

HEALTH ECONOMICS LETTER

SOCIOECONOMIC STATUS AND HEALTH OUTCOMES IN A DEVELOPING COUNTRY

GRACE LORDAN^{a,*}, ELIANA JIMENEZ SOTO^a, RICHARD P. C. BROWN^b and
IGNACIO CORREA-VALEZ^c

^a*School of Economics, University of Queensland, Queensland, Australia*

^b*School of Population Health, University of Queensland, Queensland, Australia*

^c*Refugee Health Research Centre, La Trobe University, Melbourne, Victoria, Australia*

SUMMARY

Although the relationship between socioeconomic status (SES) and health is well documented for developed countries, less evidence has been presented for developing countries. The aim of this paper is to analyse this relationship at the household level for Fiji, a developing country in the South Pacific, using original household survey data. To allow for the endogeneity of SES status in the household health production function, we utilize a simultaneous equation approach where estimates are achieved by full information maximum likelihood. By restricting our sample to one, relatively small island, and including area and district hospital effects, physical geography effects are unpacked from income effects. We measure SES, as permanent income which is constructed using principal components analysis. An alternative specification considers transitory household income. We find that a 1% increase in wealth (our measure of permanent income) would lead to a 15% decrease in the probability of an incapacitating illness occurring intra-household. Although the presence of a strong relationship indicates that relatively small improvements in SES status can significantly improve health at the household level, it is argued that the design of appropriate policy would also require an understanding of the various mechanisms through which the relationship operates. Copyright © 2011 John Wiley & Sons, Ltd.

Received 20 May 2009; Revised 3 October 2010; Accepted 8 October 2010

KEY WORDS: socioeconomic status; health; wealth; permanent income; health outcomes; developing country; Fiji

1. INTRODUCTION

The positive association between socioeconomic status (SES) and health is well documented in industrialized countries (Contoyannis and Forster, 1999; Epstein *et al.*, 2009; Frijters *et al.*, 2005; Kiwila and Mieszkowski, 2007; Mansyur *et al.*, 2008; Salas, 2002); however, only a small number of studies have examined this relationship in developing countries including South Africa, (Case, 2004), Mexico, (Smith and Goldman, 2007), Cambodia (Zimmer, 2008), and China, (Anson and Sun, 2004). This study considers this association for Viti Levu, the main island of Fiji. Establishing a relationship between SES and health can be important from a policy perspective, pointing to the need for greater attention to effective poverty alleviation policies as a means to improving health outcomes for the poorest (Adler *et al.*, 1993, 1994; Marmot *et al.*, 1997).

In the standard human capital model of health developed by Grossman (1972, 2000), the health of an individual is modelled as the output of a production function with inputs including factors such as medical care received, health in the previous time period, behavioural and other personal and household

*Correspondence to: School of Economics, University of Queensland, Queensland, Australia. E-mail: g.lordan@uq.edu.au

level characteristics, including SES. This framework also acknowledges that SES does not impact on health directly, but rather indirectly through the investments in the inputs and behaviours that affect the stock of health. Moreover, the health status of the individual can also impact on the individual's SES, through, *inter alia* increased productivity, implying reverse causality, and the associated problem of endogeneity hindering empirical assessment of the effects of economic welfare on health (Smith, 1999; Ettner, 1996). Instrumental variable (IV) techniques are therefore commonly used as a means to control for endogeneity but raise further questions as to the validity and strength of the chosen instruments.

Another challenge when considering the relationship between SES and health arises from the need to disentangle the effects of geography (Meer *et al.*, 2003). This analysis achieves this goal by utilizing a sample drawn from households living on one relatively small island, where distances to important health facilities do not vary considerably among households, and, by including variables that capture the household's area of residence as well as their proximity to the nearest district hospital.

Given the particularly strong family and kinship ties among Pacific island communities including those in Fiji, we treat the household rather than the individual as the appropriate unit of analysis, applying Jacobson's (2000) household level health production model, an extension of Grossman's (1972) model, which uses the family as the production unit.

In terms of methodology, our study departs from the previous analyses in one important respect. That is, we utilize an approach derived by Greene (2007) to handle an endogenous variable in a binary probit equation, where estimates are achieved by full information maximum likelihood (FIML). To our knowledge, this is the first application of this approach in the literature.

