Gender Differences in Access to Health Care among the Elderly: Evidence from Southeast Asia

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Populations become increasingly feminized with age. Since older women are more vulnerable to poverty, they may find it more difficult than men to access health care. This study examines factors that may constrain older persons in Southeast Asia from meeting their health-care needs when sick. Our analysis of household survey data from Cambodia, the Philippines, and Viet Nam shows that women are more likely to have reported sickness or injury than men, a difference that is meaningful and statistically significant. While women in Cambodia and the Philippines are more likely to seek treatment than men, the gender difference is reversed in Viet Nam where the stigma and discrimination associated with some diseases may more strongly deter women. The probability of seeking treatment rises with age more sharply for women than men in all countries. However, for the subsample of elders, the gender difference is not significant.

Keywords: elderly, gender, health, health care, women.

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I. Introduction

In what is often characterized as the feminization of aging, the population share has become increasingly female among older age groups in most countries, with women on average having higher life expectancies than men due to a combination of biological, social, and behavioral reasons (Kinsella, 2000). Cross-disciplinary research has shed insight on the relatively greater difficulties for older women in meeting their health-care needs, the importance of adult children in meeting the care needs of elderly adults, and the relatively higher poverty rates for older women. Older women are more vulnerable given their relatively higher rates of widowhood as well as insufficient pension support due to their shorter times in the workforce (Smeeding and Sandstrom, 2005).

Older women face additional constraints—including relatively lower health insurance coverage, educational attainment, and economic autonomy—that have limited their access to health care and their ability to pay for it (Brinda et al. 2015, Zhang et al. 2017). Research from the United States indicates that women are less likely than men to use hospital services and outpatient surgery, and some of that gender difference is explained by differences in economic resources and health needs (Song et al. 2006). Bias may also play a role. For example, in Karnataka, India, gender discrimination and class bias were a factor inhibiting women’s access to network hospitals (Karpagam, Vasan, and Seethappa, 2016). In Norway, care managers viewed care from daughters as a substitute for formal care and were found to discriminate against older women in providing health-care services; they did not discriminate against older men (Jakobsson et al. 2016).

In some contexts, however, older women may be more likely to seek treatment from formal providers than men. One explanation is that women are more likely to report health problems and to have worse self-reported health status (Atchessi et al. 2018; Madyaningrum, Chuang, and Chuang, 2018; Case and Paxson, 2005). Another possibility is that older women, especially those who are widowed, are less able to receive informal care within the home, thus becoming more dependent on outside sources of care. Evidence shows that families use their own unpaid labor, especially that of women, to provide care for older family members (Stark, 2005). In Mexico, for example, elderly people living with family members had lower hospitalization rates than elderly who live alone (González-González et al. 2011). Unpaid care for older men is often provided by spouses, while for women it is provided by other family members, especially daughters, as documented for the Republic of Korea (Yoon, 2014), the People’s Republic of China (Chen et al. 2018), and Western Europe.
(Stark and Cukrowska-Torzewska, 2018). Given women’s longer life expectancies, in most countries relatively more women are widowed than men, leaving women more reliant on the formal care services. For example, in the United States, a large share of out-of-pocket medical spending goes toward nursing facilities, and widowhood accounts for about one-third of the gender gap in out-of-pocket medical expenses (Goda, Shoven, and Slavov, 2013).

The research on health-care utilization among older women and men is relatively sparse for low- and middle-income countries. This study helps to fill the gap by drawing on information about the health status of household members in two popular surveys—the Demographic and Health Survey (DHS) and the Living Standards Measurement Survey—to explore the factors associated with health-care-seeking behavior among older women and men. Using nationally representative samples of adults (aged 18 and above) for Cambodia, the Philippines, and Viet Nam, we examine the determinants of illness and health-seeking behaviors, and how they differ by gender and age, and we examine how the gender gap in health-seeking behavior changes as the population ages. Uncovering gender differences in health outcomes and access to care is crucial to fine-tune policy reforms that address the needs of older adults in Southeast Asia, especially in light of the increased risks of getting sick during the COVID-19 pandemic.

II. Background

While Asia’s low- and middle-income countries still have relatively young populations, projections show their demographic transitions are progressing rapidly, with considerable shifts in age structures toward the elderly. These shifts have already prompted legislative reforms to build and reinforce the social safety net to better support older persons, especially those living in poverty. Most countries in South and Southeast Asia have committed to achieving universal health care, a goal that is incorporated in the Sustainable Development Goals (World Health Organization, 2019). Although many governments have implemented reforms focusing on the needs of their aging populations, progress remains uneven depending on the size of public health budgets (Mahal and McPake, 2017). The progress of reforms in our sample countries—Cambodia, the Philippines, and Viet Nam—illustrates this diversity of experience.

A. Cambodia

The Government of Cambodia has implemented a comprehensive set of reinforcements to its social safety net to address the long-lasting repercussions of the
Khmer Rouge genocide, which led to enormous disruptions to family livelihoods, social well-being, and economic prosperity. More than 40% of older adults surveyed in the early 2000s had experienced the death of a child during the genocide, compared to just 7% in the four-year period after the genocide (Zimmer et al. 2006). More than half of the older adults surveyed lost a spouse during the Khmer Rouge period, with two-thirds of women and one-third of men reporting the loss of a spouse. While Cambodia’s men were subjected to a disproportionate amount of violence during the Khmer Rouge regime, domestic violence against women appears to have increased after the genocide (Rodgers, 2009). Women have faced additional gender-specific constraints in meeting their health-care needs given the country’s patriarchal and hierarchical social structure, which gives higher status to men and lower status to unmarried women (United States Agency for International Development, 2016). Although there is a widespread perception that Cambodia is a matrilineal society, ethnographic studies suggest that the country has more of a bilateral social system in which women have influence over social life but are subordinate to men in schooling, access to resources, and decision-making power (Öjendal and Sedara, 2006).

In 2016, the Government of Cambodia committed to achieving universal health coverage through its Social Health Protection Framework. Shortly thereafter, the Ministry of Health announced it would place greater emphasis on the needs of the elderly in its Third Health Strategic Plan, 2016–2020. The government has specifically targeted the removal of sociocultural, financial, and bureaucratic barriers to quality health-care services among the elderly, and it has prioritized access to free or low-cost health care. One step in that direction is the expansion of the so-called Health Equity Fund schemes to provide vulnerable groups, including the elderly, with greater protection against financial risk.

B. Philippines

Even though the Philippines still has a young population structure, projections in Cruz, Cruz, and Saito (2019) indicate that by 2030 the Philippines will be an “ageing society,” with over 10% of the population above the age of 60. In response, the government has implemented a number of policies to protect the health and economic security of older persons, including the 2019 Universal Health Care Law, which guarantees equitable access for all Filipinos to quality health-care services at affordable rates. The new law also enrolls all citizens in the national public insurance program, PhilHealth, and provides free consultations and medical tests. Leading up to this policy reform, older persons historically relied on their children for old-age support, including financial support for health expenditures. However,
intergenerational transfers from adult children to their older parents have fallen over time in the Philippines and in other Asian countries as children have found it less necessary to provide support, and older persons have lowered their expectations of receiving financial support from their children (Marquez, 2019).

This pattern of declining intergenerational transfers may hurt older women more than men as older women are more likely to rely on their children as the primary caregiver when they are sick, while older men are more likely to rely on their spouses. Previous evidence on gender differences in health among Filipino older persons yields mixed results, with some disadvantages for women, including poorer dental hygiene, greater rates of depression, and a higher incidence of self-reported pain. However, men’s higher rates of smoking also result in higher rates of morbidity related to smoking, and overall, there appear to be no substantial gender differences in disability (Cruz, Cruz, and Saito, 2019).

C. Viet Nam

In recent decades, the Government of Viet Nam has placed a heavy weight on meeting the needs of vulnerable members of the population, reducing overall poverty, and improving societal well-being. An important initiative includes the 2006 Law on Gender Equality, which requires policy reforms that promote gender equality across various dimensions, including universal enrollment in higher levels of schooling, more rewarding labor market opportunities, and universal access to free or low-cost health care. Another priority of the government is to strengthen the social safety net of the older population. The elderly share of the total population is projected to increase from 8.1% in 1999 to almost 20% by 2035 (United Nations Population Fund, 2019).

