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Household Assets and Health in China

Evidence and Policy Implications

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Household Assets and Health in China: Evidence and Policy Implications

China's health care reform of the 1990s has not yielded much success. The market-oriented health system has resulted in declines in fairness of health services and efficiency of investment in the health sector. Further health care reform will be required. Among many options, asset-based policy has demonstrated some potential in domestic policy development. To provide evidence to inform health policy development in China, this study focuses on effects of household assets on health in China. Specifically, the current study examines how household assets may affect health status and how assets differ from income in predicting health status. Using a random sample of Chinese elderly, we find that asset holding in the form of household durables and household utilities has both direct and indirect effects on health status. Household assets directly affect access to medical care and indirectly affect health by influencing health behavior and psychological condition. In other words, in addition to economic effects, household assets appear to have behavioral and psychological effects on health. Interestingly, these effects appear to be associated with assets, but not with income. Implications for asset-building policy are suggested as a complement to existing health care models.

Key words: health, asset building, China

Introduction

As China embraces the global market and enjoys rapid economic growth, social problems are also growing. For instance, despite the economic boom, China still has 26 million people whose annual per capita income is less than ¥924 (approximately US\$115), China's poverty line in 2004 (National Bureau of Statistics of China, 2005). By the World Bank one-dollar-per-day poverty standard, the total population living in poverty is even larger at nearly 200 million. One of the critical social issues in China is increasing inequality in medical and health care. The medical and health system reforms in the early 1990s have turned out to be far from adequate (Development Research Center of the State Council, 2005). Moreover, the market-oriented health system has resulted in declines in both fairness of health services and efficiency of investment in the health sector (Development Research Center of the State Council, 2005). According to an estimate by the World Health Organization (2000) regarding health system attainment and performance among 191 member states, China was ranked 188th on fairness of financial contribution and 144th on overall health system performance. Results from the third China public health survey conducted in 2003 show that 44.8% of urban residents and 79.0% of rural residents do not have any form of health care coverage. Overall, there is considerable evidence that China's health care system is in need of additional reform.

In the current debate on the reform of the Chinese health care system, policy proposals focus primarily on basic, universal health needs while also encouraging individuals to have their special health needs (i.e., catastrophic health events) met through other avenues, such as individual health

savings and employment-based health care coverage (Ge, 2005). This strategy emphasizes individual responsibility for costs beyond those defined as basic and universal.

Among many options, asset-based policy has demonstrated its potential in domestic policy development (Guo, Huang, Zou, & Sherraden, 2008). Asset-based policy provides institutional supports for people to build assets for long-term planning and development (Sherraden, 1991). Assets are the stock of wealth in a household, which can include savings, financial securities, land, houses, vehicles, livestock, and household durable goods (Siegel & Alwang, 1999; Sherraden, 1991). In developing countries, forms of assets can also include access to water, electricity, sanitation, roads, and marketplaces (Siegel & Alwang, 1999; Wang, 2002).

The concept of asset building has been introduced in health care policy in some countries. For instance, the medical savings accounts scheme in Singapore, initiated in 1984, helps to meet Singaporeans' health needs, and also helps to contain health care costs. In the United States, individuals are allowed to make tax-free contributions to their Health Savings Accounts, and enrollment in health savings plans has been increasing in recent years (Wilensky, 2006). Evidence suggests that the use of health savings plans can lower costs and may increase use of preventive and chronic care services (Wilensky, 2006). These examples indicate that asset building in health policy may supplement primary models of health coverage.

In China, projects are underway to demonstrate effects of asset building (Sherraden & Zou, 2005). Policy should be informed by research, particularly research conducted in the society where the context-specific policy is developing. As an initiative to inform asset-based policy development, this study focuses on effects of assets on health in China. The relationship between wealth and health is mixed and uncertain in research to date (Deaton, 2003). The current study examines: (1) whether there is an association between household assets and health status; (2) how assets may affect health status; and (3) how household assets differ from income in predicting health status. By making a clear distinction between household income and assets, this study may have implications not only for the development of asset-based policy in China, but also for the potential of assets in conceptualizing and measuring well-being in other countries.

