

Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2017.vol4.no4.5

Assets, Risks and Vulnerability to Poverty Traps: A Study of Northern Region of Malaysia*

**Abdelhak Senadjki¹, Saidatulakmal Mohd²,
Zakaria Bahari³, Abdul Fatah Che Hamat⁴**

Received: November 2, 2016 Revised: August 1, 2017 Accepted: September 10, 2017

Abstract

The Northern States of Malaysia comprises of four states (Penang, Kedah, Perlis and Perak) still record high poverty incidence even though Malaysia has experienced a remarkable reduction of poverty over the past century. Economic activities in Perlis and Kedah that are predominantly agriculture in the rural area contribute to this disparity. To add, rural households are also subject to risks and uncertainties that make them more vulnerable to poverty. This study examines the impact of risks and assets on households' vulnerability to poverty. A survey of 400 respondents was conducted in December 2015 in the northern region of Malaysia. From these 400 questionnaires, only 298 were considered valid and used in the analysis. Using a logistic probability function, the results indicated that risks are not a significant threat to households. Gender and strata are crucial elements that significantly determine households' vulnerability. While human capital and financial capital significantly reduce households' vulnerability to poverty, physical and natural capitals were not statistically significant. The study suggests that the government and practitioners design strategies and policies with an assets-based approach. The asset-based approach is more appropriate for linking the causes of poverty to vulnerability.

Keywords: Vulnerability, Risks, Assets, Poverty, Northern region, Malaysia.

JEL Classification Code: I30, I32, I24.

1. Introduction

In recent years, economic development policies have recognised that households are vulnerable to poverty depending on their average income or expenditure, and the risks they face and assets they possess (Haq & Nazli, 2005; Barrett & McPeak, 2006; Ligon & Schechter, 2003). Numerous measures have been strategized by the United Nations through their millennium development agenda to ensure the significant reduction of poverty by the year 2015 for improved standards of living (United Nation, 2015). Vulnerability is another universal aspect of poverty, which makes it difficult for poor people to escape poverty (Omoniyi, 2013; Ligon & Schechter, 2003; Sachs, 2009). The poor are

* This study is funded by the USM RU Team grant 1001/PHUMANITI/856002.

* The paper was reviewed and handled by Editor for Southeast Asia, Professor Lean Hooi Hooi. This paper is a substantially revised and expanded version of the paper presented under the title of "[Assets, Risks and Vulnerability to Poverty Trap: A Study of Northern Region of Malaysia]" at the 2nd International Conference on Contemporary Economic Issues (ICCEI 2016) that was held at Bali, Indonesia, November 2-4, 2016. The authors have taken into account all the comments of the Editors in the revised manuscript. We greatly appreciate the Editors for their valuable comments, interest in and support of this research.

¹ First Author and Corresponding Author. Faculty of Business and Finance, Universiti Tunku Abdul Rahman, Malaysia. [Postal Address: Faculty of Business and Finance. Universiti Tunku Abdul Rahman. Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia] E-mail: abdelhak@utar.edu.my

² School of Social Sciences, Universiti Sains Malaysia, Malaysia. E-mail: eieydda@usm.my

³ Centre for Islamic Development Management, Universiti Sains Malaysia, Malaysia. E-mail: bzak@usm.my

⁴ Centre for Islamic Development Management & School of Social Sciences, Universiti Sains Malaysia, Malaysia. E-mail: abdfatah@usm.my

more vulnerable to health hazards, economic downturn and natural catastrophes than any other group (Calvo & Dercon, 2005; Christiansen & Boisvert, 2000; Ligon & Schechter, 2003). According to Sachs (2009), more than eight million people around the world die each year because they are too poor to survive on their usual daily meal. In the year 2010, the United Development Project (UNDP) estimated roughly 1.4 billion people were living in extreme poverty, about 93% of whom live in East Asia, South Asia and Sub-Saharan Africa (United Nation, 2010). In southeast Asia, Indonesia, Vietnam, Cambodia, Philippines, Thailand, and Malaysia have all fallen victim to extreme poverty at one time or another. Nevertheless, efforts to eradicate poverty are ongoing (Minh, 2012).