2. DATA COLLECTION

Fiji, with a population of 836 000, comprises 322 islands, with the main island of Viti-Levu home to over 75% of the population (World Bank, 2008). The data used in this paper was compiled from a survey conducted on Viti-Levu in the first half of 2005 (World Bank, 2006). The sample frame used by the Fiji Islands Bureau of Statistics for its most recent census was used to design the sample of 420 households. The sample design was aimed at providing a random sample of the population. It included the capital city, Suva, home to approximately 30% of the population; the five major towns (Nausori, Lautoka, Nadi, Ba and Sigatoka); 9 villages and 12 settlements. Primary Sampling Units (enumeration areas) were randomly selected from the census listing and households within each enumeration area were randomly drawn at a fixed rate.

The survey itself was implemented by an independent team of 10 interviewers and one fieldwork supervisor. The survey respondent was the nominated household head and in their absence, their spouses or partners. With the aim of minimizing survey error, each interviewer delivered the completed questionnaires to the respective supervisor on a daily basis and if inconsistencies or missing answers were identified households were re-interviewed. Of the 420 households interviewed, 414 provided useable data for this study.

The final sample was split almost evenly between urban (49.8%) and rural households. With the population of Fiji being divided almost equally between indigenous Fijians and Fijians of Indian origin (Indo-Fijians), this is reflected in the ethnic composition of the sample which comprised 54.3% Indo-Fijians. Indo-Fijians enjoy relatively higher levels of educational attainment and standards of living as evidenced by an estimated mean household income (2004) of US\$8174 compared with US\$4993 for indigenous Fijians (World Bank, 2006).

3. MEASURES

Although Fijian socio-cultural institutions encourage strong kinship and clan ties, the households are the basic social units with command over economic resources and responsibility for their members' welfare. Therefore, the unit of analysis in this study is the household. The survey instrument gathered

the usual socio-demographic information about household members (age, gender, ethnicity, etc.). Considering health status, the survey collected information about those household members who were unable to perform their normal daily activities at any time during the previous 12 months, including working, studying or cooking, due to ill health. A self-reported measure of household health was developed, following one of the core *Healthy Days Measures* (CDC, 2000). A household member was classified as afflicted by an incapacitating illness when unable to perform their daily activities for more than 30 days over the preceding year. Although this is arguably an imperfect measure of health status, it does represent a certain threshold for a 'healthy household'. Of the surveyed households, 26.8% had at least one member incapacitated according to this definition. Of the 414 households included in the sample, only 18 reported having two or more incapacitated members making it necessary to transform the dependent variable into a binary variable.

Notwithstanding the fact that current or transitory income is the most commonly used measure of SES in this literature, it is recognized that permanent income, as measured by household wealth as a measure of economic status has several advantages (Braveman *et al.*, 2005; Onwujekwe *et al.* 2006; Pollack *et al.*, 2007; Rutstein and Johnson, 2004; Sahn and Stiefel, 2003; Wagstaff and Watanabe, 2003). Wealth represents a more permanent status than does either income or consumption. In the form that it is used in most studies, including this one, wealth is easier to measure from household survey data than either consumption expenditures or income. For purposes of sensitivity testing, our analysis also considered current income as an alternative SES measure.

4. ANALYTICAL FRAMEWORK AND METHODS

Drawing on Grossman (1972) and Jacobson's (2000) extended model of household health in which each family member is not only the producer of their own health but also the health of other family members, we posit that:¹

$$H = H(Y, X) \quad (1)$$

where the household's stock of good health (H) is dependent on SES (Y) and additional variables X representing past investment in health-related physical assets, location variables and household composition variables.

In our model, the household's health status is measured by a binary variable, H with a value of 1 if at least one household member was incapacitated for 30 days or more, and equal to 0 otherwise. Therefore, our health equation is,

$$H^* = B'X + \alpha S + \varepsilon, \quad H = 1[H^* > 0] \quad (2)$$

In Equation (2), H^* is our latent variable representing household health H , S is household permanent income and X is a vector of additional explanatory variables. More specifically, these variables are:

- (i) Composition of the household defined as: (i) total number of adults; (ii) total number of children and (iii) total number of elderly adults. This breakdown is chosen, given that children and the elderly may have a higher propensity for an incapacitating illness in comparison to adults.
- (ii) Location: four fixed effects are used to capture latent heterogeneity across the respondent's area of residence, including but not limited to economic conditions and variations in access to health care. The four types of locality are capital city, town, village and settlement with settlement being the omitted reference category.

