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ASSET POVERTY AND MATERIAL HARDSHIP IN SOUTH KOREA

Pauvreté en matière d'actifs et difficultés matérielles en Corée du Sud

UN RÉSUMÉ EXÉCUTIF EN FRANÇAIS EST DISPONIBLE À LA FIN DU DOCUMENT

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ABSTRACT

Decades of research and experience with anti-poverty programs around the world have revealed that there is more to poverty than simply maintaining a certain income level. However, until recently, poverty analysis in Korea has been mostly based on

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income. This study examines the multidimensional living conditions of the poor and its causes in Korea by testing the association between the material hardship and asset and income poverty. Material hardship is a direct poverty measure to identify the poor as those whose actual consumption fails to meet the basic needs. The main purpose of this study is to contribute to our understanding of the living conditions of the poor and the causes of material hardship including food, housing, utilities, and health hardship. Using the binary logistic regression analysis, this study found that households who were poor only in assets (and not income) were more likely than households who were income poor but not asset poor to experience all types of material hardship except for food. This finding suggests that the asset poor are more vulnerable to material hardship than is estimated by the income poverty measure. We describe how future research needs to expand hardship measures to encompass various living conditions in

relation to the current Korean social context. This study implies that policy responses to poverty could be improved to the extent they consider the type and amount of a household's available economic resources.



INTRODUCTION

The Asian financial crisis of 1997 caused a remarkable increase of poverty rate in South Korea (hereafter referred to as Korea). The relative poverty rate as measured by 50% of median household disposable income increased from 9.1% in 1996 to 12.5% in 2014 (Kang, Yoo, & Lee, 2016). Until recently, both academics and policymakers in Korea have widely used income poverty measure, which has led to anti-poverty policies that focus on transferring income. Income poverty measure enables poverty research to identify the population as below or above an official poverty threshold established by an informed, yet controversial decision about what is necessary to make ends meet (Blackwood & Lynch, 1994; Brady, 2003). Research using income poverty measure has significantly contributed to theory and policy implications, yet in recent years, many scholars and policymakers have argued that income measure provides an inadequate assessment of poverty (Brady, 2003). One of the biggest concerns is that the income measure alone cannot capture the multidimensional nature of poverty, which includes lack of productive resources sufficient to ensure sustainable livelihood, hunger and malnutrition, ill health, and limited access to education (Sen, 1979; Townsend, 1962; United Nations, 1995). Because of the problems with income poverty measure and the consequences that poverty measure selection has for social policy priorities and theoretical conclusions, scholars have devoted a great deal of research to devising innovative poverty measures (Atkinson, 1998; Brady, 2003).

To directly estimate the multidimensional living condition of the poor, some scholars have introduced the concept of material hardship as a poverty measure. Material hardship is a direct poverty measure to identify the poor as those whose actual consumption fails to meet the basic needs for food, housing, basic goods, clothing, and medical care (Beverly, 2001b; Sen, 1979). Furthermore, past research estimated the association between income poverty and hardship measures to explore the causes of material hardship conditions, and found only moderate associations between them (Beverly, 2001a; Bradshaw & Finch, 2003; Mayer & Jencks, 1989). This is because the income measure only estimated the transitory income deprivation, while some types of hardship conditions are likely to be affected by long-term financial constraints such as lack of assets (Heflin, Sandberg, & Rafail, 2009; Iceland & Bauman, 2007). Accordingly, some scholars have argued that assets such as savings, real property, and automobile may be necessary to meet basic consumption needs (Gjertson, 2016; Iceland & Bauman, 2007; S. R. Lee, 2011). It is based on the assumption that while income supports daily consumption, assets are more stable indicator that represent store-up purchasing power, particularly for unexpected events such as job loss, illness, or income shortfall (Nam, Huang, & Sherraden, 2008; Oliver & Shapiro, 1990). In light of this, the present study tested how strongly material hardship experience is associated with asset poverty in comparison to its association with income poverty in Korea. To our best knowledge, this is one of the first studies to estimate the poverty condition in Korea using the asset poverty and material hardship measure. This study contributes knowledge of East Asia to the Western-based body of knowledge on asset poverty and material hardship.



MATERIAL HARDSHIP MEASURES

The material hardship measure was originally developed by Sen (1979) and Townsend (1962, 1979) to measure the living condition of the poor. They argued that different groups of people and households have different consumption habits and face different demands, and money income is unlikely to capture these differences in need. Townsend (1979) described poverty as relative deprivation, “conditions of individuals, families, and groups in the population who lack the resources to obtain the type of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the societies to which they belong” (p. 31). Around the same time, Sen (1979) noted two different conceptions of poverty used to identify the poor: the direct method and the income method. The direct method defines the poor as those whose actual consumption fails to meet the accepted conventions of minimum needs, while the income method defines the poor as those who do not have the income to meet these needs (Sen, 1979). The income method has an advantage of providing a metric of numerical distance from the poverty line, but fails to consider that the pattern of consumption behavior is inconsistent, and prices facing different groups of people differ by social class, income group, and locality (Sen, 1979).

Material hardship identifies the poor as those whose actual consumption fails to meet the minimum levels of basic goods and services.

Inspired by the work of Sen (1979) and Townsend (1979), some recent poverty research has used the material hardship measure to directly estimate the multidimensional poverty condition. Material hardship identifies the poor as those whose actual consumption fails to meet the minimum levels of basic goods and services (Beverly, 2001b). Because there is no consensus of material hardship measure, previous research in Korea, the US, and UK has used hardship indicators including food, housing, utilities, medical care, clothing, and consumer durables which are essential components of well-being.



