedly the most common one is to seek employment, especially in urban areas. According to the Migration Impact Survey, on which the current study is based, 68% of parents who have a migrating child report that a main motivation for their child moving out of the local district was related to employment. Other frequently cited reasons are education (17%) and marriage (15%). Note that these percentages are not mutually exclusive because respondents could, on the survey, indicate a combination of main reasons.

The average number of living children among older persons has been declining reflecting past declines in fertility. According to the 2007 Survey of Older Persons in Thailand, persons 75 years and older average 4.8 living children compared to only 3.4 for persons aged 60 to 64 and 2.5 for persons aged 50 to 54. Moreover, younger cohorts will end up with even fewer children, given that total fertility has been below two children per woman for some time. As in other Southeast Asian societies, the Thai family traditionally takes primary responsibility for older members. Widespread norms support filial obligations and government policy is geared toward reinforcing family responsibility for older persons (Jitapunkul & Wivatvanit, 2009; Knodel, Saengtienchai, & Sittitirai, 1995). Living arrangements are closely intertwined with this system of support exchanges. Most older aged Thais either live with or very near at least one adult child. However, given the increase in migration of adult children and the reduced family sizes of the successive cohorts that have been entering old-age, it is not surprising that a steady decline in coresidence of persons 60 years and older with children has occurred during the last two decades falling from 77% in 1986 to only 59% by 2007 (Knodel & Chayovan, 2008).

Method

Data

The 2006 Migration Impact Survey (MIS) was specifically designed to obtain information on the consequences of migration for older aged parents. The

survey was carried out under the auspices of the Chulalongkorn University Faculty of Nursing in October and November of 2006. The sampling targeted older adults who had at least one living child and were residing in a rural or peri-urban area in one of three Thai provinces, two located in the northeastern part of the country (Nakorn Ratchasima and Si Sa Ket) and one in the lower north (Kamphaeng Phet). Highly urbanized areas were excluded to limit the sample to those who resided in areas where their children would experience a greater need to migrate to find employment. The three provinces were purposively selected to differ in economic levels and be sufficiently distant from major migration destinations to ensure substantial geographical separation between parents and many of the migrant children.

Because of the substantive interests of the research team regarding differing impacts across cohorts, the sample focused on adults aged 50 to 54, 60 to 64, and 70 to 79 years. Within each province, two sample sites (defined in terms of jurisdictional areas of health centers) in each of three districts were selected proportional to size. A total of 1,011 interviews were completed, distributed in accordance with the purposive sample design in almost equal numbers for each cohort in each province. More details on the sample design, implementation, and questionnaire than can be provided here can be found elsewhere (Knodel, Kespichayawattana, Wiwatwanich, & Saegtienchai, 2007).

By design, the MIS does not constitute a probability sample of the specified age cohorts of rural parents in Thailand as a whole or even of the three provinces combined. Nevertheless, comparisons with the rural population covered in the nationally representative 2007 Survey of Older Persons in Thailand indicate that the two samples resemble each other closely in a number of relevant respects (Knodel, Kespichayawattana, Wiwatwanich, & Saegtienchai, 2010). As anticipated, the three cohorts differed sharply with respect to their health status as well as the average number of living children. The percentage who indicated they were in poor or very poor health according to a self-assessed health item that is used as a key variable in the current study was 16% for the 50-54 cohort, 24% for the 60-64 cohort, and 33% for the 70-79 cohort. The mean number of children was 2.8, 3.9, and 5.1 respectively for the three cohorts.

Variable Definitions

Migration and return migration. Details were collected on where each child of the respondent lived at time of interview (the term child is used for convenience, but in almost every case the child of the respondent is over age 15). For a child that was in the same household or district (*amphoe*) as the

respondent, information was obtained on whether they had lived elsewhere in the past, and if they were returnees, how long ago they returned. We define a migrant child as one that moved out of the district in which the older adult lived at any point in the past and was away for at least a year. A return migrant is one who moved back to the same district, including the same household, as his or her parent. Although the health of an older adult varies with time, information we are able to use about their health refers only to time of interview. To define return migration in relatively comparable terms, so that there would be a greater chance that any link between health of an older adult and return migration could be interpreted causally, even if cautiously so, we limit consideration in multivariate equations to those that moved to the district in which their parents lived within the 5-year period prior to the interview. Therefore, our measure can be referred to as recent return migration.

