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WOMEN FISHERS' VULNERABILITY IN THE PHILIPPINES: A COMPARISON OF TWO ASSESSMENT METHODS

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Introduction

- The vulnerability of women fishers has been well-established in the literature.
- There have been numerous researches that tackle the well-being of women fishers.
- These include, among others, sustainable livelihoods, poverty, participation, gender roles, marginalization and violence against women.
- One highly researched topic is women fishers' vulnerability.
- Although generally applied in the context of hazards, vulnerability is a useful framework in understanding the susceptibility of disadvantaged groups such as women fishers to all shocks (e.g. market shocks).

Our research

- A comparison of two vulnerability assessment methods, vulnerability to poverty (VEP) and social vulnerability (SOVI) in studying the well-being of female-headed fishing households in the Philippines.
- The objectives are to:

a. Conduct two vulnerability assessments of female-headed fishing households in the Philippines using national survey data (Family, Income and Expenditure Survey and Labor Force Survey in 2018)

b. Compare the two assessment methods according to definition, unit of analysis, focus, variables, measurement approach and time dimension.

c. Assess the results of these assessment methods

d. Compare and contrast the pros and cons of the two approaches.

Methodology: Vulnerability assessments

Estimation of Vulnerability as Expected Poverty

- FGLS Approach and used per capita income data (Albert & Vizmanos, 2018)
- Estimate $\widehat{lnpcinc}$ using OLS

$$lnpcinc_i = X_i\beta + \varepsilon_i \qquad \text{(equation 1)}$$

- Conditional variance: compute residuals $\hat{\varepsilon}_i$ and form $\widehat{\varepsilon_i^2}$
- Estimate $\widehat{\varepsilon_i^2}$

$$\varepsilon_i^2 = X_i\theta + \mu_i \qquad \text{(equation 2)}$$

to predict $\widehat{\sigma_i^2}$ and take $\hat{\sigma}_i$

- Finally, we compute for vulnerability (probability) as:

$$V_i = \Phi\left[\frac{\ln pcpov - \widehat{lnpcinc}_i}{\hat{\sigma}_i}\right]$$

where *pcpov* = per capita annual poverty threshold in the region

- A household is vulnerable if $V_i > 0.5$

Methodology: Social Vulnerability assessment

- Construction of household social vulnerability index through principal component analysis (PCA).
- Principal component analysis

➢88 female-headed fishing households

➢21 variables (income, education, shelter, income sources, location, utilities, assets, disability)

➢Retention of components using Kaiser criterion (eigenvalues>1)

➢Household vulnerability index scores computed using weights:

$$VulnerabilityIndex_i = \sum_{j=1}^{7} w_j \times PC_{ij}$$

Where:

- PC_{ij} = score of household i on component j
- w_j = weight = variance explained by component j ÷ total variance explained by retained components

Methodology: Comparisons

- Descriptive comparisons of the following:

1. Definition of the approaches
2. Unit and level of analysis
3. Variables
4. Measurement
5. Time dimension

Methodology: Comparisons

- Assessment of results of the two approaches

1. Vulnerabilities
2. Sources of or factors influencing vulnerabilities

- Advantages and disadvantages of the approaches

Results

Definition	
Vulnerability to Poverty (VEP)	**Social Vulnerability (SOVI)**
The probability that individuals or households will fall into poverty due to exposure to risks and lack of coping mechanisms. (Pritchet, et. al, 2000)	The extent to which social, demographic, and structural characteristics—such as gender, age, disability, household structure, or marginalization—affect a household's capacity to anticipate, cope with, resist, and recover from stresses or shocks (Cutter, 2008; Flanagan et al., 2011).
The "ex-ante risk that a household will be poor in the future, irrespective of their current state of welfare" (Chaudhuri, et al., 2002)	The individual or household's unequal exposure to risks due to barriers in accessing social, economic, and environmental resources (Bukowski & Kreissl, 2020)
Economic risk and future poverty; closely tied to economic outcomes such as income/material wealth.	Present/inherent characteristics; Based on social and structural factors; broader/multidimensional that includes material and non-material factors such as gender, access to resources.