MATERIAL HARDSHIP AND INCOME POVERTY

To reveal what caused the material hardship of the poor, previous research on material hardship has tested the association between the material hardship and other poverty measures, especially income poverty. By testing the association between a household’s hardship conditions and income poverty status, studies found that material hardship was more prevalent than the income poverty, and the income poor did not necessarily overlap with those who suffer from a lack of basic necessities (Berner, Ozer, & Paynter, 2008; Beverly, 2001a; Bradshaw & Finch, 2003; Chou & Lee, 2017; Dhongde & Haveman, 2016; Iceland & Bauman, 2007; S. R. Lee, 2011; Mayer & Jencks, 1989; Short, 2005). Accordingly, they suggest that hardship may be caused by other economic factors besides income such as home ownership, access to credit, income of previous year besides the current income,

and in-kind welfare benefits (Beverly, 2001a; Bradshaw & Finch, 2003; Mayer & Jencks, 1989; Short, 2005). In addition, some studies have differentiated the causes and consequences of various hardship measures. For example, while food insecurity and difficulty paying bills are more sensitive to temporarily income changes, housing problems and ill-health are more affected by the permanent income status or household assets (Heflin et al., 2009; Iceland & Bauman, 2007; Mayer & Jencks, 1989).

A few empirical studies in Korea also have shown that income inadequately explains the distribution of material hardship. For example, according to Lee (2011), while income did not significantly affect household experience of material hardship, other economic factors such as employment status, housing tenure status, and financial assets had meaningful associations with the hardship conditions of low income households. Contrary to general expectations, Kim, Shim, and Lee (2015) found that among low-income households, households in the hardship group were more likely to have higher income and education levels than those in the no-hardship group. This finding suggests that among low-income households, those with better socioeconomic status (the near-poor or working poor) might perceive a higher level of hardship, because households in this group were likely to be excluded from the current social security system (Kim et al., 2015).



MATERIAL HARDSHIP AND ASSET POVERTY

To explain the hardship conditions of the poor, some researchers have suggested that household living conditions in a given year may vary by asset ownership such as financial assets (e.g., savings, stocks, and bonds), real property, vehicles, and durable household goods besides income fluctuations (Beverly, 2001a; Gjertson, 2016; Iceland & Bauman, 2007; S. R. Lee, 2011; Mayer & Jencks, 1989). This idea is built on the consumption theory, namely life cycle theory and buffer-stock model. In consumption theory, assets are defined as a storehouse for future consumption, and savings are treated as a way of balancing the fluctuation of household financial resources for consumption throughout a lifetime (Ando & Modigliani, 1963; Carroll, Hall, & Zeldes, 1992). In light of this, assets are expected to enable households to sustain a basic-needs level of consumption for food, shelter, health, education, and security during temporary hard times. For example, some households lose their income flow due to retirement or unemployment and become income poor, but do not lack for consumption necessities because they still have the assets acquired in better times. Accordingly, asset poverty is viewed as an indicator of the long-term household economic security (Haveman & Wolff, 2005).



A few existing studies (e.g., Gjertson, 2016; S. R. Lee, 2011; Mayer & Jencks, 1989; McKernan, Ratcliffe, & Vinopal, 2009; Mills & Amick, 2011) found that having more assets resulted in a lower probability of material hardship experience. Considering that families with more assets may experience less hardship because they also have higher incomes, most prior research controlled for income using a continuous income measure. However, it is limited to disentangle income from assets and examine how differently asset and income poverty impact on household's hardship condition. Furthermore, some existing research on the association between material hardship and asset poverty is limited as treating material hardship as a single phenomenon although the causes and consequences of a specific hardship (e.g., food) may not be generally applied to households experiencing other forms of hardship (Heflin et al., 2009).



RESEARCH QUESTIONS

I build on existing literature and contribute to the understanding of the distribution of material hardship and its causes in at least two ways. First, we estimate how strongly material hardship is associated with asset poverty only, and compare this relationship with that of joint poverty (both in income and asset poverty), and income poverty only. We focus on this to compensate for previous research that does not show the effect of lack of assets on household living conditions separately from that of income. Second, we analyze how the associations of asset and income poverty with hardship differ between the four forms of material hardship measured here. Previous research has noted that the causes and consequences of various hardship measures are not identical, but has not analyzed this in sufficient detail. To address these gaps in knowledge, the present study is guided by the following three questions: (a) To what extent is asset and income poverty associated with

material hardship? (b) How does the association vary according to the form of material hardship considered (food, utility, housing, and health)? (c) Who is at risk for material hardship?



METHOD

Source of Data

Data in this study came from the 10th, the most recent wave of the Korean Welfare Panel Study (KOWEPS). The KOWEPS is annually conducted by the Korean Institute for Health and Social Affairs (KIHASA) and Seoul National University (SNU) since 2006. In the first year, the KOWEPS collected information about 7,072 households and 14,463 individuals selected by a two-stage stratified random sampling method that considered the region where they live. The sample group covers the entire nation in Korea. Since it is the largest national panel data in Korea on this topic and predominantly consists of low income households¹, the KOWEPS is widely used in Korean poverty research (Noh et al., 2015). The KOWEPS provides details on household socio-demographics, assets, debts, income, material hardship, and welfare needs. While some information such as health condition, employment status, and income is collected about all individuals in a household unit, the greatest level of detail is collected for the primary adults heading a household unit (Noh et al., 2015). Respondents' answers to the questionnaire in the KOWEPS are based on events in the previous year. For the 10th wave collected in 2015, stock variables (e.g., assets) were measured on December 31st, 2014 and flow variables (e.g., income and expenditure) were measured over the year of 2014. Since the 7th wave, the KOWEPS data were supplemented with 1,800 households to make up for sample attrition² (Choi, Oh, Son, Leem, & Jung, 2013). The addition of a new sample group was to prevent attrition bias since attrition in the KOWEPS data was mostly concentrated among lower socioeconomic households (Choi et al., 2013). According to Choi et al. (2013), the households added in the 7th wave are homogeneous with the households lost to attrition in terms of income, assets, and consumption status. Therefore, we are able to secure the great sample size, 6,914 households by using the 10th wave. In the present study, we excluded 16 cases that were missing information in the focal variables such as value of debt, resulting in a sample of 6,898 households.



Measurement

Dependent variable: material hardship.