In Malaysia, poverty is a regional phenomenon that has heavily affected some states such as Kelantan, Perlis, Terengganu and Sabah (Kokubun, 2001). Sulaiman, Azman and Senadjki (2014) found a wide variety of risks distributed among household members in rural areas. Such uncertainty renders them more vulnerable to poverty as time passes. In many cases, it is hard to eradicate poverty due to the severity of risks affecting households' assets (World Bank, 2001; Alwang, Siegel, & Jorgensen, 2001). Despite Malaysia having successfully reduced its poverty rate from a high of 50% in the 1950s to less than 5% currently, a significant gap remains between the northern regional states compared to other states, namely Melaka, Penang, Selangor, Kuala Lumpur and Johor, indicating the vast difference between the rural and urban areas in terms of poverty eradication (Economic Planning Unit, Malaysia, 2017). Because of the risks and uncertainties, people living in rural areas are more vulnerable to poverty. Vulnerability to poverty still worries Malaysian policy makers. In case of any changes to the economy or the economic and welfare condition of households, the household could easily fall into poverty. This study therefore holds significance importance to understand the factors of vulnerability to poverty and to ensure that these households do not fall into the poverty trap. Instead of focusing only on the poor and marginalized groups, this study expands the area of coverage in poverty eradication, by touching on vulnerable groups among rural households. It does by revealing diverse capabilities with which people stand a better chance to move out of poverty. New initiatives are developed out of this study in order fight poverty, while advancing development.

This study investigates the impact of risks and assets on households' vulnerability to poverty. The study answers the following questions: 1) how could assets protect households from being vulnerable? 2) what are the risks that account for households' vulnerability? 3) how could risks trap households in vulnerability?

2. Literature Review

2.1. Risk Vulnerability to Poverty

Calvo and Dercon (2005); Fafchamps (1999); Fischhoff (1999); Klinke and Renn (2002) defined risk as uncertain events that undermine the well-being of a particular object or item. Moreover, risks could also imply uncertainty pertaining to the timing or magnitude of an event (Fafchamps, 1999). The seasonal fluctuation of farm income is often known in advance, but the severity is unpredictable. Furthermore, risk is conceptualised as the likelihood and potential severity of a particular and potentially adverse shock or stress, while vulnerability is the degree of exposure of households or individuals to shock and stresses, and their ability to prevent, mitigate or cope with the event (Fafchamps, 1999; Kates & Kasperson, 1983; Douglas & Ogloff, 2003). Risks such as accidents, diseases, natural disasters, harvest failures, economic downturn, or political violence occur all too frequently. To mitigate the adverse effects of such risks, the poor may invest in expensive preventive measures which unfortunately further embeds them in poverty (Barrett & Carter, 2005; Tesliuc & Kathy, 2004).

The underprivileged are typically more exposed to risks and are least protected (Hoogeveen et al., 2005; Klinke & Renn, 2002). They have limited assets and are less able to control risks and absorb shocks. Risks exposure has a direct bearing on people's well-being and increases the depth of vulnerability to poverty (Kates & Kasperson, 1983). Calvo and Dercon (2005) claimed that vulnerability to poverty is a result of a 'sense of insecurity' surrounding people in reference to the potential harm people would experience. People become more prone to poverty whenever an unexpected event (such as flood, drought, illness, unemployment spell) is beyond their control. Such people are more likely to fall victim to poverty. Siwar, Alam, Murad and Al-Amin (2009); Adger, Hughes, Folke, Carpenter and Rockström (2005); McGranahan, Balk and Anderson (2007); Alam et al. (2012); Alam et al. (2011a); Alam et al. (2011b) indicated that the agriculture sector in Malaysia is the most vulnerable to risks and uncertainties due to climate change. Studies have confirmed that the higher the potential for damage, loss or destruction of assets, then the higher the rate of poverty (Barrett & Carter, 2005; Tesliuc & Kathy, 2004; Hoogeveen et al., 2005; Sulaiman, Azman & Senadjki, 2014; Dercon, 2005; Barrett & Carter, 2005; Bebbington, 1999).

