MAPPING POVERTY IN BOTSWANA 2010

STATISTICS BOTSWANA

Poverty Global Practice
Africa Region

Document of the World Bank

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Abbreviations and Acronyms

BCWIS	Botswana Core Welfare Indicator Survey
DECRG	Development Research Group
EA	Enumeration Area
ELL	Elbers, Lanjouw and Lanjouw
HIES	Household Income and Expenditure Survey
PDL	Poverty Datum Line
PSU	Primary Sample Unit
SAE	Small Area Estimation
SSA	Sub-Saharan Africa
StatsBots	Statistics Botswana

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PREFACE

This is the second Poverty Map report by Statistics Botswana following the conduct of Botswana Core Welfare Indicators Survey (BCWIS) in 2009/10. The first report was published in 2002/03.

The Poverty Map provides disaggregated poverty rates at lower geographical levels that the surveys are not able to estimate. This is done by making use of the survey and Population and Housing Census (PFC) data. The survey data provides scope for in-depth poverty analysis, whilst the PHC data allows for estimation of poverty rates at lower levels because of complete coverage of the population.

The Poverty Map was compiled through the assistance of the World Bank, both financially and technically. Statistics Botswana would like to thank the World Bank for assistance. Appreciation is also extended to Dr. Victor Sulla and Ms. Ms Erica Rascon for the technical assistance provided in the construction of the poverty map.

For more information and further enquiries, contact the Directorate of Stakeholder Relations at 3671300. All Statistics Botswana outputs/publications are available on the website at www.cso.gov.bw and at the Statistics Botswana Library (Head-Office, Gaborone).

We sincerely thank all stakeholders involved in the formulation of this report, for their continued support, as we strive to better serve users of our products and services.

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May 2015

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The poverty mapping methodology and its potential applications for Botswana were discussed with representatives from the Government of Botswana during a workshop held in Gaborone in May 2014. This includes several units from Statistics Botswana and other government agencies. I extend my sincerest thanks to the following participants:, Tapologo Baakile (Director of Socio-Demographic Statistics, Statistics Botswana), S. Bakane (Department of Gender Affairs, Ministry of Labour and Home Affairs), Kagiso Motlhabane (IT, Statistics Botswana), Bunnie Komane (Labour Statistics, Statistics Botswana), Victor Makwati (Poverty Statistics, Statistics Botswana), Malebogo Prisca Kerekang (Director of Stakeholder Relations, Statistics Botswana), Peter Mabaka (Department of Fishery, Ministry of Wildlife and Conservation), Uyapo Mosarwa (Office of the President), Masilo Thutwa (Poverty Eradication Team), Fifi Sebolao Statistician, Statistics Botswana), Kutlwano Sebolaaphuti (Office of the President), Temba Sibanda (Corporate Communication, Statistics Botswana), Gomolemo Tembwe (Ministry of Local Government and Rural Development) and Tselakgopo (Ministry of Local Government and Rural Development).

1. Introduction

The Republic of Botswana is a sparsely populated country, with 2,038,228 inhabitants living in 581,730 km2 of land of which 70 percent is dominated by the Kalahari Desert. Despite the population growth rate at a 1.9 percent, recent analysis from the 2011 Population and Housing Census highlights the deceleration of Botswana's population growth rate in recent decades. The growth rates reported by previous censuses in 1981, 1991 and 2001 are 4.6, 3.5 and 2.4 percent respectively (Botswana Central Statistics Office, 2011). Alongside the change in population growth rates, poverty indicators have also changed in the last decades. The poverty rates between 2003 and 2010 decreased from 30.6 to 19.3 percent.

Based on survey data, national and district poverty rates have been calculated using household consumption aggregates. However, it is still unknown how much heterogeneity exists within the districts. To obtain poverty rates at lower geographical levels is a crucial tool for policy makers to allocate more efficiently social program transfers. The main concern of relying on district level poverty estimates for the identification of the poor population is that poverty rates can be explained mainly by those villages with a higher concentration of population leaving behind the least populous.

The identification of poor areas has become one of the main keys for targeting social programs and for allocating public resources to finance projects. To identify the heterogeneity of poverty rates at sub-national administrative levels, several mechanisms have been developed. For instance, census data have been widely used for producing community profiles based on infrastructure and socio-economic characteristics to construct deprivation and unsatisfied basic need indices. However, the lack of detailed socio-economic information in census data, such as income or consumption, has restricted the ability to describe the variability of poverty at sub-national levels.[1]

To overcome this problem, since the late 1990s, The World Bank Group (DECRG) and affiliated researchers have been developing methods to combine the detailed information of household surveys together with the coverage of census data. One of them is the "Poverty Map" method which aims at producing welfare indicators at a highly detailed level of spatial disaggregation.

With a growing body of applied research in country specific applications, the method is now widely recognised as a highly proficient tool for allocating social programmes at the local level. At present, around fifty countries have produced Poverty Maps with a growing number of these producing second rounds.[2] As a result of this demand, an independent software designed by World Bank (DECRG) staff, has been produced to ease the computational burden of producing these maps.[3]

The accuracy of the Poverty Map method is country specific. In particular, the accuracy and precision of final estimates of poverty rates rely on: a) the degree of comparability between the variables in census and survey; and b) the power of the comparable variables to predict income or expenditure in the survey. [4]

This report discusses the main findings of the Poverty Map 2010 at the village level in Botswana. It also provides a discussion of how different village poverty estimates are from district poverty rates, as well as how different these are within the district. The authors also provide a detailed discussion of the precision of the Poverty Map estimates. Using the visual representation of village poverty estimates, this report highlights the villages that require urgent attention to tackle poverty. The report is organised as follows: Section 2 describes the official measurement of poverty and its evolution; Section 3 explains the World Bank method to produce small area estimates; Section 4 describes data sources and comparability of survey and census variables; Section 5 describes the model selection, main findings and precision of poverty estimates; and Section 6 concludes

[1]Sub-national levels refer to small areas such as localities, villages and sub-districts
[2]Some applications can be seen in Araujo et al. (2008); Bedi and Coudouel (2007); Hentschel et al.(2000); López-Calva et al. (2008); and Elbers et al. (2004).
[3]The software can be downloaded from: http://iresearch.worldbank.org/PovMap/PovMap2/
[4]Henceforth, I will refer to household expenditure as the variable of interest for producing poverty estimates.

2. Poverty measurement in Botswana

2.1 Consumption aggregate

The official measurement of poverty followed by the Government of Botswana is based on the poverty datum line (PDL), Statistics Botswana (2013). The PDL is a Pula-denominated metric that intends to capture the cost of a basket of goods and services that would satisfy the monthly necessary and adequate requirements of a household in Botswana. The PDL basket captures the following basic needs: food, clothing, personal items, household goods, services and shelter. To account for demographic differences across households, the representative basket depends on age and gender of the household members. To classify a household as poor, the PDL is compared to the observed total consumption of the household. [5] If the total consumption is below the PDL, the household is classified as poor, as well as all its members.

The national monetary value of the PDL basket in 2009/2010 was BWP878.87 of which food expenditure represented 77 percent of the total household expenditure, followed by 8 percent of other goods and 7 percent of shelter, see Statistics Botswana (2011).[6]

2.2 Data source

The data source for the official measurement of poverty at the district and national levels is the Botswana Core Welfare Indicator Survey (BCWIS). The BCWIS was created as an improvement to the Household Income and Expenditures Survey (HIES) for the computation of the PDL, among other objectives. The BCWIS has been scheduled to be conducted every five years.

The BCWIS uses a two-stage stratified probability sample design, in which enumeration areas (EA) are chosen as primary sampling units in the first stage, and occupied households within each EA are chosen in the second stage. These occupied households form the basis of secondary sampling units. [8]

To strengthen the accuracy of the information, household consumption data were collected over a period of one month, covering all household members and visitors that spent the night before interviewing the household, as long as they were expected to stay in the same household for at least 14 days. Prisons, hospitals, army barracks, hotels, camps, commercial farms and other institutional dwellings were not included in the survey. Households in completely industrial areas were also out of the scope of the survey, as well as non-citizen tourists who were in Botswana on holiday (not working).

2.3 An Overview of Botswana's Poverty

According to the World Bank (2014), Botswana is considered an upper middle income country with a GNI per capita (Atlas method, current US$) of $7,730; this is equivalent to 4.8 times above the average for Sub-Saharan Africa (SSA). Based on the BCWIS, 19.3 percent of the population live below the poverty line or PDL.[9]

Although Botswana has faced a decrease in poverty incidence, going from 30.6 percent in 2003 to 19.3 percent in 2009/2010, in certain areas of the country poverty remains extremely high (e.g. Ngamiland West (46.2 percent), Ngwaketse West (41.7 percent), Central Bobonong (32.8 percent) and Kweneng West (32.4 percent)). Nonetheless, the districts with the highest absolute number of poor people are Kweneng East (45,557 people), Central Serowe/Palapye (43,076 people), Central Tutume (28,735 people) and Central Bobonong (25,385 people). These four districts house around 40 percent of the total poor population in Botswana.

Consistent with results seen in other countries, cities and towns tend to show a lower poverty incidence than rural areas. In this case, poverty in cities and towns is at 8 percent (10.6 percent in 2002/03) and 24.3 percent (44.8 percent in 2002/03) in rural areas. . In urban villages, the poverty rate is 19.9 percent (25.4 percent in 2002/03). [10]

At the district level, poverty incidence decreased in all districts except for Sowa Town is 6.8 percent (3.4 percent in 2002/03). However, the number of poor people is 240 (93 in 2002/2003), representing 0.07 percent of the total number of the poor population in the country. On the other hand, 4 of the 26 surveyed districts present poverty rates above 30 percent (16 districts in 2002/03), with Ngamiland West ranking as the poorest district with 46.2 percent of people living below the poverty line. The most populated districts, housing 35.8 percent of Batswana, have poverty rates of 6.1 percent (Gaborone), 17.6 percent (Southern/Ngwaketse District), 17.8 percent (Kweneng East) and 32.4 percent (Kweneng West).

[8] See Statistics Botswana (2013) for further details.
[9] This subsection is based on Statistics Botswana (2013).
[10] Throughout the report, we use poverty rate and poverty incidence as synonyms.

3. Poverty Mapping Method

This section describes the Poverty Map method to produce district and village poverty estimates in Botswana.
Since the late 1990s, the World Bank (DECRG) has engaged in an extensive program of research to produce estimators of welfare at geographic levels not represented in household surveys. At present, approximately 50 countries have completed "poverty maps". Moreover, in a growing number of countries, multiple-round poverty maps have been conducted or initiated to monitor the dynamics of poverty and inequality over time. The production of these maps is increasingly being implemented by other international organizations, partner-country statistical organizations and academic researchers. The extensive use and production of poverty maps has also benefited the assessment of this particular small area estimation (SAE) method, as well as its extension by using other statistical approaches.[11]

This report is based on the SAE method developed by Elbers et al. (2000) and Elbers et al. (2003), henceforth ELL. This method is also known as Poverty Mapping. The basic idea is to use survey data to impute welfare indicators not available in census records. The main motivation is to estimate these indicators at geographical partitions not representative in household surveys. The suggested stages by ELL are: (a) comparability between census and survey variables; (b) modelling of income or consumption using the survey; and c) computing welfare indicators on census records (such as head count ratio, inequality) based on the parameters derived from the household survey.

3.1 Stage zero. Comparability of Data

Prior to constructing the econometric model of expenditure or income, comparable covariates between census and survey have to be identified. To do so, one identifies the geographical partition for which this comparison has to be done. This partition is country specific and is determined by the representativity of the household survey. For instance, if the survey is representative at the region, province or district level, several models can be estimated at these geographical partitions. However, the lower the level of disaggregation of the model, the smaller the number of observations for estimating parameters, which in turn reduces the predictive power of the model. In our case, the team has decided to use a national model and has included interactions of district and region dummies with other covariates.

After defining the geographical partition for modelling, one proceeds with the selection of comparable variables between census and survey. To define a set of variables strictly comparable, definitions of each variable should be compared between census and survey based on their questionnaires. Subsequently, the comparison of distributions and statistics determines the final set of variables to be used for the modelling stage. Statistical comparisons between census and survey are carried out controlling for the survey sample design. For instance, standard errors must consider the clustering of primary sample units, or other stratification used as part of the sample design.

3.2 Stage one. Expenditure modelling

Once comparable variables between census and survey are identified, one models income or consumption using the survey. The basic idea is to first estimate an Ordinary Least Squares (OLS) model with the set of comparable variables. The empirical model follows this structure:

$$lnY_{-(ch)} = X_{(ch)}\beta + U_{(ch)} \qquad (1)$$

where $lnY_{ch)}$ denotes the logarithm of the household per capita adult-equivalent expenditure h belonging to the cluster c; $X_{(ch)}$ represents household and dwelling characteristics ; and $U_{(ch)}$ corresponds to the error component. The latter may be decomposed into cluster and household effect:

$$U_{(ch)} = \eta_c + \epsilon_{(ch)}$$

[11] A custom-made poverty mapping software has been produced by the World Bank in parallel with the methodology to ease the computational burden of producing poverty maps.
[12] For this study, we also consider variables at the village level constructed from the census records,

where there is neither correlation between η_c and $\varepsilon_{(ch)}$, nor between household error components. Household effect refers to unobservable characteristics intrinsic to the family, such as ability and motivation to work of household members, as well as socio-economic variables not collected by the survey that may affect the level of expenditure. In addition, cluster effect captures unobservable features at geographical partitions above household level, such as local prices, heterogeneity of returns to schooling, infrastructure, among others.

The identification of a geographical level for representing the cluster effect is a crucial decision that may affect the standard errors of the welfare indicator projected in census data. Cluster effect defines the partition from which the main geographical variability exists. The empirical distribution of this partition is used for obtaining a similar vector in census records. Hence, the lower the level of disaggregation the better it is captured the heterogeneity at the target geographical level. However, this comes at the cost of having a less reliable distribution derived from survey data. ELL (2003) suggests the definition of the cluster effect at the primary sample unit (PSU) or enumeration area level. However, recent empirical literature has shown that defining the cluster effect at such level may provide "naive" standard errors of poverty estimates. This recent evidence suggests the definition of the cluster effect at the level of the target indicator. The current Poverty Map defines the cluster effect at the village level for village poverty estimates and at the district level for district poverty estimates.

After defining the cluster effect, the ELL method suggests a model of the household error component, assuming a heteroskedastic structure. Subsequently, household residuals, netted out from the cluster effect, are used to correct the standard errors through Generalized Least Square (GLS) estimation.

3.3 Stage two. Computation of the welfare measure

Once the econometric model of equation (1) is estimated, its coefficients and error components are used as a bridge to obtain welfare indicators in census records through the variables used in the model. Because coefficients and errors present a mean and a standard error, these are used to simulate several replications of these parameters. As a result, the ELL method produces several replications of income or expenditure at the household level that are contrasted with the poverty line to determine if a household lives in poverty or not. Once these households are identified, these are aggregated at the target geographical level.

4. Data

The Poverty Map of Botswana uses the Botswana Core Welfare Indicators Survey (BCWIS 2009/2010) and the Population Census 2011. Using the survey weights, the total number of population represented by 27,222 sampled observations is 1,861,548 inhabitants in Botswana. The census data contains 2,024,904 individuals for which 1,949,142 live in non-institutional households. Individuals living in institutional households and belonging to localities with no affiliation were not considered in our Poverty Map (75,762 individuals living in prisons, orphanages, among other institutions and 19,520 living in localities with no affiliation). The final number of observations used from the census data, accounting for the missing values in model covariates was approximately 1.8 million people.

The poverty line used for the Poverty Mapping exercise was the mean of the PDL at the regional level using the survey. The poverty lines expressed in pulas are: 1,371 pulas for Region 1; 1,478 for Region 2; 1,265 for Region 3; 1,577 for Region 4; 1,397 for Region 5; 1,347 for Region 6; 1,321 for Region 7; 1,169 for Region 8; and 1,332 for Region 9. Poverty lines were divided by household size given that the consumption aggregate is expressed in per capita terms.

Tables 1 to 6 present the summary statistics of census and survey variables that present comparable definitions in both questionnaires. Approximately 200 variables were created for which 40 percent of them is comparable between census and survey. The comparability is higher for household than for individual variables. For the latter, the percentage of variables statistically comparable is 23.1 percent (at the 90 percent confidence level) and 40.4 percent (at the 99 percent confidence level). In contrast, for household variables the range falls between 40.4 to 52.2 percent for the same confidence levels. The current exercise is based on the selection of variables using the 95 percent confidence level criterion.

[13]The regions are compounded by the following districts: Region 1 Selibe Phikwe, Orapa, Sowa Town, Central Serowe/Palapye, Central Mahalapye, Central Bobonong, Central Boteti, and Central Tutume; Region 2 Ngamiland East, Ngamiland West, and Chobe; Region 3 Ghanzi; Region 4 Kgalagadi South and Kgalagadi North, Region 5 Kgatleng; Region 6 Kweneng East and Kweneng West; Region 7 Francistown and North East; Region 8 Gaborone, Lobatse, and South East; and Region 9 Jwaneng, Southern, Barolong, and Ngwaketse West.

Household level variables such as household tenure, water source, some classifications of type of toilet, lighting, cooking and heating are comparable between both sources. However, income sources and assets are, in the majority of cases, not comparable between survey and census. Regarding individual characteristics, some classifications of civil status, disability, schooling and a few industry variables of the household head are comparable. We also created several household size groups for which the classifications representing a large number of household members were significantly comparable between census and survey.

For continuous variables, tests of equality of distributions have been calculated in the Poverty Map software. After comparing cumulative distributions, the following continuous variables were comparable between census and survey: age, household size, proportion of children between 0-15, 12-17, and 6-11, proportion of females, proportion of adults between 18-64 and older than 65, proportion of household members that are currently working, proportion of adults, number of rooms in the dwelling and proportion of adults that attended school. Using the comparable variables, several econometric models were estimated. The model with the highest root mean square error (RMSE) and adjusted R^2 was used to estimate poverty rates at the village level. It is worth mentioning that the limited number of comparable variables between census and survey represents a concern for reducing the household effect in our econometric models. The main consequence of this limitation is the low prediction power of econometric models and as a result, this will be reflected on the precision of Poverty Map estimates. The following section discusses the model selection, main findings and the precision of our Poverty Map estimates.