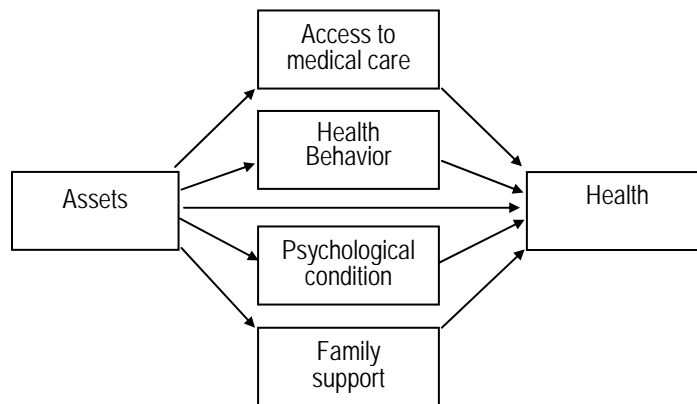
Research Review and Conceptual Model

There is broad agreement among researchers that socioeconomic status (SES) is associated with health status (e.g., Adams, Hurd, McFadden, Angela Merrill, & Ribeiro, 2003; Attanasio & Emmerson, 2003; Robert & House, 1994; Smith, 1998). For example, one indicator of SES, education, is a good predictor of onset of disease (Deaton, 2003; Smith, 2004, 2005). More highly-educated people have lower morbidity and live longer, and this pattern has been documented across time, place, and age. For example, using the China Health and Nutrition Survey of 2000, one study reports that education is positively associated with health, whereas income is not (Zhao, 2005).

Asset holding as wealth is often associated with health as well. Although numerous studies find that health improves with income, wealth is believed to be a superior measure over income because the former more accurately reflects long-term economic conditions of individuals (Meer, Miller, & Rosen, 2003). For example, inheritance, as a measure for the exogenous change of wealth, is related to health status (Meer, Miller, & Rosen, 2003). However, other research results are mixed. Smith (2004), for example, explores wealth accumulation during the stock market boom in the 1990s but concludes that wealth is not related to the onset of disease. While most research focuses on the causal mechanism linking wealth to health (Adler & Ostrove, 1999), it is equally important to examine effects of health on wealth holdings (Lum, 2004; Lum & Lightfoot, 2003; Smith 1999; Wu, 2003). Directionality in the wealth and health relationship is likely to be complex.

Most studies examining the wealth-health nexus are based on the assumption that assets are important because wealth means greater access to medical care and health services. However, studies show that equal access to health care may not produce the same or even similar health outcomes for the rich and the poor (Newhouse, 1993; Seligman, 2004; Smith, 1999). These findings give rise to the question of whether possession of wealth may affect health in some way other than affordable health care. Asset theory suggests that accumulating assets may also lead to a variety of psychological and behavioral changes (Sherraden, 1991). Perhaps these psychological and behavioral factors eventually translate into health outcomes. Possible relationships are illustrated in Figure 1.

Figure 1: Assets and health



Theory suggests that assets may lead to a variety of economic, social, and psychological benefits for individuals and families (Sherraden, 1991). Essentially, assets may affect health when used for access to medical care (e.g., Rowlingson, 2006). Holding assets may shape good health behaviors, which protect individuals from developing diseases. Studies have shown that people with assets are more likely to have a healthy diet and adequate exercise and less likely to engage in risky behaviors, such as smoking and drinking (Deaton, 2002). Assets may also create psychological effects, such as a sense of control over life, security, safety, and peace of mind, all of which may decrease susceptibility to disease. Studies have shown that, over time, anxiety, stress, and alertness can overwhelm the nerve

system and harm the body, leading to elevated heart rate and blood pressure, among other symptoms (World Health Organization, 1998). Finally, families with assets tend to be more stable and this stability, in turn, may lead to more family support for health. From an exchange perspective, the prospect of a bequest may be an incentive for children to provide attention and long-term care for elderly parents (Bernheim, Shleifer, & Summers, 1985). Moreover, families with assets may have stronger family bonds, which may give each member a feeling of belonging and sense of responsibility to take care of the others. By contrast, individuals with few assets may also have fewer social resources to call on for support and assistance in coping with life events (Seeman & Crimmins, 2001).