2.2. Assets Vulnerability to Poverty

According to Searle and Köppe (2014); Batavia and Beaulaurier (2001), people who experience poverty often

lack financial resources such as assets, savings and wealth. Savings assist people to deal with unexpected circumstances. Human capital such as educational level of an earning household member is a crucial factor to eliminate vulnerability to poverty (Anjua & Kamal, 2011; Calvo & Dercon, 2005; Zuluaga, 2007). The essential benefit of education is an increase in the ability of individuals to acquire higher income through getting formal employment. Calvo and Dercon (2005) claimed that education improves the quality of lives, and raises labour productivity by increasing creativity which promotes entrepreneurship and technological advances. Education plays a vital role in securing economic and social progress thus empowering income distribution which may consequently prevent people from poverty (Omoniyi, 2013; Sachs, 2009; Rainey, Robinson, Allen, & Christy, 2003; Olaniyan & Okemakinde, 2008; Asheim, 1996).

There is a significant link between the income an individual earns from labour and the vulnerability to poverty (Besley & Burgess, 2003). When an individual earns a high salary from his/her labour, the possibility of being poor is low in regards to the size of the household (Besley & Burgess, 2003; Benabou, 2003). People experience poverty often due to a lack of financial resources such as tangible assets, savings and wealth (Searle & Köppe, 2014). People who are prone to poverty do not have proper future plans and as such do not have the savings that could help them exit poverty. If an individual lacks these assets, it will be difficult for him/her to eliminate their vulnerability to poverty (Batavia & Beaulaurier, 2001). People's livelihoods depend on the services the ecosystem provides (Fisher, 2004; Cavendish, 2000; Smit & Pilifosova, 2003) of which natural resources remain the most important source of wealth. Most rich

countries became rich due to abundant resources. As such, poverty increases where there is a lack of natural resources (Angelsen, Fisher, Jumbe, Shively, & Sserunkuuma, 2008; Scherr, 2000; Cavendish, 2000; Fisher, 2004; Reddy & Chakravarty, 1999).

Social capital is a key factor that holds communities together and provides a solution to social interaction (Ijaiya, Dauda, Paiko, & Zubairu, 2012). It is positively related to poverty reduction, whereby more social infrastructure (such as affordable houses, hospitals, shopping malls, good roads, bus stations) results in more interaction between people (Woolcock & Narayan, 2000). Social capital also stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures (Porte, 1998). If government bodies and other philanthropies fail to provide those social amenities, people will be vulnerable to poverty.

2.3. Conceptual Framework

The conceptual framework of the study is developed based on the discussion above. Figure 1 illustrates the link between the assets (financial capital, social capital, physical capital, natural capital and human capital), risks (disaster, economic downturn, political violence, harvest failure) and socio-demographic factors (age, gender, marital status, strata, household size). The diagram shows how the variables crystallise household vulnerability to poverty. The diagram illustrates that households depend not only on the average income and expenditure but also on the risks they face and the assets they possess (Haq & Nazli, 2005; Barrett & McPeak, 2006; Ligon & Schechter, 2003).