5. Results

Several econometric models of per capita adult-equivalent consumption were estimated by using the set of comparable variables, interactions and village level variables constructed with census records.[14] The next sections summarize the model selection and the main findings of the Poverty Map. We suggest the reader to skip section 5.1 if he is not interested in the details of the different models.

5.1 Model Selection

The current study considered a national level model including several interactions of district and regional dummies with comparable variables. We modeled the logarithm of adult equivalent consumption (LNEXP) and the logarithm of the per capita adult equivalent consumption (per capita LNEXP). The RMSEs of the LNEXP models range from 0.7590 to 0.7728 and the RMSEs of the per capita LNEXP range from 0.749 to 0.805. The adjusted R2s present values from 0.27 to 0.30 for the LNEXP models and from 0.48 to 0.54 for the per capita models. We decided to carry out the rest of the analysis based on per capita LNEXP models.

Table A presents the results of five econometric models of per capita LNEXP. Model 1 includes only comparable variables, Model 2 includes comparable variables and interactions with district and region dummies, Model 3 includes comparable variables, interactions and village level variables, and Model 4 and 5 are more parsimonious models (fewer variables) using all types of variables as in Model 3. Based on the highest adjusted R^2, the smallest RMSE and the smallest cluster effect at the village level, Model 3 was identified as the best model for carrying out the Poverty Mapping.

Table A: Model Selection Per Capita Logarithm of Adult Equivalent

	Adj R^2	RMSE	Cluster Effect	No. Variables
Model 1	0.5	0.782	0.049	28
Model 2	0.52	0.762	0.045	38
Model 3	**0.54**	**0.749**	**0.027**	**63**
Model 4	0.53	0.758	0.041	46
Model 5	0.48	0.805	0.05	18

Note: Model 1 uses only comparable variables, Model 2 uses comparable variables and interactions, and Models 3 to 5 contain comparable variables, interactions and village lable variables

[14]The Statistics Botswana and the Botswana's Poverty Eradication Team kindly provided school and health data at the village level for most of the villages in Botswana. The lack of information of some villages did not allow us to use these variables in our econometric models.

Figure 1 of Appendix of Figures present residual diagnostic plots for Models 1 to 3. Model 1 and 2 present some extreme outliers that may be detrimental for our final poverty estimation. Model 3 does not indicate extreme outliers with exception of 2 values close to 4 and -4. Figure 2 shows the residuals of the consumption models 1 2 and 3 (these models are also known as beta models based on the ELL method). We observe that the tales of the distributions gradually shrink and the shape of the distributions appear more symmetric.

Finally Figures 3 and 4 present quartile and quartile plots. These are probability plots that show the quartiles of the residual probability distribution. The 45 degree line indicates the similarity of both residuals. In the first case, we contrast the residuals of LNEXP with the residuals of per capital LNEXP. Figure 3 does not indicate differences between them with exception of the extremes of the distribution (values below -3 and values above 3). Similarly, Figure 4 compares the residuals of Model 1 and Model 3 (per capital LNEXP models). This figure does not reveal differences between both types of residuals with exception of the extreme values of the residual distributions.

The model used for the Poverty Mapping (Model 3) is presented in Table 7 of Appendix of Tables, including the alpha model in Table 8 and the GLS model in Table 9. The main model uses household, interactions and village level variables. After running the alpha models of Model 1 to Model 5 using district dummies and stepwise selection separately, the final alpha model uses only district dummies.[15]

5.2 Main findings

Table 10 presents the poverty incidence at the national and regional level calculated in the survey and estimated by the Poverty Map. The national poverty estimated by the Poverty Map method is 22 percent. Both sources show that Region 1 and 2 are among the regions with the highest poverty incidence.[16] The Poverty Map also highlights Region 9 as a region with high poverty incidence. By looking at the confidence intervals of Region 2 and Region 9, we observe that these regions present much higher confidence intervals than the national poverty rate. Although the comparison between the survey and poverty map estimates is a "naive" assessment of our main findings, Table 10 shows the ranking of poverty estimates at the regional level using the BCWIS and the Poverty Map estimates including their confidence intervals.

5.2.1 District Poverty in Botswana

The focus of this report is primarily on village poverty rates. However, we provide to the reader the district poverty rates estimated by the Poverty Map given that these are contrasted with village poverty rates in the following subsection. To obtain these estimates, the cluster effect was defined at the district level.

When survey and Poverty Map district poverty rates are contrasted, in the majority of cases the Poverty Map produces more precise poverty rates than the ones calculated in the survey. Some of the districts that present better precision in their poverty rates are: Lobatse, Jwaneng, Chobe, Ghanzi and Kgalagadi South. As shown in Table 11, the majority of district poverty estimates present coefficients of variation under 20 percent calculated by the Poverty Map, whereas for about 50 percent of districts in the survey present coefficients of variation bigger than 20 percent. [17]

District poverty estimates show Ngwaketse West (50 percent), Ngamiland West (38 percent), Okavango Delta (35 percent), Central Bobonong (35 percent) and Kweneng West (35 percent) as the poorest districts in Botswana. These districts are followed by Ngwaketse (33 percent), Barolong (33 percent), Central Boteti (33 percent) and Ngamiland East (31 percent).

5.2.2 Village poverty in Botswana

Table 12 summarizes the twenty villages with the lowest and highest poverty incidence. From the set of villages with the lowest poverty incidence, Gaborone, South East, Francistown and Selibe Phikwe contain villages with low poverty rates, but high concentration of the poor. These villages concentrate 5.3 percent of the total number of poor population in Botswana. It is worth highlighting that several villages enlisted in Table 12 present large standard errors as a result of their small number of observations.

[15]Previous explorations with Hungarian data point out that the selection of a simple alpha model (e.g. using district or regional dummies) produces smaller standard errors of Poverty Map estimates. This result is also found with the Botswana's survey.

[16]Poverty incidence corresponds to the total number of people that belongs to a specific geographical partition that presents an adult equivalent consumption below the poverty line over the total number of people living/belonging to that geographical partition. For regional poverty, the poverty incidence corresponds to the ratio of poor population belonging to or living in a specific region to the total population of the region.

[17] The coefficient of variation is the ratio of the poverty standard error to the poverty rate.

From the twenty villages with the highest poverty incidence, the districts containing the poorest villages are Ngwaketse and Ngwaketse West. The twenty poorest villages present poverty rates from 62 percent to 77 percent. These villages concentrate 3.5 percent of the poorest population of the country.

To summarize the geographical dispersion of village poverty incidence, Figures 5 and 6 present the visual representation of Botswana showing the poverty incidence and density at the village level, respectively. [18] Figure 5 shows the proportion of individuals whose adult-equivalent consumption is below the poverty line to the total number of inhabitants of the village. This figure reveals that the poverty incidence is concentrated in the north of the Kgalagadi district, the district borders of Kweneng and Southern/Ngwaketse districts and the north of Ngamiland. This figure also highlights the low poverty rates around Gaborone and Francistown (see the blue circles representing poverty rates under 20 percent). However, this measure does not take into account the number of inhabitants in the villages. For this reason, Figure 6 presents the total number of poor individuals that exist in each village. As it is expected, those districts with the highest population density present the highest levels of poverty density. Based on this indicator, the districts with the highest concentration of poor population are: the south of the North East district, south and east of the Central district and the district borders of Kweneng and Southern districts. As noted before, Kweneng and Southern districts also present high poverty incidence.

5.2.3 Precision of poverty estimates

The precision of poverty estimates in Poverty Mapping relies on the set of comparable variables between census and survey, the prediction power of the econometric model, the number of observations in the target population and the type of simulation used for obtaining consumption aggregates for each household record. Even though around 40 percent of the constructed variables are comparable between census and survey, the precision of village level estimates is limited. For this reason, we provide a further discussion about the precision of poverty estimates based on their standard errors derived from the Poverty Mapping exercise.

Figure 7 displays village poverty rates and their corresponding 90 and 95 percent confidence intervals. In general, these confidence intervals look uniform across the village poverty distribution. This means that the precision of high and low poverty rates is similar. However, village poverty rates between 30 to 40 percent are highly imprecise. In addition, these plots also help in identifying the statistically differences among villages. For instance, poverty rates between 50 to 70 percent are significantly different from the villages between 0 to 25 percent. Because the confidence interval of poverty rates between 50 to 70 percent falls inside the confidence interval of poverty rates between 25 to 50 percent, we cannot conclude that there are significant differences among village poverty rates between 25 to 70 percent at the 90 percent confidence level.

To complement the discussion of the precision of village poverty estimates, we provide pairwise comparisons. These comparisons help in understanding how different the poverty incidence of village A is from village B within the country or within the district. Figure 8 of the Appendix of Figures displays the percentage of pairwise comparisons among all villages in the country. This figure shows the percentage of villages that present statistically significant differences among them. For instance, 35 percent of the pairwise comparisons among village poverty estimates are significantly different at the 95 percent confidence level. However, after applying a Bonferroni correction (significance level over the total number of pairwise comparisons), we observe in Figure 9 that around 4 percent of the comparisons are significantly different at the 95 percent confidence level. Because this percentage is smaller than the chosen significance level, based on the Bonferroni correction we cannot conclude that village poverty rates are significantly different within the country. It is worth highlighting that the number of village pairwise comparisons is 124,750. To find significant differences among villages at the 95 percent confidence level our village poverty rates must be extremely precise. In other words, the p-value of our pairwise comparisons must be lower than 0.0000004 (alpha/total number of pairwise comparisons = 0.05/124,750). For this reason, we provide to the reader the uncorrected and Bonferroni corrected pairwise comparisons.[19]

Figure 10 shows the percentage of statistically significant different pairwise comparisons of villages within a district at varying confidence levels. Because there are 7 districts of 27 with only one village, these districts are not considered in Figure 10. The panel of the 90 percent confidence level reveals that 5 districts of 20 have villages with poverty rates significantly different from the villages of the district. The percentage of villages is above 15 percent. The panel of the 99 percent confidence level reveals that in 3 districts about 20 percent of the village pairwise comparisons are significantly different. This figure suggests that there are a few villages that are significantly different within the districts.

[18] Poverty density is defined as the ratio of poor population in the village to the total population living in poverty at the national level. For instance, if village A presents a density of 0.02, this is interpreted as 2 percent of the total number of poor population is concentrated in the village A. Figure 4 is represented by groups of poor population, the total number of poor individuals in the country, based on the Poverty Map estimates, is 376,913 people.

[19]The Bonferroni Correction aims at minimizing the Type I error (rejection of the null hypothesis when it is true). However, this correction comes at the cost of increasing the Type II error (non-rejection of the null hypothesis when it is false). The team provides the uncorrected and corrected pairwise comparisons in Figures 8 and 9 to provide a more complete picture of the precision of village poverty estimates. The rest of pairwise comparisons use Bonferroni corrections

What is the application of the main findings for policy making? We must recall the main purpose of our Poverty Map. For the Botswana's case, the main aim of this exercise is to understand the heterogeneity of districts by analysing village poverty incidence. The advantage of understanding how different these villages are from each other helps in efficiently allocating government resources to the poorest population. If village poverty is quite homogenous within the district, there is no evidence in favour of public resource allocation at the village level.

To provide further evidence about how different district poverty rates are from village poverty rates, Figure 11 presents the graphics of the proportion of villages that present a significantly different poverty rate from the district poverty rate. This figure shows that at the 95 percent confidence level 8 districts of 27 have villages with significantly different poverty rates from the district poverty rate. In about 7 districts up to 20 percent of the villages significantly differ in their poverty rate from the district one. In one district, 45 percent of its villages significantly differ from the district poverty rate.

5.2.4 Further checks: Application of Empirical Bayes Prediction

Using a household survey and census records, the current study uses the standard ELL method to estimate village poverty rates. Recent extensions of the standard ELL are based on the use of Empirical Bayes (EB) prediction to accurately predict nonlinear functions of the dependent variable (Elbers and van der Weide, 2014). The authors point out that the benefits of using EB estimation might be modest when the number of domains covered by the household survey is small (between 5 to 25 percent of all domains in the population). However, the EB approach may have clear benefits when the number of domains is larger (between 50 to 100 percent). [20]

The BCWIS covers 152 villages out of 500 (30 percent) which makes us believe that the EB approach may have a modest contribution to our Poverty Map. However, the team decided to re-run the beta model using the EB prediction. Figures 12 and 13 summarize the main results. Figure 12 displays village poverty rates including their 90 and 95 percent confidence intervals. Comparing Figure 7 with Figure 12, there are no clear differences between both approaches.

It is worth mentioning that EB approach will provide the same poverty rates as the ELL method for those villages that do not appear in survey data. However, for those villages appearing in the survey, the EB may differ from the ELL. As a result, Figure 13 shows the Poverty Map estimates of those villages that were sampled in the survey (152 villages). [21] This figure shows that the EB produces similar results to the ELL approach.

6. Conclusions

This report has provided consumption-based Poverty Map estimates at the district and village levels in Botswana using the Botswana Core Welfare Indicators Survey and the Population Census 2011. The poverty map has produced a range of poverty rates including their standard errors for testing statistical differences among villages and between villages and other geographical levels.

After analysing the precision of the poverty estimates at the village level, we conclude that the precision of village estimates allows a limited analysis of the differences among villages. However, the main findings highlight that at the 95 percent confidence level, 8 districts of 27 have villages with significantly different poverty rates from the district poverty rate. In about 7 districts up to 20 percent of the villages significantly differ in their poverty rate from the district poverty rate. Additionally, in one district, 45 percent of its villages significantly differ from the district poverty rate. This result provides evidence for targeting social programmes at the village level in those districts presenting villages with poverty rates significantly different from the district poverty rates. The Poverty Map also provides more reliable estimates of village and district poverty estimates than the survey data.

This report emphasizes the need to complement the analysis of poverty incidence with the identification of areas with a large concentration of poor people. In several cases, the rankings derived from both welfare indicators provide different conclusions as a result of the density of the poor population in villages.

To sum up, the Poverty Map estimates shed light on the geographic dispersion and concentration of poverty among villages. This information holds important value for policy-makers to prioritize the use of scarce resources in areas that need them most. To improve the prediction of consumption aggregates, we strongly recommend the availability of infrastructure data at varying sub-district levels for future Poverty Map exercises.

[20] For further details about the EB approach, see Elbers and van der Weide (2014) and van der Weide (2014) where the latter provides a practical implementation by using the latest version of the PovMap software 2.5.

[21] The village identifiers of Figures 12 and 13 are constructed by sorting the village poverty data from lowest to poorest. These identifiers are kept for Figure 13. The reader should have in mind that Figure 13 only contains 152 villages.

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Appendix of Tables

Table 1: Descriptive Statistics: Dwelling characteristics (rooms, house tenure, and water source)

Variable	Survey			Census	Comparability
	Mean	Min CI-95	Max CI-95	Mean	
No. of rooms (continuous)	2.440	2.378	2.502	2.333	no
House tenure: Purchased	0.034	0.026	0.041	0.016	no
House tenure: Rent BHC	0.015	0.010	0.020	0.011	yes
House tenure: Rent - Government	0.040	0.028	0.051	0.040	yes
House tenure: Rent - Council	0.017	0.012	0.021	0.014	yes
House tenure: Rent - Individual	0.242	0.218	0.267	0.251	yes
House tenure: Rent - Company	0.023	0.016	0.030	0.020	yes
House tenure: Rent - VDC	0.008	0.005	0.010	0.007	yes
House tenure: Free	0.083	0.069	0.097	0.086	yes
House tenure: Inherited	0.038	0.033	0.044	0.021	no
House tenure: Self built	0.500	0.475	0.525	0.535	no
Water: Piped Indoors	0.303	0.275	0.330	0.302	yes
Water: Piped outdoors	0.411	0.384	0.438	0.401	yes
Water: Neighbour/Communal tap	0.181	0.157	0.206	0.206	yes
Water: Bouser/Tanker	0.009	0.005	0.014	0.011	yes
Water: Well	0.013	0.008	0.018	0.009	yes
Water: Borehole	0.046	0.035	0.056	0.049	yes
Water: River/Stream	0.016	0.006	0.026	0.014	yes
Water: Dam/Pan	0.011	0.005	0.016	0.007	yes
Water: Rain water tank	0.001	0.000	0.002	0.001	yes
Water: Spring water	0.001	0.000	0.002	0.000	yes

Table 2. Descriptive Statistics: Dwelling characteristics (type of toilet, lighting, cooking source, and heating)

Variable	Survey			Census	Comparability
	Mean	Min CI-95	Max CI-95	Mean	
Toilet: Flush toilet	0.286	0.259	0.313	0.338	no
Toilet: Ventilated improve pit (VIP) latrine	0.089	0.076	0.102	0.033	no
Toilet: Pit latrine	0.385	0.359	0.411	0.422	no
Toilet: Flush communal toilet	0.007	0.003	0.010	0.001	no
Toilet: VIP communal	0.003	0.001	0.005	0.000	no
Toilet: Pit latrine communal	0.032	0.026	0.039	0.006	no
Toilet: Neighbour's toilet	0.044	0.037	0.052	0.047	yes
Toilet: None or dry compost	0.153	0.134	0.173	0.153	yes
Light: Electricity, petrol, diesel, other	0.472	0.446	0.497	0.451	yes
Light: Solar power	0.001	0.001	0.002	0.002	yes
Light: Gas (LPG)	0.002	0.001	0.004	0.011	no
Light: Bio gas	0.000	0.000	0.001	0.001	yes
Light: Wood	0.030	0.023	0.037	0.532	no
Light: Paraffin	0.316	0.296	0.336	0.003	no
Light: Candle	0.175	0.159	0.190	0.001	no
Cooking: Electricity, petrol, diesel, other	0.135	0.120	0.149	0.178	no
Cooking: Solar power	0.001	0.000	0.001	0.001	yes
Cooking: Gas (LPG)	0.397	0.375	0.418	0.380	yes
Cooking: Bio gas	0.035	0.025	0.045	0.009	no
Cooking: Wood	0.411	0.385	0.436	0.414	yes
Cooking: Paraffin	0.021	0.017	0.026	0.015	no
Cooking: Cow dung	0.000	0.000	0.000	0.001	no
Cooking: Coal	0.001	-0.001	0.002	0.000	yes
Cooking: Charcoal	0.000	0.000	0.000	0.001	no
Cooking: Crop waste	0.000	0.000	0.000	0.000	yes
Heating: Electricity, petrol, diesel, other	0.241	0.220	0.262	0.168	no
Heating: Solar power	0.001	0.000	0.002	0.001	yes
Heating: Gas (LPG) or bio gas	0.047	0.039	0.055	0.011	no
Heating: Wood	0.433	0.408	0.458	0.479	no
Heating: Paraffin	0.014	0.010	0.018	0.003	no
Heating: Cow dung	0.002	0.001	0.003	0.000	no
Heating: Coal	0.002	0.000	0.004	0.001	yes
Heating: Charcoal	0.000	0.000	0.001	0.002	no
Heating: None	0.261	0.238	0.283	0.335	no