In the present study, following previous research (Beverly, 2001a; Heflin et al., 2009; Lee, 2011), 11 dichotomous indicators of material hardship were grouped into four categories: food, housing, utility, and health hardship (Table 1). Because hardship data were collected at the household level in the KOWEPS, hardship indicators refer to household experiences. All individuals living in households whose head (or head's spouse) reported experiencing hardships were assumed to have experienced those particular hardships.

For the food hardship measure, we used five questions in the KOWEPS of household questionnaire: (a) food did not last, (b) did not eat balanced meals, (c) skipped meals/did not have enough to eat, (d) ate less than needed, and (e) hungry but did not eat. To measure housing hardship, we used two indicators in the KOWEPS: (a) eviction and (b) heating system. The first indicator is whether survey respondents said the household had to move to another house because of not paying the rent for at least two months. The second indicator is whether the household was unable to use the heating system during the winter because they could not afford to pay for it. For measuring utility hardship, we used two indicators: (a) bill-paying hardship, and (b) utility disconnection. The bill-paying hardship is an indicator of whether survey respondents said there was a time in the previous year when they did not pay the full amount of their national social insurance (pension, unemployment, and occupational health and safety insurance) contributions or utility bills, such as electricity, telephone, or water bills. Utility disconnection is an indicator of whether they said their electricity, telephone, or water had been disconnected for lack of

¹ In KOWEPS, 50% of the original sample are composed of the low-income households whose income were below 60% of the median income.

² The original sample retention rate of the KOWEPS was 74.53% at the 7th wave.

payment. Finally, two indicators were used to measure health hardship: (a) medical need and (b) lack of national health insurance. For an indicator of medical need, respondents were asked if there was a time in the previous year when someone in the household needed to see a doctor but could not afford to go. For an indicator related to national health insurance coverage, respondents were asked if there was a time when they were unable to pay the health insurance premium and lost their eligibility for the national health insurance service. Due to a skewed distribution of a counted material hardship measure (90.77% of the analytic sample reported not experiencing any hardship, ranging from 0 to 11), we created a binary variable using these indicators. A value of 1 was assigned to all households whose head (or head's spouse) reported experiencing more than one hardship indicator due to economic difficulties in the previous year. Otherwise a value of 0 was assigned. In sum, five dichotomous dependent variables were used to measure a household's material hardship experience: (a) total hardship, (b) food hardship, (c) housing hardship, (d) utility hardship, and (e) health hardship.

Table 1. *Construction of Material Hardship Variables*

Variables	Questions
Food hardship	<p>1) "Has there been a time in the last year when the household ran out of food and could not afford to buy more?" (Yes = 1; No = 0)</p> <p>2) "Has there been a time in the last year when the household could not afford balanced meals?" (Yes = 1; No = 0)</p> <p>3) "Has there been a time in the last year when adults in the household skipped meals or did not have enough to eat?" (Yes = 1; No = 0)</p> <p>4) "Has there been a time in the last year when household ate less than needed?" (Yes = 1; No = 0)</p> <p>5) "Has there been a time in the last year when the household was hungry but did not eat?" (Yes = 1; No = 0)</p>
Housing hardship	<p>1) "In the last year, have you ever been evicted from your home because you couldn't pay your rent for more than two months?" (Yes = 1; No = 0)</p> <p>2) "In the last year, have you ever been unable to use heating system properly during the winter?" (Yes = 1; No = 0)</p>
Utility hardship	<p>1) "Has your electricity, telephone or water been turned off because you couldn't pay the bill any time during the last year?" (Yes = 1; No = 0)</p> <p>2) "Have you ever been unable to pay the national social insurance contributions or utility bill(s) before a due date during the last year?" (Yes = 1; No = 0)</p>
Health hardship	<p>1) "Has there been a time in the last year when you or anyone else in your family needed to see a doctor but couldn't afford to go?" (Yes = 1; No = 0)</p> <p>2) "Have you ever been unable to pay the national health insurance premium and lost eligibility?" (Yes = 1; No = 0)</p>

Independent variable: asset and income poverty.

In the present study, we used the most widely used asset poverty measure suggested by Haveman and Wolff (2005), who argued that assets are expected to protect the poor from future risks and temporary income shortfalls. Based on this assumption, they defined the asset poor as “a household having insufficient assets to enable it to meet basic needs for a period of time” (Haveman & Wolff, 2005, p.149). To use their concept, we needed to define three key components in the Korean context: (a) basic needs, (b) period of time, (c) wealth type resources. To begin with, we used Korea’s official absolute poverty threshold, the national MLS, to measure basic needs. The Korean MLS is calculated on the basis of the minimum cost of 11 necessities such as food, shelter, and utilities, and updated annually using the Consumer Price Index (CPI; Kim et al., 2013). The MLS is applied differently according to the household size by adopting a modified OECD household equivalence scale (Kim et al., 2013). In the present study, we applied 150% of the MLS³ for the correct household size each year. Because the MLS level is insufficient to reflect actual living conditions, 120% or 150% of the MLS has



been widely used as the poverty threshold in Korean poverty research (e.g., Kim, Ra, & Ryu, 2013; Kim & Kim, 2013; Lee & Ban, 2009). The raised threshold also has been widely employed in policy to determine welfare program eligibility such as the matched savings programs in Korea (the Hope Growing Account and Hope Plus Account programs). Next, we stipulated the period of time as three months, following Haveman and Wolff (2005). Some Korean research using Haveman and Wolff (2005)’s concept (e.g., K. S. Kim & Kim, 2013; S. E. Lee, Yi, & Jung, 2011) also defined the limited period of time as three months. This is based on the consideration that, in Korea, credit card bills and public utility charges are allowed to be overdue for a maximum of three months (Kim & Kim, 2013). Lastly, we applied both net worth and financial assets as a potential consumption resource. We defined net worth as the difference in value between total marketable assets and total debt. Specifically, total marketable assets included three types of assets: (1) real property (owner-occupied housing, residence deposit, and other real estate), (2) hard assets (vehicle, jewelry, art, and collectibles), and (3) financial assets (savings, stocks, bonds, funds, insurance funds, and money loaned to the mutual assistance society). Total debts include mortgage debt, private loans, credit debt, money received as key money, money received on credit from the mutual assistance society, and other debt. The value for financial assets was the third component of total marketable assets as described above. With this definition, net worth can give a comprehensive picture of all household assets available, and financial assets represent household’s financial resources that are easily monetized and accessible for times of economic hardship (Oliver & Shapiro, 1990; Rank & Hirschl, 2010). We identified the income poor as those whose monthly disposable income was less than 150% of the MLS. As mentioned previously, it considers the insufficient level of the MLS to reflect the actual living conditions in Korea. Monthly disposable income refers to a household’s average monthly gross income (wages, salaries, interest income, transfers, and social benefits) minus direct taxes and social contributions.