Health. Two self-assessed health measures are used to indicate health of parents. The first is based on a survey question that asks the respondent themselves, "(H)ow would you rate your physical health at the present time? Would you say it is very good, good, fair, poor or very poor?" Because of small numbers rating their health as very good and very poor, we collapse the extreme responses and end up with three categories: good, fair and poor. The second measure is based on responses to this question in combination with respondent's answers concerning the health of their spouse and is made equal to whichever is rated poorer. For instance, if the respondents rate themselves as having good health and their spouse as fair, then the first item, health of the respondent, is coded as good, whereas the second, health of respondent or spouse, is coded as fair. If there is no spouse, the second measure reverts to the response given by the respondent themselves. The logic underlying the second measure is that problematic health of either parent, not just the one who served as the respondent, could affect the decision of a migrant child to return. About one in four rate their health as poor or very poor, but the proportion increases to about one in three when both respondent and spouse are considered.

There are several reasons for using a single global self-assessed health item to measure health rather than one of the other available measures, which include specific functional status items and having an acute illness or injury. First, research has long indicated that a global self-assessed item is both a valid indicator of health and is closely associated with other more specific measures, like physical functioning or risk of mortality (Idler & Benyami, 1997; Idler & Kasl, 1995; Johnson & Wolinsky, 1993; Jylha, 2009; Mossey & Shapiro, 1982). Second, we do not believe that a specific functional status measure or a single acute illness or injury is likely to capture the full range of health problems that an older adult can experience, which in turn can

influence the decision making of migrating family members. In point of fact, the same literature cited above that has examined the validity of self-assessed health has indicated that the measure is likely to quantify the overall health of a person, which can include many factors that could be of concern to family members but not easily measured. Third, how respondents perceive their own health rather than more objective indicators is more likely directly reflected in what they communicate to their children about their health status and thus in how health is perceived by children. Finally, a self-assessed health measure is easily administered and answered across a range of individuals with varying characteristics and levels of knowledge about health.

Analytical Approach

We conduct our analysis from two perspectives. The first is from the perspective of the parents, with the sample consisting of parents who have had ever migrating children and the dependent variable being whether a child has returned. The second is from the perspective of the children, with the sample consisting of children who ever migrated and the dependent variable being whether they returned. Although the second perspective focuses the data on the children of the respondents, the information still comes from the older adult. Because one respondent may have many children, the number of cases is larger from the child's perspective. As suggested in our hypotheses, we expect the overall results to be similar from both perspectives; however, there are additional measures we can use for covariates from the perspective of the child. For instance, the return migration of a child can depend on a set of characteristics not only describing their parents but also themselves, such as their own marital status.

Table 1 shows the sample size from both perspectives. There are 1,011 respondents in the MIS, and 883 or 87% of these have a child that ever migrated. Although 299 have had a child return, a good proportion of these returnees are not within the last 5 years and therefore are not recent return migrations. Of the 883 ever experiencing out-migration of a child, 178 have a recently returned child. The respondents have a total of 3,972 children, including 2,313 who had ever migrated. Of these, 385 returned, but only 222 are recent return migrants. To investigate how health associates with return migration, we focus on a subsample containing only those that have experienced migration. This means that from the parent's perspective, the analytical sample contains the 883 who have a child that ever migrated. From the child's perspective, the sample that ever migrated excludes those migrated but returned more than 5 years before the interview for reasons noted above regarding the

Table 1. Analytical Sample Sizes From Parent and Child Perspective

	Respondents (i.e., parents; N = 1,011)	Children of respondents (N = 3,972)
Has child who ever migrated/ child ever migrated	883	2,313
Has returned migrant child/ child is a return migrant	299	385
Child returned recently (in last 5 years)	178	222
To same house	69	143
To same district, different house	121	79
Analytical sample size for multivariate models	883 ^a	2150 ^b

Note: In this and subsequent tables migration is defined as having moved away from the district (*amphoe*) in which the parent lived at the time.

a. Analytical sample size for parents includes those with ever migrating children.

b. Analytical sample size for children includes those that ever migrated excluding those who returned more than 5 years ago.

logic behind considering recent return migration as the outcome. This reduces the analytical sample from the child's perspective to 2,150. In total, 20% of the parents with a child that ever migrated have one that has recently returned, whereas 10% of the child sample recently returned.