¹As Jacobson (2000) points out, the original Grossman (1972) model and extensions of it can only be used to analyse adult and not children's health. He discusses a number of other advantages of a household level perspective including the important issue of joint decision making in the allocation of the household's combined resources.

- (iii) Divisional Hospital Indicator: defined equal to one if the household is located within 25 km of one of the two better equipped divisional or main hospitals on the island. For all other households the nearest hospital is a smaller, and inferior, sub-divisional hospital.

Equation (3) is a binary probit² which cannot produce consistent estimates of the parameter estimates because of the correlation between μ and ε induced by the correlation between μ and ϵ . This arises because of the potentially endogenous relationship between income and health (Ettner, 1996). To account for this relationship, we therefore estimate the following system simultaneously:

$$H^* = \beta'x + \alpha S + \varepsilon \quad (3)$$

$$S = \gamma'z + \mu \quad (4)$$

$$(\varepsilon, \mu) \sim N \left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & p\sigma \\ \vdots & \vdots \\ p\sigma & 1 \end{pmatrix} \right] \quad (5)$$

That is, Equation (3) is estimated simultaneously with Equation (4), allowing for correlation between μ and ϵ as described in Equation (5). Estimation is by FIML and details on the estimation procedure can be found in Greene (2007). The associated marginal effects for the probit component of the model are computed using the univariate probit probabilities:

$$\text{Prob}[H = 1] \sim \Phi[\beta x + \alpha y] \quad (6)$$

In Equation (4), we estimate a standard household income equation where the dependent variable, permanent income, is measured by a wealth index constructed by principal components analysis (PCA) and where z is a vector of variables explaining variation in household income in Fiji.³

Becker's (1981) household production model, which allocates family resources in the production of non-market commodities, provides the framework for our household permanent income function. How a family chooses to allocate time and their opportunities for increased wages determines their level of income. The income function for the household can be written as:

$$y_j = f(d_i, Z, \epsilon_j) \quad (7)$$

where y is a measure of household income, d is a vector of household characteristics that affect wage and the allocation of time, and Z is a vector of dummies that control for unobserved effects on income and ϵ is the household error term.

In our case the specific variables are as follows:

- (i) Log of household size, with its square, as larger households can be expected to have a larger labour supply, thus more time to allocate to work, but at a declining rate (Houthakker, 1957).
- (ii) Adult ratio: the ratio of adults to other household members capturing variations in household dependency ratios in terms of the potential number of income earners relative to other dependents (Brück *et al.*, 2010).
- (iii) Age of the head of the household, along with its square: we assume the usual positive, non-linear (quadratic) relationship to income. As individual's age, they have more time to invest in human capital, which has a positive effect on earning potential (Miles, 1997).
- (iv) Ethnicity: a dummy variable ($= 1$) controlling for the higher income earning capacity of Indo-Fijian households.

²A logit approach could equally have been adopted. Unfortunately, no tests exist to distinguish which model is better in the case of the probit versus logit debate and the choice is very much at the discretion of the researcher (Lordan, 2007).

³To construct the wealth index, we follow the approach developed by Filmer and Pritchett (2001) and adopted by the Demographic and Health Survey (Rutstein and Johnson, 2004).

Table I. Descriptive statistics

Variable	Mean	Standard deviation	Min	Max
<i>H</i> (Health indicator)	0.266	0.442	0.000	1.000
Area 1	0.208	0.407	0.000	1.000
Area 2	0.215	0.412	0.000	1.000
Area 3	0.244	0.430	0.000	1.000
District hospital	0.390	0.488	0.000	1.000
Wealth	0.000	2.525	−4.607	4.527
Total adults	3.314	1.754	0.000	13.000
Total elderly	0.220	0.499	0.000	2.000
Total children	1.161	1.302	0.000	7.000
Dummy Indo-Fijian	0.466	0.499	0.000	1.000
Head male age	52.134	10.345	41.324	77.121
City dummy	0.489	0.501	0.000	1.000
Household size	4.708	2.289	1.000	16.000
Adult ratio	0.738	0.237	0.000	1.000

- (v) Capital city indicator: a dummy variable (= 1) controlling for residence in Suva, the capital city of Fiji with better income earning opportunities than in the other towns and rural villages.

The descriptive statistics for the variables included in Equations (3) and (4) are summarized in Table I.