By applying the asset and income poverty measures described above to this study, we classified the sample into four different groups following Haveman and Wolff (2005): (a) neither asset nor income poor (“non-poor”), (b) poor in both income and assets (“joint poor”), (c) only poor in assets (“asset poor only”), and (d) only poor in income (“income poor only”).

Control variables.

Previous research found statistically significant associations between the distribution of material hardship and households’ socioeconomic characteristics such as age, education, gender, marital status, employment type, residential area, housing tenure status, and family type (Beverly, 2001a; Kim et al., 2015; Lee, 2011; Mayer & Jencks, 1989). Referring to these empirical studies, we chose nine socioeconomic demographics as covariates described in detail below. These covariates were gathered from the KOWEPS data by using a household file.

³ For example, 150% for a family four living in Korea in 2014 was US\$ 2,445 a month.

- Characteristics of households

We included the following household-level variables: housing tenure status (homeowner and renter) and residential area (metropolitan and non-metropolitan) as binary variables; the number of household members and the number of workers in a household as continuous variable.



- Characteristics of household heads

We used the following individual-level variables: age as a continuous variable; gender (female and male), marital status (married, divorced/widowed/separated, and single), education level (less than high school degree, high school graduation, and some college or higher), and employment type (permanent worker, unemployed, temporary worker⁴, and self-employed) as binary or categorical variables.

Analytical Plan

To describe the socio-economic characteristics of the joint asset-income poor, asset poor only, and income poor only, we used primarily descriptive statistics and binary analysis (ANOVA for continuous variables and Chi-square test for binary or categorical variables). Then, we conducted binary logistic regression to examine the association of a household's poverty condition with material hardship experiences using the 10th wave of KOWEPS. Because low-income households are overrepresented in the KOWEPS data, in the logistic regression analysis we used the standardized weight provided by the KOWEPS to enhance the generalizability of the sample.



RESULTS

Sample Characteristics

Descriptive statistics presented in Table 2 show the characteristics of the poor households in the sample according to their poverty status. When applying net worth, of the whole sample (6,898 households), 2,883 households were either in the asset or income poverty. Of 2,883 poor households, 22.48% were joint poor, 9.64% were asset poor only, and 67.88% were income poor only. Bivariate test shows that the socio-economic characteristics of the three groups were significantly different from each other. Heads of asset poor only households were middle-aged, 52 years old, close to the head's median age in Korea (50.6 years old in 2015; Statistics Korea, 2016). Heads were older in joint poor (69 years old) and income poor only households (71 years old). Asset poor only households averaged 2.51 people, close to the average household size in Korea (2.5 in 2015; Statistics Korea, 2015a). On the other hand, household size was smaller in joint poor households (1.65) and income poor only households (1.82). It was similar to the average household size of welfare recipients in Korea (1.7 in 2009; Korean Ministry of Health and Welfare [KMOHW], 2009). More than one person worked on average in asset poor only households (1.27), but less than one person worked in joint poor (0.29) and income poor only households (0.59). While male heads were prevalent among the asset poor only, the share of female heads was similar to that of male heads among the joint poor and income poor only. The share of married heads was similar to that of unmarried heads among the asset poor only and income poor only while joint poor households had the highest proportion of single and divorced/widowed/separated heads (around 77%). Heads of joint poor and income poor only households were less educated compared to the more than 65% of asset poor only heads who had more than a high school degree. While among asset poor only households, the unemployment rate was 20.14%, joint poor and income poor only households had a greater proportion of unemployed heads (79.01 to 63.77%). Among asset poor only households, around 66% were wage workers: 36.69% of them temporary workers and 29.86% permanent workers. The share of permanent workers among the asset poor only was almost ten times higher than that of the joint poor and income poor only, but the asset poor only group also had the highest share of temporary workers among all three groups. Interestingly, the income poor only groups contained more homeowners (64.33%); less than 10% of the joint poor and asset

⁴ Temporary workers indicated employees whose main job is a fixed term contract lasting not more than one year, occasional, casual or seasonal work, or work lasting less than 12 months (Statistics Korea, 2015b).

poor only were homeowners. All three groups contained more households living in non-metropolitan areas than in metropolitan areas. In sum, when applying net worth, the asset poor only were primarily middle-aged, male, highly educated, wage workers, and renters. On the other hand, the joint poor were generally older, single and divorced/widowed/separated, less educated, unemployed, and renters. A similar pattern was found in the income poor only except that they had a higher share of married heads and homeowners. These findings suggest that asset poverty is not necessarily associated with traditional notions of marginal positions in society and reaches well into the middle class (Rank & Hirschl, 2010).

When applying financial assets, of the whole sample (6,898 households), 3,549 households were either in the asset or income poverty. Of 3,549 poor households, 45.31% were joint poor, 26.60% were asset poor only, and 28.09% were income poor only. The share of financial asset poor was more than two times higher than that of net worth poor. As illustrated in table 2, the same pattern of characteristics emerged when applying financial assets as when applying net worth, with an exception of home ownership rate. Around 40% of the joint poor and asset poor only households were homeowners when applying financial assets.