The determination of whether parental health is associated with return migration is based on logistic regression equations that examine the odds of return migration by self-assessed health of parent, and parent and spouse, controlling for other covariates. There are two types of covariates that are controlled. The first are demographic characteristics. These include age, sex, education, and marital status. From the parent's perspective, these characteristics are about themselves, whereas from the child's perspective, the characteristics relate to both parent and child. The second are covariates that indicate the potential of unmet support needs. Specifically, this includes whether others are living with or near the parent or whether there are others who may be generally available to provide assistance to the parent if needed. From the perspective of the parent, we control for a child living in the household other than a recent return migrant and residual household size, which is household size minus a spouse and minus other children. Residual household size may indicate, for instance, the number of grandchildren or other relatives living in the household. From the perspective of the child, we control for these covariates as well as number of siblings, with

Table 2. Covariate Descriptive Statistics, Showing Percentage Distributions or Means and Standard Deviations for Respondent or Children Analytical Samples

Respondent	Respondent perspective (N = 883)	Migrant child perspective (N = 2,150)
Respondent (parent) characteristics		
Self-assessed health		
% good	25.3	23.4
% fair	49.8	50.1
% poor	24.9	26.5
Self-assessed health of respondent or spouse (whichever is worse)		
% good	17.4	16.0
% fair	49.5	48.5
% poor	33.1	35.5
Mean number of children ever migrated	2.29 (1.59)	2.72 (1.76)
% 50-54 cohort	33.0	23.3
% 60-64 cohort	33.2	33.1
% 70+ cohort	33.7	43.6
% female	56.2	57.0
% below lower primary education	19.7	23.4
% completed lower primary education	71.0	68.6
% beyond lower primary education	9.3	8.0
% married	69.7	33.2
% child in household other than a recent returning migrant child	48.6	52.2
Mean residual household size	1.91 (1.74)	2.08 (1.84)
Migrant child characteristics		
% daughter	n.a	50.3
% 50 and older	n.a	8.4
% 40 to 49	n.a	26.4
% 30 to 39	n.a	39.2
% 20 to 29	n.a	21.5
% under 20	n.a	4.5
% married	n.a	72.6
% lower primary education or less	n.a	29.7
% full primary education	n.a	29.5
% beyond primary education	n.a	40.8
Mean sibship size	n.a	4.93 (2.13)

Note: Standard deviations are shown in parentheses. n.a. = does not apply.

the notion that more siblings may spread the obligation for parental care. Table 2 provides distributions of these covariates from the respondent and migrant child perspectives.

Table 3. Distribution of Migration and Return Migration From Parent and Child Perspective by Parental Cohort

	Parental cohort				p value
	50-54	60-64	70+	Total	
Parent perspective					
Total number of respondents (i.e., parents)	334	336	341	1011	
% with a child who ever migrated	86.5	89.3	86.2	87.3	.419
Mean number of ever migrant children	1.85	2.50	2.53	2.29	.000
% with a return migrant child among those with a child who ever migrated	31.1	36.7	33.7	33.9	.365
% with a recent return migrant child among those with a child who ever migrated	20.4	22.3	17.7	20.2	.366
Child perspective					
Total number of children	927	1313	1732	3972	
% that ever migrated	66.6	63.8	49.5	58.2	.000
% of migrant children that ever returned	16.2	18.3	15.4	16.6	.267
% of migrant children that recently returned	10.9	10.4	7.9	9.6	.106

We report regressions in two separate tables, one from the perspective of the parent or respondent and one from the child perspective. We test several models. The first includes health of respondent and health of respondent or spouse controlling for demographic characteristics. The second adds covariates that indicate potential unmet support needs. We also tested models that interact health of parents and unmet support needs. For models from the child’s perspective, we report robust standard errors that adjust for clustering by family, because there can be more than one child coming from a respondent.