The Government of Viet Nam has recognized the growing size of its elderly population and has implemented a number of policy measures to address their needs. These efforts include an Ordinance on Elderly People, passed in 2000, that contained provisions for support and care for older people. In 2009, this ordinance was replaced by a broader Law on the Elderly, which guaranteed the rights of older people, followed three years later by the National Action Program on the Viet Nam Elderly, which contained specific social targets, including health care and the promotion of “active aging” (United Nations Population Fund, 2019). In 2014, the government instituted a revised Law on Health Insurance that removed barriers to coverage faced by the poor (Thuong, 2020), and it has since adopted additional resolutions to further address the needs of the aging population.
D. Country Comparisons

The population pyramids in Figure 1 show the demographic structure of each country in our sample, with the bars showing the percentage of the total population that is male or female in a particular age group. For each country, the population is concentrated in the younger age groups, which is consistent with other low- and middle-income countries in the region. Strikingly, gender imbalances are progressively skewed toward women in older age groups. For each country, the population structure exhibits a statistically significant variation by gender and five-year-interval age group. The relatively young population in Cambodia reflects the impact of the Khmer Rouge genocide. The Philippines, with its high birth rate, is also skewed toward the younger population, although the 0–4 years age group has shrunk compared to the next group up. In contrast, Viet Nam has a fairly even distribution of the population across age groups until people reach their 60s.

Looking at the data from another angle shows that most of the elderly in all three countries are women. Figure 2 reports the male–female sex ratio by five-year cohorts for each country; that is, the ratio of the number of men in each five-year age group to the number of women, expressed as a percentage. Numbers close to 100 indicate that

Figure 1. Population Pyramids by Country

Source: Authors’ calculations using data from the 2014 Cambodia Demographic and Health Survey, the 2017 Philippines Demographic and Health Survey, and the 2014 Viet Nam Household Living Standards Survey (VHLSS).
the shares of men and women in an age group are roughly the same. Only the youngest age groups (19 and below) have more men than women in all three countries. These ratios exhibit a marked drop for the older population groups, especially after the age of 50. For example, in Cambodia, the male–female ratio falls by almost 20 percentage points between the 45–49 and 55–59 age groups, and in the Philippines, it declines by an even greater amount between the 55–59 and 70–74 age groups. In Viet Nam, the sharp drops do not appear until past the 65–69 age group. Overall, for the elderly, which we define as age 60 and above, women make up the majority share of all age groups, and the difference is particularly stark for those 70 and above. Despite the fact that the Khmer Rouge violence disproportionately targeted men, the ratio is not as skewed toward women in Cambodia as it is for the Philippines and Viet Nam.

III. Conceptual Framework

This study’s estimation strategy is motivated by a health production model that explains how various inputs impact the production of health through the demand for health capital (Grossman, 2000). Health is considered a durable capital good in which individuals gain utility from the use of time for which they are healthy. Individuals want good health, but they cannot purchase it directly in the marketplace. Instead, health is produced by combining time and medical inputs. Health is both a
consumption and an investment good. Consumption of health makes people feel better and is utility-generating. As an investment good, health increases the number of days available to work. It is assumed that an individual is endowed with an initial stock of health at birth that depreciates over time until death. Individuals can modify the rate of depreciation of their health through various activities. Some activities, like exercise, slow the rate of depreciation while others, like smoking, increase it. Individuals can increase their time spent in the labor market and their productivity by increasing their stock of health, which makes health investments a form of human capital investment.

In the basic Grossman model, an individual’s intertemporal utility function depends on their health endowment, stock of health across time, and consumption of other commodities. An individual’s net investment in their health stock over time is their gross investment less the depreciation of their health stock, where the rate of health depreciation is assumed exogenous and varies with age. An individual’s gross investment in health depends on a vector of commodities purchased in the marketplace that contribute to health, including medical care, the time that individuals invest in their health, and on an individual’s exogenously determined stock of knowledge that helps to improve the efficiency of household production. Aggregate consumption, in turn, depends on the commodities purchased in the marketplace as well as time inputs and the individual’s stock of knowledge. Individuals are assumed to choose the intertemporal utility maximizing the level of health stock and aggregate consumption in each period, subject to the net amount invested over time in health (including depreciation) and subject to their total constraints. In equilibrium, the optimal quantity of investment in each period determines the ideal quantity of health capital. Medical care is rationed by its market price and indirect costs, so factors such as travel costs to health-care facilities affect the cost of medical care and enter into the health production function.

Grossman (2000) argues that health demand is inversely related to the shadow price of health, which depends on the price of medical care plus indirect costs. Changes in these variables change the optimal amount of health and will also impact the demand for health inputs. This shadow price increases with age if the depreciation rate on the stock of health increases over the course of the life cycle. In contrast, the shadow price of health falls with years of schooling if more educated individuals are more efficient producers of health. The original model, however, does not differentiate by gender of the individual. We posit that if women face social norms in which men are prioritized in the allocation of scarce resources, this raises the shadow price of health for women and reduces their health demand. We would then expect to see that older women are less likely to seek formal health care than their male counterparts.
However, when the elderly rely on informal sources of health care (especially from their spouses), the shadow price of health can appear relatively high and result in lower demand for formal sources. Given that older men in our sample countries are less likely than older women to be widowed, we would expect to see that men are less likely to seek formal health care than their female counterparts.

IV. Data and Methodology

The analysis uses household-level data from the Demographic and Health Surveys for Cambodia (2014) and the Philippines (2017), and the Viet Nam Household Living Standards Survey (2014). The DHSs are large, nationally representative household surveys that provide a wealth of information on population, health, and nutrition in low- and middle-income countries. The DHSs for Cambodia and the Philippines are unusual among the Asian DHS countries because they include questions on recent sickness, injuries, and health-care-seeking behavior for all members of the household, while other Asian DHS countries do not direct these questions to all household members. The VHLSS also contains questions on sickness and health-care-seeking behavior for all household members. The surveys covered over 15,000 households in Cambodia; over 27,000 households in the Philippines; and over 9,000 households in Viet Nam.

The questions on sickness and treatment-seeking behavior differ somewhat across the three countries. The DHSs for Cambodia and the Philippines each have a 30-day reference period for when the family member was sick or injured, as opposed to a 12-month reference period in the VHLSS. Although the DHSs for Cambodia and the Philippines have identical sickness questions, the treatment-seeking questions differ. In Cambodia, treatment seeking by the household member who was sick or injured is specific to the reported illness or injury in the past 30 days. However, in the Philippines, treatment seeking by the sick or injured household member can be for any illness or injury on an outpatient basis in the past 30 days or hospital confinement for any illness or injury in the past 12 months. In the VHLSS, the sickness question is specific to a “severe” sickness or injury, one that required bedrest or required the person to stay home from work or school. Moreover, the treatment question in the VHLSS includes seeking preventive care and is answered by all individuals surveyed whether they reported sickness or not. In addition, the wealth index for Viet Nam is constructed by the authors using expenditure data, while for Cambodia and the Philippines, the wealth index variable is included in the survey data. More details on the data sources and construction of the key variables are in the Appendix.
The empirical strategy centers on a probit analysis of the likelihood that an older adult will seek health-care services for an illness or injury, regressed on a range of demographic and household characteristics. A selection model is needed to address problems caused by the interaction of two types of selections effects. First, people who are sick or injured are more likely to seek treatment. Second, some people who are not sick will also seek treatment because they have an unobserved characteristic leading them to seek treatment. Hence, the determinants of treatment seeking and the unmeasured aspect of treatment are correlated in the selected sample, causing the effects of the independent variable of interest to be underestimated unless the selection is addressed. For each country, we estimate a maximum-likelihood probit model with sample selection, which is effectively a Heckman-type selection model that generates adjusted probabilities for seeking health-care treatment conditional on having been sick.