Table 2. *Sample Characteristics*

Variable	Applying Net Worth (n = 2,883)				Applying Financial Assets (n = 3,549)			
	Joint poor	Asset poor only	Income poor only	Test statistic ^a	Joint poor	Asset poor only	Income poor only	Test statistic
%	648 (22.48)	278 (9.64)	1,957 (67.88)		1,608 (45.31)	944 (26.60)	997 (28.09)	
	M (SD)							
Age	69.31 (13.99)	51.67 (14.54)	70.94 (11.72)	287.74***	70.28 (12.72)	54.22 (14.69)	70.94 (11.70)	545.86***
Number of household members	1.65 (0.96)	2.51 (1.40)	1.82 (0.98)	71.72***	1.75 (1.01)	2.79 (1.36)	1.81 (0.92)	300.45***
Number of workers	0.29 (0.92)	1.27 (0.89)	0.59 (0.78)	162.70***	0.43 (0.69)	1.28 (0.85)	0.65 (0.81)	369.59***
	N (%)							
Male	246 (37.96)	180 (64.75)	1,037 (52.99)	68.11***	719 (44.71)	670 (70.97)	564 (56.57)	167.08***
Marital status								
Married	150 (23.15)	115 (41.37)	914 (46.70)	164.40***	562 (34.95)	560 (59.32)	502 (50.35)	184.76***
Divorced/widowed/separated	456 (70.37)	124 (44.60)	975 (49.82)		968 (60.20)	318 (33.69)	463 (46.44)	
Single	42 (6.48)	39 (14.03)	68 (3.47)		78 (4.85)	66 (6.99)	32 (3.21)	
Education level								
Less than high school	508 (78.40)	96 (34.53)	1,516 (77.47)	247.95***	1,273 (79.17)	363 (38.45)	751 (75.33)	503.62***
High school grad	100 (15.43)	109 (39.21)	287 (14.67)		228 (14.18)	331 (35.06)	159 (15.95)	
Some college or higher	40 (6.17)	73 (26.26)	154 (7.87)		107 (6.65)	250 (26.48)	87 (8.73)	
Employment type								
Permanent worker	14 (2.16)	83 (29.86)	41 (2.10)	473.13***	38 (2.36)	244 (25.85)	17 (1.71)	892.99***
Unemployed	512 (79.01)	56 (20.14)	1,248 (63.77)		1,164 (72.39)	244 (25.85)	596 (59.78)	
Temporary worker	86 (13.27)	102 (36.69)	229 (11.70)		215 (13.37)	260 (27.54)	100 (10.03)	
Self-employed	36 (5.56)	37 (13.31)	439 (22.43)		191 (11.88)	196 (20.76)	284 (28.49)	

Housing tenure status								
Homeowner	23 (3.55)	17 (6.12)	1,259 (64.33)	915.01***	620 (38.56)	435 (46.08)	662 (66.40)	193.75***
Renter	625 (96.45)	261 (93.88)	698 (35.67)		988 (61.44)	509 (53.92)	335 (33.60)	
Residential area								
Metropolitan area	171 (26.39)	116 (41.73)	526 (26.88)	27.86***	448 (27.86)	398 (42.16)	249 (24.97)	79.48***
Non-metropolitan area	477 (73.61)	162 (58.27)	1,431 (73.12)		1,160 (72.14)	546 (57.84)	748 (75.03)	

Note. *** $p < .001$; ^a F-value for the continuous variables and Chi-squared statistics for the categorical variables.

Distribution of Material Hardship

Table 3 presents the distribution of material hardship. As expected, when applying either net worth or financial assets, the joint poor reported the highest number of hardship indicators (ranging from 0 to 11). The joint poor reported 0.93 hardship indicators on average when applying net worth and 0.67 when applying financial assets. Between the asset poor only and income poor only, the asset poor only experienced more of all forms of hardship than the income poor only except food hardship.

Table 3. *Distribution of Material Hardship*

Variable	Applying net worth			Applying financial assets		
	Joint poor (n=648)	Asset poor only (n=278)	Income poor only (n=1,957)	Joint poor (n=1,608)	Asset poor only (n=944)	Income poor only (n=997)
	N (%)					
Food hardship	244 (37.65)	35 (12.59)	260 (13.29)	445 (27.67)	62 (6.57)	59 (5.92)
Food did not last	93 (14.35)	12 (4.32)	93 (4.75)	172 (10.70)	24 (2.54)	14 (1.40)
Not having balanced meals	238 (36.73)	32 (11.51)	258 (13.18)	437 (27.18)	57 (6.04)	59 (5.92)
Skipped meals/did not have enough to eat	16 (2.47)	3 (1.08)	20 (1.02)	31 (1.93)	5 (0.53)	5 (0.50)
Ate less than needed	32 (4.94)	4 (1.44)	32 (1.64)	56 (3.48)	7 (0.74)	8 (0.80)
Hungry but did not eat	14 (2.16)	2 (0.72)	12 (0.61)	23 (1.43)	3 (0.32)	3 (0.30)
Housing hardship	64 (9.88)	24 (8.63)	62 (3.17)	113 (7.03)	26 (2.75)	13 (1.30)
Eviction	29 (4.48)	22 (7.91)	10 (0.51)	35 (2.18)	21 (2.22)	4 (0.40)
Heating system	47 (7.25)	6 (2.16)	57 (2.91)	95 (5.91)	9 (0.95)	9 (0.90)
Utility hardship	67 (10.34)	48 (17.27)	52 (2.66)	100 (6.22)	64 (6.78)	19 (1.91)
Utility disconnect	10 (1.54)	4 (1.44)	3 (0.15)	11 (0.68)	4 (0.42)	2 (0.20)
Unable to pay for bills	67 (10.34)	48 (17.27)	52 (2.66)	100 (6.22)	64 (6.78)	19 (1.91)
Health hardship	51 (7.87)	25 (8.99)	54 (2.76)	92 (5.72)	33 (3.50)	13 (1.30)
Medical need	38 (5.86)	9 (3.24)	43 (2.20)	71 (4.42)	12 (1.27)	10 (1.00)
Lack of insurance coverage	17 (2.62)	18 (6.47)	15 (0.77)	29 (1.80)	23 (2.44)	3 (0.30)