Results

Table 3 presents descriptive results showing the distribution of migration and return migration across parental cohorts. The upper panel displays results

from the parent perspective and the lower panel from the child perspective. The percentage of parents who report having a child that ever migrated is fairly similar across cohorts. Parents have on average more than two children who migrated, with the mean number increasing across cohorts, likely reflecting higher past fertility and thus larger families associated with increased age of the cohort and thus increased risk of having one and multiple migrants within the family. Approximately, one third of parents who had an ever migrant child report that at least one returned to live in the same household or district as the parent and about one fifth report a recent return. These percentages do not vary significantly across parental cohorts. As for the children, the percentage that ever migrated is lowest for the oldest parental cohort, but the percentage that returned to the same household or district of the parent ever or recently does not differ significantly by parental cohort.

Table 4 focuses attention on the analytical sample that is made up of parents who had a child that ever migrated. Models that control for demographic characteristics and demographic and potential unmet need characteristics are shown. All interaction effects between health and unmet need characteristics are insignificant and therefore these results are omitted for parsimony. The findings generally confirm the importance of current health of the parent in determining whether a parent with an ever migrating child has had at least one recently returned. The odds increase if their own self-assessed health is poor and increase even more so if their *or* their spouse's health is poor. In addition, although the "fair" health category is not significant, its odds ratio is greater than one, indicating that the direction of the relationship is clearly toward increasing the chances of having a migrant child recently return as health deteriorates.

Other covariates are also significantly associated. Having another child living in the parental household other than a return migrant significantly decreases the odds of having a migrant return. The odds of a migrant recently returning substantially and significantly increase with increasing household size, which is opposite of the expectation that more members in the household dissuade return migration. It may be the case, however, that *residual* household size, in a model that already accounts for a spouse and other children besides the migrant living in the household, is picking up grandchildren present, who may be the children of those who migrated, and the grandchildren may encourage the return migration of their own parents. Return migration is also associated with the number of children who ever migrated, which clearly increases the risk that one will return, and with age of the parent and education. Presence of other children does not greatly attenuate the impact of parental health. The odds of parent health do not change much

Table 4. Logistic Regression Odds Ratios for Having a Recent Return Migrant Among Parents Who Had a Child That Ever Migrated

	Model 1a	Model 1b	Model 2a	Model 2b
Self-assessed health of respondent				
Good	—	—		
Fair	1.246	1.233		
Poor	1.573*	1.519		
Self-assessed health of respondent or spouse (whichever is worse)				
Good			—	—
Fair			1.391	1.398
Poor			1.835**	1.801**
Number of ever migrant children	1.329***	1.250**	1.331	1.253***
50-54 cohort	—	—	—	—
60-64 cohort	0.885	0.928	0.869	0.905
70+ cohort	0.636*	0.753	0.627**	0.728
Female	0.988	1.040	1.026	1.060
Below lower primary education	—	—	—	—
Completed lower primary education	1.059	1.056	1.068	1.065
Beyond lower primary education	1.735*	1.807*	1.803*	1.873*
Married		1.074		1.020
Child in household other than a recent return migrant child		0.301***		0.300***
Residual household size		1.192***		1.197**
$\Delta -2 LL^a$	31.3***	26.4**	33.4	10.0**

Note: N = 883.

a. Compared to intercept model (1a and 2a) or previous model (1b and 2b).

*p < .10. **p < .05. ***p < .01.

when this variable is added, and, as noted above, interactions between health and presence of other children is not significant.