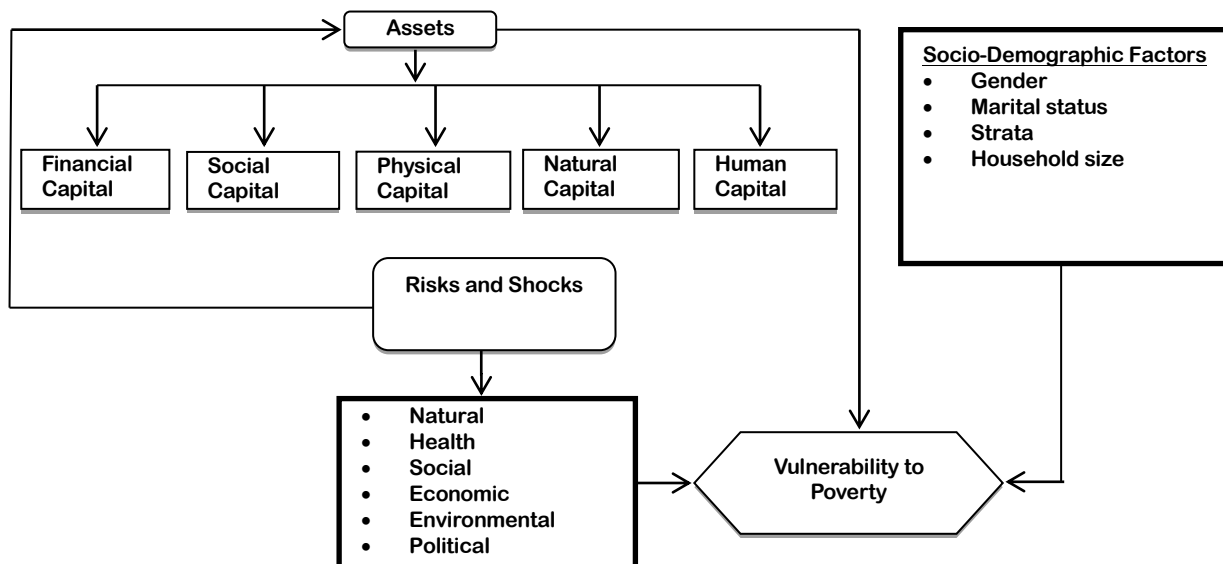


Figure 1: Conceptual Framework²

People who lack financial resources such as tangibles assets (house, land investments properties), savings and wealth are more vulnerable to poverty. People who have such financial assets can at any time liquidate them for cash (Searle & Köppe, 2014; Batavia & Beaulaurier, 2001). Porte (1998) stated that social capital is achieved when a strong relationship is developed between people, communities and social structure to create secure benefits by virtue of membership in social networks. Government, corporations and other organisational bodies provide social benefits such as good roads, hospitals, markets, houses, and schools in order to build strong relationships between people. Furthermore, physical, natural and human capitals are interrelated (Anjua & Kamal, 2011; Besley & Burgess, 2003).

Human capital (educational qualification of a household member) is a significant element that determines how much an individual earns. Zuluaga (2007) found that there is a negative relationship between education and poverty. According to Fisher (2004), natural resources remain the most important source of wealth. With the lack of these essential natural resources, extreme poverty is more likely to shift across the globe, affecting households significantly.

Households become more vulnerable to poverty when there is excessive property destruction due to unexpected events (Barrett & Carter, 2005; Tesliuc & Kathy, 2004; Hoogeveen et al., 2005). The higher potential for damage, loss or destruction of assets due to natural disasters, the higher the rate of poverty. This is because when assets are destroyed as a result of a disaster, many people are affected, especially the poor. When the ability to react to such calamities is low, people remain poorer.²

Socio-demographic factors are also fundamental in determining households' vulnerability to poverty. The elderly are physically and mentally weak and are more prone to health problems. However, if they do not have sufficient savings, they will be more prone to poverty (Adhikari, Soonthornhadha, & Haseen, 2011; Leonesio, Bridges, Gesumaria, & Del Bene, 2012). Females are more vulnerable to poverty, as their ability to react to unforeseen circumstances is less effective compared to men. The majority of poor households live in rural areas, and most

depend on farming activities to earn a living. Therefore, when disaster afflicts their farm land, most of their crops are destroyed rendering them more vulnerable to poverty (Chaudhry, Malik, & ul-Hassan, 2009). According to Fadayomi and Olurinola (2014), married people's responsibilities are greater than those of individuals since the family has extended. Heads of households could be incapable of meeting the minimum requirement of the household's livelihoods when the household size is large. This may make the household's members more vulnerable to poverty.