This study will test this conceptual model, with a focus on indirect effects of assets on health through the four intermediate constructs indicated. The context of these empirical tests is a city in China.

Sample and Methodology

Sample

Data used in this study are from the 1994 Survey on Aging and Intergenerational Relations in Baoding City, China, collected by the University of Michigan, Peking University, and the China Research Center on Aging. The survey gathered information on intergenerational relationships, health, income, assets, and family history. In this survey, 1,002 individuals aged 50 and over in Baoding, a rather typical medium-sized city in Northern China, were randomly selected to be interviewed.

Variables

Dependent variables. In the present analysis, measures of health status are used as dependent variables. One is an objective measure asking whether respondents have difficulty doing each of the following activities of daily living (ADL): shopping, climbing 2-3 flights of stairs, walking 200-300 meters, lifting or carrying something as heavy as 10 kilograms, using hands to open a tightly closed jar, standing for about 2 hours, bicycling more than 5 kilometers, and getting on a bus. Responses vary on a scale from 1 to 4, with (1) being “unable to do,” (2) “much difficulty,” (3) “some difficulty,” and (4) “no difficulty.” An ADL index is created by adding the scores of these eight items, and a larger value of the ADL index implies better physical health. The second is a subjective measure of health status, which is based on self evaluation. The question asks “How would you rate your health at the present time?” Responses range from (1) very poor to (5) very good.

Independent variables. Three asset variables are of primary interest. Home ownership is a dichotomous variable with (1) being “privately owned” and (0) being “allocated” by work unit or rented from housing bureau or private owner. A household durables index is created by the sum of 5 items asking “Whether each one of the following is (3) used by your family alone, (2) shared with other families, or (1) you don’t have the item.” The five durable goods are refrigerator, washing machine,

Hi-fi system, color TV, and air conditioner. Similarly, a household facility index is based on seven items asking “whether each one of the following is (3) used by your family alone, (2) share with other families, or (1) you don’t have the item.” The seven facility items are running water, kitchen, toilet, gas stove, heating, telephone, and shower. Higher scores on the household durables index and household facility index indicate more household assets.

Intermediate variables. Intermediate variables in this study refer to psychological and behavioral variables that may be affected by assets and, in turn, may affect health outcomes. Four intermediate constructs have been identified and each of these is represented by one measure. The question asking “Do you ordinarily worry that when you are sick that you will not be able to get good medical care?” is used to measure access to medical care. Responses to this question include (1) “a lot,” (2) “a little,” and (3) “not at all.” Health behavior is indicated by several variables, such as “Do you currently smoke?”; “Do you often, sometimes, rarely, or never drink alcohol?”; “How many hours do you usually sleep each day (including naps)?”; and “How often did you have any of the following activities (taking walks, riding a bicycle, engaging in martial practice, engaging in qigong, engaging in ‘old age disco,’ engaging in other active sports and exercise, and traveling and sightseeing) during the past six months?” Given the different measurement of these variables, it is challenging to create a health behavior index. Therefore, responses to each of these questions are recoded with (0) being “smoking, often or sometimes drinking, sleeping less than eight hours per day, and never or rarely exercising” (indicating risky health behaviors), and (1) being “no smoking, never or rarely drinking, sleeping eight hours or longer per day, and frequently exercising” (indicating healthy behaviors). Psychological condition is indicated by a scale with 14 items, asking “During the past week, did you often, sometimes, rarely, or never have a certain experience (e.g., feeling lonely, worrying about little things, and not sleeping well, etc.)?” Some of the items are reverse recoded for the current study, and an index is created by summing up all these items with higher scores indicating better mental conditions. Family support is assessed by four dichotomous items, asking the respondent whether he/she currently receives assistance from adult children in four aspects: (1) physical care, (2) household chores, (3) finance, and (4) food, clothing, and other goods. The sum of these four items is calculated for each case to indicate the overall family support for the parent.

