

Counting the Homeless in Papua New Guinea 2024 Population and Housing Census

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Abstract: The 2011 population census in Papua New Guinea (PNG) failed to generate reliable data due to logistical constraints and inadequate capacity. Addressing this, this conceptual communication analyses the benefits of using single contact census, capture-recapture method, and indirect estimation to enumerate the homeless population in the PNG 2024 Census. The study argues that, owing to the distinct geographical distribution of the homeless in urban locales, the single-contact census and the capture-recapture method emerge as the most suitable strategies for the 2024 enumeration. The exploration meticulously outlines the practical assumptions imperative for deploying these techniques, emphasizing their pivotal role in ensuring an accurate representation of the homeless demographic. This paper serves as a pivotal guide to adapting and refining enumeration methodologies to overcome challenges witnessed in the previous PNG census. The study concludes by explaining the practical assumptions for using the single-contact census and the capture-recapture method in the PNG 2024 census.

Keywords: Homelessness, Papua New Guinea, National Population and Housing Census, single-contact census, capture-recapture method.

1. Introduction

The Papua New Guinea National Population and Housing Census is necessary to adequately plan the different facets of the national economy. The National Population and Housing Census (NPHC) is conducted every ten years; for example, 1980, 1990, 2000 and 2011 respectively (The National Statistical Office 2011). However, Bourke and Allen (2021) suggest that the 2011 NPHC was a failure as the determining of actual statistics of residents was complicated by the low registration of births, which points to around twenty thousand (20 000) homeless children in the national capital district's Port Moresby. The accuracy of data collected that will be in the 2024 Census is thus at risk if clear-cut approaches are not adopted to enumerate homeless people.

Extreme difficulties are inherent in counting the homeless population, with the challenge being the unclear definition of homelessness, the cyclical nature of individual homelessness, the mobility of the population and the reluctance of homeless people to present themselves for interviews (Cowan et al. 1988). Taking the above into account, the use of holistic approaches such as single-contact census capture-recapture method and indirect estimation are recommended, which have implications for the enumeration of the homeless population in the forthcoming or planned 2024 Census. Against the backdrop of the failure of the 2011 to 2024 Censuses, this paper presents valid and reliable approaches for counting homeless people in Papua New Guinea (PNG).

1.1 Research objectives

In the light of the problem presented in the introductory section, the following objectives are raised to guide the study. That is, the study:

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- Critically analyse the approaches for enumerating the homeless.
- Identify the most appropriate approaches for counting the homeless in PNG 2024 National Population and Housing Census.

2. Geography of Papua New Guinea

Papua New Guinea is an island country in the southwestern Pacific Ocean that is in south of the equator and about 100 miles North-East of Australia (CountryReports, 2023; Jackson & Standish, 2023). The country has a spine of mountains that runs the length of New Guinea Island, creating a populous highlands region, with Mount Wilhelm at about 4,509 metres as the highest peak (New World Encyclopedia, 2023). PNG has a tropical climate and prevailing winds from the northwest; one monsoon season extends from December to March, while the winds change and blow from the South-East to create a second annual monsoon season from May to October (New World Encyclopedia, 2023). The PNG's harsh geography comprising mountains, jungles, and numerous river valleys (The United States Central Intelligence Agency, 2023) posed geographical difficulties to building transportation infrastructure. This situation has led PNG to have 572 airstrips since airplanes are the most veritable means of transport across the Southern, Islands, Highlands, and Momase regions (New World Encyclopedia, 2023).

3. Analysis of Relevant Approaches

3.1 The single-contact census

This approach involves a census taken by teams of individuals in a clearly defined geographical area where a needs assessment suggests the highest population of homeless people is located. A single-contact census should be finalised in ideal situations, preferably at a time of day when homeless people are not mobile, i.e., late at night (Cowan et al. 1988). This poll approach is effective when scientific approaches are adopted to identify and eliminate the counting of homeless persons twice at single or multiple locations.

3.2 The capture-recapture method

This method is not specific to the field of demography solely. The capture-recapture method has been successfully utilised to estimate population size related to salaries (Nagwa, 2023). The capture-recapture method is an indirect method founded on contrasts of data from two or more sources; for example, to determine the population of irregular economic immigrants on the island of Mallorca using secondary data generated on immigrants who applied in a particular year for residency and work permits from *Delegacion de Gobierno* (Police and Immigration Authority) (Montserrat & Cerdá, 2002).

The data from the *Centro de information al Immigrate* (CITE) operated by *Comisiones Obreras* (Labour Union) and organisations responsible for the provision of health-related services to immigrants (Red Cross, Medicus Mundi, a public health services) were subjected to the capture-recapture method. This approach is seen as a dual system estimation of censuses conducted in the United States, Bangladesh, India, Paraguay, and Somalia (Cowan et al., 1988). Darcy and Jones's (1975) study of the population of homeless men in Sydney, Australia encompassed a one-day census conducted at 25 locations comprising shelters, hospitals, clinics, and a jail on selected days in June and October 1971 and March 1972. The number of homeless men counted was estimated using equation B2, denoted as $N_1 \times N_2 / M$, where N_1 represented the count of homeless men obtained in the first period, N_2 in the second period and M those observed during the full period (Cowan et al., 1988).