Results

Unit and level of analysis

Vulnerability to Poverty (VEP)	Social Vulnerability (SOVI)
• Household or individual • Micro level of analysis	• Household, village/municipality, province/country • Meso to macro level of analysis

Variables/Indicators

10 explanatory variables	21 variables
Per capita income, Dependency ratio, Age of household head, Years in school Walling material, Roofing material House ownership, if Household Head has other income sources Typhoon experience Location (urban or rural)	Age of HH, Total Income, family size, other sources of income, Years of Schooling of HH, Location, No of working family members. Walling material, Roofing material, House ownership, Assets (TV, Radio, Boat, Cellphone) Electricity, Savings, Toilet, Dependency Ratio, No of Persons with Disability in HH, Type of fisher

Results

Measurement	
Vulnerability to Poverty (VEP)	**Social Vulnerability (SOVI)**
• Microeconometric/probabilistic methods • Regression (FGLS) • Probability of being poor in the future • Classification of Vulnerability based probability score of household	• Aggregate/spatial indices • Composite index of social vulnerability • Classification of vulnerability levels
Time Dimension	
• risk of poverty over time expressed as likelihood or probability • forward-looking and dynamic • Temporal and probabilistic	• a pre-existing/innate condition — structural, demographic, and social factors that persist over time. • static in nature since indices are often calculated from cross-sectional data • captures chronic long term inequities and disadvantages

Results

Findings on Female Headed fishing households

Vulnerability to Poverty (VEP)	Social Vulnerability (SOVI)
• Households are classified as vulnerable or not vulnerable to poverty • 30 out of 88 (34%) households are vulnerable to poverty • 50% are vulnerable to poverty among poor households (10 out of 20 HHs); poor and vulnerable to poverty in the future • 29% are vulnerable to poverty among non-poor households (20 out of 68 HHs); non-poor but vulnerable to poverty in the future	• Quartile Social vulnerability classifications: Low, Moderate, High, Very High Vulnerability • Poverty incidence goes up as vulnerability level increases: • Low – 5% are poor • Moderate – 23% are poor • High –23% are poor • Very high – 41% poor

Results

Findings

Vulnerability to Poverty (VEP)	Social Vulnerability (SOVI)
• Characteristics of households that are vulnerable to poverty ➢ Household heads with age ranging from 49-50years ➢ Household heads with elementary education ➢ Household heads that are fishery workers	• Characteristics of households with very high social vulnerability ✓ Poor ✓ Fishery and aquaculture laborers ✓ Age range is from 47-64 years old (mean = 50) ✓ Larger household size with an average of 6 members ✓ With minimal assets (boats, TV, radio) ✓ With 0-12 years of schooling; mean and mode = 7 years ✓ Located in rural areas ✓ Poor sanitation (poor to no toilet facilities) ✓ Housing materials (roof, wall) are non-durable

Results

Findings

Vulnerability to Poverty (VEP)	Social Vulnerability (SOVI)
• Predictors of income variance are not significant • not the objective of VEP • VEP predicts probability of being poor in the future, based on income variance	• 7 principal components were retained • Explains 63.3% of the variance • The seven components are: **Component 1 – Socioeconomic Status** household income, education, and housing quality. **Component 2 – Household Structure and Labor Capacity** household size, number of working members, asset ownership. **Component 3 – Other Income Sources** other sources of income **Component 4 – Location and Savings** location (urban vs rural) and savings. **Component 5 – Dependency and disability** dependency ratio and number of persons with disability **Component 6 – Sanitation** toilet type **Component 7 – Housing Tenure and Labor** house ownership and number of working members

Results:

Overall Comparison	
Vulnerability to Poverty (VEP)	**Social Vulnerability (SOVI)**
• Based on fewer variables, mostly income and other related measures thus with clear focus • Easily quantified because of the use of statistical models --- tracking over time, comparisons across areas/countries are easier • Useful in impact assessments of policies and development interventions • Easily aligned with existing policies since most of these are centered on poverty reduction • Predictive power	• Broader in scope thus covers more variables • Better in capturing structural Inequalities • Better assessment tool for disaster risk planning • Context specific and varies depending on local contexts; adapts to different social and environmental conditions • Promotes more inclusive and intersectional policymaking

Conclusion

- Both vulnerability assessment methods are useful tools in assessing the well-being of women fishers.
- Each assessment tool however is unique in terms of purpose and applicability
- For vulnerability assessments focusing on material deprivation, it is better to use VEP
- For broader/multi-dimensional vulnerability assessments, use social vulnerability
- When used together, the two measures can provide a comprehensive insights into the vulnerability of women fishers covering both current and future vulnerabilities.

Thank you for your attention