Table 5 examines the odds from the perspective of children who ever migrated, adding demographic determinants related to the child in all models and sibship size to the models that include potential sources of unmet need. Again, interactions between health and need variables are not significant and not shown. Models 1a and 1b confirm that poorer health for parents relates to higher odds that the child in question is a return migrant. The odds of a child being a return migrant increase by more than 50% for those whose responding parent is in poor health in comparison to good and 80% when the worse health of both parents is considered. Like the previous models, parents with good health are least likely to induce return migration. The migrant child is

Table 5. Logistic Regression Odds Ratios for Being a Return Migrant in Last 5 Years Among Children That Ever Migrated (Excluding Those Who Returned More Than 5 Years Ago)

	Model 1a	Model 1b	Model 2a	Model 2b
Characteristics of parent				
Self-assessed health of respondent				
Good	—	—		
Fair	1.389	1.414*		
Poor	1.548*	1.507*		
Self-assessed health of self or spouse if worse				
Good			—	—
Fair			1.695**	1.742**
Poor			1.815**	1.859**
Number of ever migrant children	0.964	1.061	0.966	1.065
50-54 cohort	—	—	—	—
60-64 cohort	1.225	1.490*	1.204	1.459*
70+ cohort	1.021	1.649*	1.025	1.630*
Female	1.037	1.051	1.079	1.079
Below lower primary education	—	—	—	—
Completed lower primary education	0.989	0.916	0.986	0.914
Beyond lower primary education	1.545	1.428	1.554	1.416
Married		0.933		0.894
Child in household other than a recent return migrant child		0.375***		0.373***
Residual household size		1.192***		1.198***
Migrant child characteristics				
Daughter	1.325**	1.263	1.313*	1.254
50 and older	—	—	—	—
40 to 49	1.130	1.043	1.131	1.045
30 to 39	1.056	1.024	1.062	1.026
20 to 29	1.518	1.541	1.537	1.559
Under 20	0.968	0.895	0.960	0.882
Married	0.540***	0.501***	0.539***	0.496***
Lower primary education or less	—	—	—	—
Full primary education	1.138	1.064	1.137	1.071
Beyond primary education	0.911	0.859	0.911	0.869
Sibship size		0.821**		0.820**
$\Delta -2 LL^a$	41.1***	43.4***	42.4***	44.1***

Note: $N = 2,150$.

a. Compared to intercept model (1a and 2a) or previous model (1b and 2b).

* $p < .10$. ** $p < .05$. *** $p < .01$.

also less likely to return when there is another child in the parental household already and when sibship size is higher. As in models from the parental perspective, larger household size increases odds of return migration.

Other significant covariates include age of the parent, sex of the child, and marital status of the child. Female migrants are more likely to return than are males. Whereas older age discourages return migration from the parental perspective, it encourages return migration from the children's perspective. Although these two results seem contradictory, there are possible explanations. For the child, an older parent may have various needs that cannot be captured in our current covariates. From the parent's perspective, older parents have more children and there may be a dispersing of the burden across siblings. As a case in point, when we run the child models without sibship size but with the other potential unmet need characteristics, coefficients for parental cohort is greatly reduced and nonsignificant.

Discussion

Internal migration from rural areas in search of labor opportunities across the developing world is one of today's foremost demographic phenomena and coupled with rapid population aging, may be changing the demographic face of rural settings. In Thailand, where both migration and population aging are occurring with haste, there have been media portrayals of dire consequences for older adults who are left behind to fend for themselves (Charasdamrong, 1992). But, adequate systematic evidence that supports such representations for Thailand or elsewhere is scarce (Kreager, 2006). There are some, such as Charles Longino Jr. to whom the current issue of *Journal of Aging and Health* is dedicated, who suggest that families, and older people themselves, have the ability to adapt to changing circumstances in the face of and through migration (Litwak & Longino, 1987; Longino, et al., 1991). While Longino's work focused mostly on the developed world, others have speculated that altruistic family decision making that dominates normative behaviors in developing countries leads to migration choices that keep the needs of older adults in mind (Giles & Mu, 2007; Zimmer & Kwong, 2003).