The choice of a probit model with selection to estimate the determinants of health-care-seeking behavior has precedent in a number of studies using DHS data for other health outcomes, including contraceptive use (Tchuimi and Kamga, 2020), maternal health care (Dixit et al. 2017), child survival (Oyekale, 2014), and HIV prevalence (Clark and Houle, 2014). Similar to the notation in Clark and Houle (2014), for the full sample estimation we express the outcome of health-care-seeking behavior for individual \( i \) as follows:

\[
\begin{align*}
    h_i^* &= X_iY + \varepsilon_i, \\
    h_i &= \begin{cases} 
    1 & \text{if } h_i^* > 0, \\
    0 & \text{otherwise}. 
    \end{cases}
\end{align*}
\]

In this case, \( h_i^* \) is an unobserved latent variable for seeking formal medical treatment, which depends on the observed covariates \( X_i \) and the random error \( \varepsilon_i \). We also estimate a probit model for whether or not the person was sick or injured, which determines the selection for treatment-seeking behavior. The selection model is as follows:

\[
\begin{align*}
    s_i^* &= X_i\beta + Z_i\gamma + \theta_i, \\
    s_i &= \begin{cases} 
    1 & \text{if } s_i^* > 0, \\
    0 & \text{otherwise}. 
    \end{cases}
\end{align*}
\]

Here, \( s_i^* \) is an unobserved latent variable for the likelihood of getting sick, which depends on the observed covariates \( X_i \), the exclusion criteria \( Z_i \), and random error \( \theta_i \). Health-care-seeking behavior \( h_i \) is observed only when a person gets sick or injured \( (s_i = 1) \). We estimate both equations simultaneously as a sample-selection probit with
\( \rho \) equal to the correlation between the error terms in the outcome equation (\( \varepsilon_i \)) and the selection equation (\( \theta_i \)). If \( \rho \) is statistically significant, then the coefficients on a simple probit estimation of the outcome equation alone would be biased. The \( X_i \) matrix includes a host of control variables at the individual and household levels. The model can also be estimated on subsamples of the data, which we do to better understand the dynamics of the main results. For example, people living in poverty might be less likely to report illness because their thresholds for reporting might be different than the rich; and sometimes, a decision to be treated is likely to drive the decision to report an illness. Our selection approach helps to address this point not only because observations on treatment are only available for a selected sample that reports sickness, but also because reporting sickness is not random with respect to treatment. Estimating our model with subsamples based on household wealth will give us a more precise indication of the extent to which the correlation between the error terms varies by wealth, and hence, the extent to which selection (illness) is or is not random with respect to treatment.

The set of explanatory variables in the sickness and treatment estimations overlap; but we omit \( Z_i \) from \( X_i \) since identification on functional form alone often led to situations where the log-likelihood would not converge. In the analysis, our omitted variable that meets the exclusion criterion is whether there is another sick person in the household. One can reasonably argue that another sick person in the household is likely to affect reporting illness, through either contagion within the household or exposure to a common disease origin, but not whether an individual seeks treatment. All statistical analyses are weighted to the population using the sampling weights provided with either the DHSs or VHLSS. All standard errors of the estimated coefficients are corrected for clustering at the household level.

Sample means are provided in the first three tables. In Cambodia, 24.5% of individuals aged 60 and above reported they were sick or injured in the past month, compared to 13.7% of all adults (Table 1). Elderly women were substantially more likely than men to report being sick or injured (26.7% versus 21.1%), but they were less likely than men to seek medical treatment conditional on having been sick (71.7% versus 74%). Notable gender differentials among the elderly include substantially fewer years of schooling for women, a lower likelihood for women to be currently married, a greater likelihood of living in a female-headed household for women, and fewer older children (aged 6–17) present in the household for men.

In the Philippines, older people were more than twice as likely to report they had gotten sick or injured in the past 30 days compared to the population of all adults,
and they were also more likely to seek treatment than the population at large (Table 2). The incidence of the elderly seeking treatment in the Philippines (26.6%) is considerably lower than in Cambodia (72.5%), which reflects differences across the two countries in cultural norms around receiving care within the home from family members as well as differences in out-of-pocket medical costs. Older women in the Philippines are more likely to report a sickness or injury than older men, and they are

Table 1. Sample Means for Cambodia, 2014

| Variable                                      | Full Sample | Elderly | Elderly Women | Elderly Men |
|-----------------------------------------------|-------------|---------|---------------|-------------|
| Seek treatment (% of sick)                    | 72.4        | 72.5    | 71.7          | 74.0        |
|                                               | (44.7)      | (44.7)  | (45.1)        | (43.9)      |
| Sick (%)                                      | 13.7        | 24.5    | 26.7          | 21.1        |
|                                               | (34.4)      | (43)    | (44.3)        | (40.8)      |
| Female (%)                                    | 53.1        | 59.7    | 100.0         | 0.0         |
|                                               | (49.9)      | (49.0)  | (0.0)         | (0.0)       |
| Age (years)                                   | 39.7        | 69.0    | 69.0          | 69.0        |
|                                               | (16.2)      | (7.5)   | (7.5)         | (7.4)       |
| Education (years)                             | 5.3         | 2.9     | 1.9           | 4.4         |
|                                               | (4.2)       | (3.3)   | (2.7)         | (3.6)       |
| Currently married (%)                         | 70.7        | 58.1    | 40.5          | 84.2        |
|                                               | (45.5)      | (49.3)  | (49.1)        | (36.4)      |
| Widowed (%)                                   | 8.8         | 37.8    | 53.4          | 14.8        |
|                                               | (28.3)      | (48.5)  | (49.9)        | (35.5)      |
| Separated or divorced (%)                     | 2.5         | 1.9     | 2.6           | 0.8         |
|                                               | (15.5)      | (13.7)  | (16.0)        | (9.0)       |
| Household members (number)                    | 5.3         | 4.8     | 4.7           | 4.9         |
|                                               | (2.3)       | (2.3)   | (2.3)         | (2.4)       |
| Young children in household (number)          | 0.6         | 0.5     | 0.5           | 0.5         |
|                                               | (0.8)       | (0.7)   | (0.7)         | (0.8)       |
| Older children in household (number)          | 1.2         | 0.9     | 1.0           | 0.8         |
|                                               | (1.2)       | (1.1)   | (1.2)         | (1.1)       |
| Female-headed household (%)                   | 24.2        | 30.3    | 44.1          | 9.9         |
|                                               | (42.8)      | (46.0)  | (49.7)        | (29.9)      |
| Urban (%)                                     | 17.3        | 15.8    | 15.8          | 15.9        |
|                                               | (37.8)      | (36.5)  | (36.5)        | (36.6)      |
| Wealth index (index value)                    | 0.0         | −0.1    | −0.1          | 0.0         |
|                                               | (1.0)       | (0.9)   | (0.9)         | (0.9)       |
| Other person sick in household (%)            | 39.2        | 33.0    | 32.0          | 34.6        |
|                                               | (48.8)      | (47.0)  | (46.6)        | (47.6)      |
| No. of observations                           | 45,401      | 5,930   | 3,527         | 2,403       |

Notes: Sample statistics are weighted to the national level with sample weights. Standard deviations shown in parentheses. The full sample includes all individuals aged 18 and above. Treatment seeking is as a share of those reporting illness or injury only. Details on variable definitions are included in the Appendix. Source: Authors’ calculations using the 2014 Cambodia Demographic and Health Survey.
also more likely to seek health-care treatment after getting sick than are older men. Like Cambodia, older women are less likely to be married and far more likely to live in a female-headed household than older men. However, the considerable gender gap in schooling seen in Cambodia is noticeably absent in the Philippines, one of the few low- and middle-income countries in which most cohorts of women have an advantage over men in terms of education. In addition, the Philippines is conspicuous for having