Table 3. Descriptive Statistics: Sources of income and assets

Variable	Survey			Census	Comparability
	Mean	Min CI-95	Max CI-95	Mean	
Income: agriculture	0.028	0.022	0.034	0.217	no
Income: enterprise	0.065	0.058	0.072	0.107	no
Income: Wages	0.615	0.596	0.635	0.407	no
Income: Rent	0.022	0.018	0.027	0.007	no
Income: Pensions	0.099	0.089	0.108	0.035	no
Income: Remittances	0.091	0.081	0.101	0.041	no
Income: Gov. benefits	0.062	0.054	0.071	0.015	no
Income: Family transf.	0.015	0.011	0.019	0.006	no
Income: Livestock	0.353	0.333	0.373	0.565	no
Cattle	0.234	0.218	0.250	0.352	no
Goats	0.231	0.215	0.247	0.336	no
Sheep	0.055	0.048	0.063	0.067	no
Pigs	0.006	0.004	0.008	0.008	yes
Poultry	0.117	0.105	0.129	0.370	no
Donkey/mule/horse	0.056	0.049	0.064	0.178	no
Other livestock	0.009	0.006	0.012	0.005	no
Van	0.119	0.108	0.130	0.152	no
Tractor	0.011	0.008	0.013	0.020	no
Car	0.164	0.149	0.179	0.199	no
Donkey Cart	0.121	0.110	0.133	0.118	yes
Bicycle	0.125	0.113	0.136	0.100	no
Wheel Barrow	0.365	0.346	0.384	0.335	no
Machine	0.065	0.057	0.073	0.047	no
Fridge/Freezer	0.411	0.390	0.432	0.437	no
Motor cycle	0.006	0.004	0.008	0.006	yes
PC or laptop	0.109	0.096	0.122	0.167	no
Radio	0.577	0.561	0.592	0.619	no
TV	0.490	0.469	0.510	0.544	no
Phone	0.086	0.076	0.096	0.109	no
Mobile	0.827	0.814	0.841	0.898	no

Table 4. Descriptive Statistics: Gender, civil status, disability, and schooling of household head

Variable	Survey			Census	Comparability
	Mean	Min CI-95	Max CI-95	Mean	
Gender	0.541	0.525	0.557	0.524	no
Age in years	45.081	44.355	45.807	43.240	no
Citizenship	2.310	1.927	2.694	3.546	no
Botswana national	0.938	0.930	0.947	0.931	yes
Married	0.270	0.255	0.284	0.271	yes
Never Married	0.373	0.357	0.389	0.368	yes
Civil union	0.203	0.188	0.218	0.253	no
Separated	0.013	0.010	0.016	0.008	no
Divorced	0.022	0.019	0.026	0.019	yes
Widowed	0.119	0.108	0.129	0.081	no
Disability of the eye	0.045	0.039	0.051	0.031	no
Disability of the ear	0.009	0.006	0.012	0.011	yes
Disability of speech	0.001	0.000	0.002	0.002	yes
Disability of a leg/legs	0.026	0.022	0.030	0.007	no
Disability of an arm/arms	0.008	0.006	0.010	0.004	no
Inability to use the whole body	0.001	0.000	0.001	0.001	yes
Intellectual impairment	0.003	0.002	0.004	0.001	no
Ever attended school	2.186	2.168	2.205	2.156	no
Edu: Still studying	0.041	0.034	0.047	0.034	yes
Edu: Primary	0.237	0.223	0.251	0.240	yes
Edu: Secondary	0.316	0.299	0.332	0.320	yes
Edu: Tertiary	0.209	0.192	0.227	0.238	no
Edu: Never	0.234	0.218	0.251	0.190	no
Edu: Missing	0.003	0.002	0.005	0.012	no

Table 5. Descriptive Statistics: Employment and household size of household head

Variable	Survey			Census	Comparability
	Mean	Min CI-95	Max CI-95	Mean	
Worked	0.713	0.695	0.732	0.638	no
Unemployed	0.053	0.044	0.061	0.067	no
Inactive	0.203	0.188	0.219	0.295	no
Unknown working condition	0.031	0.025	0.036	0.000	no
Management	0.028	0.023	0.033	0.036	no
Skilled Labour	0.449	0.431	0.467	0.353	no
Unskilled Labour	0.259	0.244	0.274	0.231	no
Agriculture	0.164	0.147	0.181	0.106	no
Industry	0.143	0.131	0.155	0.114	no
Services	0.428	0.408	0.449	0.418	yes
Mining	0.026	0.019	0.033	0.023	yes
Manufacture and utilities	0.059	0.052	0.066	0.038	no
Construction	0.058	0.05	0.066	0.053	yes
Trade	0.067	0.058	0.075	0.077	no
Transport and communications	0.021	0.017	0.025	0.022	yes
Financial activities	0.011	0.008	0.014	0.009	yes
Public administration	0.139	0.124	0.154	0.113	no
Health and education	0.064	0.052	0.076	0.085	no
Other services	0.127	0.116	0.138	0.112	no
Household Size (continuous)	3.477	3.375	3.579	3.540	yes
Hh size (one person)	0.296	0.28	0.312	0.279	no
Hh size 2-3 persons	0.307	0.296	0.318	0.319	no
Hh size 4-5 persons	0.212	0.199	0.225	0.209	yes
Hh size 6-7 persons	0.101	0.093	0.109	0.106	yes
Hh size 8 or more persons	0.085	0.076	0.093	0.088	yes

Table 6. Descriptive Statistics: Other socio-demographic characteristics

Variable	Survey			Census	Comparability
	Mean	Min CI-95	Max CI-95	Mean	
No. of children 0 to 5	0.482	0.454	0.511	0.517	no
No. of children 6 to 11	0.467	0.438	0.496	0.463	yes
No. of children 0 to 11	0.949	0.898	1.001	0.980	yes
No. of children 12 to 17	0.439	0.413	0.466	0.400	no
No. of adults 18 to 64	1.889	1.850	1.929	1.977	no
No. of adults 65 or more	0.199	0.183	0.215	0.183	yes
Female hh head	0.018	0.018	0.019	0.018	yes
Proportion of nationals	0.940	0.931	0.949	0.933	yes
Proportion of males	0.522	0.510	0.535	0.532	yes
Proportion of females	0.478	0.465	0.490	0.468	yes
Proportion of children 0 to 5	0.088	0.083	0.092	0.094	no
Proportion of children 6 to 11	0.084	0.080	0.089	0.084	yes
Proportion of children 0 to 11	0.172	0.164	0.180	0.178	yes
Proportion of children 12 to 17	0.088	0.083	0.093	0.080	no
Proportion of adults 18 to 64	0.670	0.657	0.682	0.681	yes
Proportion of adults 65 or older	0.071	0.065	0.078	0.060	no
Prop. of adults attended school	0.786	0.775	0.798	0.804	no
Live births	1.289	1.234	1.345	1.722	no
Disability in the HH	0.557	0.529	0.585	0.000	no
Disability of the eye in the HH	0.075	0.067	0.084	0.048	no
Disability of the ear in the HH	0.023	0.018	0.027	0.020	yes
Disability of speech in the HH	0.005	0.003	0.007	0.011	no
Disability of a leg/legs in the HH	0.045	0.039	0.051	0.014	no
Disability of an arm/arms in the HH	0.014	0.011	0.017	0.008	no
Inability to use body in the HH	0.002	0.001	0.003	0.003	yes
Intellectual impairment in the HH	0.016	0.012	0.019	0.004	no

Table 7. OLS model of the logarithm of per capita adult equivalent expenditure

Variables	Coefficient Std.	Error	P-Value
Intercept	7.06	0.21	0.000
Agriculture Income (Village)	-0.30	0.18	0.097
Agriculture Proportion (Village)	0.85	0.19	0.000
Cooking: Gas (LPG)	0.05	0.03	0.076
Cooking: Wood	-0.08	0.04	0.044
Donkey Cart (Village)	-0.53	0.23	0.022
Goats (Village)	1.10	0.22	0.000
Household Size	-0.33	0.02	0.000
House tenure: Self built (Village)	-0.49	0.13	0.000
House tenure: Rent BHC	-0.18	0.08	0.024
House tenure: Rent Individual	-0.07	0.03	0.034
District: Lobatse	-0.31	0.07	0.000
District: Sowa Town	-0.49	0.15	0.001
District: Central Boteti	-0.19	0.07	0.006
Income source: wages (Village)	-0.48	0.18	0.008
Industry (Village)	1.10	0.34	0.001
Light: Electricity, petrol, diesel, other	0.19	0.03	0.000
Married household head	0.46	0.09	0.000
Motor Cycle	0.34	0.13	0.010
Mining	0.20	0.07	0.003
No. of rooms: 3 to 4	0.22	0.07	0.002
Pigs	0.49	0.13	0.000
Primary education (hh head)	-0.52	0.09	0.000
Proportion of adults 18 to 64	0.00	0.00	0.000
Proportion of adults older than 64	0.00	0.00	0.000
Proportion of female	-0.01	0.00	0.000
Proportion of adults that attended school	0.00	0.00	0.002
Radio (Village)	0.41	0.18	0.021
Secundary education (hh head)	-0.55	0.08	0.000
Sector: Services	-0.14	0.07	0.055
Still studying (hh head)	0.13	0.06	0.019
Toilet: Flush toilet (Village)	0.24	0.04	0.000
Toilet: Ventilated improved pit latrine (Village)	-0.75	0.28	0.008
Water: Piped indoors	0.15	0.04	0.000
Water: Barehole	-0.15	0.06	0.019
Water: River/Stream	-0.36	0.12	0.002
Age*Age	0.00	0.00	0.000
Age*household size	0.00	0.00	0.000
Age*District: Central Mahalapye	0.00	0.00	0.027
Age*District: Central Tutume	0.00	0.00	0.000
Age*Kgalagadi South	0.01	0.00	0.002
Age*Married household head	-0.01	0.00	0.000
Age*Never Married household head	0.00	0.00	0.019
Age*No. rooms 3 to 4	0.00	0.00	0.018
Age*Primary education (hh head)	0.01	0.00	0.000
Age*Secondary education (hh head)	0.01	0.00	0.000

Table 7. OLS model of the logarithm of per capita adult equivalent expenditure cont'd

Variables	Coefficient Std.	Error	P-Value
Age*Services	0.00	0.00	0.002
Household Size*Household Size	0.01	0.00	0.000
Household Size*House tenure: Free	-0.04	0.02	0.061
Household Size*Central Mahalapye	0.07	0.02	0.000
District: Selebi Pikwe*Prop. adults 18 to 64	-0.01	0.00	0.000
District: Selebi Pikwe*Prop. children 0 to 11	0.00	0.00	0.049
District: Orapa*Prop. adults 18 to 64	-0.01	0.00	0.000
District: Jwaneng*Prop. adults 18 to 64	-0.01	0.00	0.000
District: Barolong*Prop. adults 18 to 64	0.00	0.00	0.024
District: Central Bobonong*prop. children 0 to 11	0.00	0.00	0.037
District: North East*Prop. adults 18 to 64	0.00	0.00	0.001
Region 8*Hosehold Size	0.02	0.01	0.012
Region 9*Prop. Inactive people (Village)	1.01	0.33	0.003
Region 9*Prop. of people without education (Village)	-2.09	0.45	0.000
Region 9*Prop. of unemployed people (Village)	2.51	0.93	0.007
Proportion of female*Proportion of female	0.00	0.00	0.000
Prop. of adults that attended school*Prop. of adults that worked	0.00	0.00	0.000

Note: Number of observations 6819, SST=8344.0897, SSR=4557.1976, MSE=0.5605 RMSE=0.7487, F=131.1333, R2=0.5462, adjR2=0.5420.

Table 8. Alpha Model

Variables	CoefficienStd.	Error	P-Value
Intercept	-5.01	0.04	0.000
District: Ngwaketse West	-0.60	0.33	0.073
District: Kweneng East	-0.34	0.11	0.003
District: Kgatleng	-0.26	0.14	0.068
District: Central Bobonong	-0.27	0.15	0.076
District: North East	-0.36	0.18	0.047
District: Ngamiland East	0.48	0.15	0.002

Note: Number of observations=6819, SST=36389.2505, SSR=205.5504, MSE=5.3118 RMSE=2.3047, F=6.4495, R2=0.0056, adjR2=0.0048.

Table 9. GLS model of the logarithm of per capita adult equivalent expenditure

Variables	Coefficien Std.	Error	P-Value
Intercept	6.95	0.19	0.000
Agriculture Income (Village)	-0.29	0.16	0.080
Agriculture Proportion (Village)	0.78	0.17	0.000
Cooking: Gas (LPG)	0.05	0.03	0.061
Cooking: Wood	-0.08	0.04	0.021
Donkey Cart (Village)	-0.63	0.21	0.003
Goats (Village)	1.15	0.20	0.000
Household Size	-0.32	0.02	0.000
House tenure: Self built (Village)	-0.42	0.12	0.001
House tenure: Rent BHC	-0.18	0.07	0.015
House tenure: Rent Individual	-0.07	0.03	0.022
District: Lobatse	-0.30	0.07	0.000
District: Sowa Town	-0.51	0.14	0.000
District: Central Boteti	-0.20	0.06	0.002
Income source: wages (Village)	-0.43	0.17	0.010
Industry (Village)	1.12	0.31	0.000
Light: Electricity, petrol, diesel, other	0.19	0.03	0.000
Married household head	0.46	0.08	0.000
Motor Cycle	0.33	0.12	0.005
Mining	0.20	0.06	0.002
No. of rooms: 3 to 4	0.24	0.07	0.000
Pigs	0.51	0.12	0.000
Primary education (hh head)	-0.49	0.09	0.000
Proportion of adults 18 to 64	0.00	0.00	0.000
Proportion of adults older than 64	0.00	0.00	0.000
Proportion of female	-0.01	0.00	0.000
Proportion of adults that attended school	0.00	0.00	0.001
Radio (Village)	0.46	0.16	0.004
Secundary education (hh head)	-0.52	0.08	0.000
Sector: Services	-0.12	0.07	0.059
Still studying (hh head)	0.14	0.05	0.006
Toilet: Flush toilet (Village)	0.25	0.04	0.000
Toilet: Ventilated improved pit latrine (Village)	-0.70	0.26	0.006
Water: Piped indoors	0.15	0.04	0.000
Water: Barehole	-0.15	0.06	0.009
Water: River/Stream	-0.36	0.11	0.001
Age*Age	0.00	0.00	0.000
Age*household size	0.00	0.00	0.000
Age*District: Central Mahalapye	0.00	0.00	0.016
Age*District: Central Tutume	0.00	0.00	0.000
Age*Kgalagadi South	0.01	0.00	0.001
Age*Married household head	-0.01	0.00	0.000
Age*Never Married household head	0.00	0.00	0.013
Age*No. rooms 3 to 4	0.00	0.00	0.004
Age*Primary education (hh head)	0.01	0.00	0.000
Age*Secondary education (hh head)	0.01	0.00	0.000

Table 9. GLS model of the logarithm of per capita adult equivalent expenditure cont'd

Variables	Coefficien Std.	Error	P-Value
Age*Services	0.00	0.00	0.002
Household Size*Household Size	0.01	0.00	0.000
Household Size*House tenure: Free	-0.03	0.02	0.077
Household Size*Central Mahalapye	0.07	0.02	0.000
District: Selebi Pikwe*Prop. adults 18 to 64	-0.01	0.00	0.000
District: Selebi Pikwe*Prop. children 0 to 11	0.00	0.00	0.037
District: Orapa*Prop. adults 18 to 64	-0.01	0.00	0.000
District: Jwaneng*Prop. adults 18 to 64	-0.01	0.00	0.000
District: Barolong*Prop. adults 18 to 64	0.00	0.00	0.017
District: Central Bobonong*prop. children 0 to 11	0.00	0.00	0.016
District: North East*Prop. adults 18 to 64	0.00	0.00	0.000
Region 8*Hosehold Size	0.02	0.01	0.005
Region 9*Prop. Inactive people (Village)	0.87	0.30	0.004
Region 9*Prop. of people without education (Village)	-1.86	0.41	0.000
Region 9*Prop. of unemployed people (Village)	0.00	0.00	0.000
Proportion of female*Proportion of female	0.00	0.00	0.000
Prop. of adults that attended school*Prop. of adults that worked	2.44	0.74	0.001

Table 10. Regional Poverty Comparison between survey and Poverty Map estimates

Region	Survey			Poverty Map		
	Poverty	CIMin95	CIMax95	Poverty	CIMin95	CIMax95
1	0.23	0.2	0.26	0.25	0.18	0.32
2	0.3	0.2	0.4	0.31	0.24	0.39
3	0.26	0.12	0.4	0.29	0.22	0.36
4	0.2	0.13	0.26	0.23	0.16	0.29
5	0.2	0.13	0.27	0.2	0.14	0.26
6	0.2	0.15	0.26	0.24	0.18	0.3
7	0.13	0.08	0.17	0.13	0.09	0.17
8	0.09	0.06	0.12	0.06	0.04	0.09
9	0.2	0.15	0.25	0.32	0.25	0.39
National	0.19	0.18	0.21	0.22	0.19	0.25

Note: The regions are compounded by the following districts: **Region 1** Selibe Phikwe, Orapa, Sowa Town, Central Serowe/Palapye, Central Mahalapye, Central Bobonong, Central Boteti, and Central Tutume; **Region 2** Ngamiland East, Ngamiland West, and Chobe; **Region 3** Ghanzi; **Region 4** Kgalagadi South and Kgalagadi North, **Region 5** Kgatleng; **Region 6** Kweneng East and Kweneng West; ***Region 7*** Francistown and North East; **Region 8** Gaborone, Lobatse, and South East; and **Region 9** Jwaneng, Southern, Barolong, and Ngwaketse West. Poverty Map estimates at the regional and national level were estimated identifying the cluster effect at the regional level.