Using a set of data uniquely suited to examine such questions, the current analysis tests the hypothesis that poor health of an older adult positively associates with return migration of adult children. Importantly, we were able to examine the hypothesis from two perspectives—that of the older adult or parent and that of the child. We assumed that if supported, the hypothesis could suggest that poor overall health promotes return migration for the purpose of assisting an older adult during time of need. We also examined whether

characteristics of parent and child, as well as having nonmigrant children living in the household, household size, and number of siblings, influence return migration or attenuate the association. Results strongly support the main hypothesis. The odds that a parent with an ever migrant child has at least one return migrant child increase substantially if his or her health, or the health of his or her spouse, is poor as compared to good. The odds that an ever migrant child returns to the district of their parent, and in many cases to the parent's household (almost 60% of returnees coreside, as is seen in Table 1), increase substantially if one of the parents is in poor health. These relationships are fairly linear with fair health associated with return migration more so than good but less so than poor health. These relationships remain robust when controlling for other factors.

Given that most migration of adult children is related to employment, some of those who returned to their parental localities to care for aging parents are likely to have given up jobs to do so. Although we do not have data that can tell us the precise rate at which this occurs, we do have some data that speaks to the issue. First, there is little difference between adult children who migrated and still live outside the parent's district and those who are recent return migrants with respect to the percentage for whom employment was the main reason for their initial migratory move. Second, 78% of recent return migrants indicated that they were working just before returning to their parents' district, a level that is somewhat lower than the 93% who are currently working among migrant children who have not returned. This does suggest that some return migration may be related to or at least motivated to some extent by loss of employment before a return in addition to parental health. Third, 81% of return migrants are currently working. Thus, although some clearly give up jobs to return to the district in which their parents live, return migration does not necessarily equate with a long term loss of employment.

The results of the current study support the idea that a type of family solidarity is being maintained in Thailand with decisions regarding return migration being influenced by needs and circumstances of older adults as one determining factor. Although the issue of health of older adults and return migration of their children in developing societies has, up to now, rarely been examined in the literature, the results of the current study do add to a small number of studies that also present a more optimistic scenario. Piotrowski (2007) for instance, shows that adult children in Thailand tend to return to rural areas to help older adults with land harvesting when needed. Giles and Mu (2007) conclude that younger adults in China are less likely to take jobs in urban areas when parents are in ill health, although, unlike our study, they also find that this effect is attenuated to a degree when there are other siblings

still in the parental household. This concurs with literature in the developed world that suggests parents and children are more likely to remain in close proximity when support for parents is required (Baldock, 2000; Remnet, 1987; Silverstein, 1995; Silverstein & Angelelli, 1998).

At the same time, the results do not argue for complacency. First, there are alternative perspectives for return migration in developing countries that argue in favor of somewhat more self-interested motivations on the part of the returnees. For instance, some previous research in Thailand yields results that suggest a type of contractual behavior exists in addition to altruism whereby assistance given to aging parents is part of a mutual exchange of interests that benefits both generations (Vanwey, 2004). Other research (Korinek, Entwisle, & Jampaklay, 2005) suggests that motivations for return migration in Thailand may in part be a function of how well a migrant is able to integrate into the urban settlement, with return migration being a function of a failure to form strong community ties and supportive links in the destination community. Although neither of these perspectives negates altruism as being part of the motivation, they do provide impetus for further thinking about the range of stimuli that link return migration with health and needs of older parents.

In this regard, we note that there are additional characteristics of the MIS data worth mentioning that help put the current results into better causal perspective. It is unlikely that the fact that our sample misses older adults who move to urban areas to join their children rather than vice versa substantially distorts our results. Although the sample design does not permit assessment of the extent to which some older parents may migrate to join their children living elsewhere, interviews were held with one or more knowledgeable key informant within each village such as the head or deputy head. The key informants were asked how many older persons in the community had moved out to permanently join adult children who had migrated elsewhere. The large majority indicated that this virtually never occurred or was very rare and none indicated that it was common. Likewise, our results are unlikely to be distorted because of migratory moves of parents subsequent to the departure of their children. Additional data in the survey on how long respondents lived in their current locality (subdistrict, i.e., *tambol*) show that about 86% lived in the locality the entire time since the oldest child was 15, the earliest age at which a child is likely to migrate. Moreover, of the remainder close to 90% lived in the locality for at least 10 years. Therefore, the possibility of movement by the older adults postmigration of the child is also not an issue. These additional findings confirm to a degree that it is overwhelmingly the child moving back to rejoin their parent in the rural area, a fact that does help our interpretation of an altruistic motivation.