	Mean (SD)					
Number of total hardship	0.93 (1.54)	0.58 (1.32)	0.30 (0.93)	0.67 (0.04)	0.22 (0.03)	0.15 (0.02)

The Association of Material Hardship with Households' Poverty Condition

Table 4 shows the association between the household's poverty condition and hardship experience as estimated from five separate logistic regression models. Table 4 shows that when applying either net worth or financial assets, all three poverty groups had statistically significant associations with all forms of hardship experience. Of total hardship, the strongest poverty-related predictor was joint poverty. When applying net worth, the odds of reporting total material hardship for this group was 14.01. Asset poverty only was the second strongest poverty predictor of hardship experience. The odds of reporting total hardship of this group was 8.06, compared with 5.18 of the income poor only. The pattern of association between poverty predictor and the specific forms of hardship was a little different from that of total hardship. Of housing and utility hardship experience, asset poverty only was the strongest poverty predictor ($OR = 20.74$ and 16.68). Of food hardship experience, while joint poverty was the strongest poverty predictor ($OR = 15.13$), income poverty only was stronger ($OR = 5.35$) than asset poverty only ($OR = 4.01$).

Examining the association between hardship and households' socioeconomic characteristics, household size, number of workers, housing tenure status, and head's age, marital status, education level, and employment type were statistically significant predictors of total hardship experience. As the number of household members increased, households were more likely to experience hardship ($OR = 1.26$). On the other hand, an increase in the number of workers contributed to reduce the odds of hardship experience ($OR = 0.72$). Households whose heads were divorced, widowed or separated and had precarious employment status were more likely to report hardship than their counterparts and head's higher educational level (college or higher) reduced the likelihood of hardship experience. Homeowners were less likely to experience hardship than renters ($OR = 0.38$). Household size, head's age, marital status, educational level, employment type, and home ownership were also found to be statistically significant predictors of specific hardship types. Consistent with findings when applying net worth, every poverty group had a statistically significant association with hardship experience when considering financial assets. Of total hardship, the strongest poverty-related predictor was joint poverty, with this group being 15 times more likely to experience hardship than the non-poor ($OR = 15.40$). Asset poverty only was the second strongest predictor ($OR = 5.65$) followed by income poverty only ($OR = 4.12$). Joint poverty was also the strongest poverty-related predictor of specific forms of hardship experience (food, housing, utility and health), followed by asset poverty only and income poverty only. Also similar to findings when applying net worth, when considering financial assets, the housing tenure status, head's age, marital status, education level, and employment type were statistically significant predictors of total hardship experience.

Table 4. *Association between Asset Poverty and Hardship*

Variable	Applying net worth					Applying financial assets				
	Total	Food	Housing	Utility	Health	Total	Food	Housing	Utility	Health
	OR									
Age	0.99*	1.00	0.99	0.96***	0.97**	0.99*	0.99	0.99	0.96***	0.96**
Number of household members	1.26**	1.21*	1.11	1.25*	0.99	1.15	1.12	1.00	1.11	0.87
Number of workers	0.72*	0.60**	0.78	0.98	0.97	0.86	0.66*	0.96	1.27	1.18
Male	1.16	1.08	1.31	1.43	1.16	1.27	1.13	1.43	1.63	1.30
Marital status – Married										
Divorced/widowed/separated	1.99***	1.82**	2.66**	2.26**	1.69	2.06***	1.76**	2.93**	2.54**	1.80
Single	1.50	1.16	1.60	1.13	1.56	1.67	1.18	1.94	1.43	1.78
Education level – Less than high school										
High school graduation	0.75	0.72	0.85	0.94	0.93	0.87	0.81	1.01	1.12	1.10

Some college or higher	0.52**	0.47**	0.82	0.58	0.43	0.61*	0.55*	0.98	0.67	0.48
Employment type – Permanent worker										
Unemployed	2.03*	1.31	0.85	3.44**	3.58	2.46**	1.39	1.22	4.94***	4.85*
Temporary worker	2.59***	1.66	0.95	3.92***	4.42*	2.68***	1.57	1.19	4.40***	5.20**
Self-employed	2.13**	1.39	0.67	2.90*	2.68	2.04*	1.32	0.72	2.72*	2.74
Housing tenure status – Renter										
Homeowner	0.38***	0.35***	0.25***	0.67	0.62	0.30***	0.29***	0.19***	0.42***	0.48*
Residential area – Metropolitan area										
Non-metropolitan area	0.81	0.77*	0.70	0.65*	0.75	0.89	0.85	0.78	0.74	0.79
Poverty condition – Non-poor										
Joint poor	14.01***	15.13***	16.81***	14.45***	18.05***	15.40***	19.53***	17.23***	15.74***	23.97***
Asset poor only	8.06***	4.01***	20.74***	16.68***	16.95***	5.65***	4.85***	9.33***	10.65***	11.17***
Income poor only	5.18***	5.35***	9.53***	5.12***	9.35***	4.12***	4.06***	4.63*	5.60***	5.58**

Note. OR = odds ratio. Reference group is shown next to the variable name. See appendix A for the coefficient and standard errors estimated from each logistic regression model.

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



DISCUSSION

The main goal of the present study is to explore the household's material hardship condition and its causes in Korea. Following Haveman and Wolff (2005), we classified the sample into the non-poor, joint asset-income poor, asset poor only, and income poor only by applying both net worth and financial assets. Consistent with previous research showing that the financial asset poverty rate has been higher than net worth poverty rate in Korea (e.g., K. S. Kim & Kim, 2013; Suk, 2012), the share of the financial asset poor was approximately two times as high as the net worth poor.