Table 11. District Poverty: Comparison between survey and census poverty estimates

District	Survey				Poverty Map			
	Poverty	CIMin95	CIMax95	CoefVar	Poverty	CIMin95	CIMax95	CoefVar
	(1)	(2)	(3	(4)	(5)	(6)	(7)	(8)
Gaborone	0.06	0.04	0.08	0.20	0.03	0.02	0.05	0.26
Francistown	0.08	0.04	0.12	0.27	0.10	0.06	0.13	0.18
Lobatse	0.15	0.05	0.25	0.33	0.14	0.09	0.19	0.19
Selibe Phikwe	0.14	0.06	0.22	0.28	0.11	0.07	0.14	0.16
Orapa	-	-	-	-	0.01	0.00	0.01	0.57
Jwaneng	0.03	-0.01	0.07	0.63	0.03	0.01	0.04	0.33
Sowa Town	0.07	-0.03	0.17	0.76	0.03	0.00	0.06	0.47
Southern or Ngwaketse	0.18	0.12	0.23	0.16	0.33	0.26	0.39	0.10
Barolong	0.24	0.15	0.34	0.20	0.33	0.26	0.39	0.10
Ngwaketse West	0.47	0.21	0.73	0.28	0.50	0.40	0.60	0.10
South East	0.13	0.06	0.21	0.28	0.12	0.07	0.16	0.21
Kweneng East	0.18	0.12	0.23	0.16	0.22	0.15	0.29	0.17
Kweneng West	0.32	0.23	0.42	0.15	0.35	0.26	0.44	0.13
Kgatleng	0.20	0.13	0.27	0.18	0.21	0.14	0.27	0.17
Central Serowe/Palapye	0.27	0.21	0.34	0.13	0.27	0.21	0.33	0.11
Central Mahalapye	0.17	0.13	0.22	0.14	0.21	0.13	0.28	0.18
Central Bobonong	0.33	0.23	0.42	0.15	0.35	0.26	0.43	0.12
Central Boteti	0.31	0.22	0.4	0.15	0.33	0.19	0.47	0.21
Central Tutume	0.19	0.14	0.24	0.14	0.22	0.15	0.29	0.15
North East	0.20	0.15	0.25	0.13	0.19	0.12	0.26	0.19
Ngamiland East	0.23	0.15	0.3	0.17	0.31	0.24	0.37	0.11
Ngamiland West	0.46	0.29	0.64	0.19	0.38	0.28	0.47	0.13
Chobe	0.02	-0.02	0.06	0.88	0.20	0.14	0.25	0.15
Okavango Delta	-	-	-	-	0.35	0.21	0.49	0.20
Ghanzi	0.26	0.12	0.4	0.27	0.30	0.23	0.38	0.13
Kgalagadi South	0.17	0.07	0.27	0.29	0.23	0.16	0.30	0.15
Kgalagadi North	0.24	0.2	0.28	0.09	0.24	0.17	0.31	0.15

Note: Central Kgalagadi Game Reserve has been omitted from the table given that only 46 individuals are recorded in the census for this district.

Table 12.1 The twenty villages with the lowest and highest poverty incidence

Region	District	Village	Poverty	Std. Error	No. Poor	Prop.
Twenty Poor Villages With The Lowest Poverty Rates						
1	Orapa	Ora pa	0.01	0.004	62	0.000
9	Jwaneng	Jwaneng	0.03	0.008	342	0.001
8	Gaborone	Gaborone	0.03	0.009	5,804	0.016
1	Sowa town	Sowa Town	0.03	0.017	101	0.000
1	Central Mahalapye	Tumasera/Sel eka	0.03	0.028	11	0.000
8	South East	Tlokweng	0.04	0.011	1,438	0.004
1	Central Serowe Palapye	Moeng	0.05	0.027	17	0.000
2	Okavango	Katamga	0.05	0.068	2	0.000
9	Barolong	Musi	0.06	0.079	1	0.000
7	North East	Shashe Bridge	0.06	0.032	49	0.000
6	Kweneng East	Mogoditshane	0.07	0.015	3,022	0.008
7	North East	Masunga	0.07	0.019	296	0.001
5	Kgatleng	Matebeleng	0.08	0.028	160	0.000
2	Okavango	Daonara	0.09	0.115	3	0.000
7	Francistown	Francistown	0.1	0.019	7,909	0.021
1	Selebi Pikwe	Selebi Phikwe	0.11	0.02	4,630	0.012
5	Kgatleng	Mabalane	0.11	0.034	78	0.000
7	North East	Mambo	0.11	0.074	18	0.000
5	Kgatleng	Oodi	0.11	0.023	545	0.001
7	North East	Gulubane	0.12	0.048	93	0.000
Twenty Villages with the Highest Poverty Rates						
9	Ngwaketse	Kutuku	0.62	0.102	100	0.000
9	Southern	Gasita	0.62	0.064	1,201	0.003
9	Barolong	Lejwana	0.62	0.105	298	0.001
9	Southern	Sesung	0.62	0.068	440	0.001
9	Barolong	Tswaaneng	0.63	0.066	540	0.001
9	Southern	Lotlhakane West	0.64	0.065	1,030	0.003
9	Southern	Betesankwe	0.64	0.088	245	0.001
9	Southern	Pitseng	0.64	0.059	644	0.002
9	Southern	Ralekgetho	0.65	0.077	269	0.001
3	Ghanzi	Groote Laagte	0.65	0.064	579	0.002
9	Barolong	Sekhutlane	0.66	0.061	488	0.001
9	Ngwaketse West	Khonkhwa	0.67	0.063	343	0.001
1	Central Boteti	Khwee	0.67	0.071	637	0.002
9	Ngwaketse West	Mahotshwane	0.67	0.078	815	0.002
9	Southern	Selokolela	0.68	0.05	1,395	0.004
3	Ghanzi	Qabo	0.69	0.074	489	0.001
9	Southern	Lorolwana	0.69	0.057	1,147	0.003
9	Southern	Segwagwa	0.69	0.045	920	0.002
9	Southern	Tlhankane	0.74	0.058	502	0.001
9	Southern	Mokhomba	0.74	0.063	592	0.002
9	Ngwaketse West	Itholoke	0.77	0.065	437	0.001

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
1	Gaborone	Gaborone	59,136	181,385	**0.032**	0.009	0.031	0.008	5,804	374,233	**0.016**
2	Francistown	Francistown	25,706	80,705	**0.098**	0.019	0.097	0.017	7,909	374,233	**0.021**
3	Lobatse	Lobatse	6,789	21,573	**0.137**	0.025	0.139	0.026	2,956	374,233	**0.008**
4	Selebi Phikwe	Selebi Phikwe	13,986	43,271	**0.107**	0.02	0.107	0.017	4,630	374,233	**0.012**
5	Orapa	Orapa	3,211	8,857	**0.007**	0.004	0.007	0.004	62	374,233	**0.000**
6	Jwaneng	Jwaneng	4,529	13,162	**0.026**	0.008	0.027	0.009	342	374,233	**0.001**
7	Sowa Town	Sowa Town	1,145	3,055	**0.033**	0.017	0.032	0.015	101	374,233	**0.000**
10	Southern	Kanye	11,828	46,887	**0.236**	0.03	0.327	0.034	11,065	374,233	**0.030**
10	Southern	Ranaka	798	3,196	**0.359**	0.05	0.327	0.034	1,147	374,233	**0.003**
10	Southern	Lotlhakane West	318	1,614	**0.638**	0.065	0.327	0.034	1,030	374,233	**0.003**
10	Southern	Gasita	547	1,947	**0.617**	0.064	0.327	0.034	1,201	374,233	**0.003**
10	Southern	Lorolwana	413	1,660	**0.691**	0.057	0.327	0.034	1,147	374,233	**0.003**
10	Southern	Lehoko	117	514	**0.606**	0.073	0.327	0.034	311	374,233	**0.001**
10	Southern	Tsonyane	202	727	**0.509**	0.067	0.327	0.034	370	374,233	**0.001**
10	Southern	Kgomokasitwa	272	1,165	**0.22**	0.061	0.327	0.034	256	374,233	**0.001**
10	Southern	Pitseng	226	1,003	**0.642**	0.059	0.327	0.034	644	374,233	**0.002**
10	Southern	Mokhomba	193	799	**0.741**	0.063	0.327	0.034	592	374,233	**0.002**
10	Southern	Lekgolobotlo	202	920	**0.345**	0.069	0.327	0.034	317	374,233	**0.001**
10	Southern	Seherelela	130	653	**0.609**	0.073	0.327	0.034	398	374,233	**0.001**
10	Southern	Lotlhakane	997	4,486	**0.297**	0.04	0.327	0.034	1,332	374,233	**0.004**
10	Southern	Sese	617	2,603	**0.319**	0.056	0.327	0.034	830	374,233	**0.002**
10	Southern	Sesung	146	707	**0.622**	0.068	0.327	0.034	440	374,233	**0.001**
10	Southern	Magotlhwane	265	1,316	**0.408**	0.055	0.327	0.034	537	374,233	**0.001**
10	Southern	Segwagwa	299	1,327	**0.693**	0.045	0.327	0.034	920	374,233	**0.002**
10	Southern	Manyana	793	3,403	**0.295**	0.047	0.327	0.034	1,004	374,233	**0.003**
10	Southern	Maokane	479	1,715	**0.54**	0.057	0.327	0.034	926	374,233	**0.002**
10	Southern	Dipotsana	44	120	**0.183**	0.093	0.327	0.034	22	374,233	**0.000**
10	Southern	Diabo	91	232	**0.255**	0.083	0.327	0.034	59	374,233	**0.000**
10	Southern	Molapowabojang	2,136	8,719	**0.212**	0.037	0.327	0.034	1,848	374,233	**0.005**
10	Southern	Ralekgetho	93	417	**0.645**	0.077	0.327	0.034	269	374,233	**0.001**
10	Southern	Moshaneng	347	1,627	**0.607**	0.059	0.327	0.034	988	374,233	**0.003**
10	Southern	Moshupa	5,166	20,935	**0.317**	0.035	0.327	0.034	6,636	374,233	**0.018**
10	Southern	Ntlhantlhe	434	1,891	**0.395**	0.051	0.327	0.034	747	374,233	**0.002**
10	Southern	Tshwaane	40	144	**0.387**	0.111	0.327	0.034	56	374,233	**0.000**
10	Southern	Semane	264	720	**0.482**	0.068	0.327	0.034	347	374,233	**0.001**
10	Southern	Tlhankane	126	679	**0.739**	0.058	0.327	0.034	502	374,233	**0.001**
10	Southern	Selokolela	475	2,060	**0.677**	0.05	0.327	0.034	1,395	374,233	**0.004**
10	Southern	Mogonye	117	521	**0.255**	0.064	0.327	0.034	133	374,233	**0.000**
10	Southern	Betesankwe	87	383	**0.639**	0.088	0.327	0.034	245	374,233	**0.001**
11	Barolong	Pitsane Siding	667	2,680	**0.163**	0.032	0.326	0.032	437	374,233	**0.001**
11	Barolong	Tlhareseleele	126	540	**0.354**	0.061	0.326	0.032	191	374,233	**0.001**
11	Barolong	Pitsana-Potokwe	185	797	**0.219**	0.054	0.326	0.032	175	374,233	**0.000**
11	Barolong	Rakhuna	195	838	**0.231**	0.048	0.326	0.032	194	374,233	**0.001**
11	Barolong	Malokaganyane	43	196	**0.495**	0.093	0.326	0.032	97	374,233	**0.000**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
11	Barolong	Bethel	73	316	**0.155**	0.064	0.326	0.032	49	374,233	**0.000**
11	Barolong	Dinatshana	112	591	**0.61**	0.107	0.326	0.032	361	374,233	**0.001**
11	Barolong	Ngwatsau	69	376	**0.488**	0.088	0.326	0.032	183	374,233	**0.000**
11	Barolong	Ramatlabama	388	1,230	**0.217**	0.047	0.326	0.032	267	374,233	**0.001**
11	Barolong	Good Hope	1,316	4,224	**0.135**	0.026	0.326	0.032	570	374,233	**0.002**
11	Barolong	Mokatako	310	1,182	**0.344**	0.053	0.326	0.032	407	374,233	**0.001**
11	Barolong	Tswanyaneng	147	604	**0.272**	0.06	0.326	0.032	164	374,233	**0.000**
11	Barolong	Metlojane	172	721	**0.305**	0.058	0.326	0.032	220	374,233	**0.001**
11	Barolong	Borobadilepe	91	300	**0.232**	0.066	0.326	0.032	70	374,233	**0.000**
11	Barolong	Hebron	164	707	**0.167**	0.058	0.326	0.032	118	374,233	**0.000**
11	Barolong	Logagane	70	370	**0.575**	0.09	0.326	0.032	213	374,233	**0.001**
11	Barolong	Tswagare/Lothoje/ Lokalana	86	360	**0.539**	0.076	0.326	0.032	194	374,233	**0.001**
11	Barolong	Makokwe	33	132	**0.309**	0.123	0.326	0.032	41	374,233	**0.000**
11	Barolong	Marojane	75	382	**0.333**	0.078	0.326	0.032	127	374,233	**0.000**
11	Barolong	Papatlo	101	477	**0.304**	0.077	0.326	0.032	145	374,233	**0.000**
11	Barolong	Phihitshwane	120	648	**0.221**	0.06	0.326	0.032	143	374,233	**0.000**
11	Barolong	Molete	59	305	**0.565**	0.091	0.326	0.032	172	374,233	**0.000**
11	Barolong	Ditlharapa	133	550	**0.382**	0.076	0.326	0.032	210	374,233	**0.001**
11	Barolong	Madingwana	83	282	**0.262**	0.07	0.326	0.032	74	374,233	**0.000**
11	Barolong	Kgoro	149	614	**0.459**	0.078	0.326	0.032	282	374,233	**0.001**
11	Barolong	Sheep Farm	53	274	**0.543**	0.084	0.326	0.032	149	374,233	**0.000**
11	Barolong	Motsentshe	95	393	**0.488**	0.081	0.326	0.032	192	374,233	**0.001**
11	Barolong	Mogwalale	81	325	**0.353**	0.076	0.326	0.032	115	374,233	**0.000**
11	Barolong	Gathwane	281	997	**0.193**	0.057	0.326	0.032	192	374,233	**0.001**
11	Barolong	Digawana	678	2,847	**0.179**	0.037	0.326	0.032	510	374,233	**0.001**
11	Barolong	Magoriapitse	277	961	**0.351**	0.056	0.326	0.032	337	374,233	**0.001**
11	Barolong	Lejwana	92	480	**0.62**	0.105	0.326	0.032	298	374,233	**0.001**
11	Barolong	Mogojogojo	394	1,756	**0.396**	0.065	0.326	0.032	695	374,233	**0.002**
11	Barolong	Mmathethe	1,751	6,075	**0.393**	0.045	0.326	0.032	2,387	374,233	**0.006**
11	Barolong	Mokgomane	235	721	**0.361**	0.062	0.326	0.032	260	374,233	**0.001**
11	Barolong	Pitshane Molopo	567	1,702	**0.193**	0.04	0.326	0.032	328	374,233	**0.001**
11	Barolong	Sedibeng	150	703	**0.359**	0.066	0.326	0.032	252	374,233	**0.001**
11	Barolong	Musi	16	20	**0.057**	0.079	0.326	0.032	1	374,233	**0.000**
11	Barolong	Tswaaneng	212	854	**0.632**	0.066	0.326	0.032	540	374,233	**0.001**
11	Barolong	Gamajalela	36	93	**0.216**	0.09	0.326	0.032	20	374,233	**0.000**
11	Barolong	Dikhukhung	70	269	**0.405**	0.082	0.326	0.032	109	374,233	**0.000**
11	Barolong	Leporung	170	639	**0.462**	0.079	0.326	0.032	295	374,233	**0.001**
11	Barolong	Mmakgori	172	760	**0.495**	0.071	0.326	0.032	376	374,233	**0.001**
11	Barolong	Mabule	387	1,568	**0.474**	0.059	0.326	0.032	743	374,233	**0.002**
11	Barolong	Tshidilamolomo	196	716	**0.208**	0.061	0.326	0.032	149	374,233	**0.000**
11	Barolong	Metlobo	333	1,086	**0.462**	0.063	0.326	0.032	502	374,233	**0.001**
11	Barolong	Lorwana	265	1,113	**0.318**	0.053	0.326	0.032	354	374,233	**0.001**
11	Barolong	Kangwe	62	237	**0.516**	0.088	0.326	0.032	122	374,233	**0.000**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
11	Barolong	Sekhutlane	166	736	**0.663**	0.061	0.326	0.032	488	374,233	**0.001**
12	Ngwaketse West	Mabutsane	695	2,062	**0.157**	0.044	0.496	0.051	324	374,233	**0.001**
12	Ngwaketse West	Morwamosu	203	729	**0.383**	0.085	0.496	0.051	279	374,233	**0.001**
12	Ngwaketse West	Sekoma	366	1,425	**0.448**	0.064	0.496	0.051	638	374,233	**0.002**
12	Ngwaketse West	Khonkhwa	120	514	**0.668**	0.063	0.496	0.051	343	374,233	**0.001**
12	Ngwaketse West	Keng	283	1,115	**0.518**	0.064	0.496	0.051	578	374,233	**0.002**
12	Ngwaketse West	Khakhea	691	3,038	**0.605**	0.059	0.496	0.051	1,838	374,233	**0.005**
12	Ngwaketse West	Kokong	288	1,069	**0.483**	0.072	0.496	0.051	516	374,233	**0.001**
12	Ngwaketse West	Kanaku	64	216	**0.377**	0.15	0.496	0.051	81	374,233	**0.000**
12	Ngwaketse West	Mahotshwane	302	1,209	**0.674**	0.078	0.496	0.051	815	374,233	**0.002**
12	Ngwaketse West	Itholoke	118	568	**0.769**	0.065	0.496	0.051	437	374,233	**0.001**
12	Ngwaketse West	Kutuku	36	162	**0.616**	0.102	0.496	0.051	100	374,233	**0.000**
20	South East	Otse	1,489	5,198	**0.152**	0.034	0.115	0.024	790	374,233	**0.002**
20	South East	Ramotswa Station/ Taung	1,111	3,951	**0.133**	0.033	0.115	0.024	525	374,233	**0.001**
20	South East	Ramotswa	6,430	27,632	**0.183**	0.034	0.115	0.024	5,057	374,233	**0.014**
20	South East	Mogobane	711	2,558	**0.244**	0.045	0.115	0.024	624	374,233	**0.002**
20	South East	Tlokweng	10,969	32,674	**0.044**	0.011	0.115	0.024	1,438	374,233	**0.004**
30	Kweneng East	Molepolole	15,073	65,406	**0.297**	0.048	0.218	0.036	19,426	374,233	**0.052**
30	Kweneng East	Lentsweletau	1,998	7,010	**0.26**	0.051	0.218	0.036	1,823	374,233	**0.005**
30	Kweneng East	Mahetlwe	266	693	**0.116**	0.044	0.218	0.036	80	374,233	**0.000**
30	Kweneng East	Gakgatla	159	696	**0.205**	0.063	0.218	0.036	143	374,233	**0.000**
30	Kweneng East	Gamodubu	118	541	**0.278**	0.072	0.218	0.036	150	374,233	**0.000**
30	Kweneng East	Gabane	4,038	14,789	**0.129**	0.026	0.218	0.036	1,908	374,233	**0.005**
30	Kweneng East	Hatsalatladi	452	1,436	**0.277**	0.06	0.218	0.036	398	374,233	**0.001**
30	Kweneng East	Ramaphatle	108	677	**0.502**	0.073	0.218	0.036	340	374,233	**0.001**
30	Kweneng East	Kopong	2,145	8,954	**0.203**	0.036	0.218	0.036	1,818	374,233	**0.005**
30	Kweneng East	Tloaneng	147	711	**0.274**	0.071	0.218	0.036	195	374,233	**0.001**
30	Kweneng East	Kumakwane	1,343	5,341	**0.229**	0.038	0.218	0.036	1,223	374,233	**0.003**
30	Kweneng East	Lephephe	307	987	**0.256**	0.047	0.218	0.036	253	374,233	**0.001**
30	Kweneng East	Boatlaname	491	1,678	**0.326**	0.059	0.218	0.036	547	374,233	**0.001**
30	Kweneng East	Metsimotlhaba	2,358	8,328	**0.121**	0.023	0.218	0.036	1,008	374,233	**0.003**
30	Kweneng East	Mmankgodi	1,367	6,389	**0.288**	0.049	0.218	0.036	1,840	374,233	**0.005**
30	Kweneng East	Mmopane	4,251	14,635	**0.119**	0.02	0.218	0.036	1,742	374,233	**0.005**
30	Kweneng East	Mogoditshane	14,532	44,434	**0.068**	0.015	0.218	0.036	3,022	374,233	**0.008**
30	Kweneng East	Shadishadi	297	1,149	**0.351**	0.076	0.218	0.036	403	374,233	**0.001**
30	Kweneng East	Sojwe	844	3,269	**0.298**	0.054	0.218	0.036	974	374,233	**0.003**
30	Kweneng East	Thamaga	4,962	21,294	**0.285**	0.043	0.218	0.036	6,069	374,233	**0.016**
30	Kweneng East	Mmanoko	223	1,025	**0.291**	0.058	0.218	0.036	298	374,233	**0.001**
30	Kweneng East	Kubung	207	1,056	**0.467**	0.067	0.218	0.036	493	374,233	**0.001**
30	Kweneng East	Losilakgokong	50	192	**0.271**	0.086	0.218	0.036	52	374,233	**0.000**
30	Kweneng East	Kgope	76	350	**0.462**	0.087	0.218	0.036	162	374,233	**0.000**
30	Kweneng East	Mogonono	26	144	**0.344**	0.119	0.218	0.036	50	374,233	**0.000**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
30	Kweneng East	Kweneng	163	650	**0.45**	0.079	0.218	0.036	293	374,233	**0.001**
30	Kweneng East	Ditshukudu	52	178	**0.217**	0.082	0.218	0.036	39	374,233	**0.000**
30	Kweneng East	Mokolodi	75	515	**0.416**	0.083	0.218	0.036	214	374,233	**0.001**
30	Kweneng East	Mmatseta	120	482	**0.177**	0.05	0.218	0.036	85	374,233	**0.000**
30	Kweneng East	Leologane	158	805	**0.582**	0.097	0.218	0.036	469	374,233	**0.001**
30	Kweneng East	Gakutlo	400	1,656	**0.272**	0.057	0.218	0.036	450	374,233	**0.001**
30	Kweneng East	Dikgatlhong	61	204	**0.253**	0.091	0.218	0.036	52	374,233	**0.000**
30	Kweneng East	Medie	95	416	**0.445**	0.086	0.218	0.036	185	374,233	**0.000**
31	Kweneng West	Letlhakeng	2,335	8,985	**0.307**	0.042	0.349	0.044	2,758	374,233	**0.007**
31	Kweneng West	Botlhapatlou	514	1,822	**0.306**	0.052	0.349	0.044	558	374,233	**0.001**
31	Kweneng West	Ditshegwane	549	2,409	**0.397**	0.049	0.349	0.044	956	374,233	**0.003**
31	Kweneng West	Dutlwe	339	1,266	**0.325**	0.054	0.349	0.044	411	374,233	**0.001**
31	Kweneng West	Moshaweng	807	2,675	**0.199**	0.048	0.349	0.044	532	374,233	**0.001**
31	Kweneng West	Khudumelapye	767	2,694	**0.334**	0.052	0.349	0.044	900	374,233	**0.002**
31	Kweneng West	Serinane	150	584	**0.405**	0.06	0.349	0.044	237	374,233	**0.001**
31	Kweneng West	Mantshwabisi	169	646	**0.274**	0.071	0.349	0.044	177	374,233	**0.000**
31	Kweneng West	Motokwe	536	1,945	**0.28**	0.059	0.349	0.044	545	374,233	**0.001**
31	Kweneng West	Ngware	354	1,243	**0.334**	0.06	0.349	0.044	415	374,233	**0.001**
31	Kweneng West	Salajwe	617	2,398	**0.318**	0.051	0.349	0.044	763	374,233	**0.002**
31	Kweneng West	Takatokwane	777	2,906	**0.354**	0.055	0.349	0.044	1,029	374,233	**0.003**
31	Kweneng West	Tsetseng	98	438	**0.312**	0.074	0.349	0.044	137	374,233	**0.000**
31	Kweneng West	Tswaane	133	593	**0.559**	0.086	0.349	0.044	331	374,233	**0.001**
31	Kweneng West	Monwane	98	491	**0.552**	0.084	0.349	0.044	271	374,233	**0.001**
31	Kweneng West	Malwelwe	220	1,054	**0.381**	0.059	0.349	0.044	402	374,233	**0.001**
31	Kweneng West	Maboane	506	1,841	**0.34**	0.057	0.349	0.044	626	374,233	**0.002**
31	Kweneng West	Sesung	319	1,373	**0.378**	0.065	0.349	0.044	519	374,233	**0.001**
31	Kweneng West	Sorilatholo	162	748	**0.544**	0.073	0.349	0.044	407	374,233	**0.001**
31	Kweneng West	Kotolaname	105	529	**0.516**	0.077	0.349	0.044	273	374,233	**0.001**
31	Kweneng West	Metsibotlhoko	91	372	**0.305**	0.078	0.349	0.044	113	374,233	**0.000**
31	Kweneng West	Kaudwane	219	988	**0.442**	0.079	0.349	0.044	437	374,233	**0.001**
31	Kweneng West	Diphuduhudu	94	497	**0.539**	0.082	0.349	0.044	268	374,233	**0.001**
31	Kweneng West	Maratshwane	73	380	**0.475**	0.083	0.349	0.044	181	374,233	**0.000**
40	Kgatleng	Mochudi	10,602	42,545	**0.222**	0.037	0.205	0.035	9,445	374,233	**0.025**
40	Kgatleng	Pilane Station	434	1,540	**0.138**	0.029	0.205	0.035	213	374,233	**0.001**
40	Kgatleng	Rasesa	1,011	3,403	**0.181**	0.036	0.205	0.035	616	374,233	**0.002**
40	Kgatleng	Bokaa	1,490	5,885	**0.194**	0.037	0.205	0.035	1,142	374,233	**0.003**
40	Kgatleng	Morwa	949	3,396	**0.134**	0.026	0.205	0.035	455	374,233	**0.001**
40	Kgatleng	Matebeleng	637	2,082	**0.077**	0.028	0.205	0.035	160	374,233	**0.000**
40	Kgatleng	Oodi	1,437	4,780	**0.114**	0.023	0.205	0.035	545	374,233	**0.001**
40	Kgatleng	Modipane	659	2,639	**0.284**	0.054	0.205	0.035	749	374,233	**0.002**
40	Kgatleng	Mabalane	249	725	**0.108**	0.034	0.205	0.035	78	374,233	**0.000**
40	Kgatleng	Sikwane	342	1,193	**0.205**	0.042	0.205	0.035	245	374,233	**0.001**
40	Kgatleng	mmathubudukwane	657	2,136	**0.191**	0.04	0.205	0.035	408	374,233	**0.001**