3. Methodology

3.1. Data Population, Sampling and Administration of the Questionnaire

Data was collected from a one round survey. The research population comprises households living in both rural and urban areas. The appropriate sample size is calculated based on Krejcie and Morgan's (1970) formula as follows:

$$S = X^2 NP(1 - P) \div d^2(N - 1) + X^2 P(1 - P)$$

S = required sample size;

N = the population size. Department of Statistics Malaysia (2017) indicated that there are 108,000 poor households in 2012.

d = the degree of accuracy or the level of precision expressed as a proportion (0.05);

X² = the table value of chi-square (X²) for 1 degree of freedom at 95 percent confidence level (X² = 1.96² = 3.841); and P = the population proportion or the degree of variability (assumed to be .50 since this would provide the maximum sample size)

Using the above formula, the estimated population is 384.

A survey was conducted in December 2015 in the northern region of Malaysia (Penang, Kedah, Perak and Perlis) where 400 questionnaires were distributed to the respondents. From these 400 questionnaires, only 298 were considered valid and used in the analysis. This is because 64 respondents were unable to provide the minimum information required for the analysis and the remaining 38 questionnaires were not usable due to multicollinearity and normality problems.

The researchers handled the questionnaire with the aid of four local students studying at the School of Social Sciences (USM) and who originally reside in the northern region of Malaysia. The researchers were present during the surveys with the local research assistants to help and guide them in

² Monthly income and employment status (employed vs unemployed) are important factors that can affect poverty. This study excluded these two factors from the analysis due to following reasons:

1. The monthly income is used as measurement to poverty (the dependent variable), putting it as independent variable will lead to multicollinearity problem.
2. Employment status – were included to the model but initial data analysis showed that the inclusion of the variable distorts the model.

conducting the questionnaires adequately and appropriately. For accurate data and to minimise bias, the questionnaire was distributed to the respondents face-to-face, and the interview was conducted in the local dialects so that the researcher and the assistants could explain all parts of the questionnaire to the respondents. The research assistants explained the purpose of the study to the respondents and guided them (the respondents) in answering the questions.

A two-stage sampling technique was used to determine the representative sample of the study. The first stage is choosing the northern states of Malaysia, which are Penang, Kedah, Perak and Perlis. The northern states are chosen because they have the highest poverty rates in Peninsular Malaysia, and are the most exposed areas to a natural disaster such as floods (Economic Planning Unit, 2017). The second stage is the selection of the vulnerable households. A vulnerable household is identified as a household with a monthly income less than RM3600.

3.2. Ethical Considerations

This research observed ethical considerations when conducting the study (Punch, 1998). Respondents were assured that information will be treated with confidentiality and that anonymity will be guaranteed. The principle of informed consent is observed by explaining to the respondents the purpose and nature of this study and making it clear that they have the right to withdraw at any time. Respondents were also informed and briefed about the expected duration of the study. Regarding the second important ethical principle, which states that the respondents need to be assured of anonymity and confidentiality, four research assistants who helped in the data collection had explained to respondents that their information would not be revealed to the public. The research assistants explained that the researcher was trying to understand more about the situation of households. Respondents were asked if they had 30 minutes to help collect the data.

3.3. Pilot Study

After the development of the questionnaire in both English and Malay, a pilot test was carried out to test the validity and reliability of the questionnaire instruments. The pilot study was conducted with 50 households in Penang in September 2015.