Control variables. To examine the effect of assets on health status, a number of factors should be controlled. Control variables fall into two categories: individual characteristics, such as age, gender, marital status, educational attainment, and employment status, and household characteristics, such as household size, number of children, and household income.

Analytical method: Path analysis

To identify whether household assets have indirect effects on health status, a set of equations is estimated (logit regression is used when the dependent variable is categorical). For each individual i , the direct effect of household assets on health is indicated by β_3 , and the indirect effect is indicated by $\beta_1 \times \beta_2$, controlling for a set of individual and household characteristics variables.

$$I_i = a_1 + \beta_1 X_i + p_1 A_i + e_1$$

$$H_i = a_2 + \beta_2 X_i + p_2 I_i + p_3 A_i + e_2$$

where H_i represents the health status of the individual i
 X_i is a set of individual and household characteristics
 I_i indicates intermediate variables, including access to medical care, health behavior, psychological condition, and family support
 A_i indicates measures of household assets

Findings

Descriptive results

The age of respondents ranges from 50 to 91, with an average of 61. About half of the respondents (52.5%) are male and half (47.5%) are female. The majority of respondents (88.4%) are married; others are divorced (0.4%) or widowed (11.2%). Most respondents (72.0%) lack formal schooling or did not complete high school; others have a high school diploma or equivalent (13.6%), or education beyond the high school diploma (14.4%). Nearly one-third of respondents were employed at the time of the interview. Variation in respondents' household size is from 1 to 12 with an average of 3.6. Respondents have 0-8 children, with an average of 3.2. A profile of respondent characteristics is presented in Table 1.

Table 1. Descriptive statistics (N=1,002)

Variable	Mean or Percentage	S.D.
Dependent Variables		
ADL health	29.80	4.40
Self-report health	3.52	1.02
Intermediate Variables		
Concern about access to medical care (%)		
Very worried	13.51	
Somewhat worried	25.40	
Not worried at all	61.09	
Health behavior	3.89	1.34
Family support	0.94	1.04
Psychological condition	45.29	7.69
Asset Variables		
Ownership of housing (%)		
Owning a house	5.11	
Renting	94.89	
Household durables	10.37	2.08
Household facility	16.97	2.66
Control Variables		
Age (Years)	60.96	7.32
Gender (%)		
Male	52.50	
Female	47.50	
Marital status (%)		
Married	88.41	
Not Married	11.59	
Educational attainment (%)		
Less than high school	72.03	
High school diploma	13.58	
Post-secondary education	14.39	
Employment status (%)		
Employed	33.93	
Not Employed	66.07	
Household size	3.59	1.60
Number of children	3.24	1.30
Monthly family income (Yuan)*	816.50	586.22

*Measured in 1993 Yuan.

Effects of assets on health

Ordinary least squares (OLS) regression is conducted to examine the effects of assets on health status of elderly people. Regression models, controlling for the other variables (age, gender, marital status, educational attainment, employment status, household size, number of children, and average monthly household income) are statistically significant for both ADL ($F=19.62$, $p<.001$, $R^2=.25$) and self-report health status ($F=3.51$, $p<.001$, $R^2=.04$). A closer look at the regression for ADL reveals that one asset variable, household facility, is significant. Income makes no difference for ADL or self-report health in magnitude, although there is marginal significance for the effect of income on ADL.

Table 2: Regression analysis of health status

Variable	Estimates	
	DV=ADL	DV=Self-report Health
Constant	29.80	4.40
Age	3.52	1.02
Gender (1=male; 0=female)		
Marital status (1=married; 0=not married)	13.51	
Educational attainment	25.40	
Less than high school (reference group)	61.09	
High school diploma	3.89	1.34
Post-secondary education	0.94	1.04
Employment status (1=employed; 0=not employed)	45.29	7.69
Household size		
Number of children		
Monthly family income (Yuan)*	5.11	
Ownership of housing (1=yes; 0=no)	94.89	
Household durables	10.37	2.08
Household facility	16.97	2.66
Model fit		
F(df)	60.96	7.32
N		
R ²	52.50	
Adjusted R ²	47.50	

ADL=Activities of Daily Living.