| Variable                        | Full Sample | Elderly | Elderly Women | Elderly Men |
|---------------------------------|-------------|---------|---------------|-------------|
| Seek treatment (% of sick)      | 24.3        | 26.6    | 27.4          | 25.5        |
|                                  | (42.9)      | (44.2)  | (44.6)        | (43.6)      |
| Sick (%)                        | 12.3        | 25.3    | 25.8          | 24.7        |
|                                  | (32.8)      | (43.5)  | (43.7)        | (43.2)      |
| Female (%)                      | 49.8        | 56.4    | 100.0         | 0.0         |
|                                  | (50.0)      | (49.6)  | (0.0)         | (0.0)       |
| Age (years)                     | 40.7        | 69.0    | 69.4          | 68.4        |
|                                  | (16.4)      | (7.5)   | (7.7)         | (7.2)       |
| Education (years)               | 10.2        | 8.2     | 8.1           | 8.2         |
|                                  | (3.9)       | (4.4)   | (4.4)         | (4.4)       |
| Currently married (%)           | 63.7        | 59.2    | 45.5          | 76.8        |
|                                  | (48.1)      | (49.2)  | (49.8)        | (42.2)      |
| Widowed (%)                     | 6.9         | 32.6    | 45.6          | 16.0        |
|                                  | (25.3)      | (46.9)  | (49.8)        | (36.6)      |
| Separated or divorced (%)       | 3.9         | 3.1     | 3.2           | 3.0         |
|                                  | (19.4)      | (17.4)  | (17.7)        | (16.9)      |
| Household members (number)      | 5.0         | 4.2     | 4.1           | 4.3         |
|                                  | (2.4)       | (2.4)   | (2.3)         | (2.4)       |
| Young children in household (number) | 0.5 | 0.3 | 0.3 | 0.3 |
|                                  | (0.8)       | (0.6)   | (0.6)         | (0.6)       |
| Older children in household (number) | 1.2 | 0.8 | 0.7 | 0.8 |
|                                  | (1.3)       | (1.1)   | (1.1)         | (1.2)       |
| Female-headed household (%)     | 18.7        | 27.8    | 45.2          | 5.2         |
|                                  | (39.0)      | (44.8)  | (49.8)        | (22.2)      |
| Urban (%)                       | 47.1        | 42.7    | 43.0          | 42.2        |
|                                  | (49.9)      | (49.5)  | (49.5)        | (49.4)      |
| Wealth index (index value)      | 0.3         | 0.4     | 0.4           | 0.3         |
|                                  | (1.0)       | (1.0)   | (1.0)         | (1.1)       |
| Other person sick in household (%) | 36.1 | 29.6 | 28.0 | 31.5 |
|                                  | (48.0)      | (45.6)  | (44.9)        | (46.5)      |
| No. of observations             | 72,785      | 11,288  | 6,267         | 5,021       |

Notes: Sample statistics are weighted to the national level with sample weights. Standard deviations shown in parentheses. The full sample includes all individuals aged 18 and above. Treatment seeking is as a share of those reporting illness or injury only. Details on variable definitions are included in the Appendix.

Source: Authors’ calculations using the 2017 Philippines Demographic and Health Survey.
near-gender earnings parity—a rarity globally, not just for its income level (ADB, 2015; Zveglich, Rodgers, and Laviña, 2019).

Sample means for Viet Nam are somewhat different, partly due to its own country context but also due to it having a different survey instrument. The elderly are more likely to have reported an illness or injury than the overall population of adults, and they are considerably more likely to have sought medical attention in the past year (Table 3). Older women in Viet Nam are more likely to seek treatment compared to

Table 3. Sample Means for Viet Nam, 2014

| Variable                               | Full Sample | Elderly | Elderly Women | Elderly Men |
|----------------------------------------|-------------|---------|---------------|-------------|
| Seek treatment (%)                     | 21.4        | 43.0    | 44.2          | 41.3        |
|                                        | (41.0)      | (49.5)  | (49.7)        | (49.3)      |
| Sick (%)                               | 6.9         | 14.1    | 13.9          | 14.4        |
|                                        | (25.3)      | (34.8)  | (34.6)        | (35.1)      |
| Female (%)                             | 52.2        | 58.5    | 100.0         | 0.0         |
|                                        | (50.0)      | (49.3)  | (0.0)         | (0.0)       |
| Age (years)                            | 43.2        | 70.9    | 71.7          | 69.7        |
|                                        | (17.0)      | (9.0)   | (9.2)         | (8.5)       |
| Education (years)                      | 8.4         | 5.8     | 4.5           | 7.6         |
|                                        | (4.3)       | (4.4)   | (4.1)         | (4.3)       |
| Currently married (%)                  | 71.9        | 61.2    | 44.0          | 85.4        |
|                                        | (45.0)      | (48.7)  | (49.6)        | (35.3)      |
| Widowed, separated, or divorced (%)    | 10.0        | 36.6    | 52.7          | 13.9        |
|                                        | (30.0)      | (48.2)  | (49.9)        | (34.7)      |
| Household members (number)             | 4.3         | 3.8     | 3.8           | 3.9         |
|                                        | (1.6)       | (2.0)   | (2.0)         | (1.9)       |
| Young children in household (number)   | 0.4         | 0.3     | 0.3           | 0.3         |
|                                        | (0.6)       | (0.6)   | (0.6)         | (0.6)       |
| Older children in household (number)   | 0.7         | 0.5     | 0.5           | 0.4         |
|                                        | (0.9)       | (0.8)   | (0.8)         | (0.8)       |
| Female-headed household (%)            | 23.9        | 30.8    | 44.9          | 11.0        |
|                                        | (42.7)      | (46.2)  | (49.7)        | (31.3)      |
| Urban (%)                              | 35.1        | 34.1    | 33.3          | 35.1        |
|                                        | (47.7)      | (47.4)  | (47.2)        | (47.8)      |
| Per capita expenditure index (index value) | 0.0       | 0.0     | 0.0           | 0.0         |
|                                        | (0.9)       | (1.0)   | (1.0)         | (0.9)       |
| Other person sick in household (%)     | 15.5        | 14.5    | 14.1          | 15.1        |
|                                        | (36.2)      | (35.2)  | (34.8)        | (35.8)      |
| No. of observations                    | 25,632      | 4,165   | 2,434         | 1,731       |

Notes: Sample statistics are weighted to the national level with sample weights. Standard deviations shown in parentheses. The full sample includes all individuals aged 18 and above. Treatment seeking includes preventive care and is not conditional on having been sick or injured. Details on variable definitions are included in the Appendix.

Source: Authors’ calculations using the 2014 Viet Nam Household Living Standards Survey.
older men, but they are less likely than men to report that they were sick or injured. Older women have less schooling than older men, are less likely than men to be married, and are far more likely to live in female-headed households.

V. Estimation Results

Results from the sample-selection probit estimations for the likelihood of getting sick or injured are reported in Table 4. For each country, the table reports results from two alternative models: (i) Model 1 has a parsimonious set of control variables in which the wealth index (or per capita expenditure index in the case of Viet Nam) is used to proxy for the household’s socioeconomic status; and (ii) Model 2 is the full estimation in which a large number of household characteristics are added to measure the household’s socioeconomic status. Both models are estimated with the full sample of all adults to maximize the sample size.

In Table 4, the main result is that, across countries and models, women are more likely to report a sickness or injury than men, and the difference is meaningful and statistically significant. Some of this result could be explained by a pattern observed elsewhere in which women have worse self-assessed health than men (Case and Paxson, 2005). Also across countries, the likelihood of getting sick or injured increases with age, which seems fairly intuitive given that the elderly are more vulnerable to diseases of various kinds. The likelihood of getting sick or injured decreases with the total number of household members, a result that is robust across models and countries and may be explained by positive spillover effects among household members in preventive health behaviors. As expected, having another sick family member present increases the likelihood that someone reports an illness. This variable, which satisfies the exclusion restriction in the sample-selection probit estimation, is statistically significant across countries and models. There are no other results that are consistent in sign and statistically significant across models in all three countries. Table 4 also reports the cross-equation correlation ($\rho$) in the error terms for the regressions for getting sick and seeking treatment. These are positive and statistically significant for both Cambodia and the Philippines, which supports our use of a sample-selection probit rather than a simple probit estimation. For Viet Nam this term is not statistically

