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Livelihood Vulnerability of the Informal Food Sector to Climate Extremes in Camarines Sur, Philippines

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Abstract

The informal food sector is regarded as a huge contributor in local economic development. However, since they directly get their supplies and raw materials from agricultural produce in the local markets, they become vulnerable to the uncertainties of nature. The purpose of the study is to assess the level of livelihood vulnerability of the informal food sector as an input in enhancing the livelihood resiliency of the informal food sector in Camarines Sur, Philippines. The study uses and modifies the existing livelihood vulnerability index where seven indicators are used in determining the vulnerability: socio-demographic profile, livelihood strategies, social network, health security, food security, access to utilities, and disaster experience. The data is composed of a random sample of 200 informal food enterprises from three market areas in Camarines Sur. The livelihood vulnerability index is used to describe the vulnerability level. The study reveals a low to moderate vulnerability level of the informal food enterprises. The result is attributable to their ability to withstand disaster experience and high adaptive capacity to areas such as livelihood diversification, years in business experience and income factor. Findings suggest the need to highlight technical and social areas for intervention to further enhance their business resiliency to climate extremes.

Keywords: livelihood vulnerability, informal food sector, livelihood vulnerability index, informal entrepreneurship.

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1. Introduction

Businesses are operated formally and informally. The proliferation of informal entrepreneurs in many developing countries is caused by the high unemployment rate, limited access to financial support and the increasing poverty incidence. These conditions have pushed them to make a living without any formal structure. Hence, entrepreneurs in the informal sector are mostly necessity-driven (1). Necessity is a primary motive of the informal business sector. But not all informal entrepreneurs are driven by necessity (2). In economically depressed communities, informal entrepreneurship is motivated out of necessity. However, in prosperous areas, the informal sector is motivated by opportunity (3).

Informal economic activities exist due to poor implementation of state policies and regulations. They are not accounted for in the Gross Domestic Product but they are, nevertheless, recognized by the government as the hidden contributor in economic development (4). They are characterized having a strong entrepreneurial dynamism which makes them stay in the industry for years (5). In developing countries, the presence of the informal sector is normal. The role of micro and small enterprises where informality is common has been recognized to foster growth (6). While some literatures may have labeled them as marginal businesses, Anderson, Harbi & Brahem (7) argued that they are entrepreneurs

that have been developed out of their context and circumstances.

However, not businesses in the informal sector are entrepreneurial. Entrepreneurship is the pursuit of opportunity beyond resources controlled. In this context, opportunity implies developing an innovative product; a new business model; a better or cheaper version of an existing product; or penetrating unserved group of market (8) Entrepreneurship exists in the informal sector when there is a value adding and asset building, otherwise, it is merely a livelihood activity which is simply intended at meeting consumption needs (9).

Informal sector continues to thrive in many parts of the country and in all parts of the world and has supported a wide diverse group of people to contribute to poverty reduction. However, there is no documented material showing their growth and structural transformation. Their contentment in street vending can be associated with the social recognition of their right to work, right to access public spaces and right to food security (10,11). On another account, their biggest barrier lies in accessing financial capital which is expected even to small and medium formal enterprises (12).

In the World Risk Index 2018 findings, Philippines was ranked as the third highest disaster risk country in the world with very high exposure index (13). The most common climate change extreme in the Philippines is typhoon with an annual average of 21 occurrences. The informal food sector lacks the safety nets that will protect their livelihood from climate change extreme events. Working under a shadow economy, they are more susceptible to business risks associated with the primary source of their enterprise – agriculture. These are some potential threats to developmental programs that seek to increase the business formalization program of the government.

This study attempted to assess the level of livelihood vulnerability of the informal food sector as an input in enhancing the livelihood resiliency of the informal food sector. This was made possible by understanding the factors that hinder informal food sectors' livelihood growth with the end goal of sending a signal to the local government the specific type of development programs the sector needs. Furthermore, the quantified indicators of vulnerability demonstrated a picture of where should the enterprise strengthen their capacities to lessen the vulnerability. The multiple indicators used in the LVI provided a holistic view in determining appropriate development entry points.

2. Materials and Methods

The informal food sector in Camarines Sur served as the study site. Camarines Sur is among the top ten provinces at risk to typhoons and among the top twenty provinces at risk to combined climate-and-weather-related risks such as typhoon, rainfall change, El Nino and temperature increase. Located in the central part of the Philippines, the province is bounded by several bodies of water: Pacific Ocean and San Miguel Bay on the north, Lagonoy Gulf on the east and Ragay Gulf on the west. It is mostly agriculture-based type of economy with rice, corn, coconut and fish as main agricultural commodities.