***p<.001;**p<.01;*p<.05.

Psychological/behavioral effects of assets

The next step is to examine whether assets have indirect effects on health through intermediate variables, such as access to medical care, health behavior, psychological condition, and family support. First of all, we regress each of these intermediate variables on the control variables and asset variables, then the two health variables are regressed on the control variables, asset variables, and intermediate variables, respectively.

Although homeownership is not significant in any of the four models, household durables and household facility are significantly related to most of the psychological and behavioral variables (see Table 3). People with more household assets tend to worry less about health care, have healthier behavior, and have a better psychological condition. Interestingly, income is not significantly related to any of the psychological or behavioral variables.

Table 3: Regression analysis for intermediate variables

Variables	Logit regression		OLS regression		
	DV= Access to Medical Care		DV= Health Behavior	DV=Psychological Condition	DV= Family Support
	Estimate	Odds Ratio	Estimate	Estimate	Estimate
Constant(s)	-5.23***		1.80**	26.97***	-1.06*
	-3.75***				
Age	0.04**	1.04	0.00	0.12**	0.04***
Gender (1=male; 0=female)	0.06	1.09	-0.32***	0.77	-0.33***
Marital status (1=married; 0=not married)	-0.22	0.86	0.24	3.37***	-0.21
Educational attainment					
Less than high school (reference group)	-	-	-	-	-
High school diploma	0.39	1.55	0.21	0.65	-0.05
Post-secondary education	0.01	1.02	0.53***	-0.39	-0.16
Employment status (1=employed; 0=not employed)	0.37*	1.49	-0.18	2.75***	0.08
Household size	-0.01	0.98	-0.04	0.02	0.03
Number of children	0.13*	1.14	0.02	0.12	0.11***
Monthly family income	0.00	1.00	0.00	0.00	-0.00
Ownership of housing (1=yes; 0=no)	-0.26	0.83	0.02	0.08	0.03
Household durables	0.14***	0.87	0.08**	0.42**	-0.02
Household facility	0.07*	0.93	0.07***	0.09	-0.02
F/X ² (df)		62.00(12)***	7.59(12)***	6.26(12)***	17.07(12)***
N		931	927	885	940
R ²			0.09	0.08	0.18
Adjusted R ²			0.08	0.07	0.17

***p<.001;**p<.01;*p<.05.

Direct and indirect effects of assets on health

Two regression analyses, with and without the intermediate variables, were conducted to see if there is any change in model performance. A comparison of the two models using ADL as the dependent variable indicates that the explained variance (R²) in health status increased from 0.25 to 0.35, an improvement in model specification. Psychological condition, family support, and access to medical care have significant or marginally significant effects on ADL. A comparison of the two models using self-report health status as the dependent variable indicates an increase in explained variance from 0.04 to 0.26. All the intermediate variables except health behavior are significantly associated with self-report health status. Therefore, consistent with the literature, we find that both access to medical care and psychological condition are important intermediate factors between assets and health. Put another way, assets may not only promote access to health care, but may also promote healthy mental status, which in turn leads to better health.