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1To improve the computation of the maximum-likelihood estimates, Stata calculates the inverse hyperbolic tangent of $\rho$, which is equal to $[\ln(1 + \rho) - \ln(1 - \rho)]/2$, instead of $\rho$ itself. The discussion of significance is based on the estimates of the transformed parameter and its standard error, as reported in Table 4.
Table 4. Sample-Selection Probit Estimates for Likelihood of Reporting Sickness or Accident

| Variable                  | Cambodia            | Philippines   | Viet Nam    |
|---------------------------|---------------------|---------------|-------------|
|                           | Model 1 | Model 2 | Model 1 | Model 2 | Model 1 | Model 2 |
| Female                    | 0.225*** | 0.231*** | 0.090*** | 0.091*** | 0.081*** | 0.090*** |
|                           | (0.020)  | (0.020)  | (0.019)  | (0.019)  | (0.027)  | (0.028)  |
| Age                       | 0.014*** | 0.015*** | 0.016*** | 0.016*** | 0.015*** | 0.016*** |
|                           | (0.001)  | (0.001)  | (0.001)  | (0.001)  | (0.001)  | (0.001)  |
| Education                 | −0.015*** | −0.012*** | −0.002 | −0.003 | −0.006 | 0.001 |
|                           | (0.003)  | (0.003)  | (0.003)  | (0.003)  | (0.004)  | (0.004)  |
| Currently married         | 0.043    | 0.041    | 0.024    | 0.022    | 0.003    | 0.005    |
|                           | (0.033)  | (0.033)  | (0.033)  | (0.033)  | (0.049)  | (0.050)  |
| Widowed                   | 0.029    | 0.024    | 0.073    | 0.070    | −0.018   | −0.027   |
|                           | (0.050)  | (0.050)  | (0.046)  | (0.046)  | (0.069)  | (0.070)  |
| Separated or divorced     | 0.220*** | 0.209*** | −0.059   | −0.056   |         |          |
|                           | (0.059)  | (0.059)  | (0.051)  | (0.051)  |         |          |
| Household members         | −0.055*** | −0.050*** | −0.048*** | −0.044*** | −0.056*** | −0.044*** |
|                           | (0.008)  | (0.008)  | (0.009)  | (0.008)  | (0.011)  | (0.012)  |
| Young children in household| −0.007 | −0.016 | −0.070*** | −0.073*** | 0.094*** | 0.091*** |
|                           | (0.017)  | (0.018)  | (0.017)  | (0.017)  | (0.025)  | (0.025)  |
| Older children in household| 0.040*** | 0.033*** | −0.004 | −0.004 | 0.033* | 0.028 |
|                           | (0.012)  | (0.012)  | (0.011)  | (0.011)  | (0.019)  | (0.019)  |
Table 4. Appendix. Continued.

| Variable                        | Cambodia | Cambodia | Philippines | Philippines | Viet Nam | Viet Nam |
|---------------------------------|----------|----------|-------------|-------------|----------|----------|
|                                 | Model 1  | Model 2  | Model 1     | Model 2     | Model 1  | Model 2  |
| Female-headed household         | 0.002    | −0.004   | −0.038      | −0.039      | −0.026   | −0.023   |
|                                 | (0.026)  | (0.026)  | (0.035)     | (0.034)     | (0.034)  | (0.035)  |
| Urban                           | 0.136*** | 0.144*** | 0.011       | 0.022       | −0.076** | −0.036   |
|                                 | (0.045)  | (0.040)  | (0.034)     | (0.035)     | (0.034)  | (0.037)  |
| Wealth or per capita expenditure index | 0.035*   | −0.089***| −0.034*     |             |          |          |
|                                 | (0.021)  |          | (0.020)     |             |          |          |
| Other person sick in household  | 0.111*** | 0.107*** | 0.550***    | 0.535***    | 0.548*** | 0.541*** |
|                                 | (0.021)  | (0.020)  | (0.026)     | (0.026)     | (0.045)  | (0.045)  |
| Additional controls             | No       | Yes      | No          | Yes         | No       | Yes      |
| Constant                        | −1.614***| −1.682***| −1.815***   | −1.656***   | −2.085***| −2.048***|
|                                 | (0.062)  | (0.071)  | (0.068)     | (0.109)     | (0.081)  | (0.125)  |
| Inverse hyperbolic tangent of ρ | 2.222*** | 2.150*** | 0.984***    | 1.037***    | 0.235    | 0.219    |
|                                 | (0.294)  | (0.264)  | (0.149)     | (0.157)     | (0.213)  | (0.208)  |
| No. of observations             | 45,401   | 45,401   | 72,785      | 72,785      | 25,632   | 25,632   |

Notes: Results are coefficients from the sickness equation in the sample-selection probit regressions using the full sample, weighted to the national level with sample weights. Model 1 is a parsimonious model that excludes a range of additional household and wealth characteristics, while Model 2 replaces the wealth or per capita expenditure index with a set of variables covering ownership of assets and quality of housing. For Viet Nam, the dummy variable for widowed includes divorced or separated. Standard errors, in parentheses, are corrected for clustering at the household level. Stata estimates a transformation of ρ (inverse hyperbolic tangent) for computational efficiency, and tests of statistical significance are based on the transformed variable. The notation *** denotes $p < 0.01$, ** denotes $p < 0.05$, and * denotes $p < 0.10$.

Source: Authors’ calculations.
significant, which is not surprising given that the treatment-seeking question was not directly linked to illness and the reference period in the survey is much longer (12 months versus 30 days).

Results from the sample-selection probit estimations for the likelihood of getting treatment after having been sick or injured are reported in Table 5. Model 1 uses the parsimonious set of controls, including the household wealth index or per capita expenditure index, while Model 2 uses the larger set of controls for household socioeconomic status. Estimations are again reported for the full sample of adults. The most important result is that women in Cambodia and the Philippines are more likely than men to seek health-care treatment when they are sick or injured, and the difference is statistically significant. This result most likely reflects women’s relatively lower access to informal sources of care from other family members. In Viet Nam, however, women are less likely than men to seek treatment after having become sick or injured. A possible reason is that women in Viet Nam face greater stigma and discrimination than men in seeking care for diseases such as HIV/AIDS and tuberculosis, and they are more reluctant than men to seek care from formal sources (Govender and Penn-Kekana, 2008, Van Minh et al. 2018). Across countries, individuals are more likely to seek treatment as they age, which is as expected. There are no other common patterns that are statistically significant across countries.

As a robustness check to further address the concern that the exclusion restriction may not be valid (that is, another person sick in the household may indeed determine treatment-seeking behavior), we estimated the sample-selection probit regressions with the variable “other person sick in household” included in both the treatment and sickness equations, effectively relying on nonlinearity for identification. In this case, the coefficient on “other person sick in household” is statistically significant in the sickness equation, but not in the treatment equation, for Cambodia and the Philippines, thus supporting our identification strategy. However, it is statistically significant for Viet Nam, but this may be related to the fact that treatment seeking includes preventive care. Interestingly, when the sample-selection probit regression for Viet Nam is estimated relying on nonlinearity for identification, the estimated $\rho$ parameter becomes statistically significant, suggesting that controlling for selection bias is warranted. In this robustness check, our main conclusions regarding the negative coefficient for female and the positive coefficient for age in the treatment-seeking estimation for Viet Nam still hold.

We next used the probit coefficients to construct predicted probabilities of treatment seeking by sex and age, using the variable means for each sample country. As shown in Figure 3, the predicted probability of seeking treatment rises with age for
Table 5. Sample-Selection Probit Estimates for Likelihood of Seeking Treatment