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Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
40	Kgatleng	Ramonaka	138	545	**0.222**	0.059	0.205	0.035	121	374,233	**0.000**
40	Kgatleng	Malolwane	752	2,279	**0.209**	0.037	0.205	0.035	476	374,233	**0.001**
40	Kgatleng	Oliphants Drift	332	780	**0.169**	0.048	0.205	0.035	132	374,233	**0.000**
40	Kgatleng	Artesia	909	2,742	**0.211**	0.046	0.205	0.035	579	374,233	**0.002**
40	Kgatleng	Malotwana Siding	256	801	**0.183**	0.046	0.205	0.035	147	374,233	**0.000**
40	Kgatleng	Leshibitse	270	732	**0.134**	0.042	0.205	0.035	98	374,233	**0.000**
40	Kgatleng	Ramotlabaki	94	237	**0.234**	0.081	0.205	0.035	55	374,233	**0.000**
40	Kgatleng	Kgomodiatshaba	156	508	**0.292**	0.081	0.205	0.035	148	374,233	**0.000**
40	Kgatleng	Dikgonnye	147	516	**0.353**	0.07	0.205	0.035	182	374,233	**0.000**
40	Kgatleng	Khurutshe	41	84	**0.186**	0.08	0.205	0.035	16	374,233	**0.000**
40	Kgatleng	Dikwididi	119	407	**0.21**	0.068	0.205	0.035	85	374,233	**0.000**
50	Serowe/Palapye	Serowe	14,077	51,739	**0.233**	0.031	0.269	0.03	12,055	374,233	**0.032**
50	Serowe/Palapye	Palapye	10,045	35,213	**0.159**	0.026	0.269	0.03	5,599	374,233	**0.015**
50	Serowe/Palapye	Lecheng	759	2,944	**0.361**	0.061	0.269	0.03	1,063	374,233	**0.003**
50	Serowe/Palapye	Moremi	150	615	**0.352**	0.075	0.269	0.03	216	374,233	**0.001**
50	Serowe/Palapye	Malaka	49	207	**0.352**	0.085	0.269	0.03	73	374,233	**0.000**
50	Serowe/Palapye	Mogapi	681	2,060	**0.259**	0.047	0.269	0.03	534	374,233	**0.001**
50	Serowe/Palapye	Mogapinyana	471	1,708	**0.319**	0.055	0.269	0.03	545	374,233	**0.001**
50	Serowe/Palapye	Kgagodi	480	1,609	**0.23**	0.04	0.269	0.03	370	374,233	**0.001**
50	Serowe/Palapye	Maunatlala	1,211	4,364	**0.219**	0.035	0.269	0.03	956	374,233	**0.003**
50	Serowe/Palapye	Tamasane	358	1,112	**0.252**	0.053	0.269	0.03	280	374,233	**0.001**
50	Serowe/Palapye	Diloro	141	536	**0.344**	0.062	0.269	0.03	184	374,233	**0.000**
50	Serowe/Palapye	Lesenepole	623	2,725	**0.447**	0.076	0.269	0.03	1,218	374,233	**0.003**
50	Serowe/Palapye	Mosweu	146	454	**0.205**	0.056	0.269	0.03	93	374,233	**0.000**
50	Serowe/Palapye	Mokokwana	99	347	**0.381**	0.074	0.269	0.03	132	374,233	**0.000**
50	Serowe/Palapye	Seolwane	392	1,350	**0.284**	0.057	0.269	0.03	383	374,233	**0.001**
50	Serowe/Palapye	Lerala	1,682	6,948	**0.363**	0.062	0.269	0.03	2,522	374,233	**0.007**
50	Serowe/Palapye	Majwaneng	456	1,969	**0.398**	0.059	0.269	0.03	784	374,233	**0.002**
50	Serowe/Palapye	Ratholo	599	2,106	**0.292**	0.053	0.269	0.03	615	374,233	**0.002**
50	Serowe/Palapye	Moeng	154	353	**0.048**	0.027	0.269	0.03	17	374,233	**0.000**
50	Serowe/Palapye	Gootau	357	1,368	**0.399**	0.068	0.269	0.03	546	374,233	**0.001**
50	Serowe/Palapye	Goo-Sekgweng	123	561	**0.346**	0.072	0.269	0.03	194	374,233	**0.001**
50	Serowe/Palapye	Matlhakola	192	935	**0.371**	0.058	0.269	0.03	347	374,233	**0.001**
50	Serowe/Palapye	Topisi	527	1,910	**0.319**	0.051	0.269	0.03	609	374,233	**0.002**
50	Serowe/Palapye	Paje	668	2,523	**0.294**	0.044	0.269	0.03	742	374,233	**0.002**
50	Serowe/Palapye	Mabeleapudi	593	2,421	**0.283**	0.047	0.269	0.03	685	374,233	**0.002**
50	Serowe/Palapye	Tshimoyapula	391	1,609	**0.406**	0.065	0.269	0.03	653	374,233	**0.002**
50	Serowe/Palapye	Mmashoro	538	2,699	**0.446**	0.051	0.269	0.03	1,204	374,233	**0.003**
50	Serowe/Palapye	Mogorosi	548	2,799	**0.455**	0.051	0.269	0.03	1,274	374,233	**0.003**
50	Serowe/Palapye	Thabala	766	3,216	**0.404**	0.058	0.269	0.03	1,299	374,233	**0.003**
50	Serowe/Palapye	Moiyabana	1,165	4,394	**0.335**	0.045	0.269	0.03	1,472	374,233	**0.004**
50	Serowe/Palapye	Gamabuo	139	738	**0.433**	0.067	0.269	0.03	320	374,233	**0.001**
50	Serowe/Palapye	Radisele	621	2,690	**0.358**	0.05	0.269	0.03	963	374,233	**0.003**
50	Serowe/Palapye	Mogome	127	559	**0.359**	0.064	0.269	0.03	201	374,233	**0.001**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
50	Serowe/Palapye	Mokgware	75	266	**0.371**	0.071	0.269	0.03	99	374,233	**0.000**
50	Serowe/Palapye	Motshegaletau	208	906	**0.435**	0.061	0.269	0.03	394	374,233	**0.001**
50	Serowe/Palapye	Malatswai	162	919	**0.534**	0.073	0.269	0.03	491	374,233	**0.001**
50	Serowe/Palapye	Mokhungwana	60	248	**0.311**	0.073	0.269	0.03	77	374,233	**0.000**
50	Serowe/Palapye	Serule	693	2,276	**0.246**	0.04	0.269	0.03	560	374,233	**0.001**
50	Serowe/Palapye	Moreomabele	107	425	**0.377**	0.073	0.269	0.03	160	374,233	**0.000**
50	Serowe/Palapye	Gojwane	250	1,169	**0.478**	0.078	0.269	0.03	559	374,233	**0.001**
50	Serowe/Palapye	Manaledi	7	41	**0.344**	0.181	0.269	0.03	14	374,233	**0.000**
50	Serowe/Palapye	Dimajwe	244	1,161	**0.529**	0.064	0.269	0.03	614	374,233	**0.002**
50	Serowe/Palapye	Majwanaadipitse	118	649	**0.474**	0.072	0.269	0.03	308	374,233	**0.001**
50	Serowe/Palapye	Sehunou	153	840	**0.604**	0.066	0.269	0.03	507	374,233	**0.001**
51	Central Mahalapye	Mahalapye	11,290	42,990	**0.156**	0.036	0.208	0.038	6,706	374,233	**0.018**
51	Central Mahalapye	Palla Road	399	1,501	**0.183**	0.051	0.208	0.038	275	374,233	**0.001**
51	Central Mahalapye	Mookane	676	2,894	**0.265**	0.054	0.208	0.038	767	374,233	**0.002**
51	Central Mahalapye	Mmaphashalala	263	1,185	**0.258**	0.063	0.208	0.038	306	374,233	**0.001**
51	Central Mahalapye	Taupye	144	588	**0.277**	0.07	0.208	0.038	163	374,233	**0.000**
51	Central Mahalapye	Dibete	389	1,343	**0.292**	0.067	0.208	0.038	392	374,233	**0.001**
51	Central Mahalapye	Dovedale	226	892	**0.258**	0.06	0.208	0.038	230	374,233	**0.001**
51	Central Mahalapye	Kudumatse	430	1,649	**0.298**	0.058	0.208	0.038	491	374,233	**0.001**
51	Central Mahalapye	Makwate	408	1,481	**0.316**	0.063	0.208	0.038	468	374,233	**0.001**
51	Central Mahalapye	Shakwe	314	1,146	**0.194**	0.051	0.208	0.038	222	374,233	**0.001**
51	Central Mahalapye	Moshopha	451	1,533	**0.175**	0.053	0.208	0.038	268	374,233	**0.001**
51	Central Mahalapye	Machaneng	659	2,497	**0.278**	0.054	0.208	0.038	694	374,233	**0.002**
51	Central Mahalapye	Sefhare	1,228	5,036	**0.255**	0.052	0.208	0.038	1,284	374,233	**0.003**
51	Central Mahalapye	Chadibe	703	3,149	**0.291**	0.064	0.208	0.038	916	374,233	**0.002**
51	Central Mahalapye	Bonwapitse	169	627	**0.231**	0.062	0.208	0.038	145	374,233	**0.000**
51	Central Mahalapye	Mmutlana	240	910	**0.227**	0.05	0.208	0.038	207	374,233	**0.001**
51	Central Mahalapye	Mokobeng	488	1,969	**0.373**	0.075	0.208	0.038	734	374,233	**0.002**
51	Central Mahalapye	Ngwapa	94	448	**0.317**	0.077	0.208	0.038	142	374,233	**0.000**
51	Central Mahalapye	Tumasera/Seleka	164	330	**0.034**	0.028	0.208	0.038	11	374,233	**0.000**
51	Central Mahalapye	Ramokgonami	896	4,064	**0.31**	0.062	0.208	0.038	1,260	374,233	**0.003**
51	Central Mahalapye	Maape	330	1,330	**0.257**	0.056	0.208	0.038	342	374,233	**0.001**
51	Central Mahalapye	Pilikwe	398	1,492	**0.165**	0.045	0.208	0.038	246	374,233	**0.001**
51	Central Mahalapye	Mhalapitsa	236	1,012	**0.241**	0.064	0.208	0.038	244	374,233	**0.001**
51	Central Mahalapye	Borotsi	189	926	**0.319**	0.094	0.208	0.038	295	374,233	**0.001**
51	Central Mahalapye	Tewane	177	600	**0.153**	0.059	0.208	0.038	92	374,233	**0.000**
51	Central Mahalapye	Kalamare	715	2,490	**0.216**	0.051	0.208	0.038	538	374,233	**0.001**
51	Central Mahalapye	Mokgenene	131	702	**0.399**	0.094	0.208	0.038	280	374,233	**0.001**
51	Central Mahalapye	Shoshong	2,941	10,419	**0.162**	0.037	0.208	0.038	1,688	374,233	**0.005**
51	Central Mahalapye	Moralane	183	915	**0.319**	0.069	0.208	0.038	292	374,233	**0.001**
51	Central Mahalapye	Mosolotshane	573	2,413	**0.277**	0.05	0.208	0.038	668	374,233	**0.002**
51	Central Mahalapye	Kodibeleng	449	1,720	**0.234**	0.054	0.208	0.038	402	374,233	**0.001**
51	Central Mahalapye	Ikongwe	124	516	**0.35**	0.078	0.208	0.038	181	374,233	**0.000**
51	Central Mahalapye	Poloka	172	815	**0.226**	0.061	0.208	0.038	184	374,233	**0.000**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
51	Central Mahalapye	Otse	412	1,763	**0.288**	0.066	0.208	0.038	508	374,233	**0.001**
51	Central Mahalapye	Matlhaka	154	736	**0.234**	0.064	0.208	0.038	172	374,233	**0.000**
51	Central Mahalapye	Mokoswane	136	540	**0.293**	0.079	0.208	0.038	158	374,233	**0.000**
51	Central Mahalapye	Seleka	897	3,991	**0.271**	0.06	0.208	0.038	1,082	374,233	**0.003**
52	Central Bobonong	Bobonong	5,501	20,217	**0.312**	0.046	0.346	0.043	6,308	374,233	**0.017**
52	Central Bobonong	Tsetsebjwe	1,079	4,347	**0.495**	0.06	0.346	0.043	2,152	374,233	**0.006**
52	Central Bobonong	Tshokwe	252	1,107	**0.472**	0.07	0.346	0.043	523	374,233	**0.001**
52	Central Bobonong	Mathathane	701	2,653	**0.416**	0.06	0.346	0.043	1,104	374,233	**0.003**
52	Central Bobonong	Lentselemoriti	64	192	**0.342**	0.091	0.346	0.043	66	374,233	**0.000**
52	Central Bobonong	Semolale	435	1,358	**0.191**	0.055	0.346	0.043	259	374,233	**0.001**
52	Central Bobonong	Kobojango	494	1,898	**0.401**	0.064	0.346	0.043	761	374,233	**0.002**
52	Central Bobonong	Lepokole	239	956	**0.495**	0.065	0.346	0.043	473	374,233	**0.001**
52	Central Bobonong	Molalatau	792	2,700	**0.324**	0.058	0.346	0.043	875	374,233	**0.002**
52	Central Bobonong	Tobane	727	2,653	**0.354**	0.054	0.346	0.043	939	374,233	**0.003**
52	Central Bobonong	Sefophe	1,773	6,833	**0.371**	0.049	0.346	0.043	2,535	374,233	**0.007**
52	Central Bobonong	Mabolowe	202	704	**0.292**	0.054	0.346	0.043	206	374,233	**0.001**
52	Central Bobonong	Mmadinare	3,895	13,353	**0.266**	0.042	0.346	0.043	3,552	374,233	**0.009**
52	Central Bobonong	Robelela	217	810	**0.315**	0.072	0.346	0.043	255	374,233	**0.001**
52	Central Bobonong	Damochojena	223	975	**0.527**	0.075	0.346	0.043	514	374,233	**0.001**
52	Central Bobonong	Motlhabaneng	336	1,422	**0.456**	0.064	0.346	0.043	648	374,233	**0.002**
52	Central Bobonong	Moletemane	361	1,537	**0.495**	0.071	0.346	0.043	761	374,233	**0.002**
53	Central Boteti	Letlhakane	6,069	23,013	**0.281**	0.042	0.331	0.071	6,467	374,233	**0.017**
53	Central Boteti	Mosu	597	2,029	**0.272**	0.057	0.331	0.071	552	374,233	**0.001**
53	Central Boteti	Mmatshumo	443	1,566	**0.384**	0.056	0.331	0.071	601	374,233	**0.002**
53	Central Boteti	Mopipi	1,161	4,598	**0.358**	0.054	0.331	0.071	1,646	374,233	**0.004**
53	Central Boteti	Xhumo	557	2,256	**0.313**	0.056	0.331	0.071	706	374,233	**0.002**
53	Central Boteti	Kedia	165	941	**0.544**	0.069	0.331	0.071	512	374,233	**0.001**
53	Central Boteti	Tsienyane/Rakops	1,598	6,577	**0.362**	0.052	0.331	0.071	2,381	374,233	**0.006**
53	Central Boteti	Toromoja	334	1,142	**0.253**	0.055	0.331	0.071	289	374,233	**0.001**
53	Central Boteti	Moreomaoto	178	648	**0.313**	0.065	0.331	0.071	203	374,233	**0.001**
53	Central Boteti	Makalamabedi	499	1,698	**0.313**	0.063	0.331	0.071	531	374,233	**0.001**
53	Central Boteti	Khwee	172	952	**0.669**	0.071	0.331	0.071	637	374,233	**0.002**
53	Central Boteti	Kumaga	257	874	**0.339**	0.068	0.331	0.071	296	374,233	**0.001**
53	Central Boteti	Motopi	276	1,217	**0.41**	0.067	0.331	0.071	499	374,233	**0.001**
53	Central Boteti	Mmadikola	258	1,047	**0.336**	0.062	0.331	0.071	352	374,233	**0.001**
53	Central Boteti	Mokoboxane	274	1,240	**0.362**	0.064	0.331	0.071	449	374,233	**0.001**
53	Central Boteti	Xere	106	396	**0.53**	0.086	0.331	0.071	210	374,233	**0.001**
54	Central Tutume	Maitengwe	1,550	6,092	**0.248**	0.045	0.221	0.034	1,511	374,233	**0.004**
54	Central Tutume	Nata	1,574	5,588	**0.288**	0.036	0.221	0.034	1,609	374,233	**0.004**
54	Central Tutume	Dagwi	261	1,020	**0.231**	0.056	0.221	0.034	236	374,233	**0.001**
54	Central Tutume	Nkange	946	3,494	**0.227**	0.045	0.221	0.034	793	374,233	**0.002**
54	Central Tutume	Senete	682	2,681	**0.252**	0.046	0.221	0.034	676	374,233	**0.002**
54	Central Tutume	Changate	272	1,090	**0.198**	0.063	0.221	0.034	216	374,233	**0.001**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
54	Central Tutume	Tutume	4,378	16,147	**0.21**	0.036	0.221	0.034	3,391	374,233	**0.009**
54	Central Tutume	Matobo	429	1,419	**0.192**	0.04	0.221	0.034	272	374,233	**0.001**
54	Central Tutume	Goshwe	368	1,538	**0.243**	0.056	0.221	0.034	374	374,233	**0.001**
54	Central Tutume	Mosetse	668	2,061	**0.129**	0.035	0.221	0.034	266	374,233	**0.001**
54	Central Tutume	Nswazwi	593	2,128	**0.238**	0.05	0.221	0.034	506	374,233	**0.001**
54	Central Tutume	Nshakashokwe	684	2,318	**0.174**	0.037	0.221	0.034	403	374,233	**0.001**
54	Central Tutume	Sebina	958	3,504	**0.209**	0.046	0.221	0.034	732	374,233	**0.002**
54	Central Tutume	Marobela	488	1,782	**0.221**	0.046	0.221	0.034	394	374,233	**0.001**
54	Central Tutume	Mathangwane	1,545	5,534	**0.199**	0.036	0.221	0.034	1,101	374,233	**0.003**
54	Central Tutume	Marapong	645	2,129	**0.205**	0.046	0.221	0.034	436	374,233	**0.001**
54	Central Tutume	Chadibe	1,114	4,538	**0.235**	0.045	0.221	0.034	1,066	374,233	**0.003**
54	Central Tutume	Matsitama	538	1,969	**0.203**	0.052	0.221	0.034	400	374,233	**0.001**
54	Central Tutume	Borolong	1,310	4,908	**0.195**	0.039	0.221	0.034	957	374,233	**0.003**
54	Central Tutume	Dukwi	1,500	5,296	**0.247**	0.047	0.221	0.034	1,308	374,233	**0.003**
54	Central Tutume	Mafongo/Hubona	294	1,140	**0.267**	0.054	0.221	0.034	304	374,233	**0.001**
54	Central Tutume	Mokubilo	424	1,754	**0.333**	0.063	0.221	0.034	584	374,233	**0.002**
54	Central Tutume	Tonota	5,316	20,372	**0.194**	0.033	0.221	0.034	3,952	374,233	**0.011**
54	Central Tutume	Borotsi	505	1,773	**0.154**	0.041	0.221	0.034	273	374,233	**0.001**
54	Central Tutume	Mandunyane	1,006	4,051	**0.261**	0.048	0.221	0.034	1,057	374,233	**0.003**
54	Central Tutume	Natale	302	1,227	**0.257**	0.047	0.221	0.034	315	374,233	**0.001**
54	Central Tutume	Shashe/Semotswane	826	3,172	**0.267**	0.048	0.221	0.034	847	374,233	**0.002**
54	Central Tutume	Shashe-Mooke	1,010	3,825	**0.261**	0.046	0.221	0.034	998	374,233	**0.003**
54	Central Tutume	Gweta	1,777	6,344	**0.197**	0.036	0.221	0.034	1,250	374,233	**0.003**
54	Central Tutume	Zoroga	305	1,359	**0.386**	0.074	0.221	0.034	525	374,233	**0.001**
54	Central Tutume	Lepashe	107	564	**0.32**	0.079	0.221	0.034	180	374,233	**0.000**
54	Central Tutume	Mmanxotae	129	702	**0.421**	0.073	0.221	0.034	296	374,233	**0.001**
54	Central Tutume	Sepako	174	709	**0.4**	0.072	0.221	0.034	284	374,233	**0.001**
54	Central Tutume	Semitwe	164	742	**0.295**	0.059	0.221	0.034	219	374,233	**0.001**
54	Central Tutume	Makobo	46	220	**0.168**	0.079	0.221	0.034	37	374,233	**0.000**
54	Central Tutume	Mabesekwa	550	2,155	**0.324**	0.061	0.221	0.034	698	374,233	**0.002**
54	Central Tutume	Jamataka	151	631	**0.347**	0.067	0.221	0.034	219	374,233	**0.001**
54	Central Tutume	Tshokatshaa	73	383	**0.377**	0.086	0.221	0.034	144	374,233	**0.000**
54	Central Tutume	Makuta	273	988	**0.143**	0.04	0.221	0.034	141	374,233	**0.000**
54	Central Tutume	Maposa	89	312	**0.326**	0.081	0.221	0.034	102	374,233	**0.000**
54	Central Tutume	Kutamogree	487	2,018	**0.28**	0.055	0.221	0.034	565	374,233	**0.002**
54	Central Tutume	Mmeya	155	766	**0.442**	0.08	0.221	0.034	339	374,233	**0.001**
60	North East	Mbalambi	245	1,017	**0.274**	0.06	0.188	0.036	279	374,233	**0.001**
60	North East	Gambule	117	458	**0.194**	0.067	0.188	0.036	89	374,233	**0.000**
60	North East	Gulubane	238	813	**0.115**	0.048	0.188	0.036	93	374,233	**0.000**
60	North East	Gungwe	104	498	**0.203**	0.067	0.188	0.036	101	374,233	**0.000**
60	North East	Jackalas 1	331	1,114	**0.184**	0.046	0.188	0.036	205	374,233	**0.001**
60	North East	Jackalas 2	269	1,046	**0.298**	0.059	0.188	0.036	312	374,233	**0.001**
60	North East	Kalakamati	244	823	**0.168**	0.053	0.188	0.036	138	374,233	**0.000**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
60	North East	Letsholathebe	112	492	**0.329**	0.073	0.188	0.036	162	374,233	**0.000**
60	North East	Makaleng	297	1,117	**0.18**	0.048	0.188	0.036	201	374,233	**0.001**
60	North East	Mulambakwena	286	964	**0.146**	0.044	0.188	0.036	141	374,233	**0.000**
60	North East	Mambo	45	156	**0.113**	0.074	0.188	0.036	18	374,233	**0.000**
60	North East	Mapoka	372	1,393	**0.231**	0.045	0.188	0.036	322	374,233	**0.001**
60	North East	Masingwaneng	128	469	**0.244**	0.057	0.188	0.036	114	374,233	**0.000**
60	North East	Masunga	1,515	4,287	**0.069**	0.019	0.188	0.036	296	374,233	**0.001**
60	North East	Matsiloje	764	2,632	**0.173**	0.034	0.188	0.036	455	374,233	**0.001**
60	North East	Moroka	403	1,644	**0.246**	0.051	0.188	0.036	404	374,233	**0.001**
60	North East	Mosojane	300	1,173	**0.256**	0.056	0.188	0.036	300	374,233	**0.001**
60	North East	Nlakhwane	399	1,496	**0.216**	0.051	0.188	0.036	323	374,233	**0.001**
60	North East	Ramokgwebana	389	1,490	**0.202**	0.046	0.188	0.036	301	374,233	**0.001**
60	North East	Sechele	123	501	**0.265**	0.065	0.188	0.036	133	374,233	**0.000**
60	North East	Sekakangwe	187	657	**0.321**	0.074	0.188	0.036	211	374,233	**0.001**
60	North East	Senyawe	340	1,269	**0.232**	0.043	0.188	0.036	294	374,233	**0.001**
60	North East	Siviya	244	1,016	**0.292**	0.055	0.188	0.036	297	374,233	**0.001**
60	North East	Tati Siding	2,040	7,501	**0.116**	0.025	0.188	0.036	870	374,233	**0.002**
60	North East	Themashanga	370	1,664	**0.382**	0.06	0.188	0.036	636	374,233	**0.002**
60	North East	Tsamaya	549	1,957	**0.196**	0.045	0.188	0.036	384	374,233	**0.001**
60	North East	Tshesebe	575	1,950	**0.167**	0.039	0.188	0.036	326	374,233	**0.001**
60	North East	Zwenshambe	399	1,491	**0.184**	0.048	0.188	0.036	274	374,233	**0.001**
60	North East	Butale	144	528	**0.183**	0.06	0.188	0.036	97	374,233	**0.000**
60	North East	Masukwane	161	625	**0.149**	0.056	0.188	0.036	93	374,233	**0.000**
60	North East	Shashe Bridge	200	829	**0.059**	0.032	0.188	0.036	49	374,233	**0.000**
60	North East	Matshelagabedi	702	3,069	**0.206**	0.043	0.188	0.036	632	374,233	**0.002**
60	North East	Ditladi	398	1,485	**0.184**	0.047	0.188	0.036	273	374,233	**0.001**
60	North East	Botalaote	55	186	**0.127**	0.068	0.188	0.036	24	374,233	**0.000**
60	North East	Toteng	72	265	**0.179**	0.075	0.188	0.036	47	374,233	**0.000**
60	North East	Matenge	113	406	**0.165**	0.061	0.188	0.036	67	374,233	**0.000**
60	North East	Vukwi	87	363	**0.328**	0.069	0.188	0.036	119	374,233	**0.000**
60	North East	Pole	71	277	**0.215**	0.08	0.188	0.036	60	374,233	**0.000**
60	North East	Kgari	139	524	**0.2**	0.061	0.188	0.036	105	374,233	**0.000**
60	North East	Mowana	103	476	**0.207**	0.062	0.188	0.036	99	374,233	**0.000**
60	North East	Mabudzane	113	556	**0.261**	0.062	0.188	0.036	145	374,233	**0.000**
60	North East	Matopi	84	347	**0.339**	0.085	0.188	0.036	118	374,233	**0.000**
60	North East	Patayamatebele	92	342	**0.207**	0.069	0.188	0.036	71	374,233	**0.000**
70	Ngamiland East	Maun	14,349	58,877	**0.291**	0.034	0.306	0.034	17,133	374,233	**0.046**
70	Ngamiland East	Makalamabedi	582	1,831	**0.27**	0.044	0.306	0.034	494	374,233	**0.001**
70	Ngamiland East	Shorobe	651	2,473	**0.408**	0.045	0.306	0.034	1,009	374,233	**0.003**
70	Ngamiland East	Toteng	724	2,452	**0.268**	0.045	0.306	0.034	657	374,233	**0.002**
70	Ngamiland East	Tsao	607	2,644	**0.316**	0.05	0.306	0.034	836	374,233	**0.002**
70	Ngamiland East	Sehithwa	1,208	4,428	**0.289**	0.039	0.306	0.034	1,280	374,233	**0.003**
70	Ngamiland East	Kareng	348	1,358	**0.358**	0.05	0.306	0.034	486	374,233	**0.001**
70	Ngamiland East	Matsaudi/Sakapnae	93	334	**0.366**	0.069	0.306	0.034	122	374,233	**0.000**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
70	Ngamiland East	Matlapana	210	1,018	**0.424**	0.05	0.306	0.034	432	374,233	**0.001**
70	Ngamiland East	Phuduhudu	125	571	**0.397**	0.075	0.306	0.034	227	374,233	**0.001**
70	Ngamiland East	Komana	62	215	**0.266**	0.084	0.306	0.034	57	374,233	**0.000**
70	Ngamiland East	Sankuyo	72	382	**0.446**	0.087	0.306	0.034	170	374,233	**0.000**
70	Ngamiland East	Mababe	65	217	**0.382**	0.092	0.306	0.034	83	374,233	**0.000**
70	Ngamiland East	Chanoga	81	341	**0.331**	0.072	0.306	0.034	113	374,233	**0.000**
70	Ngamiland East	Bodibeng	78	383	**0.433**	0.076	0.306	0.034	166	374,233	**0.000**
70	Ngamiland East	Botlhatlogo	156	689	**0.433**	0.073	0.306	0.034	298	374,233	**0.001**
70	Ngamiland East	Semboyo	68	389	**0.461**	0.083	0.306	0.034	179	374,233	**0.000**
70	Ngamiland East	Kgakge/Makakung	25	137	**0.445**	0.123	0.306	0.034	61	374,233	**0.000**
70	Ngamiland East	Habu	101	488	**0.27**	0.067	0.306	0.034	132	374,233	**0.000**
71	Ngamiland West	Seronga	731	2,879	**0.447**	0.053	0.375	0.049	1,287	374,233	**0.003**
71	Ngamiland West	Ngarange	340	1,357	**0.325**	0.054	0.375	0.049	441	374,233	**0.001**
71	Ngamiland West	Beetsha	343	1,530	**0.478**	0.066	0.375	0.049	731	374,233	**0.002**
71	Ngamiland West	Gonutsuga	196	908	**0.427**	0.062	0.375	0.049	388	374,233	**0.001**
71	Ngamiland West	Mokgacha	93	492	**0.519**	0.091	0.375	0.049	255	374,233	**0.001**
71	Ngamiland West	Qangwa	223	1,017	**0.435**	0.064	0.375	0.049	442	374,233	**0.001**
71	Ngamiland West	Xakao	324	1,442	**0.387**	0.061	0.375	0.049	558	374,233	**0.001**
71	Ngamiland West	Kauxwhi	336	1,576	**0.393**	0.056	0.375	0.049	619	374,233	**0.002**
71	Ngamiland West	Etsha 6	1,026	4,902	**0.41**	0.048	0.375	0.049	2,010	374,233	**0.005**
71	Ngamiland West	Ikoga	311	1,207	**0.322**	0.059	0.375	0.049	389	374,233	**0.001**
71	Ngamiland West	Sepopa	544	2,206	**0.39**	0.046	0.375	0.049	860	374,233	**0.002**
71	Ngamiland West	Nxamasere	325	1,494	**0.383**	0.055	0.375	0.049	572	374,233	**0.002**
71	Ngamiland West	Shakawe	1,592	6,780	**0.377**	0.05	0.375	0.049	2,556	374,233	**0.007**
71	Ngamiland West	Nxaunxau	100	459	**0.443**	0.061	0.375	0.049	203	374,233	**0.001**
71	Ngamiland West	Mohembo West	435	1,920	**0.496**	0.054	0.375	0.049	952	374,233	**0.003**
71	Ngamiland West	Etsha 13	603	2,646	**0.359**	0.057	0.375	0.049	950	374,233	**0.003**
71	Ngamiland West	Nokaneng	712	3,243	**0.246**	0.054	0.375	0.049	798	374,233	**0.002**
71	Ngamiland West	Gani	148	677	**0.484**	0.076	0.375	0.049	328	374,233	**0.001**
71	Ngamiland West	Tubu	130	583	**0.238**	0.068	0.375	0.049	139	374,233	**0.000**
71	Ngamiland West	Gumare	2,001	8,212	**0.328**	0.045	0.375	0.049	2,694	374,233	**0.007**
71	Ngamiland West	Xaxa	102	508	**0.526**	0.095	0.375	0.049	267	374,233	**0.001**
71	Ngamiland West	Mohembo East	113	543	**0.377**	0.079	0.375	0.049	205	374,233	**0.001**
71	Ngamiland West	Tobere	136	473	**0.243**	0.062	0.375	0.049	115	374,233	**0.000**
71	Ngamiland West	Sekondomboro	172	610	**0.249**	0.058	0.375	0.049	152	374,233	**0.000**
71	Ngamiland West	Samochema	244	1,133	**0.491**	0.058	0.375	0.049	556	374,233	**0.001**
71	Ngamiland West	Xhauga	101	780	**0.274**	0.087	0.375	0.049	214	374,233	**0.001**
71	Ngamiland West	Mogomotho	189	793	**0.275**	0.072	0.375	0.049	218	374,233	**0.001**
71	Ngamiland West	Eretsha	245	909	**0.426**	0.074	0.375	0.049	387	374,233	**0.001**
71	Ngamiland West	Chukumuchu	37	147	**0.423**	0.106	0.375	0.049	62	374,233	**0.000**
71	Ngamiland West	Gudingwa	136	710	**0.516**	0.094	0.375	0.049	366	374,233	**0.001**
71	Ngamiland West	Etsha 13	280	1,272	**0.3**	0.065	0.375	0.049	382	374,233	**0.001**
71	Ngamiland West	Kajaja	31	137	**0.512**	0.115	0.375	0.049	70	374,233	**0.000**
72	Chobe	Kachikau	359	1,197	**0.411**	0.06	0.195	0.029	492	374,233	**0.001**

Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
72	Chobe	Kasane	2,872	8,217	**0.13**	0.022	0.195	0.029	1,068	374,233	**0.003**
72	Chobe	Kazungula	1,172	3,760	**0.196**	0.031	0.195	0.029	737	374,233	**0.002**
72	Chobe	Kavimba	175	533	**0.191**	0.052	0.195	0.029	102	374,233	**0.000**
72	Chobe	Lesoma	184	652	**0.217**	0.054	0.195	0.029	141	374,233	**0.000**
72	Chobe	Muchinje/Mabele	212	747	**0.251**	0.052	0.195	0.029	187	374,233	**0.001**
72	Chobe	Parakarungu	246	987	**0.358**	0.069	0.195	0.029	353	374,233	**0.001**
72	Chobe	Pandamatenga	609	1,943	**0.189**	0.039	0.195	0.029	367	374,233	**0.001**
72	Chobe	Satau	120	375	**0.3**	0.063	0.195	0.029	113	374,233	**0.000**
73	Delta	Xaxaba	49	162	**0.526**	0.092	0.352	0.071	85	374,233	**0.000**
73	Delta	Jao	22	128	**0.436**	0.158	0.352	0.071	56	374,233	**0.000**
73	Delta	Katamaga	14	36	**0.05**	0.068	0.352	0.071	2	374,233	**0.000**
73	Delta	Daonara	12	28	**0.094**	0.115	0.352	0.071	3	374,233	**0.000**
73	Delta	Ditshiping	105	236	**0.249**	0.08	0.352	0.071	59	374,233	**0.000**
73	Delta	Morutsha	14	54	**0.369**	0.206	0.352	0.071	20	374,233	**0.000**
80	Ghanzi	Ghanzi	3,920	12,999	**0.222**	0.034	0.301	0.038	2,886	374,233	**0.008**
80	Ghanzi	Dekar	279	1,456	**0.593**	0.056	0.301	0.038	863	374,233	**0.002**
80	Ghanzi	Tsootsha	598	1,936	**0.246**	0.043	0.301	0.038	476	374,233	**0.001**
80	Ghanzi	Karakobis	365	1,076	**0.275**	0.051	0.301	0.038	296	374,233	**0.001**
80	Ghanzi	Chobokwane	262	996	**0.3**	0.067	0.301	0.038	299	374,233	**0.001**
80	Ghanzi	West Hanahai	179	744	**0.39**	0.072	0.301	0.038	290	374,233	**0.001**
80	Ghanzi	Charles Hill	1,042	3,361	**0.194**	0.032	0.301	0.038	652	374,233	**0.002**
80	Ghanzi	Makunda	245	989	**0.28**	0.053	0.301	0.038	277	374,233	**0.001**
80	Ghanzi	Kule	326	1,032	**0.269**	0.048	0.301	0.038	278	374,233	**0.001**
80	Ghanzi	Ncojane	715	2,274	**0.24**	0.041	0.301	0.038	546	374,233	**0.001**
80	Ghanzi	Groote Laagte	137	897	**0.646**	0.064	0.301	0.038	579	374,233	**0.002**
80	Ghanzi	New Xanagas	231	994	**0.414**	0.057	0.301	0.038	412	374,233	**0.001**
80	Ghanzi	East Hanahai	136	555	**0.417**	0.089	0.301	0.038	231	374,233	**0.001**
80	Ghanzi	Kacgae	155	606	**0.423**	0.079	0.301	0.038	256	374,233	**0.001**
80	Ghanzi	Bere	201	758	**0.407**	0.059	0.301	0.038	309	374,233	**0.001**
80	Ghanzi	Qabo	132	708	**0.69**	0.074	0.301	0.038	489	374,233	**0.001**
80	Ghanzi	New Xade	196	810	**0.456**	0.063	0.301	0.038	369	374,233	**0.001**
90	Kgalagadi South	Werda	708	2,972	**0.288**	0.051	0.233	0.036	856	374,233	**0.002**
90	Kgalagadi South	Makopong	473	1,827	**0.254**	0.057	0.233	0.036	464	374,233	**0.001**
90	Kgalagadi South	Khisa	90	401	**0.302**	0.093	0.233	0.036	121	374,233	**0.000**
90	Kgalagadi South	Omaweneno	242	969	**0.22**	0.051	0.233	0.036	213	374,233	**0.001**
90	Kgalagadi South	Tsabong	2,684	8,631	**0.154**	0.031	0.233	0.036	1,329	374,233	**0.004**
90	Kgalagadi South	Kolonkwane	201	666	**0.185**	0.053	0.233	0.036	123	374,233	**0.000**
90	Kgalagadi South	Bogogobo	94	338	**0.365**	0.111	0.233	0.036	123	374,233	**0.000**
90	Kgalagadi South	Middlepits	247	736	**0.139**	0.039	0.233	0.036	102	374,233	**0.000**
90	Kgalagadi South	Khuis	262	915	**0.206**	0.051	0.233	0.036	188	374,233	**0.001**
90	Kgalagadi South	Gachibana	238	908	**0.155**	0.044	0.233	0.036	141	374,233	**0.000**
90	Kgalagadi South	Rapples Pan	90	381	**0.231**	0.059	0.233	0.036	88	374,233	**0.000**
90	Kgalagadi South	Vaalhoek	69	348	**0.285**	0.073	0.233	0.036	99	374,233	**0.000**