Second, our findings only show that some migrant children appear to respond to health needs of rural parents but say nothing about whether the response is common enough to meet the long-term personal care needs of most parents. Even more important, serious challenges remain to the future welfare of older adults in Thailand and other developing countries. The elderly in Thailand have yet to experience the full extent of the fertility reduction of the past that has led to the current below replacement levels (United Nations, 2009). Our study examined three cohorts of older adults, and the mean number of living children among even the youngest cohort was almost three, a number that may mean support can be spread across offspring. Future cohorts will have fewer than two surviving children, placing a greater burden on each child. These reductions in fertility are likely to interact with increasing levels of migration out of rural areas as socioeconomic development continues to occur. At the moment, many older adults still have a child living either in the same household or nearby (Knodel & Chayovan, 2008; Zimmer & Korinek, 2008). If further fertility declines coupled with increased migration signify that older adults will truly be living without children nearby, it may have consequential influences for future support levels.

There are several limitations to our study, the most obvious of which is related to causation. Our assumption is that health is influencing return migration. In fact, health is measured at the time of the survey while return migration is measured over the 5-year period prior to the survey. Therefore, our models do not satisfy the time-order criterion of causation. Our assumption is that current self-assessed health is able to capture an aspect of long-term health status that affects the decision making of families over a period of time. However, only the availability of longitudinal or more detailed retrospective data would be able to truly assess the causal structure of the relationship.

A second limitation is the measure of health status of the respondent and their spouse, which is based on a single global self-assessed item. This measure does not allow us to comment on the impact of more specific and objective measures of health or, more important perhaps, functional needs. The MIS data includes some specific functional limitation items. Additional analysis, not reported here, shows that measures of functional limitation have similar associations as those shown here, but the orders of magnitude and levels of significance tend to be weaker. We suspect there are at least two reasons for this. Self-assessed health captures a very broad scope of health and provides, in a way, a more complete assessment of the health needs of an older adult, which may include factors such as ability to conduct daily activities, psychological and cognitive health, chronic conditions, and the need for formal care. In addition, self-assessed health may more closely represent

what parents communicate to their children about their health status and thus how the children perceive it than more objective measures. So, although self-assessed health may be less objective and specific than other measures, it may in fact be a more reasonable way to determine the totality of the needs of an older adult and how that is perceived by their children.

Finally, a note that our measure of “recent” with respect to return migration, which is a migrant that returned within the last 5 years, is somewhat arbitrary. This measure was used to assure suitable cases to result in stable estimates without temporally separating the migration from the health of the parent by too many years. We ran some sensitivity analyses that defined recent as shorter than and as longer than 5 years. Regardless of the cutoff used to define recent, findings were very similar to those we report here. The reason for this, we believe, is that most of the return migration occurred within the last 5 years, so lengthening the period did not add many additional cases that might represent migration less likely to relate to parental health in a temporal sense. Shortening the time period reduced the number of cases considered as returnees. In these instances, coefficients remain fairly consistent but were less likely to be significant.

Limitations aside, the results presented linking the health of an older adult in Thailand and return migration of their children are fairly robust, and the link is maintained when other variables that might attenuate the association are added and when interactions between health and these variables are included. Although this relationship has rarely been examined, the line of thinking related to it is likely to grow in importance as developing countries such as Thailand continue to age and the outflow of young adults from rural areas continues as urbanization proceeds. Preliminary research conducted for the MIS suggested that migration of older adults to the households of their children is rare, and the primary direction of movement is still the younger generation back to the district of their parents. Although this direction may shift in the future as social changes in countries as Thailand continue, our research does suggest that, despite the fears often depicted, accommodations for older adults can continue even if the form of accommodation changes. Only continued empirical research will be able to determine if this is the case.

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