| Variable                | Cambodia Model 1 | Cambodia Model 2 | Philippines Model 1 | Philippines Model 2 | Viet Nam Model 1 | Viet Nam Model 2 |
|-------------------------|------------------|------------------|---------------------|--------------------|------------------|------------------|
| Female                  | 0.202***         | 0.206***         | 0.095**             | 0.095***           | −0.370***        | −0.369***        |
|                         | (0.025)          | (0.026)          | (0.038)             | (0.037)            | (0.084)          | (0.084)          |
| Age                     | 0.012***         | 0.012***         | 0.011***            | 0.011***           | 0.016***         | 0.020***         |
|                         | (0.001)          | (0.001)          | (0.001)             | (0.001)            | (0.004)          | (0.004)          |
| Education               | −0.010***        | −0.010***        | 0.002               | 0.000              | −0.009           | 0.009            |
|                         | (0.004)          | (0.004)          | (0.005)             | (0.005)            | (0.010)          | (0.012)          |
| Currently married       | 0.084*           | 0.076*           | 0.086               | 0.085              | −0.505***        | −0.507***        |
|                         | (0.044)          | (0.045)          | (0.055)             | (0.054)            | (0.181)          | (0.183)          |
| Widowed                 | 0.075            | 0.073            | 0.050               | 0.047              | −0.767***        | −0.794***        |
|                         | (0.062)          | (0.063)          | (0.083)             | (0.081)            | (0.240)          | (0.245)          |
| Separated or divorced   | 0.225***         | 0.218***         | −0.154              | −0.151             | (0.240)          | (0.245)          |
|                         | (0.067)          | (0.068)          | (0.095)             | (0.093)            |                  |                  |
| Household members       | −0.040***        | −0.043***        | 0.001               | 0.002              | −0.048           | −0.073*          |
|                         | (0.009)          | (0.009)          | (0.013)             | (0.014)            | (0.036)          | (0.038)          |
| Young children in household | 0.012          | 0.012            | −0.059*             | −0.062**           | −0.194**         | −0.155*          |
|                         | (0.020)          | (0.020)          | (0.030)             | (0.031)            | (0.094)          | (0.094)          |
| Older children in household | 0.029*         | 0.029*           | −0.005              | −0.007             | 0.014            | 0.012            |
|                         | (0.013)          | (0.013)          | (0.022)             | (0.021)            | (0.058)          | (0.058)          |

Continued.
| Variable                        | Cambodia        | Philippines      | Viet Nam        |
|--------------------------------|-----------------|------------------|-----------------|
|                                | Model 1         | Model 2          | Model 1         | Model 2          | Model 1         | Model 2          |
| Female-headed household        | -0.036          | -0.041           | -0.001          | -0.001           | 0.224**         | 0.219*           |
|                                | (0.028)         | (0.029)          | (0.050)         | (0.047)          | (0.113)         | (0.117)          |
| Urban                          | -0.063          | -0.074           | -0.022          | -0.019           | -0.206**        | -0.077           |
|                                | (0.050)         | (0.048)          | (0.041)         | (0.041)          | (0.105)         | (0.112)          |
| Wealth or per capita expenditure index | 0.006         | -0.034           | -0.034          | 0.042            |                 |                  |
|                                | (0.021)         | (0.026)          |                 | (0.069)          |                 |                  |
| Additional controls            | No              | Yes              | No              | Yes              | No              | Yes              |
| Constant                       | -1.692***       | -1.735***        | -2.312***       | -2.433***        | 0.813           | 0.971            |
|                                | (0.075)         | (0.090)          | (0.124)         | (0.127)          | (0.587)         | (0.692)          |
| No. of observations            | 5,860           | 5,860            | 9,231           | 9,231            | 25,632          | 25,632           |

Notes: Results are coefficients from the treatment-seeking equation in the sample-selection probit regressions using the full sample, weighted to the national level with sample weights. Number of observations refers to the nonmissing responses to treatment-seeking questions in the survey. Model 1 is a parsimonious model that excludes a range of additional household and wealth characteristics, while Model 2 replaces the wealth or per capita expenditure index with a set of variables covering ownership of assets and quality of housing. For Viet Nam, the dummy variable for widowed includes divorced or separated. Standard errors, in parentheses, are corrected for clustering at the household level. The notation *** denotes \( p < 0.01 \), ** denotes \( p < 0.05 \), and * denotes \( p < 0.10 \).

Source: Authors’ calculations.
each country. At every age group these probabilities are the highest for Viet Nam, likely reflecting the inclusion of preventive care in the underlying data, and the lowest for the Philippines. The relatively high predicted probabilities in seeking health care in Viet Nam also reflect the country’s emphasis on socialized medicine. Women’s predicted probabilities are greater than those of men for every age group in Cambodia and the Philippines, but the opposite holds true for Viet Nam.

In Viet Nam, the male–female gap in the probability of seeking care shrinks with age, suggesting that any possible constraints that women face (such as stigma and discrimination) are less of an issue as women age (Figure 4). Men are more likely to seek treatment than women, and the 90% confidence interval remains above zero for all age groups. In contrast, the gender treatment gap favors women of all ages in Cambodia and the Philippines, and this is statistically significant throughout based on the 90% confidence interval. Hence, in Cambodia and the Philippines, women exhibit increasingly higher predicted probabilities of seeking health care than men as they age.

To better understand the mechanisms through which these effects on treatment-seeking behavior operate, we conducted a set of regressions using different subsamples in which individuals vary by age, household location, and wealth. These results are found in Table 6, which reports only the coefficients on the female and age variables from the treatment-seeking equation. For the sake of reference, the full-sample results are repeated in the first column for each country. The next two columns show that for

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**Figure 3. Predicted Probabilities of Treatment Seeking by Sex and Age**

CAM = Cambodia, PHI = Philippines, VIE = Viet Nam.
Source: Authors’ calculations using data from the 2014 Cambodia Demographic and Health Survey, the 2017 Philippines Demographic and Health Survey, and the 2014 Viet Nam Household Living Standards Survey.
all three countries, the coefficient on the female variable is imprecisely estimated in the subsample of elderly individuals, and it is smaller in magnitude compared to the female coefficient for the working-age population. This lack of precision is being driven by the small sample size for the elderly subsample. When we have the statistical power of the full sample, as in Figure 4, we see that the gender probability gap in seeking treatment is statistically significant for all age groups, such that it favors women of all ages in Cambodia and the Philippines, and it favors men of all ages in Viet Nam. A similar conclusion about imprecise estimates for the small elderly subsample in Table 6 is made about the coefficient on the age variable: for each country, it is estimated with less precision and has a smaller magnitude in the subsample of elderly individuals compared to the working-age population.

In the case of household location, we find that the baseline results we have for age and gender effects in seeking health-care treatment hold regardless of whether the individual lives in an urban or rural area. The coefficients on female and age are comparable in magnitude and sign across the urban and rural subsamples, although in the Philippines, the estimate for being female does lose its statistical significance for urban areas. In contrast, results vary depending on whether a household is wealthy or not, especially in Cambodia. In Cambodia, our main conclusion that women and age have a positive association with health-care-seeking behavior only holds for the
Table 6. Sample-Selection Probit Estimates for Likelihood of Seeking Treatment across Subsamples: Coefficients on Female and Age Variables

| Country or Variable | Base | Working Age (18–59) | Elder (60+) | Household Location | Wealth Percentile |
|---------------------|------|---------------------|-------------|--------------------|-------------------|
|                     |      |                     |             | Rural              |                   |
|                     |      |                     |             | Urban              |                   |
|                     |      |                     |             | Lowest 40%         | Highest 40%       |
| Cambodia            |      |                     |             |                    |                   |
| Female              | 0.202*** | 0.226***            | 0.079       | 0.200***           | 0.260***          | -0.162***         | 0.191***          |
|                     | (0.025) | (0.027)              | (0.075)     | (0.026)            | (0.054)           | (0.059)           | (0.052)           |
| Age                 | 0.012*** | 0.013***            | 0.008*      | 0.011***           | 0.016***          | -0.010***         | 0.011***          |
|                     | (0.001) | (0.001)              | (0.004)     | (0.001)            | (0.002)           | (0.002)           | (0.002)           |
| No. of observations | 5,860 | 4,457                | 1,403       | 4,157              | 1,703             | 2,180             | 2,703             |
| Philippines         |      |                     |             |                    |                   |
| Female              | 0.095**  | 0.109***            | 0.028       | 0.115***           | 0.044             | 0.170***          | 0.063             |
|                     | (0.038) | (0.040)              | (0.082)     | (0.036)            | (0.074)           | (0.057)           | (0.064)           |
| Age                 | 0.011*** | 0.011***            | 0.001       | 0.014***           | 0.007***          | 0.013***          | 0.007***          |
|                     | (0.001) | (0.002)              | (0.004)     | (0.001)            | (0.003)           | (0.002)           | (0.003)           |
| No. of observations | 9,231 | 6,322                | 2,909       | 6,437              | 2,794             | 4,446             | 2,925             |
| Viet Nam            |      |                     |             |                    |                   |
| Female              | -0.370*** | -0.345***           | -0.100      | -0.376***          | -0.397**          | -0.527***         | -0.155            |
|                     | (0.084) | (0.102)              | (0.173)     | (0.097)            | (0.167)           | (0.131)           | (0.147)           |
| Age                 | 0.016*** | 0.022***            | -0.010      | 0.014***           | 0.019***          | 0.005             | 0.030***          |
|                     | (0.004) | (0.005)              | (0.013)     | (0.004)            | (0.007)           | (0.005)           | (0.006)           |
| No. of observations | 25,632| 21,467               | 4,165       | 17,802             | 7,830             | 10,586            | 9,735             |

Notes: Results are coefficients from the treatment-seeking equation in the sample-selection probit regressions using the full sample and six subsamples, weighted to the national level with sample weights. Number of observations refers to the nonmissing responses to treatment-seeking questions in the survey. All regressions are based on the parsimonious model (Model 1 in Tables 4 and 5). Results using the full set of controls are similar. Standard errors, in parentheses, are corrected for clustering at the household level. The notation *** denotes \( p < 0.01 \), ** denotes \( p < 0.05 \), and * denotes \( p < 0.10 \).