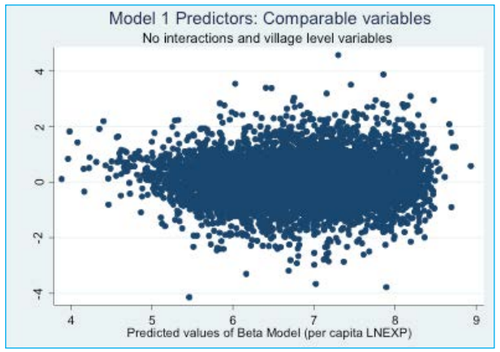
Table 12.2: Estimated Disaggregated Poverty Rates at Village Level cont'd

Census District Code	Census District	Village Name	Number of Households	Population	Poverty Rate	Standard Error of Poverty Rate	Estimated District Poverty	Standard Error of Estimated District Poverty	Estimated Poor in Village	Estimated Poor - National	Proportion of Poor in Village
90	Kgalagadi South	Bokspits	185	622	**0.173**	0.048	0.233	0.036	108	374,233	**0.000**
90	Kgalagadi South	Struizendam	96	467	**0.336**	0.072	0.233	0.036	157	374,233	**0.000**
90	Kgalagadi South	Bray	208	990	**0.336**	0.065	0.233	0.036	333	374,233	**0.001**
90	Kgalagadi South	Phepheng/Draaihoek	219	962	**0.316**	0.066	0.233	0.036	304	374,233	**0.001**
90	Kgalagadi South	Mabuelo	126	501	**0.317**	0.067	0.233	0.036	159	374,233	**0.000**
90	Kgalagadi South	Khawa	153	809	**0.436**	0.085	0.233	0.036	353	374,233	**0.001**
90	Kgalagadi South	Kokotsha	295	1,460	**0.339**	0.06	0.233	0.036	495	374,233	**0.001**
90	Kgalagadi South	Maralaleng	140	593	**0.255**	0.064	0.233	0.036	151	374,233	**0.000**
90	Kgalagadi South	Maleshe	128	502	**0.206**	0.061	0.233	0.036	103	374,233	**0.000**
91	Kgalagadi North	Kang	1,511	4,603	**0.207**	0.033	0.239	0.035	953	374,233	**0.003**
91	Kgalagadi North	Tshane	289	910	**0.179**	0.044	0.239	0.035	163	374,233	**0.000**
91	Kgalagadi North	Hukuntsi	1,379	4,318	**0.153**	0.032	0.239	0.035	661	374,233	**0.002**
91	Kgalagadi North	Lehututu	446	1,784	**0.267**	0.053	0.239	0.035	476	374,233	**0.001**
91	Kgalagadi North	Lokgwabe	378	1,469	**0.21**	0.053	0.239	0.035	308	374,233	**0.001**
91	Kgalagadi North	Monong	67	255	**0.448**	0.107	0.239	0.035	114	374,233	**0.000**
91	Kgalagadi North	Ncaang	58	218	**0.291**	0.087	0.239	0.035	63	374,233	**0.000**
91	Kgalagadi North	Hunhukwe	231	671	**0.263**	0.06	0.239	0.035	176	374,233	**0.000**
91	Kgalagadi North	Zutswa	138	547	**0.45**	0.07	0.239	0.035	246	374,233	**0.001**
91	Kgalagadi North	Ngwatle	60	231	**0.513**	0.11	0.239	0.035	119	374,233	**0.000**
91	Kgalagadi North	Ukwi	133	491	**0.32**	0.077	0.239	0.035	157	374,233	**0.000**
91	Kgalagadi North	Make	91	397	**0.485**	0.071	0.239	0.035	193	374,233	**0.001**
91	Kgalagadi North	Inalegolo	70	332	**0.574**	0.089	0.239	0.035	191	374,233	**0.001**
91	Kgalagadi North	Phuduhudu	187	618	**0.236**	0.067	0.239	0.035	146	374,233	**0.000**

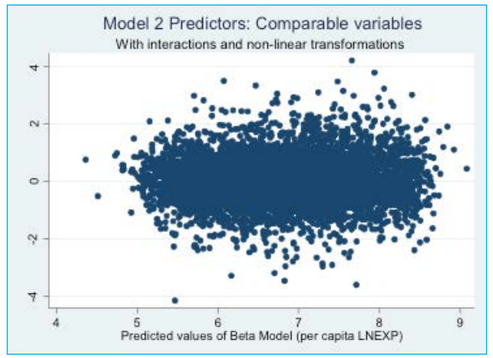
Appendix of Figures

Figure 1. Beta residuals and Fitted Values

Model 1: Comparable Variables with no interactions and no village level variables



Model 1: Comparable Variables with no interactions and no village level variables



Model 1: Comparable Variables with no interactions and no village level variables

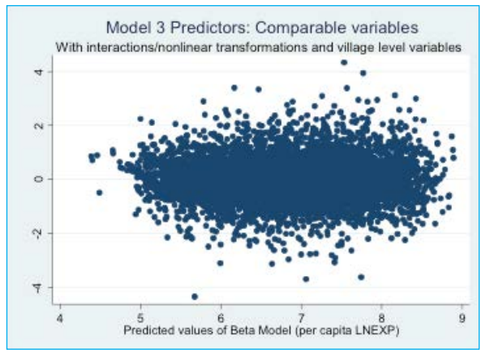
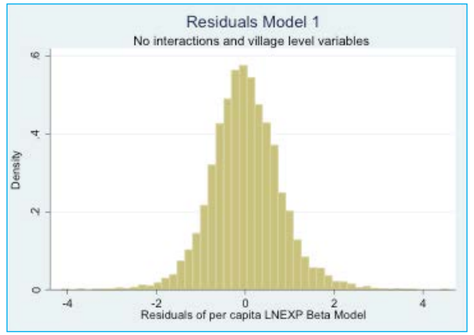
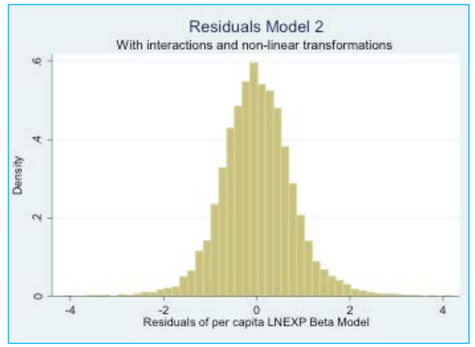