3.4. Reliability of the Questionnaire

This study applied a phased instrument reliability analysis. The purpose of the reliability analysis in the pilot test phase

was to ensure that the respondents in the principal study understood the questions and this had them to pick the best items that describe their position. Cronbach's alpha was used to test the reliability coefficient that assesses the consistency of the measuring scale. It is also used to measure the internal consistency that is how closely related a set of items is as a group. A 'high' value of alpha is often used (along with substantive arguments and possibly other statistical measures) as evidence that the items measure an underlying (or latent) construct. A reliability coefficient of 0.70 or higher is considered acceptable in most social science research. The results indicated that the coefficient of Cronbach's alpha for all items was above 0.70. This implies that the items have relatively high internal consistency.

3.5. Validity of the Questionnaire

The opinions of experts were also sought to determine the face and context of the validity of the measures used in the instruments. Two experts in the field of poverty and related issues and another expert on research design and data collection were consulted, and reviewed, examined and critically commented on the instruments both in English and Malay. Based on their constructive comments, the instruments were revised and submitted for more constructive feedback. Again, the researcher took the comments of the second revision and revised the questionnaire based on these comments. The questionnaire was submitted to the same experts for the third revision and was accepted.

3.6. Variable Measurement

3.6.1. Vulnerability to Poverty

In Malaysia, a household is considered poor if its income is less than the Poverty Line Income (PLI). This indicates a lack of resources to meet the basic needs of family members. A household is considered poor if its per capita income is less than the PLI equal to RM900 per month for an average family size of 4 (11th Malaysian Plan). In Malaysia, a household is considered vulnerable to poverty if its income is less than RM3600 (11th Malaysian Plan).

3.6.2. Assets

Assets are measured as the total set of assets that households own or have access to. An asset is identified as a stock of financial, human, natural, physical or social resources that can be acquired, developed, improved and transferred across generations. It generates flows or

consumption, as well as additional stock (Moser, 2006). Human capital (Dummy) is measured as the level of education. It is equal to 1 if a household head has tertiary education and equal to zero otherwise³. Social capital implies the membership to citizen associations and relationships of trust that facilitate co-operation. Natural capital implies the resources that households can acquire from nature such as land, soil and water. Physical capital denotes the basic infrastructure and tools that households have such as roads, sources of tilling, housing, livestock, food storage and valuables. Meanwhile, financial capital (Dummy, (1 = have savings at home /in banks, 0 otherwise) refers to savings at home or in the bank that the household owns or acquires⁴. Households were asked to indicate their assets (human, social, physical, natural and financial) from a given list.

3.6.3. Risks and Shocks⁵

This study defines risks as uncertain events that can reduce households' well-being. The uncertain event can be natural, health-related social, economic and environmental. Households were asked to indicate from a given list the various risks and shocks that they had experienced.

Natural Risks (Dummy): Drought (1 = experienced risks at least once, 0 otherwise)

Health Risks (Dummy): Illness, Injury, Disability (1 = experienced risks at least once, 0 otherwise)

Social Risks (Dummy): Death, Crime, Domestic Violence, Gangs (1 = experienced risks at least once, 0 otherwise)

Economic Risks (Dummy): Unemployment; Harvest Failure (1 = experienced risks at least once, 0 otherwise)

³ Education was first considered primary and secondary education. Education is treated as dummy variable with 1 those receiving secondary education and 0 those receiving primary and secondary education. The numbers of those receiving primary education is negligible (2.8%), thus they are grouped together with secondary education (44.84%).

⁴ The study target group is low income group. There is not individual with good financial background. Their income and economic condition are similar. Therefore, this study measured the financial capital as a dummy which is most appropriate in this case.

⁵ For Health, Social and Environmental Risk, if they are categorized, then there will be too many zeros because many households did not report the different risks. The initial analysis was conducted by categorizing these variables and it just distorted the model (F-Statistics became insignificant) because of too many missing variables. That was why this study has lumped them together.