Source: Authors’ calculations.
wealthy (as defined by the top 40% of the income distribution). Among the least wealthy, women and older individuals in Cambodia are less likely to seek treatment. These different results for the lowest and highest income groups are consistent with earlier findings that a substantial proportion of the poor in Cambodia still seek health care at private providers, where they incur relatively high out-of-pocket expenses, rather than public providers (Jacobs et al. 2018). These high expenses would be even more of a deterrent for the most vulnerable of the poor, including women and the elderly.

For the Philippines and Viet Nam, the baseline results from the full sample still hold across the wealthy and least wealthy subsamples in terms of magnitude and sign, but some of the coefficients lose their statistical significance. For the Philippines in particular, the robust result of a positive coefficient on age for both the lowest and the highest wealth percentiles is consistent with the results in Siongco, Nakamura, and Seino (2020) showing that socioeconomic inequalities among the elderly in health-care utilization have declined since the early 2000s.

VI. Conclusion

This study has explored the determinants of sickness and health-care-seeking behavior in Southeast Asia, with a focus on the needs of the aging population and gender differences in how those needs are met. We used recent household surveys for Cambodia, the Philippines, and Viet Nam to estimate a sample-selection probit model that controls for sample selection. In the tests for gender differences in sickness and treatment-seeking behavior, results show that across countries, women are more likely to report a sickness or injury than men, and the difference is meaningful and statistically significant. In addition, women are also more likely than men to seek treatment in Cambodia and the Philippines. These results are consistent with predictions from the theoretical model that older women have a lower shadow price of formal medical care because they have relatively fewer informal sources of care within the home.

However, the opposite is true in Viet Nam, where being a woman is negatively associated with health-care-seeking behavior. In this case, a context of gender bias and social norms against women in seeking treatment appears to be raising the shadow price of care from formal providers for women. A possible reason is that women in Viet Nam face relatively more stigma and discrimination than men in seeking treatment for some communicable diseases, an argument supported by previous
research (Govender and Penn-Kekana, 2008, Van Minh et al. 2018). Our results are also supported by the findings in Van Nguyen et al. (2017) that elderly women in Viet Nam have a relatively lower health status than elderly men.

Separate regressions using subsamples of working-age and elderly individuals indicate that in all three countries these gender effects in seeking treatment are driven more by women of working age. Also, across all three countries, adults are more likely to get sick and to seek treatment as they age, a result that does not come as a surprise. Our computations of predicted probabilities show that in Viet Nam the male–female gap in the probability of seeking treatment becomes smaller with age, suggesting that the constraints that women face seeking care become less important with age. In Cambodia and the Philippines, older women exhibit increasingly higher predicted probabilities of seeking health care than older men as they age.

Our results point to surprisingly low probabilities of seeking treatment in the Philippines and Cambodia, yet both these countries have made efforts in recent years to reinforce their social safety nets to better meet the needs of elderly people, and they have committed to providing universal health care. In the Philippines, even though about 90% of the population is covered by the social health insurance plan (PhilHealth), the utilization rate is estimated to be as low as 4% (Banaag, Dayrit, and Mendoza, 2019). Among the possible explanations are low rates of seeking hospital care among the poor due to burdensome hospitalization expenses even with PhilHealth coverage, as well as the scarcity of health personnel and facilities in remote and isolated areas. In Cambodia, despite the government’s commitment to providing universal health coverage and its establishment of a new third-party-payer mechanism designed to eliminate financial barriers to public health facilities, only about 20% of the population is covered by the new initiative, while the rest of the population remains uncovered (Asante et al. 2019). Understanding the reasons for fairly low take-up of formal health-care services and gender differences in access to care is crucial to designing policies to better meet the needs of older persons in Asia, especially in light of the increased risks of getting sick during the COVID-19 pandemic.

In contrast, the considerably higher rates of treatment-seeking behavior that we found in our study for Viet Nam reflect not only the fact that the underlying measure includes preventive health care, but also Viet Nam’s long history of socialized medicine. This institutional context thus appears to be driving the relatively high probabilities that individuals seek health-care services from professional providers. However, Viet Nam’s sizable male–female gap in health-care-seeking behavior points to constraints faced by women that prevent them from taking advantage of policies that Viet Nam has implemented to make quality health-care services more
readily available. If we are correct that stigma and discrimination in seeking treatment are contributing to this gap, programs and policies that adjust these types of attitudes and gender norms will go a long way to eliminate health inequities in Viet Nam.

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## Appendix. Data Sources and Variable Definitions

| Item              | Cambodia                                                                 | Philippines                                                                   | Viet Nam                                                                 |
|-------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| **Data Source**   | National Institute of Statistics, Directorate General for Health, and ICF, 2015. *Cambodia Demographic and Health Survey 2014*. Phnom Penh, Cambodia and Rockville, Maryland, US: National Institute of Statistics, Directorate General for Health, and ICF. | Philippine Statistics Authority and ICF, 2018. *Philippines National Demographic and Health Survey 2017*. Quezon City, Philippines and Rockville, Maryland, US: Philippine Statistics Authority and ICF. | General Statistics Office, Viet Nam Ministry of Planning and Investment, 2015. *Viet Nam Household Living Standards Survey 2014*. Ha Noi, Viet Nam: General Statistics Office. |
| **Dependent Variables** | **Sickness** Binary variable equal to 1 if a person reported having an illness or injury in the 30 days prior to the time of the survey.  | Binary variable equal to 1 if a person reported having an illness or injury in the 30 days prior to the time of the survey. | Binary variable equal to 1 if a person reported having a severe illness or injury in the 12 months prior to the time of the survey.  |
|                   | Note: According to the survey, an illness or injury is “severe” if the person was bedridden and needed a caregiver or if they had to stop work, study, or other usual activities. |                                                                              | Note: Treatment-seeking response may relate to a different ailment than the severe illness or injury that defines the sickness variable. |
|                   | **Sought treatment** Binary variable equal to 1 if a person sought treatment from a formal medical professional for the reported illness or injury. | Binary variable equal to 1 if a person that reported illness or injury either sought treatment from a formal medical professional for any illness or injury on an outpatient basis in the 30 days prior to the survey or was confined to a hospital for any illness or injury. | Binary variable equal to 1 if a person received medical treatment from a formal medical professional in the 12 months prior to the time of the survey.  |
|                   | Note: Survey question is only asked of those reporting illness or injury in the last 30 days. |                                                                              | Note: Treatment-seeking response may relate to a different ailment than the severe illness or injury that defines the sickness variable. |

*Continued.*
Appendix. Continued.

