

An investigation of the impacts of COVID-19 on livelihoods, food security and poverty in urban squatter settlements

A Case in Point of Port Moresby and Lae
Cities

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Our COVID-19 Story

- In Papua New Guinea (PNG), Covid19 has not only impacted on the health of our people, but has negatively affected on her livelihoods.
- Covid19 has impacted negatively on the food security, income and contributed to increased poverty in squatter settlements.
- The focus of the present paper is on the relationship between COVID19 and its relationship between food security, income and poverty.
- Theory: Sustainable livelihood framework
- Methods: logistic regression and propensity score matching to investigate the differences between urban squatter settlements and the rural villages.
- Results: The results overall suggest that COVID19 increased poverty affecting income, quality of food and the welfare in general.

Empirical Evidence

- There are different significant impacts on individuals and households by reducing food and income security and increased poverty as a result of COVID19.
- Results from studies like in Kenya & Uganda (Kansiime et al., (2021), in Bangladesh (Rahman et al., 2022), in Africa (World Food Program, 2021) in the Pacific Island Countries (Davila & Wilkes, 2020; Jones, 2021), in Papua New Guinea (Bourke, 2020; Kopel, 2020) indicates that livelihoods have worsen, food security outcomes were also worse among the income poor, and poverty has been deep, wide-ranging and there was evidence of distress among the poor.

Empirical Evidence

- On top of the direct health impacts of the COVID-19, the pandemic has disrupted food supply chains in developing countries, destabilized food prices and created profound negative effects on food security (Abu Hatab, Krautscheid , Boqvist, 2021).
- Padmaja et al., (2022) in their studies in India revealed that close to 40% of the households experienced a deterioration in food security.
- Kansiime et al., (2021) revealed that that the income-poor households and those dependent on labour income were more vulnerable to income shock, and had poorer food consumption during the COVID-19 pandemic compared to other respondent categories.

Empirical Evidence

- In Nepal, resource-poor people who lost their job were the hardest hit among millions of impacted populations. Further, the associated effects of pandemics are food supply chain interruption and people's inferior physical and mental wellbeing Joshi et al., (2022).
- It further indicated that the COVID-19 exerted inevitable challenges in achieving SDGs targets in terms of food security and household poverty.
- The paper concluded that COVID-19 pandemic has highlighted the vulnerability of the global food system leading to an increase in food insecurity and poverty.

Empirical Evidence in Papua New Guinea

- According to Diau et al., (2021) in PNG, most poor household urban settlers were particularly vulnerable to shocks such as Covid-19.
- Rural households are much less affected by the Covid-19. Rural household incomes, affected mainly by reduced urban demand and market disruptions.
- Nonetheless, calorie consumption for the rural poor and non-poor falls by 5.5 and 4.2 percent, respectively.

Empirical Evidence in Papua New Guinea

- Like many developing countries, PNG was seriously threatened by its adverse impacts on people's livelihood, and its wellbeing and food security.
- According to Kopel (2020), local down restrictions have disproportionately affected the poor and the vulnerable.
- In PNG, supply chain disruption between rural and urban areas, Border closures limit travel to sell produce, urban market closures affect food availability and pricing Innovative use of information and communications technology to help farmers sell produce (Bourke, 2020)
- Extensive job losses in informal and formal sector, recovery unclear even if COVID-19 caseload minimal and informal retailers lose trade because of formal job losses (Bourke, 2020)