5. RESULTS

The results from our analysis are summarized in Table II. The Vuong Statistic, AIC and BIC criteria support the FIML model over the probit with no accommodation for endogeneity. In addition, the probit model with no accommodation for endogeneity yields a permanent income coefficient of -0.184 which is substantially higher than the FIML specification result summarized in Table II. Therefore, ignoring the endogenous nature of SES overestimates the effect of SES.⁴

As expected, there is a significant negative relationship between SES status, as measured by permanent income and the probability of having an incapacitating illness intra-household. In particular, a 1% increase in permanent income leads to a 15% decrease in the probability of having an incapacitating illness intra-household. In a separate specification, we replace our SES measure of permanent income with a measure of transitory income – measured as household income in USD for the year preceding the survey. The results (see footnote beneath Table II) from this specification imply that a 1% increase in transitory income would yield a 4% decrease in the probability of having an incapacitating illness intra-household. In the alternative transitory income specification, all other effects are stable up to two decimal places⁵.

As expected, ρ is negative and significant implying a negative correlation between the health status and the SES equations. This is intuitive and suggests that the disturbances in Equations (3) and (4) are negatively correlated. Combining ρ 's significance with the differential marginal effect on income in the FIML specification in comparison to the specification that does not account for endogeneity clearly points to an endogenous SES/health relationship in this scenario.

⁴Ignoring the endogenous nature of this SES measure and estimating a regular probit model result in a coefficient of -0.052 , again overestimating the effect of SES.

⁵It should be noted that the size of the coefficients on the two SES definitions cannot be compared, given their different measures. It should also be noted that aside from the marginal effect on the SES variable, all other effects are stable in the starting value specification to at least two decimal places.

Table II. Econometric results

Probit model with endogenous variable	
Log likelihood function = -620.11	
AIC = 3.42, BIC = 3.45	
Probit equation: dependant variable = H	
Variable	Partial derivatives (Probability of significance)
Constant	-1.381 (0.000)
Area 1	-0.017 (0.721)
Area 2	0.006 (0.793)
Area 3	0.097 (0.030)
District Hospital	-0.041 (0.037)
<i>Permanent income</i> ^a	-0.153 (0.000)
Total adults	-0.119 (0.239)
Total elderly	0.007 (0.000)
Total Children	0.056 (0.839)
<i>Linear regression: dependant variable = permanent income</i>	
Constant	12.638 (0.000)
Dummy Indo-Fijian	0.333 (0.000)
Head male age	-0.002 (0.219)
Head male age squared	0.008 (0.224)
Capital city dummy	0.235 (0.000)
Log household size	-0.117 (0.900)
Log household size squared	0.040 (0.914)
Adult ratio	-0.750 (0.000)
Rho (e, w)	-0.233 (0.000)

^aReplacing permanent income with transitory income leads to a coefficient of $(-0.041, 0.000)$.

The area fixed effects are not significant with the exception of location 3 (village), indicating that residing in a village increases the probability of having an intra-household illness by 1%. As expected, households who live within 25 km of a divisional hospital are less like to have an incapacitating illness.

Considering household composition, a higher number of elderly household members is associated with a higher risk of an incapacitating illness intra-household. The marginal effects associated with total kids and total adults are not statistically significant.

Regarding the covariates in the income equation, there are only three significant marginal effects. Considering the Indo-Fijian dummy, there is a positive relationship between these households and income as expected. In addition, the relationship between the household adult ratio and the income is negative and significant $(-0.750, 0.000)$. Finally, households located in the capital city, Suva, have a higher income $(0.235, 0.000)$.

6. CONCLUDING DISCUSSION

Employing a unique data set from a household survey in Fiji, this study uses a health production function approach to analyse the relationship between SES and household health. We find a strong relationship between a household's SES and the probability of having an incapacitating illness, with the results indicating that an increase by 1% in household permanent income is associated with a reduction of the probability of an incapacitating illness by 15%. These results are important in terms of both analytical method and policy implications. First, although there have been a number of studies examining the relationship between SES and health, there are few studies from developing countries, with no such studies from the Pacific island region. Second, most previous studies have been unable to separate the effects of geography from SES. By restricting our sample to one, relatively small island in

the South Pacific, and including area and district hospital effects, it is argued that physical geography effects have been unpacked from income effects. Although this does hinder generalizability, it is argued that this work still has a valid place in the literature, given the distinct lack of research on developing countries within health economics (Rutten *et al.*, 2001) and the importance of identifying SES/health relationships. Third, this is the first such study to utilize the approach owed to Greene (2007) that allows for an endogenous variable in a binary probit equation.