A total sample size of 200 households was randomly selected from these communities at the 95% confidence interval, 10% precision, 50% prevalence. The public market areas of two municipalities (Calabanga and Pili) and one city (Naga City) in Camarines Sur were purposely selected to represent rural, peri-urban and urban types of communities. Sixty respondents were randomly chosen from the two municipalities while eighty respondents were taken from Naga City having the biggest population among the three areas.

The study was anchored on the framework approach of Hahn, Riederer, Foster (14) which uses the Livelihood Vulnerability Index (LVI) incorporating seven livelihood components – socio-demographic profile, livelihood strategies, social networks, health, food, water, and natural disasters and climate variability. The indicators were modified using a business context. The study used thirty (30) indicators describing the livelihood vulnerability in the informal food businesses (15). It employed the mathematical expression below to quantitatively describe the livelihood vulnerability index of the informal food sector:

$$LVI = \frac{\Sigma i=1\ wMiMi}{\Sigma i=1\ wMi}$$

Where LVI, the Livelihood Vulnerability Index for a certain area or district d, equals the weighted average of the seven major components. The weights of each major component, wmi, are determined by the number of sub-components that make up each major component and are included to ensure that all subcomponents contribute equally to the overall LVI (16).

Further, as used in the study of Hahn, Riederer, Foster (14), the Intergovernmental Panel on Climate Change (IPCC) vulnerability framework approach was integrated into the LVI computation placing the context of climate change in the livelihood assessment. The IPCC contributing factors to vulnerability are exposure, adaptive capacity, and sensitivity. The seven livelihood major components were categorized following the vulnerability factors. Exposure is measured by the natural disasters and climate variability. Adaptive capacity is measured by socio-demographic profile, social networks, and livelihood strategies while sensitivity is measured by health, food, and water.

With three factors combined, the study used the formula LVI-IPCC = (ed –ad) *sd where LVI-IPCC is the LVI for district expressed using the IPCC vulnerability framework, e is the calculated exposure score, a is the calculated adaptive capacity score and s is the calculated sensitivity score. An equal weighting scheme was used for all indicators. The table below shows the level of vulnerability for the LVI value.

3. Results and Discussion

Adaptive Capacity

The dependency rate is highest in Calabanga and lowest in Pili. But, generally, they all reflect a large ratio of the economically dependent people to working population. The informal businesses in Calabanga, Naga, and Pili are headed by women at 87%, 88%, and 77%, respectively. While the women work in the informal business sector, the husbands work mostly in the agriculture and construction sectors. This is a typical gender assignment in a household. In Calabanga, almost half of the respondents were earning below the food threshold of PhP1,288 per capita per month. The lowest percentage was observed from Pili where only about two out of ten respondents were reported to earn below the subsistence level. The average monthly income of the business owners in Calabanga is PhP10,375 while PhP16,675 and PhP19,381 in Naga and Pili, respectively. Majority of the respondents have not even attended college. The high vulnerability result of the socio-demographic profile is explained by the sector's high dependency ratio, female-headed enterprise and poor educational background. Formal education increases the chance of establishing a formal business rather than an informal one due to higher self-confidence, perceived lower risk and an augmented human capital (17).

The informal food sellers have usually one or two types of products sold. Hence, the levels of commodity diversification indices in the three areas are very high. Among the three sites, respondents from Pili reported a relatively higher number of livelihoods. Pili is the capital town of Camarines Sur where agriculture, manufacturing and service industries are observed to be growing. It is where the Camarines Sur airport is located along with the provincial offices, schools and car dealers. Other livelihoods mentioned by the respondents would include mostly farming, carpentry, and laundry services. A skill in farming was common among the sites.

Meanwhile, the informal food sector in Pili has the highest accessibility to credit while Naga gets the lowest. They rely their financial needs mostly on microlending institutions, loan sharks and from a few of their relatives. There is also a very high percentage at 92% of informal food owners who are not confident that they can borrow money in times of calamity. Only very few, in fact, a handful, have received livelihood assistance in the past twelve months in Calabanga, Naga, and Pili. Joining any industry-related organization is not common to the informal food sellers in all areas. Meanwhile, about three-fourths of the sales in Calabanga comes from the regular buyers or locally called as '*suki*'. But in Naga, the sales from regular buyers comprise just a little more than one-fourth of their total sales. Overall, the adaptive capacity is highest in Pili and lowest in Calabanga.