Table 4: Regression analysis for ADL: A comparison of two models

Variable	Estimates	
	Model 1	Model 2
Constant	38.32***	32.40***
Age	-0.25***	-0.23***
Gender (1=male; 0=female)	1.43***	1.16***
Marital status (1=married; 0=not married)	0.94	0.45
Educational attainment		
Less than high school (reference group)	-	-
High school diploma	0.17	-0.02
Post-secondary education	0.58	0.33
Employment status (1=employed; 0=not employed)	0.76*	0.42
Household size	-0.13	-0.08
Number of children	0.26	0.20
Monthly family income (Yuan)*	-0.00*	-0.00
Ownership of housing (1=yes; 0=no)	-1.98**	-1.31*
Household durables	0.03	-0.12
Household facility	0.26***	0.17**
Concern about access to medical care (%)		
Very worried (reference group)		
Not worried		0.91*
Somewhat worried		0.54
Health behavior		0.16
Psychological condition		0.17***
Family support		-0.55***
Model fit		
F(df)	19.62(12)***	20.17(17)***
N	710	663
R ²	0.25	0.35
Adjusted R ²	0.24	0.33
ΔR^2	-	0.10***

***p<.001,**p<.01;*p<.05.

Table 5: Regression analysis for self-reported health status: A comparison of two models

Variable	Estimates	
	Model 1	Model 2
Constant	3.26***	1.61***
Age	-0.01	-0.01
Gender (1=male; 0=female)	0.19*	0.09
Marital status (1=married; 0=not married)	-0.10	-0.34**
Educational attainment		
Less than high school (reference group)	-	-
High school diploma	-0.02	-0.13
Post-secondary education	-0.07	-0.10
Employment status (1=employed; 0=not employed)	0.24**	0.13
Household size	0.00	0.01
Number of children	0.04	0.03
Monthly family income (Yuan)*	0.00	0.00
Ownership of housing (1=yes; 0=no)	-0.09	-0.04
Household durables	0.03	-0.00
Household facility	0.02	0.00
Concern about access to medical care (%)		
Very worried (reference group)		-
Not worried		0.39***
Somewhat worried		0.17
Health behavior		0.02
Psychological condition		0.05***
Family support		-0.07*
Model fit		
F(df)	3.51(12)***	17.24(17)***
N	939	864
R ²	0.04	0.26
Adjusted R ²	0.03	0.24
ΔR ²	-	0.20***

***p<.001,**p<.01;*p<.05.

Discussion

In sum, assets in the form of household durables and facility have significant direct and indirect effects on health status. More importantly, assets appear to improve psychological condition and behavioral patterns, and these factors contribute significantly to better health outcomes. In contrast, income does not seem to have such psychological and behavioral effects.

In these models, homeownership is either non-significant or significant but the direction of the relationship is not consistent. One possible explanation for these inconsistencies is that there were very few privately owned homes in China before housing reform. Prior to reform, most houses belonged to work units and were allocated to individuals as occupation-based welfare. Only five percent of respondents owned homes. Therefore, homeownership may not be a very good measure of assets in this study. Housing reform in the late 1990s has resulted in considerable privatization of home ownership and consequently a substantial increase in household assets. In the future, homeownership may be a better measure for examining household assets and their effects in China (National Bureau of Statistics of China, 2002).

Conclusion

Using a random sample of Chinese elderly, this study finds that asset holding in the forms of household durables and access to utilities has both direct and indirect effects on health status. We find that the effects of household assets occur not only through access to medical care but also through health behavior and psychological condition. In other words, in addition to economic effects, household assets have behavioral and psychological effects on health. Income, however, does not have such effects in this study.

This study might have been improved with the inclusion of classic measures of household assets, such as savings and home values, which, unfortunately, are not available from the current data. Future research should address this measurement issue to obtain solid evidence.

Nonetheless, the above findings have implications for inclusion of asset building in health policy in China. Foremost, from an economic perspective, asset accumulation can be a conservative process to prepare for health care and aging. In the long run, this process may itself promote health through building a sense of security and providing partial relief from worry about health costs. Health policy should encourage individuals to accumulate assets for growing health needs in later life.

Evidence shows that individuals provided with access, information, incentives, facilitation, and expectations are more likely to save than those without (Schreiner & Sherraden, 2007). Health policy creating strong incentives and strategies for asset building may be effective in addressing health needs not covered by public health plans.

Finally, it should be noted that health policy based on asset building is not intended as a complete or even primary policy. It cannot replace the existing health care models. Rather, it can provide a supplement to the primary health plans, and one that adds value beyond the simple payment of health costs.

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