That proximity to a divisional hospital reduces the probability of a household suffering an incapacitating illness is to be expected, given the superior range and quality health-care services they offer. The finding that those living in villages should be more prone to poor health than those living in poorer settlements might appear somewhat surprising. However, the most likely explanation for this is that most settlements, while generally poorer than villages, are located mostly nearer to urban areas where access to hospitals, clinics and primary health-care services is better. This requires further investigation.

Regarding the covariates in the income equation, the only two significant variables relate to the Indo-Fijian dummy and the ratio of adults in the household. The latter is credited to households with a higher ratio of adults to children also having a larger number of retirees under the care of the household's income earners. It was not uncommon in the surveyed population to have elders who did not work being part of the household. The significance of the Indo-Fijian dummy relates to the higher levels of education and other, unobservable characteristics such as entrepreneurial inclination.

From a policy perspective, our findings are consistent with the previous research, indicating that effective poverty alleviation policies can improve health outcomes for the poorest (Adler *et al.*, 1993, 1994; Marmot *et al.*, 1997). However, as noted by Deaton (2002), establishing a relationship between SES and health does not in itself justify exclusive policy focus on reducing the inequality in health outcomes through targeting 'upstream' causes in the underlying socioeconomic structure. Although it is obvious that when those at the lower end of the SES spectrum are also those with poorest health status, interventions aimed specifically at these disadvantaged groups, such as income support, would warrant policy attention.

Studies conducted over the last two decades have begun to identify the most common pathways that contribute to health disparities. Among these pathways are access to health care, exposure to environmental factors, health-related behaviours, and psychosocial and biological processes associated with stress exposure (Adler and Stewart, 2010). However, without a deeper understanding of these mechanisms, and without further information on the strength of the SES/health relationship within different income groups across the spectrum, it does not necessarily follow that redistributive policies aimed at reducing the inequalities in SES and health would necessarily lead to a net overall improvement in health outcomes. As Adler and Newman (2002) have pointed out, a "broad-gauged approach" is what is needed to eradicate, or at least substantially reduce, SES disparities in health.

ACKNOWLEDGEMENTS

The authors acknowledge the World Bank for use of the data, and the Fiji Islands Bureau of Statistics for assistance with sampling. The authors also acknowledge invaluable comments and suggestions on earlier draft by two anonymous referees. All mistakes/omissions are owned by the authors.

REFERENCES

- Adler NE, Boyce T, Chesney MA, Cohen S, Folkman S, Kahn RL, Syme SL. 1994. Socioeconomic status and health: the challenge of the gradient. *American Psychologist* **49**: 15–24.
- Adler NE, Boyce WT, Chesney MA, Folkman S, Syme SL. 1993 Socioeconomic inequalities in health: no easy solution. *Journal of the American Medical Association* **269**: 3140–3145.