Sensitivity

The informal food owners revealed that they do not have chronic illnesses. The common sickness they experienced is flu. Some would even continue selling even if they are sick. This can be shown by the low percentage result of the three areas at 7 percent to 8 percent. They either go to a clinic or to a faith healer/herbalist for medication. Barely half of the respondents from Calabanga, Naga, and Pili have medical insurance provided by the government. However, only some find it very helpful.

The highest percentage of food insecure can be found in Naga at 41.25 percent of the respondents. Meanwhile, about 33.33 percent of the informal food sellers in Pili claimed they are food insecure while only 13.33 percent of the sellers in Calabanga are food insecure. Respondents believed that the presence of backyard farms in the rural area eases the issue on food affordability and availability.

More than three-fourths of the informal food sellers in Naga and Pili own no water pipeline in their homes. Only one-third from Calabanga does not own water pipelines. Meanwhile, informal food sellers in Naga have the highest percentage without own electricity lines at 10 percent. Pili got the lowest percentage at 6.67 percent. In general, the sensitivity index is highest in Naga and lowest in Calabanga.

Exposure

During typhoon Nina which occurred last December 25, 2016, electricity was restored immediately in Naga than in Calabanga and Pili. It took an average of 35 days before it was restored in Naga while barely 1.5 months in Calabanga and Pili. But all respondents were able to receive the warning before the typhoon occurred.

Very few casualties were recorded among the respondents. In fact, only one from Naga and one from Pili were reported as injured as a result of Typhoon Nina. It took them an average of more or less a month before the agricultural supply gets back to normal. However, the most affected supply was coconut. Respondents revealed that it would take a year before the supply gets back to its regular flow of volume and price.

A higher percentage of loss of productive assets was accounted for by the informal food sellers in Calabanga at 36 percent than in Naga and Pili. Meanwhile, more or less 3 percent of the monthly income from Pili was reported as a loss while more than 6 percent in Naga and Calabanga. Exposure index is highest in Calabanga and lowest in Naga.

The over-all livelihood vulnerability index (LVI-IPCC) is lowest in Naga (-0.285), followed by Pili (-0.212) and Calabanga (-0.181) with greater vulnerability to the adaptive capacity indicators such as socio-demographic characteristics, livelihood strategies, and social network.

Table 1
Vulnerability level of the informal food sector

Sites	Adaptive capacity	Sensitivity	Exposure	LVI-IPCC	Vulnerability Level
Calabanga	0.69587	0.297916	0.087683	-0.18119	Moderate
Naga	0.749669	0.414063	0.060668	-0.28529	Low
Pili	0.719781	0.333333	0.083342	-0.21215	Low

Discussion

The computed component factors of the vulnerability indicators show the weaknesses and strengths of the informal food sector in the three study areas. The spider web illustrates that the strongest indicators towards resiliency are disaster experience followed by health security. Geographically, Bicol region is a typhoon-prone area. For more than 15 years, it has experienced 24 tropical cyclones with a minimum of 65 kph and a maximum of 230 kph. People have become used to it and considered storms as a way of life. Hence, it is not surprising to learn that the people have become adaptable to "life during and after the typhoon". The readiness of the local government to warning schemes have become effective in realizing zero or almost zero casualties as reflected in the survey. Despite more than a month disruption of electricity, many sellers managed to go back to their respective businesses in a span of almost a week. This exempted those who relied on coconut production as the trees would take a year before they produce regular supply. The affected informal businesses were those who sell young coconut and matured coconut. However, for most respondents, they look for other means of continuing their businesses. While others resort to trading other products, some would still continue selling their usual commodities.

The socio-demographic profile and livelihood strategy have the highest vulnerability level of the three sites. The high dependency level of their household and the poor educational background of the food enterprise owners may serve as hindrance to becoming a resilient enterprise. Higher number of dependent may affect the food security level in the same way that lack of education could lead to poor recovery (18).

The social network of the informal food sector is generally weak. Most of the indicators under this factor revealed to have higher indices. Among which is their ability to improve their financial status through credit and savings behavior. Barely half of the respondents could not easily access avail loans. In fact, access to formal credit was found to be an impending factor in expanding their businesses. A few sellers still opt to borrow from loan sharks who do not demand numerous documents to avail an immediate cash loan.