Figure 2. Beta Model Residuals of Models 1 to 3





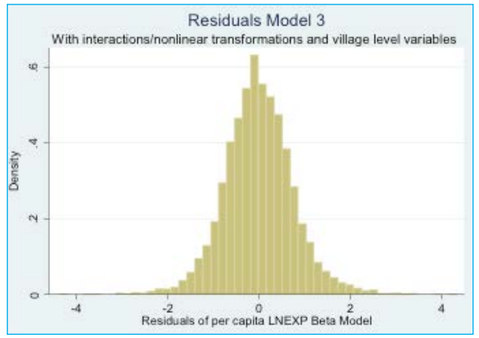


Figure 3. Comparison of LNEXP and per capital LNEXP models

Quartile-Quartile Plot

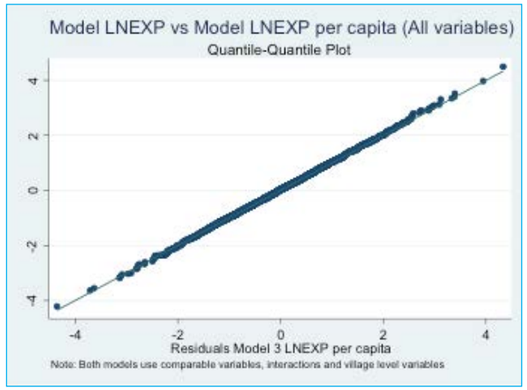


Figure 3. Comparison of LNEXP and per capital LNEXP models

Quartile-Quartile Plot

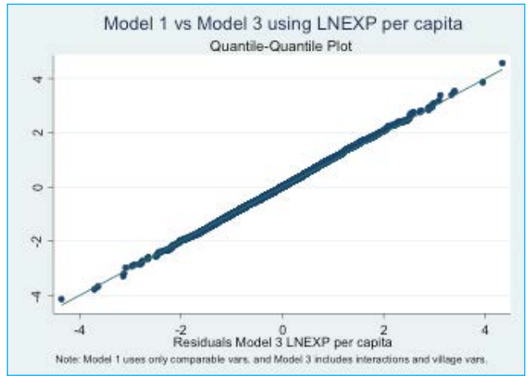
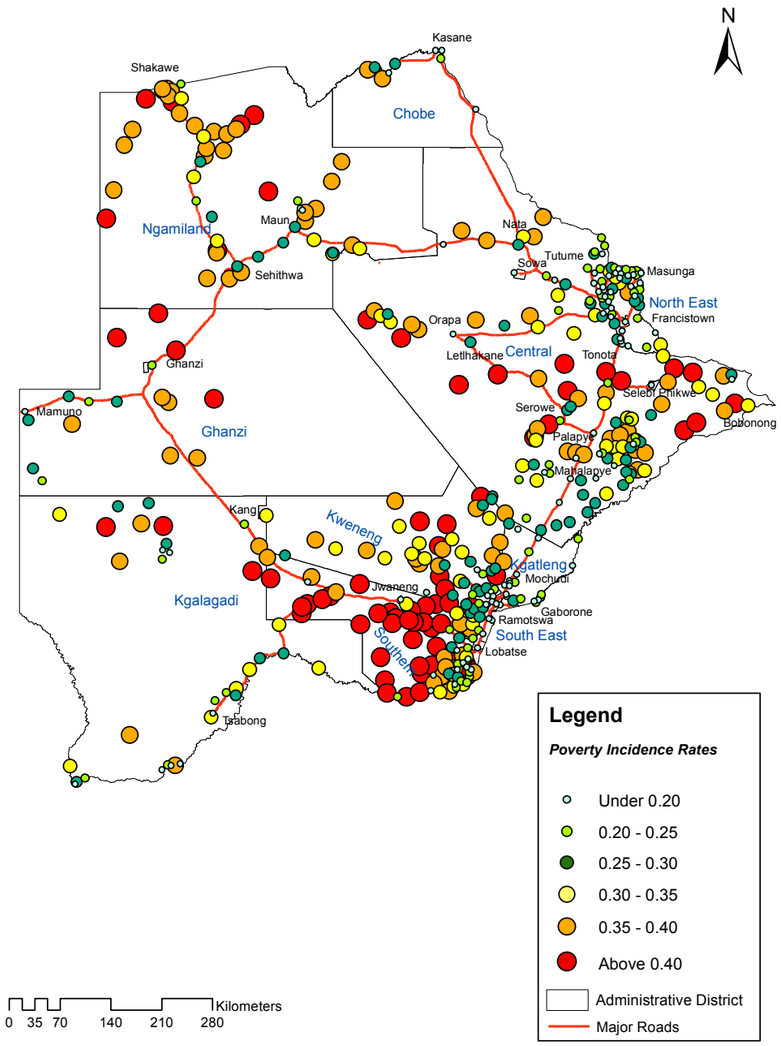


Figure 5. Village Poverty Incidence by District
Poverty Map Estimates



Prepared by Cartographic Unit, Statistics Botswana, Gaborone 2014

Figure 6. Village Poverty Density by District
Poverty Map Estimates

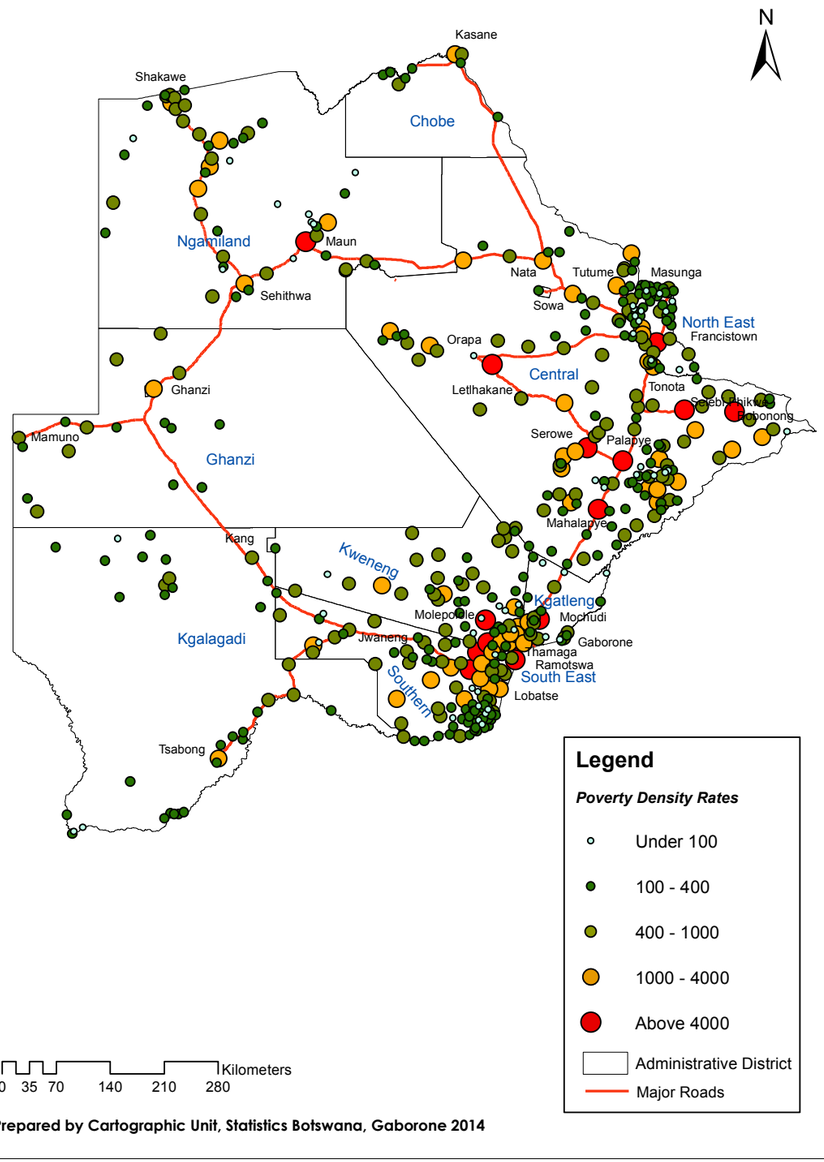


Figure 7. Confidence intervals of village level estimates
ELL Standard Method

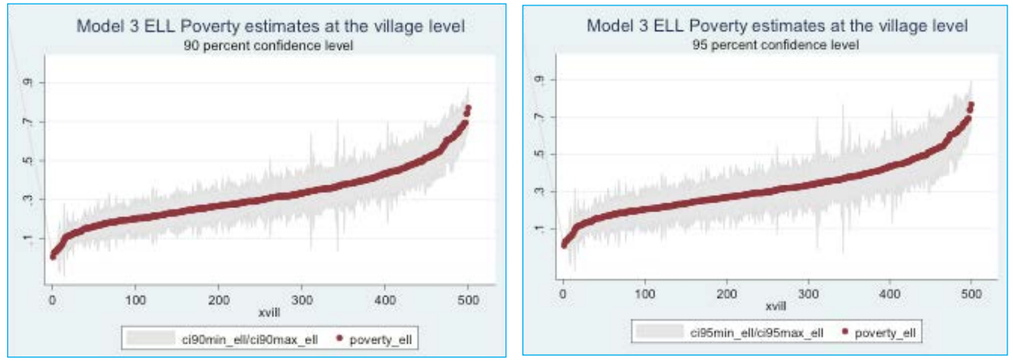
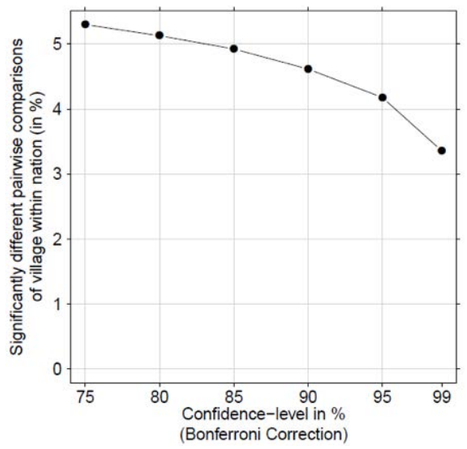


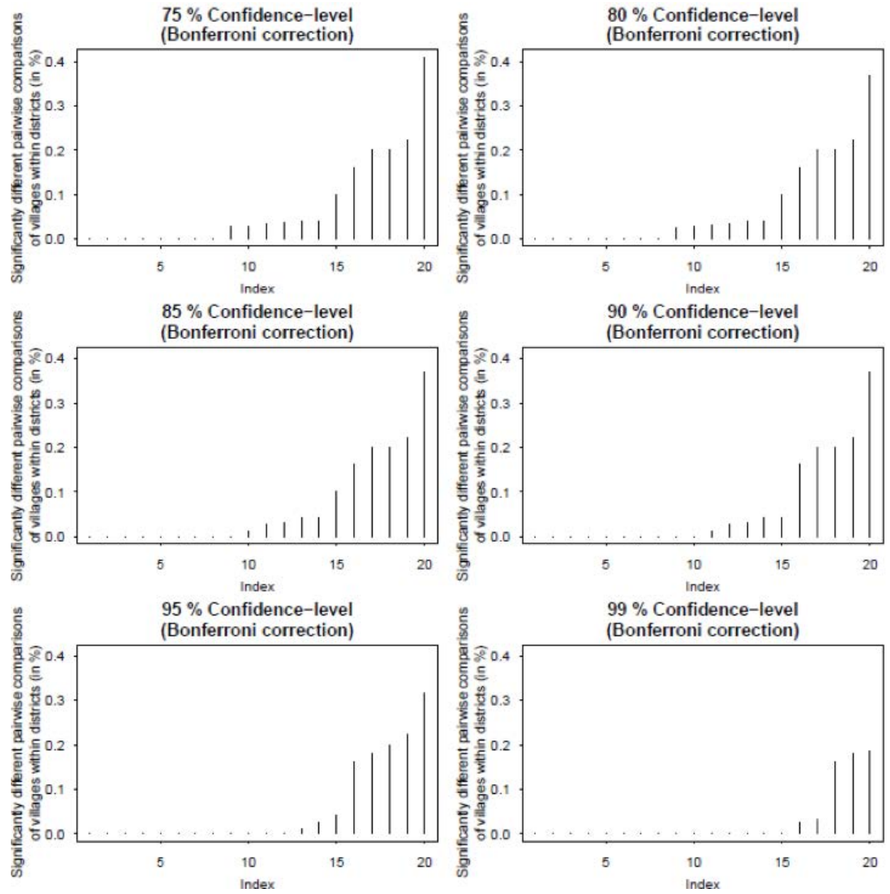
Figure 8. Significant different pairwise comparisons of villages within the nation

Figure 9. Significant different pairwise comparisons of villages within the nation (Bonferroni Correction)



Note: The significance level has been divided by 124,750 which correspond to the total number of comparisons.

Figure 10. Significantly different pairwise comparisons of villages within districts (Bonferroni Correction)



Note: Seven districts are not considered in this graphic given that they contain only one village per district.

Figure 11. Proportion of villages with poverty rates significantly different from the district poverty rate (Bonferroni Correction)

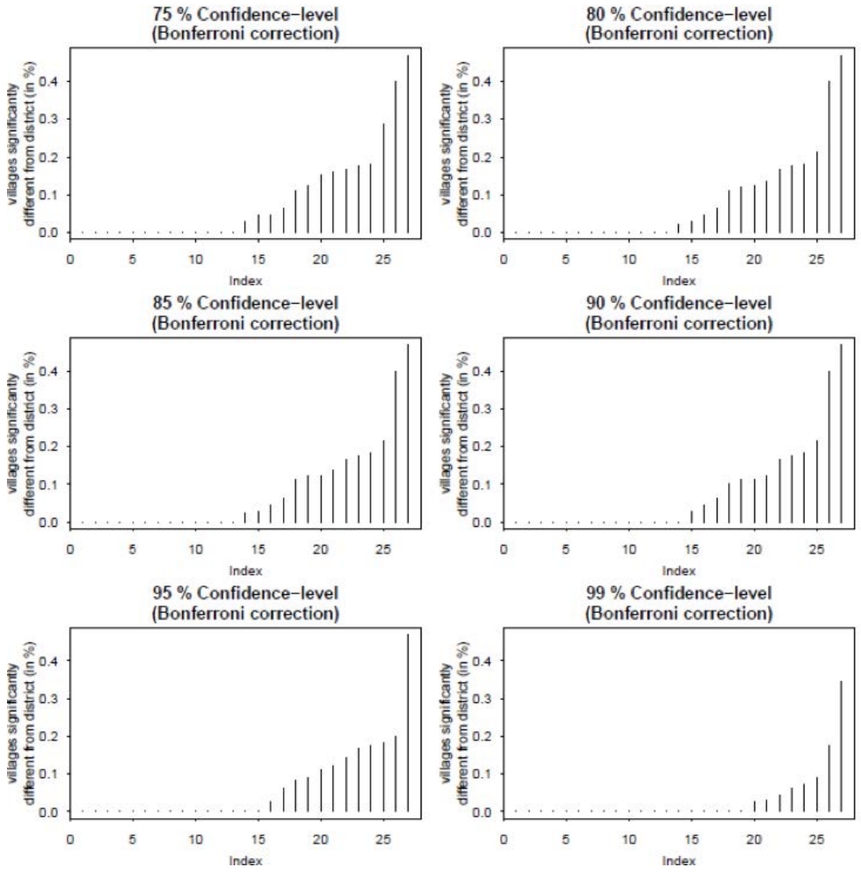


Figure 12. Confidence intervals of village level estimates
Empirical Bayes prediction (EB)

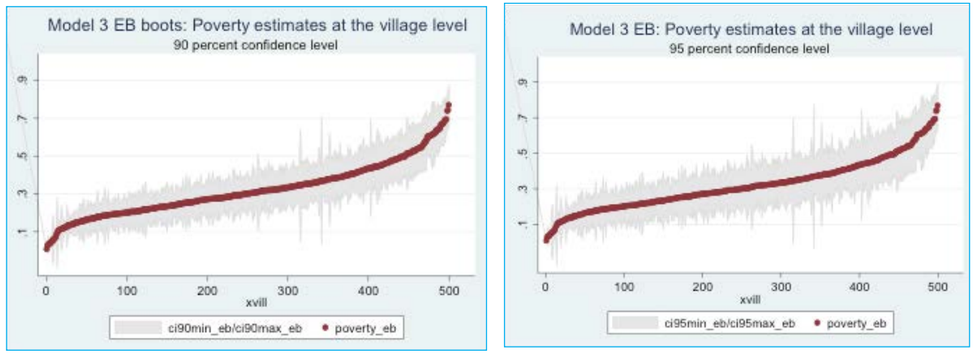
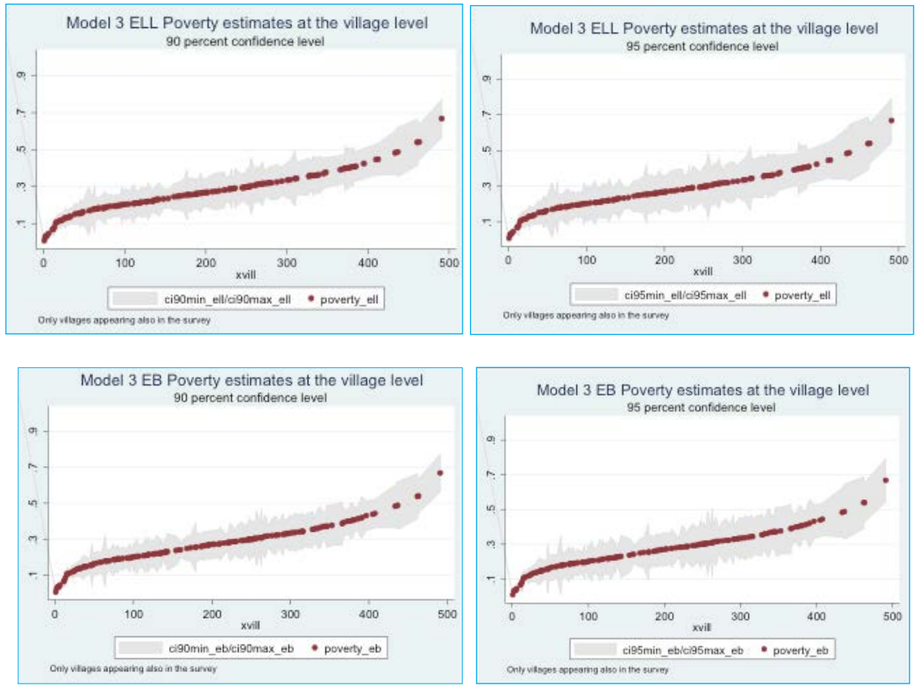


Figure 13. Confidence intervals of village level estimates
(Only villages appearing in survey and census)




Ngamiland
North East
Ghanzi
Central
Kgalagadi
kgatleng
South East