Environmental Risks (Dummy): Pollution, Deforestation (1 = experienced risks at least once, 0 otherwise)

Political Risks (Dummy): Ethnic Discrimination (1 = experienced risks at least once, 0 otherwise)

The logistic probability function is used taking the values of 1 and 0 as the dependent variables with 1 representing households vulnerable to poverty and 0 representing households not vulnerable to poverty.

4. Analysis and Discussion

Since logit parameter estimates (Table 1) do not have direct interpretations, the discussion of the results focuses on the marginal effect (Table 1). Five variables (natural risk, economic risk, environmental risk, social capital and marital status) were omitted from the model due to insufficient data and/or multicollinearity problem⁶. Therefore, analysis of the said variables would not be possible. Table 1 reveals that the regression model is significant (Prob > $\chi^2 = 0.000$). Results of Table 2 indicated that goodness-of-fit test model is significant (Prob > $\chi^2 = 0.886$). The results of Table 1 indicate that gender ($z=3.390$, $p=0.001$), strata ($z=2.857$, $p=0.004$), human capital ($z=-3.35$, $p=0.001$) and financial capital ($z=-5.12$, $p=0.000$) are all statistically at 1% level of significance. Health risk, social risk, political risks, household's size, physical capital and natural capital are all not statistically even at 10% level of significance.

Analysis of Table 1 is based on the marginal effects. The results of Table 1 indicate that females are 29% more likely to be vulnerable compared to males, *ceteris paribus*. This is not surprising as previous studies have confirmed that females are less likely to access land ownership. It is well documented that in developing countries, particularly in Africa and Asia, females do not have equal access to land ownership. Female-headed households in rural areas are less productive as they mostly lack access to agricultural land, services and productive assets. This limits their output and makes them less resistant to risks and shocks, and more vulnerable to poverty. It can also be explained by the fact that females are low paid compared to males. Studies have shown that in many developing countries females are mostly engaged in informal jobs and have low paid salaries. Another reason could be access to employment as females have higher levels of unemployment compared to men.

⁶ This is because respondents in the period of the questionnaire distribution responded that they do not have access to social capital. Also during this period respondents reported that they have not experience natural risks, economic risks and environmental risks

Table 1: Logistic regression, odds ratio and marginal effects

Vulnerability	Coef.	Odds Ratio	Std. Err.	z	P>z	dy/dx
Health Risk (Dummy)	0.413	1.512	0.410	1.52	0.128	0.098
Social Risk (Dummy)	-0.284	0.752	0.211	-1.01	0.311	-0.067
Political Risk (Dummy)	0.251	1.28	0.438	0.74	0.460	0.060
Gender	1.220***	3.390***	1.216	3.4	0.001	0.290***
Strata	0.923***	2.517***	0.816	2.85	0.004	0.219***
Household size	-0.114	0.891	0.077	-1.32	0.188	-0.027
Human Capital (Dummy)	-1.543**	-0.213**	0.148	-2.23	0.026	-0.284**
Physical Capital	0.098	1.103	0.314	0.35	0.729	0.023
Natural Capital	0.054	1.056	0.516	0.11	0.911	0.013
Financial Capital (Dummy)	-1.311**	-0.269**	0.073	-4.8	0.000	-0.304**
Cons	-1.899**	0.149**	0.114	-2.48	0.013	

LR χ^2 (10) = 61.92 Prob > χ^2 = 0.0000

Log likelihood = -168.73374 Pseudo R^2 = 0.1550

(**) and (***) denotes significant at 5% and 1% respectively

dy/dx is for discrete change of dummy variable from 0 to 1

Table 2: Logistic model for vulnerability, goodness-of-fit test

Number of observations	295
Number of groups	10
Hosmer-Lemeshow χ^2 (8)	3.67
Prob > χ^2	0.886

Table 1 also indicated that rural households are 21% more likely to be vulnerable compared to urban households. This is because rural households mostly rely on agricultural activities that generate little income compared to industrial and services activities. Urban households have more employment opportunities compared to rural households as most companies and industries are located in urban areas. The results indicated that households with tertiary education are 28% less likely to be vulnerable compared to households without tertiary education. The results confirm the human capital theory and that the level of education is an essential factor that determines people's livelihoods. This is supported by Fafchamps and Quisumbing (1998) who found that one additional year of schooling could increase the household income by 4.5%. Bokosi (2007); Owuor et al. (2007) also found that obtaining secondary and primary education might decrease the probability of being poor and help them escape from chronic poverty. It is important to note that promoting formal education for households is

crucial to ensure higher average annual earnings and escape poverty.