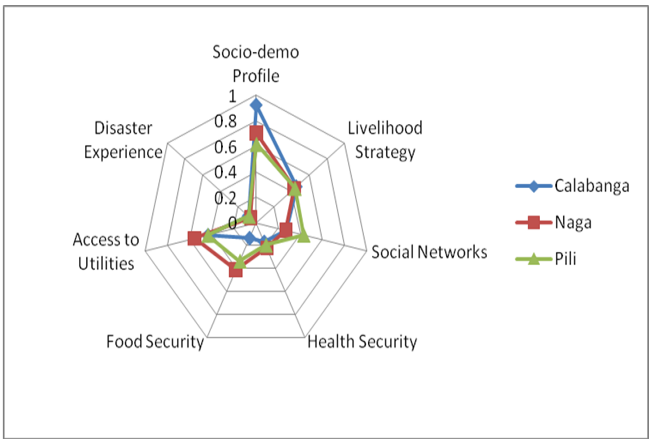

Figure 1
Spider web of vulnerability component factors

Being unregistered, they find it difficult to borrow from formal financial institutions given the nature of their business. Moreso, borrowing after a calamity seems to be impossible for these types of businesses. The savings status of the sellers was also found to be a weak behavior since the savings could not even suffice a three-day food allowance for the household. This condition led them to a status quo business mindset. The survey showed that very few have attended or even finished tertiary education. In addition, they were not given any livelihood or entrepreneurial training. This, therefore, leads to not having plans of expanding or improving their business. They are already contented earning an average of PhP15,477 (approximately $292) per month. This validated the not so alarming food security status of the respondents.

The informal food sector in the three sites is basic businesses that require an entrepreneurial mindset if the government aims to turn them into the formal sector. They have been in the business for more or less a decade despite the risks brought by natural disasters. It may be understood that probably the reason for their so-called resiliency is their ability to supply the essential needs of the market. They bank on two business strengths: affordability and availability which have become their investment to develop their regular buyers or commonly known as “suki" or regular buyers. On top of these, it is quite interesting to learn that the main motivation of these informal businesses is personal interest (78%). They choose to sell to gain some sense of fulfillment. The second motivation is the necessity (42 %). Economic hardships and lack of education brought them to sell on the streets. About 36 percent think that they started because there was a good prospect, a good market or an opportunity to sell well on the streets. These characteristics are commonly observed to an entrepreneur. Hence, the informal businesses need an upgrading scheme of their enterprises, of their skills, strategies and of their social networks. This suggests that a suitable intervention package on the technical and social aspects of business operation must be provided to enhance their business resiliency.

4. Conclusion

Generally, the LVI analysis shows that the informal food sectors in Calabanga, Naga, and Pili have small differences in the level of vulnerability. Using the seven indicators adopted, the level of vulnerability of the three areas is characterized as low to moderately vulnerable. This could be attributed to the relative economic security of their food businesses. Many respondents were earning above the subsistence level. This indicator alone can explain the reason for staying in the informality status for

years. Another observed factor that may contribute to reducing the level of vulnerability would be the status of municipality. All municipalities and city mentioned belong to the first class category. In the business context, there is a huge market flow since they also attract other buyers from nearby towns. This explains why most of the sellers' income comes from their regular buyers. There is a pulling effect of economic growth to resiliency. The study may be further tested to the informal food sector of depressed communities to determine if the economic level of a municipality would really affect the vulnerability components of a street livelihood.

In order to address the limited marketing skills manifested by the informal food sector brought by their poor educational background, the business and entrepreneurship programs of the academe sector may look on the possibility of developing partnership with this sector as a form of extension program. The informal food business is a real business case that requires real-life solutions. Their strengths may serve as stimulating benchmark for would-be entrepreneurs while their vulnerabilities could be an input for class cases and interventions.

The weak social skills in accessing sources of their business financial needs and trade partners may be addressed through industry collaboration. A business brotherhood or “mentor me” approach as a strategic move towards an efficient supply chain of commodities in the local community can be facilitated by government units. This may already pave the way to encouraging them to slowly shift to a formal business system.

The unutilized skills of the informal food sector are a rich source of opportunity for various industries. Due to economic hardships, they have found ways to learn hard skills in farming, carpentry, and health and wellness. These skills are ideal alternatives during typhoons and other disasters when agricultural commodities are not available. Professionalizing such ability may help improve their resiliency and address the scarcity of demand after typhoon.

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