As hypothesized, the associations of poverty and material hardship were found to be statistically significant. Joint poverty (asset and income poor) was the strongest poverty predictor of total hardship experience when applying either net worth or financial assets. Compared to income poverty only, asset poverty only was the stronger predictor of hardship experience, with the exception of food hardship, even though the asset poor only had better socioeconomic status as indicated by higher disposable income, higher education levels and higher share of the employed. There are two possible explanations for why the asset poor are more likely to experience hardship than the income poor. First, as described in the time horizon model by Heflin et al. (2009), food hardship is caused by difficulty in temporary income flow, but housing or health hardship may be the result of structural and long-term financial constraints including lack of assets. Second, the asset poor only are more vulnerable to material hardship than suggested by their income level. As demonstrated in earlier studies (e.g., Brady, 2003; Iceland & Kim, 2002; Townsend, 1979), a household's actual living condition is influenced by all types of economic resources including cash income, capital assets, employment benefits, public social services, and private transfer, which are unequally distributed in a society. Accordingly, the current income poverty status cannot capture the actual living conditions of the asset poor. In particular, considering that the asset poor only had lower homeownership rate than the income poor only, with such high rent burdens, the asset poor only households may have limited economic resources to spend on other household expenses. According to Statistics Korea (2014), households in the lowest quintile of the wealth distribution spent about 22% of total household expense on rent and utilities, compared to 11% for those in the top quintile. The present study also showed that the net worth poor only were more vulnerable to utility and housing hardship than the joint poor and income poor only.

Findings from the present study provide evidence that material hardship experience was not equally distributed across economic and socio-demographic groups. Regardless of whether applying net worth or financial assets, household size, head's

Strikingly, being a temporary worker was a stronger predictor of hardship than being unemployed. This finding affirms previous research revealing that income poverty measures underestimate the hardship condition of some working poor households

age, marital status, educational level, and employment type, and home ownership were statistically significant predictors of household's hardship experience. Consistent with previous research (Beverly, 2001a; Iceland & Bauman, 2007; Kim et al., 2015; Lee, 2011), non-married, the unemployed, temporary workers, the self-employed, renters, low-educated, and the younger age group suffered more hardship.

Strikingly, being a temporary worker was a stronger predictor of hardship than being unemployed. This finding affirms previous research revealing that income poverty measures underestimate the hardship condition of some working poor households (Berner, Ozer, & Paynter, 2008; Beverly, 2001a; Bradshaw & Finch, 2003; Kim et al., 2015). Working adults with low

but above-poverty-level earnings have been ineligible for welfare benefits such as cash, medical, educational, and housing benefits because Korean social security system restricts its recipients to families in deep poverty and cannot cover the poor population in general (J. Kim et al., 2015; Noh, Lee, & Won, 2007).



RESEARCH LIMITATIONS AND IMPLICATIONS

Our study has several limitations. First, due to the data limitation, we used 11 hardship indicators of basic consumption needs. However, to cover broader aspects of living conditions in Korea, future poverty research needs to expand hardship measures by including issues of dwelling environment and facilities such as noise, pollution, crime, and overcrowding, as well as social deprivations. Social deprivation indicators concern holidays, celebration, leisure, and contact with family and friends (Eurostat, 2012). Furthermore, the present study has estimated material hardship in the poor population as a whole although prior research has found substantial subgroup variation in reported material hardship among poor populations by gender, disability, age, and race (Edin & Lein, 1997; Siebens, 2013). Examining the variation in the hardship experience across subpopulations will contribute to a richer understanding of the association between material hardship and poverty status, and help the policy community create more effective tools to improve household living conditions.



POLICY IMPLICATIONS

The present study suggests that the living conditions of the poor are affected by various types of economic resources and socioeconomic characteristics. Thus, policy responses to poverty should vary according to the household conditions. First, the present study revealed that lack of assets substantially increased the probability that a household would experience hardship. Although nationwide asset-building programs have been introduced in Korea, these programs restrict participation to low income households whose income is below or near the poverty line and some asset poor cannot benefit from them. To support this group, policymakers could consider more universal asset-based interventions (Sherraden, 2003). Next, the present study found that home ownership was associated with a statistically significant decrease in the likelihood of hardship experience. However, in Korea, only 10.8% in the bottom quintile of asset distribution are homeowners, while 83.2% at the top quintile are (Statistics Korea, 2015d). Therefore, a more extensive and progressive policy, such as Singapore's Central Provident Fund (CPF), is needed to encourage home ownership in Korea, especially for the younger generations. Lastly, as shown in the present study, the income poor only, especially the relatively older age group, were likely to have difficulties in cash flow although they had their homes. Considering the high elderly income poverty rate in Korea of 49.6%, compared to 12.6% of the OECD average (OECD, 2016), policy is needed to mitigate the elderly income poverty rate by leveraging their real estate. For example, in Korea, there is a government-guaranteed reverse mortgage program for the elderly who own property but do not have adequate cash flow for their post-retirement lives. They can receive monthly loan payments extracted from their home equity. Currently, middle and high-income households benefit most from this program, and it needs to be expanded to benefit low- and moderate-income households (Jin, 2013; Suk, 2012).



APPENDIX

Table A1. Coefficient on the Association between Asset Poverty and Hardship (Net Worth)