The findings also indicated that households who have savings are 30% less likely to be vulnerable in the future compared to households who do not have savings (Table 1). Households could invest their savings and generate more income. They could also use their saving to manage uncertainties. Studies proved that households tend to use savings to cope with unexpected events. In that way, they can secure themselves from being unable to manage against these risks and fall into the vulnerability trap.

Surprisingly physical capital and natural capital are not statistically significant. This does not lead us to conclude that these two assets are not important to households' well-being. Studies have confirmed that access to physical and natural assets is essential to keep households from being vulnerable to poverty. Studies have proven that access to mechanical tractors, water, fertilisers and other natural resources can enhance farm productivity and then increase production. Marketable surplus leads to higher income generation thereby reducing the probability of being vulnerable to poverty (Omolehin et al., 2007). Shah et al. (2006) also indicated that adopting improved production technology increases more than thrice the provincial mean of wheat yield in Pakistan, thereby increasing farm revenues. Bokosi (2007); Owuor et al. (2007) discovered that livestock assets significantly contribute to the reduction of the probability of being chronically poor. However, the question to be answered is why in our case physical capital is not significant to keep households out of poverty? To answer this question, a further investigation should be carried out. One possible explanation is that households targeted in this study have limited access to such assets.

Although households indicated that they had experienced risks and shocks such as health risks, political risks and social risks, the results show no significant impact of these risks on households' vulnerability. It is well understood that risks and shocks are crucial in determining households' vulnerability to poverty (Siwar et al., 2009; Kapoor & Ojha, 2006; Cheng & Tao, 2010; Hertel et al., 2010; Somi et al., 2009; Gunter & Harttgen, 2009). Risks and uncertainties have a direct negative impact on the household asset accumulation (Giesbert & Schindler, 2012) which causes poor households to fall further into chronic poverty while pushing the non-poor into transit poverty. In the present study, the severity of these risks and shocks was not significant to pose any threat to households' well-being.

5. Conclusion and Policy Implications

To adequately eradicate poverty and vulnerability, the government and practitioners should design strategies and policies using an assets-based approach. The results of this study showed that the asset-based approach is more appropriate for linking the causes of poverty to vulnerability. The asset-based approach includes:

Physical Capital: Establishing and strengthening an adequate and effective mechanism to serve households to (re)build their physical capital by ensuring adequate governance and well-defined institutional responsibilities. Also, ensuring the minimum level of service that guarantees households' needs of equipment and resources that remain affordable in both the short and long run.

Financial Capital: Provides special financial products to poor households and raises the return on existing savings. This can be done by developing an operational financial system specially tailored for the poor (households).

Human Capital: Enforce or/and establish departments and institutions that can provide training and know-how to the poor and vulnerable, where they are taught, trained and empowered on ways to be self-organised, and how to mobilise their abilities and capacities effectively and efficiently.

Natural Capital: Direct and indirect support and assistance should be provided to households to (re)build their natural capital. This support should include loans and facilities to purchase and/or extend their asset capacities.

6. Limitation and Suggestions for Future Research

While the study is for Northern Region, the results could not be generalized to the whole Northern Region population as it only focused on the low-income group and the study area under studied did not record any obvious risks and therefore the households have limited risks and vulnerability. In order to understand risks and vulnerability in a wider perspective, the study area needs to be diversified and respondents need to include more income group as high-income group could report other type of vulnerability than the low-income group.

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