- Adler NE, Newman K. 2002. Socioeconomic disparities in health: pathways and policies. *Health Affairs* **21**(2): 60–76.
- Adler NE, Stewart J. 2010. Health disparities across the lifespan: meaning, methods, and mechanisms. *Annals of the New York Academy of Sciences* **1186**: 5–23.
- Anson O, Sun S. 2004. Health inequalities in rural China: evidence from HeBei Province. *Health and Place* **10**: 75–84.
- Becker GS. 1981. *A Treatise on the Family*. Harvard University Press: Cambridge, MA.
- Braveman PA, Cubbib C, Egerter S, Chideya S, Marchi KS, Metzler M, Posner S. 2005. Socioeconomic status in health research: one size does not fit all. *Journal of the American Medical Association* **294**(22): 2879–2888.
- Brück T, Danzer AM, Muravyev A, Weisshaar N. 2010. Poverty during transition: household survey evidence from Ukraine. *Journal of Comparative Economics* (in press, online).
- Case A. 2004. Does money protect health status? Evidence from South African pensions. In *Perspectives on the Economics of Aging*, Wise DA (ed.). NBER, University of Chicago Press: Cambridge, MA; 287–312.
- Centers for Disease Control and Prevention (CDC). 2000. *Measuring Healthy Days*. CDC: Atlanta, Georgia.
- Contoyannis P, Forster M. 1999. Our healthier nation? *Health Economics* **8**: 289–296.
- Deaton A. 2002. Policy implications of the gradient of health and wealth. *Health Affairs* **21**(2): 13–30.
- Epstein D, Jimenez-Rubio D, Smith PC, Suhrcke M. 2009. Social determinants of health: an economic perspective. *Health Economics* **18**: 495–502.
- Ettner SL. 1996. New evidence on the relationship between income and health. *Journal of Health Economics* **15**: 67–85.
- Filmer D, Pritchett L. 2001. Estimating wealth effects without expenditure data—or tears: an application to educational enrollments in states of India. *Demography* **38**(1): 115–132.
- Frijters P, Hatton T, Martin RM, Shields MA. 2005. The causal effects of income on health: evidence from Germany reunification. *Journal of Health Economics* **24**: 997–1017.
- Greene WH. 2007. *LIMDEP Version 8.0 User's Manual*. Econometric Software Inc: Castle Hill.
- Grossman M. 1972. On the concept of health capital and the demand for health. *Journal of Political Economy* **80**: 223–255.
- Grossman M. 2000. The human capital model. In *Handbook of Health Economics*, Culyer AJ, Newhouse JP (eds), vol. 1, Chapter 7. Elsevier: Amsterdam; 347–408.
- Houthakker HS. 1957. An international comparison of household expenditure patterns, commemorating the centenary of Engel's law. *The Econometric Society* **25**: 532–551.
- Jacobson L. 2000. The family as producer of health—an extended Grossman model. *Journal of Health Economics* **19**(5): 611–637.
- Kiula O, Mieszkowski P. 2007. The effects of income, education and age on health. *Health Economics* **16**(8): 781–798.
- Lordan G. 2007. What determines a patient's treatment? Evidence from out of hours primary care co-op data in the Republic of Ireland. *Health Care Management Science* **10**(3): 283–292.
- Mansur C, Amick BC, Harrist RB, Franzini L. 2008. Social capital, income inequality, and self-rated health in 45 countries. *Social Science and Medicine* **66**: 43–56.
- Marmot MG, Ryff CD, Bumpass LL, Shipley M, Marks NF. 1997. Social inequalities in health: next questions and convergent evidence. *Social Science and Medicine* **44**: 901–910.
- Meer J, Miller DL, Rosen HS. 2003. Exploring the health-wealth nexus. *Journal of Health Economics* **22**: 713–730.
- Miles D. 1997. A household level study of the determinants of income and consumption. *The Economic Journal* **107**(440): 1–25.
- Onwujekwe O, Hanson K, Fox-Rushby J. 2006. Some indicators of socio-economic status may not be reliable and use of indices with these data could worsen equity. *Health Economics* **15**(6): 639–644.
- Pollack C, Chideya S, Cubbin C, Williams B, Dekker M, Braveman P. 2007. Should health studies measure wealth? A systematic review. *American Journal of Preventive Medicine* **33**(3): 250–264.
- Rutstein SO, Johnson K. 2004. *The DHS Wealth Index. DHS Comparative Reports, No. 6, Demographic and Health Survey*. ORC Macro: Calverton, MA.
- Rutten F, Bleichrodt H, Brouwer W, Koopmanschap M, Schut E. 2001. Book review—handbook of health economics. *Journal of Health Economics* **20**: 855–879.
- Sahn DE, Stiefel D. 2003. Exploring alternative measures of welfare in the absence of expenditure data. *Review of Income and Wealth* **49**(4): 463–489.
- Salas C. 2002. On the empirical association between poor health and low socioeconomic status at old age. *Health Economics* **11**(3): 207–220.
- Smith JP. 1999. Healthy bodies and thick wallets: the dual relation between health and economic status. *Journal of Economic Perspectives* **13**(2): 145–166.

- Smith KV, Goldman N. 2007. Socioeconomic differences in health among older adults in Mexico. *Social Science and Medicine* **65**: 1372–1385.
- Wagstaff A, Watanabe N. 2003. What difference does the choice of SES make in health inequality measurement? *Health Economics* **12**(10): 885–890.
- World Bank. 2006. *At Home and Away, Chapter 3*. The World Bank: Washington, DC.
- World Bank. 2008. *Migration and Remittances Factbook 2008—Developing Countries*. World Bank: Washington, DC.
- Zimmer Z. 2008. Poverty, wealth inequality and health among older adults in rural Cambodia. *Social Science and Medicine* **66**: 57–71.