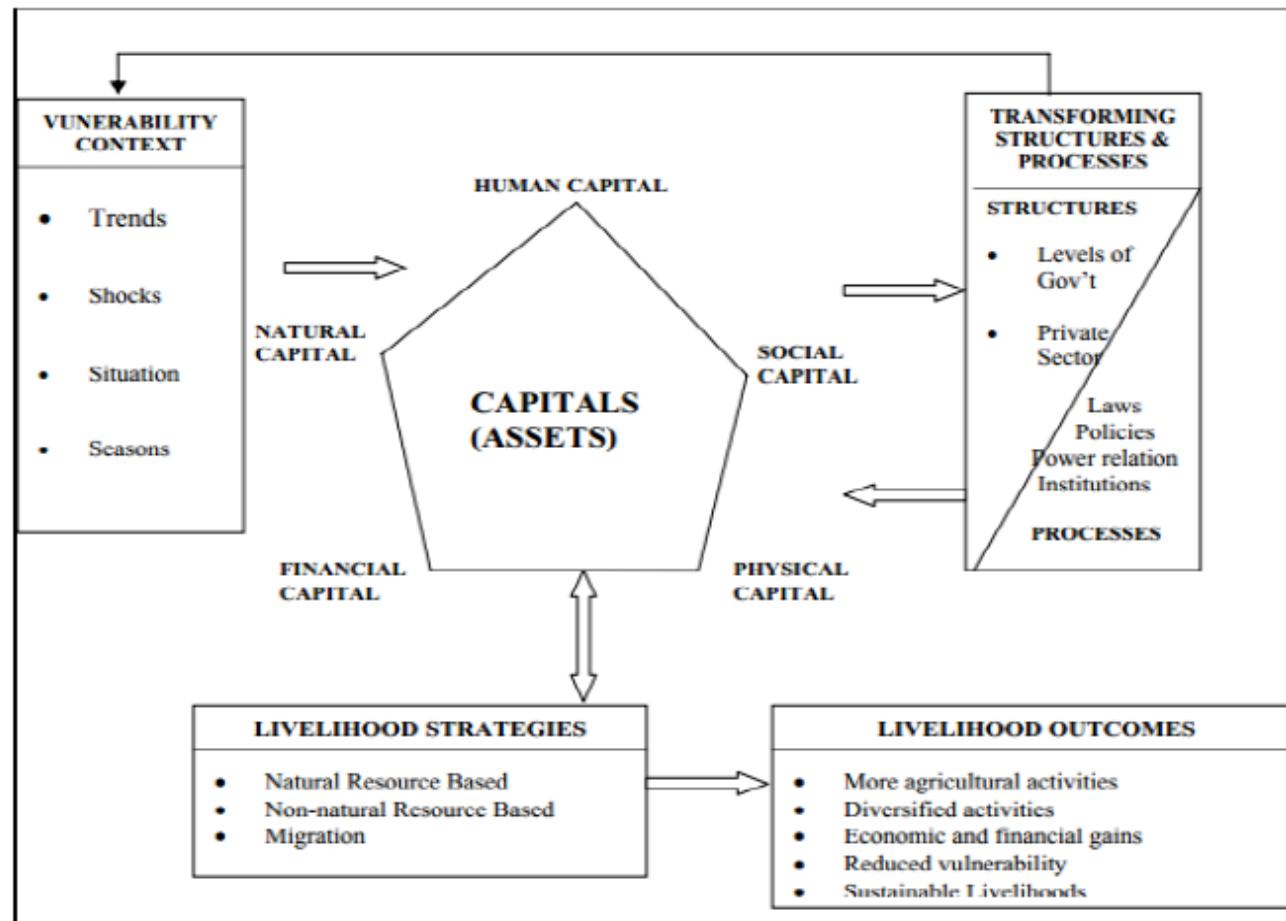
Projects Sites



COVID19 and its impacts on Livelihoods

- Applying the SLF, this study explores the extent of impact the COVID19 had on people's livelihoods in the contexts of its variables that relate to food security and income with people's welfare.
- The key question: has COVID19 impacted on Income (assets) and Food Security and further if it has exacerbated poverty.

The Sustainable Livelihood Framework



Data

- Sample size 350
- 1. Port Moresby urban squatters 100
- 2. Lae urban squatters 100
- 3. Rural Morobe 70
- 4. Port Moresby Rural (Central Province) 80

Methods

- 1. Logistic regression
 - (a) Dummy variable
 - (b) with additional explanatory variables
- 2. Propensity score matching

1. Logistic regression

- Firstly, subjects in the urban settlements (treatment) and rural settlements (control) groups were matched with one another by their propensity scores as calculated according to their attributes.
- The score is calculated by a logit or probit analysis.
- “To create the propensity score, a common first step is to use a logit or probit regression with treatment as the outcome variable and the potential confounders as explanatory variables”
- In this study, a logistic model was set up to test the association between factors that were considered likely to determine the level of poverty.
- For instance, a urban household due to lockdown and SOE, informal sector was closed for almost 6 months and therefore access to income and food quality were affected, while in the rural settlement, not much was affected.
- Results of the logistic regressions are not discussed here.

2 Propensity score matching (PSM)

PSM has become a popular approach to estimate causal effects in situations where confounding variables could cause bias in estimates of treatment effects, obtained by comparing outcomes of those receiving the treatment and those not receiving it.

PSM: match treated and untreated observations on the estimated probability of being treated (propensity score).

Match on the basis of the propensity score (can be defined as the probability of study participants receiving a treatment based on observed characteristics)

Results:

Average Treatment Effects on the Treated (ATT) and t-statistics for Different Matching Methods, with the Rich-Poor Ladder as the Performance Index

Model 1. Rural Morobe	ATT	Standard Error	t
Radius	0.789	0.160	4.563
Kernel	1.218		3.326
Regression	1.035		7.01
Dummy Variable	2.334		20.20

Results: Average Treatment Effects on the Treated (ATT) and t-statistics for Different Matching Methods, with the Rich-Poor Ladder as the Performance Index

Model 2: Rural Port Moresby	ATT	Standard Error	t
Radius	0.902	0.298	3.023
Kernel	-0.698	1.138	-0.654
Regression	2.112	0.384	5.64
Dummy Variable Regression	2.391	0.212	17.270

Results: Average Treatment Effects on the Treated (ATT) and t-statistics for Different Matching Methods, with the Rich-Poor Ladder as the Performance Index

Model 3: Combined Port Moresby and Lae Urban Settlement	ATT	Standard Error	t
Radius	1.641	0.721	3.002
Kernel	0.235	0.375	0.354
Regression	1.712	0.499	3.002
Dummy Variable Regression	3.457	0.135	20.21

Conclusion

- Model 1, Model 2 and Model 3 have indicated that COVID19 has impacted negatively on urban squatter settlements household's position on the rich-poor ladder significantly.
- Future shocks of such magnitude that occurs in PNG, we should consider closely how to improving urban settlers' livelihoods taking into consideration helping and coping informal sector minimizing poverty.
- Further study can consider the monetary values lost, and actual support (if any) given to the urban settlements.