| Item            | Cambodia                                                                 | Philippines                                                                 | Viet Nam                                                                 |
|-----------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Injury          | Injury in the 12 months prior to the time of the survey.                 | Note: Treatment-seeking response may relate to a different illness or injury than the one defining the sickness variable. |
| Personal Characteristics
| Female          | Binary variable equal to 1 if a person is a woman.                      | Binary variable equal to 1 if a person is a woman.                           | Binary variable equal to 1 if a person is a woman.                      |
| Age             | Age of the person in years at the time of the survey.                   | Age of the person in years at the time of the survey.                       | Age of the person in years at the time of the survey.                   |
| Note: Age top code is 95, and unknown age is coded as “98” in the survey data. |
| Education       | Formal schooling completed in years at the time of the survey.          | Formal schooling completed in years at the time of the survey.              | Formal schooling completed in years at the time of the survey.          |
| Note: For persons with missing years of schooling but whose last schooling level attended was known, missing values were replaced with the sample average of years for the indicated schooling level. |
| Marital status  | Binary variables equal to 1 if the marital status of the person at the time of the survey was: (1) never married (omitted), (2) married, (3) widowed, | Binary variables equal to 1 if the marital status of the person at the time of the survey was: (1) never married (omitted), (2) married, (3) widowed, | Binary variables equal to 1 if the marital status of the person at the time of the survey was: (1) never married (omitted), (2) married, (3) separated, divorced, or widowed. |
| Item                  | Cambodia                                                                 | Philippines                                                                 | Viet Nam                                                                 |
|----------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|
|                      | (4) separated or divorced.                                               | (4) separated or divorced.                                                | Note: Cell size for elderly subsample was insufficient to have a separate |
|                      |                                                                          |                                                                            | category for persons that are separated or divorced.                    |
| **Household Characteristics** |                                                                          |                                                                           |                                                                          |
| Total household size | Number of people who usually live in the household.                      | Number of people who usually live in the household.                       | Number of household members, based on survey response.                   |
|                      | Note: Replaced by the number of people currently living in the household if there were zero usual household members. |                                                                           |                                                                          |
| Young children in household | Number of survey respondents aged 0–5 within the household.              | Number of survey respondents aged 0–5 within the household.               |                                                                           |
| Older children in household | Number of survey respondents aged 6–17 within the household.            | Number of survey respondents aged 6–17 within the household.              |                                                                           |
| Female-headed household | Binary variable equal to 1 if the head of household is a woman.         | Binary variable equal to 1 if the head of household is a woman.           | Binary variable equal to 1 if the head of household is a woman.          |
| Urban                | Binary variable equal to 1 if the residence is in an urban area.         | Binary variable equal to 1 if the residence is in an urban area.          | Binary variable equal to 1 if the residence is in an urban area.          |
| Wealth index         | Score on the standardized wealth index. Note: The wealth index—which is derived from the information on ownership of selected assets and indicators of housing, water, and toilet facility quality—is used as a proxy for relative income or expenditure. | Score on the standardized wealth index. Note: The wealth index—which is derived from the information on ownership of selected assets and indicators of housing, water, and toilet facility quality—is used as a proxy for relative income or expenditure. | Not available.                                                           |

*Continued.*
Appendix. Continued.

| Item                                      | Cambodia                          | Philippines                       | Viet Nam                                                                 |
|-------------------------------------------|-----------------------------------|-----------------------------------|---------------------------------------------------------------------------|
| Per capita expenditure index              | Not available.                    | Not available.                    | Score on the standardized per capita expenditure index.                  |
|                                           |                                   |                                   | Note: Nominal per capita expenditure series standardized to put it on a  |
|                                           |                                   |                                   | scale similar to the wealth index.                                       |
| Other sick person in household (sickness  | Binary variable equal to 1 if any  | Binary variable equal to 1 if any  | Binary variable equal to 1 if any                                        |
|   equation only)                          | other person in the household     | other person in the household     | other person in the household                                           |
|                                           | (other than the respondent)       | (other than the respondent)       | (other than the respondent)                                              |
|                                           | reported an illness or injury,     | reported an illness or injury,    | reported an illness or injury,                                           |
|                                           | based on the definition of the    | based on the definition of the    | based on the definition of the                                          |
|                                           | sickness variable.                | sickness variable.                | sickness variable.                                                       |

**Detailed Wealth Indicators**

| Item      | Cambodia | Philippines | Viet Nam |
|-----------|----------|-------------|----------|
| Agricultural land area | Area of agricultural land owned in hectares. | Area of agricultural land owned in hectares. | Area of agricultural land owned in hectares. |
| Consumer durables | Binary variable equal to 1 if any member of the household owns a specified consumer durable: (1) radio, (2) television, (3) CD or DVD player, (4) mobile phone, (5) fixed-line phone, (6) refrigerator, (7) sewing machine or loom, (8) wardrobe, (9) watch. Note: Household may respond positively to more than one type of consumer durable. | Binary variable equal to 1 if any member of the household owns a specified consumer durable: (1) radio, (2) audio component or karaoke, (3) television, (4) DVD player, (5) cable television service, (6) mobile phone, (7) fixed-line phone, (8) computer, (9) air conditioner, (10) refrigerator, (11) washing machine, (12) watch. | Binary variable equal to 1 if any member of the household owns a specified consumer durable: (1) radio, (2) audio components, (3) television, (4) DVD player, (5) mobile phone, (6) fixed-line phone or fax, (7) computer, (8) printer, (9) camera or video recorder, (10) air conditioner, (11) refrigerator, (12) oven or microwave, (13) gas, magnetic, or electric cooker, (14) water pump. |
| Item | Cambodia | Philippines | Viet Nam |
|------|----------|-------------|----------|
| Own motorized transport | Binary variable equal to 1 if any member of the household owns a form of motorized transport. Note: Motorized transport includes car or truck, motorcycle or scooter, or motorcycle-cart, or boat with a motor. | Binary variable equal to 1 if any member of the household owns a form of motorized transport. Note: Motorized transport includes car or truck, motorcycle or scooter, or motorcycle-cart, or boat with a motor. | Binary variable equal to 1 if any member of the household owns a form of motorized transport. Note: Motorized transport includes car, motorcycle, or boat with a motor. |
| Housing quality | Binary variable equal to 1 if living accommodations have the given characteristics: (1) grid-connected electricity, (2) finished floor, (3) finished walls, (4) finished roof. Note: Household may respond positively on multiple housing quality indicators. | Binary variable equal to 1 if living accommodations have the given characteristics: (1) grid-connected electricity, (2) finished floor, (3) finished walls, (4) finished roof. Note: Household may respond positively on multiple housing quality indicators. | Binary variable equal to 1 if living accommodations have the given characteristics: (1) grid-connected electricity, (2) finished floor, (3) finished walls. Note: Household may respond positively on multiple housing quality indicators. |
| Water quality | Binary variable equal to 1 if water is from an improved source. Note: Improved water sources include piped water into dwelling, yard, or plot; public taps or standpipes; tube and dug wells, protected dug wells, and rainwater. | Binary variable equal to 1 if water is from an improved source or either water for drinking is bottled or from a refilling station and water cooking and handwashing are from an improved source. | Binary variable equal to 1 if water is from an improved source. Note: Improved water sources include piped water reaching the house, public taps, drilled wells, protected dug wells and streams, and rainwater. |

Note: Household may respond positively to more than one type of consumer durable.
Appendix. Continued.

| Item                  | Cambodia                                                                 | Philippines                                                                 | Viet Nam                                                                 |
|-----------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                       | and springs; rainwater; and bottled water.                               | Note: Improved water sources include piped water, public taps, standpipes, tube wells, boreholes, protected dug wells and springs, and rainwater. |                                                                           |
| Toilet facility quality| Binary variable equal to 1 if household’s toilet facilities are improved (hygienic) and not shared with other households. | Binary variable equal to 1 if household’s toilet facilities are improved (hygienic) and not shared with other households. | Binary variable equal to 1 if household’s toilet facilities are improved. |
|                       | Note: Improved toilet facilities include those that flush to piped sewer systems, septic tanks, or pit latrines; ventilated improved pit latrines; pit latrines with slab; and composting toilets. | Note: Improved toilet facilities include those that flush to piped sewer systems, septic tanks, or pit latrines; ventilated improved pit latrines; pit latrines with slab; and composting toilets. | Note: Improved toilet facilities include those that flush to septic tanks, absorption latrines (suilabh), and ventilated improved pit latrines. Survey does not include information on whether the household shares its toilet facilities with other households. |
| Cooking area quality  | Binary variable equal to 1 if household uses clean fuel to cook or cooking is done outside of the residence. | Binary variable equal to 1 if household uses clean fuel to cook or cooking is done outside of the residence. | Not available.                                                            |

ICF = International Classification of Functioning, US = United States.  
Source: Authors’ compilation.