Variable	Total		Food		Housing		Utility		Health	
	β (SE)									
Age	-0.01	(0.01)	0.00	(0.01)	-0.01	(0.01)	-0.04	(0.01)	-0.03	(0.01)
Number of household members	0.23	(0.08)	0.19	(0.09)	0.11	(0.14)	0.23	(0.11)	-0.01	(0.16)
Number of workers	-0.32	(0.13)	-0.51	(0.17)	-0.25	(0.25)	-0.02	(0.18)	-0.03	(0.28)
Male	0.15	(0.17)	0.08	(0.19)	0.27	(0.25)	0.36	(0.28)	0.15	(0.27)
Marital status – Married										
Divorced/widowed/separated	0.69	(0.18)	0.60	(0.21)	0.98	(0.31)	0.81	(0.31)	0.53	(0.35)
Single	0.40	(0.29)	0.15	(0.32)	0.47	(0.55)	0.12	(0.46)	0.45	(0.51)
Education level – Less than high school										
High school graduation	-0.28	(0.17)	-0.33	(0.19)	-0.16	(0.31)	-0.06	(0.27)	-0.07	(0.30)
Some college or higher	-0.65	(0.22)	-0.75	(0.28)	-0.20	(0.43)	-0.54	(0.36)	-0.85	(0.46)
Employment type – Permanent worker										
Unemployed	0.71	(0.29)	0.27	(0.36)	-0.16	(0.51)	1.24	(0.45)	1.27	(0.65)
Temporary worker	0.95	(0.26)	0.51	(0.31)	-0.05	(0.44)	1.37	(0.38)	1.49	(0.65)
Self-employed	0.76	(0.28)	0.33	(0.33)	-0.40	(0.65)	1.06	(0.41)	0.98	(0.74)
Housing tenure status – Renter										
Homeowner	-0.96	(0.15)	-1.05	(0.16)	-1.39	(0.34)	-0.40	(0.29)	-0.49	(0.36)
Residential area – Metropolitan area										
Non-metropolitan area	-0.21	(0.12)	-0.26	(0.13)	-0.35	(0.22)	-0.43	(0.21)	-0.29	(0.24)
Poverty condition – Non-poor										
Joint poor	2.64	(0.23)	2.72	(0.26)	2.82	(0.55)	2.67	(0.43)	2.89	(0.50)
Asset poor only	2.09	(0.24)	1.39	(0.32)	3.03	(0.52)	2.81	(0.36)	2.83	(0.43)
Income poor only	1.65	(0.20)	1.68	(0.23)	2.25	(0.52)	1.63	(0.36)	2.24	(0.44)

Note. Standard errors are in parenthesis

Table A2. Coefficient on the Association between Asset Poverty and Hardship (Financial Assets)

Variable	Total		Food		Housing		Utility		Health	
	β (SE)									
Age	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.04	(0.01)	-0.04	(0.01)
Number of household members	0.14	(0.08)	0.11	(0.09)	0.00	(0.15)	0.11	(0.11)	-0.14	(0.17)
Number of workers	-0.16	(0.14)	-0.42	(0.18)	-0.04	(0.27)	0.24	(0.18)	0.17	(0.29)
Male	0.24	(0.17)	0.12	(0.19)	0.36	(0.25)	0.49	(0.27)	0.26	(0.27)
Marital status – Married										
Divorced/widowed/separated	0.72	(0.18)	0.56	(0.21)	1.07	(0.31)	0.93	(0.29)	0.59	(0.35)
Single	0.51	(0.29)	0.16	(0.32)	0.66	(0.56)	0.35	(0.44)	0.58	(0.51)
Education level – Less than high school										
High school graduation	-0.14	(0.17)	-0.21	(0.19)	0.01	(0.32)	0.11	(0.27)	0.09	(0.30)
Some college or higher	-0.50	(0.23)	-0.59	(0.28)	-0.02	(0.45)	-0.40	(0.37)	-0.73	(0.46)
Employment type – Permanent worker										
Unemployed	0.90	(0.30)	0.33	(0.36)	0.20	(0.54)	1.60	(0.45)	1.58	(0.66)
Temporary worker	0.98	(0.25)	0.45	(0.31)	0.18	(0.43)	1.48	(0.37)	1.65	(0.63)
Self-employed	0.71	(0.28)	0.28	(0.32)	-0.32	(0.63)	1.00	(0.41)	1.01	(0.73)
Housing tenure status – Renter										
Homeowner	-1.20	(0.14)	-1.23	(0.15)	-1.65	(0.31)	-0.86	(0.24)	-0.74	(0.32)
Residential area – Metropolitan area										
Non-metropolitan area	-0.11	(0.12)	-0.17	(0.13)	-0.25	(0.22)	-0.30	(0.20)	-0.23	(0.24)
Poverty condition – Non-poor										
Joint poor	2.73	(0.22)	2.97	(0.27)	2.85	(0.52)	2.76	(0.38)	3.18	(0.50)
Asset poor only	1.73	(0.22)	1.58	(0.28)	2.23	(0.50)	2.37	(0.32)	2.41	(0.47)
Income poor only	1.42	(0.25)	1.40	(0.30)	1.53	(0.66)	1.72	(0.43)	1.72	(0.57)

Note. Standard errors are in parenthesis



RÉSUMÉ EXÉCUTIF

Des décennies de recherche et l'expérience acquise des programmes de lutte contre la pauvreté appliqués partout dans le monde ont révélé que la pauvreté signifie davantage que la seule incapacité de maintenir un certain niveau de revenu. Cependant, jusqu'à récemment, l'analyse de la pauvreté en Corée a surtout été basée sur le revenu. La présente étude examine les conditions de vie multidimensionnelles des pauvres en Corée, ainsi que les causes de celles-ci, en évaluant l'association entre les difficultés matérielles d'une part et d'autre part, la pauvreté en matière d'actifs et de revenus. Les difficultés matérielles représentent une mesure directe de la pauvreté servant à définir les pauvres en tant que personnes dont la consommation réelle ne réussit pas à combler les besoins fondamentaux. Le but principal de cette étude est d'accroître notre compréhension des conditions de vie des pauvres et des causes de leurs difficultés matérielles, que celles-ci soient liées à l'alimentation, au logement, à l'accès aux services publics ou à la santé. Au moyen d'une analyse de régression logistique binaire, cette étude en vient à la conclusion que les ménages plutôt dépourvus d'actifs (et non de revenus) étaient plus susceptibles que les ménages pauvres sur le plan des revenus (mais non sur celui des actifs) de connaître des difficultés matérielles, sauf en ce qui concerne l'alimentation. Cette conclusion semble indiquer que les gens défavorisés en matière d'actifs sont plus vulnérables aux difficultés matérielles que le laisserait croire la mesure de la pauvreté en matière de revenus. Nous décrivons le besoin, pour de futurs travaux de recherche, d'élargir les mesures des difficultés matérielles de façon à inclure toute la diversité des conditions de vie qui s'applique dans le contexte social coréen actuel. Cette étude suppose qu'il serait possible d'améliorer les politiques adoptées pour lutter contre la pauvreté en ce qui concerne la pondération qu'elles donnent au type et à la quantité des ressources économiques disponibles des ménages.

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