3.3 Indirect estimation

This method was developed to measure demographic processes in countries with no accurate conventional data (Hills 2001). Indirect estimation covers diverse estimation processes, notably the creation of population benchmarks useful for calibration, small area estimation using administrative data in a predictive setting and statistical data on an equal footing (The European Union, 2019). For the non-technical audience, this method elicits information from knowledgeable sources or key informants regarding the homeless population in a particular geographical location (Cowan et al., 1988). In the national capital district of Papua New Guinea, the estimation was achieved using a person who is knowledgeable about the sleeping spaces of homeless people. Despite the effective nature of this method, duplication (i.e., double, or multiple counting) remains problematic.

4. Recommended Approaches for Counting the Homeless in PNG 2024 NPHC

From the review of the relevant methods above, *the single-contact census and the capture-recapture method are the most suitable for use in the planned 2024 Census for counting the homeless population in Papua New Guinea.*

The possibility of collecting important information to determine the type and level of services required by the citizens is a merit of using a single-contact census (Cowan et al., 1988). In addition, a single-contact census provides for direct contact that reduces the repeated counting of individuals once a definition of homeless is established. A disadvantage is it may present a poor representation of the homeless population if the headcount is conducted at an inappropriate time.

The capture-recapture method seems the most robust method to count the homeless in the 2024 Census considering the following assumptions:

- Clear definition of homeless people: define and agree on what constitutes homelessness.
- Homelessness observation: probabilities present the opportunity for each person to be counted at a particular period.
- Stability of the homeless population: size and nature do not change during the census period, i.e., stability.
- Static status: homeless people must not move in and out of the area of interest during the census.
- Independent capturers: observation of homeless population on follow-up occasions.
- Validity: The corrections of data collected must be valid and correct.
- Complete response: enable data capture for matching.
- Matching correctness: data reflecting multiple counts.
- Single observations of individuals: restrict to once at each data collection location.
- Externalities (weather conditions, ethnic clashes): could affect observations during census (Cowan et al., 1988).

5. Conclusion

This conceptual communication analyses the merits of holistic demographical methods such as the single-contact census, capture-recapture method, and indirect estimation. The study concludes that single contact census and capture-recapture method are the most viable for enumerating homeless people in PNG. These two methods are suitable because of the difficulties associated with the headcounts of homeless people since they are mobile. The mobile nature of homeless people necessitated the suggestion that late-night enumeration using single contact census or capture-recapture method is the most suitable in cities such as Port Moresby and Lae in PNG. The primary knowledge is that the study has been able to highlight a group, i.e., the homeless, that must not be left behind in the 2024 PNG census to know the actual population for planning and policy purposes. Without detriment to other methods of estimating the population of homeless people, the single

contact census and capture-recapture method are useful for generating socially relevant data for policy and planning for the 2024 National Population and Housing Census.

6. Contribution to Knowledge

This conceptual communication makes significant contributions to knowledge by examining and comparing diverse methodologies for enumerating transient populations, focusing on their applicability to the homeless demographic in Papua New Guinea for the 2024 National Population and Housing Census. It illuminates the inherent challenges and limitations in existing enumeration methods, thereby shedding light on the necessity for nuanced approaches tailored to transient populations, particularly in geographically challenging regions. The comparison of the single-contact census, the capture-recapture method, and indirect estimation enrich the discourse on demographic enumeration by emphasising the variability in methodological efficacy subject to demographic, geographic, and logistical contexts. The study's emphasis on the implications of enumeration inaccuracies on national planning and policy-making underscores the broader socio-political ramifications of demographic studies, offering a multi-faceted perspective on the subject of homeless population enumeration in Papua New Guinea. The suggested methodologies and the highlighted significance of accurate enumeration for effective policy planning fill a crucial gap in existing literature, offering a pathway for future studies focusing on similar transient populations in comparable geographic contexts.

7. Implication for Practice

The study underscores crucial implications for practice, emphasising the need for employing meticulous and context-specific enumeration methodologies for transient populations in Papua New Guinea (PNG) and similar settings. The nuanced comparison of various methods provides practitioners with insights into addressing the unique challenges posed by geographical constraints and the mobility of the homeless population. Identifying and recommending the single-contact census and the capture-recapture method as viable options in such contexts are particularly impactful, providing a clear pathway for practitioners in designing and implementing future censuses and surveys in regions with similar demographic and geographical challenges. Furthermore, the study reinforces the importance of accurate and reliable data collection in informing national planning and policy-making, thereby enhancing the overall efficacy and impact of interventions to address the needs of transient and homeless populations, ultimately contributing to more inclusive and equitable development outcomes.

Ethical considerations: The information reviewed and data presented in the study are publicly available. The study did not make use of data generated by human participants.

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