

Housing and Services - Access to electricity

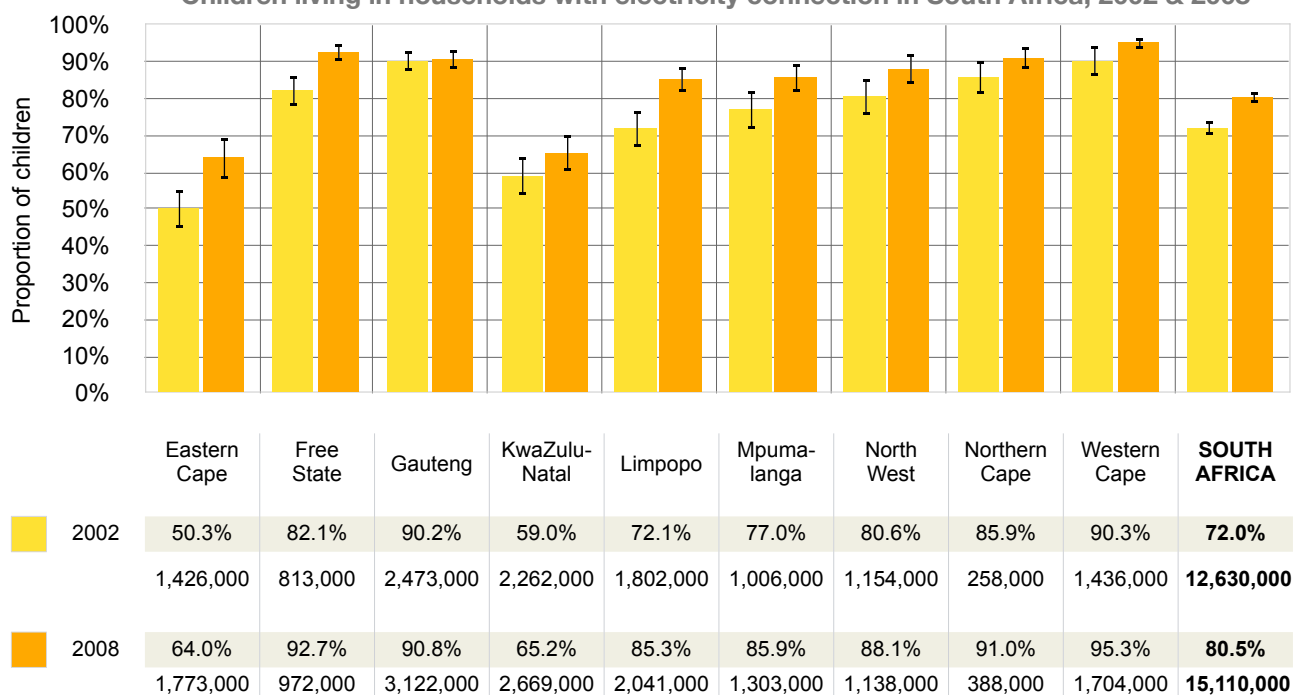
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Definition

This indicator shows the number and proportion of children who live in households that are connected to the mains electricity supply.

Children living in households with electricity connection in South Africa, 2002 & 2008



- Source
- Statistics South Africa (2003 - 2009) General Household Survey 2002 - 2008. Pretoria, Cape Town: Statistics South Africa.
 - Analysis by Katharine Hall & Double-Hugh Marera, Children's Institute, University of Cape Town.

- Notes
1. Children are defined as persons aged 0 – 17 years.
 2. Population numbers have been rounded off to the nearest thousand.
 3. Sample surveys are always subject to error, and the proportions simply reflect the mid-point of a possible range. The confidence intervals (CIs) indicate the reliability of the estimate at the 95% level. This means that, if independent samples were repeatedly taken from the same population, we would expect the proportion to lie between upper and lower bounds of the CI 95% of the time. The wider the CI, the more uncertain the proportion. Where CIs overlap for different sub-populations or time periods we cannot be sure that there is a real difference in the proportion, even if the mid-point proportions differ. CIs are represented in the bar graphs by vertical lines at the top of each bar.

What do the numbers tell us?

The International Committee on Economic, Social and Cultural Rights (CECSR) has issued a general comment on the meaning of 'adequate' housing. It has identified seven key elements which need to be assessed to measure whether housing is 'adequate'. One of these elements is access to services including access to safe energy sources, such as an electricity connection in the house. Access to a safe energy source such as electricity has an impact not only on the child's right to housing, but also on their rights to health, nutrition and education.

Access to electricity in the physical structure of a house is important for a range of reasons. Where there is no electricity, families use other fuels for lighting, heating and cooking, and these can pose health hazards. For example, candles and paraffin stoves are fire hazards when dwellings are built out of materials that burn easily; wood or dung fires can result in chest infections; burns from open fires are a common cause of injury and death. Where families do not have access to fridges, they are also less likely to be able to keep food fresh.

There are a number of time-use consequences to not having electricity. It is usually women and children who collect wood and other fuels, and more effort is required in cooking and heating with these fuels. Time spent by children to collect fuel can impact on their ability to do their homework and keep up at school. Also, a lack of adequate electric lighting makes it difficult for children to study after dark.

In 2008, many more children had electricity in their homes (81%) than had access to clean drinking water (64%) or basic sanitation (61%). Even amongst those living in informal dwellings, the majority (73%) of children had a main electricity supply to their dwelling. One of the main dangers of informal settlements for children is the risk of fires, which spread rapidly and are often started when households use alternative and more dangerous energy sources (such as paraffin) for cooking and lighting. Access to electricity does not necessarily mean that households discontinue using flammable fuels, but it does provide an alternative that is safer – if the appliances are there and electricity is affordable.

In 2008, less than half of children living in traditional homesteads (44%) had access to electricity, but this was considerably higher than access to basic sanitation (28%) and to safe drinking water at home (16%). There has been a gradual improvement in children's access to electricity across the country – from 72% in 2002 to 81% in 2008. Five provinces stand out as having reached significantly more households with children over the period: the Eastern Cape (from 50% to 64%), Limpopo, Mpumalanga, Free State and the Western Cape.

Technical notes

The General Household Survey asks: "Does this household have a connection to the main electricity supply?" This indicator is calculated according to the number and proportion of children in households that answered "yes" (connected) and "no" (not connected). The indicator only shows whether a household is connected to the mains supply. There may be many children in households that do not use electricity because their families are unable to afford it, or because they do not have the money to buy and maintain electrical appliances such as fridges, stoves, and heaters. On the other hand, there are many households which use electricity even though they are not formally connected to the main grid. Illegal connections often consist of long extensions which run along the ground, and these can shock children or start electrical fires.

Strengths and limitations of the data

The data are derived from the General Household Survey ¹, a multi-purpose annual survey conducted by the national statistical agency, Statistics South Africa, to collect information on a range of topics from households in the country's nine provinces. The survey uses a sample of 30,000 households. These are drawn from Census enumeration areas using multi-stage stratified sampling and probability proportional to size principles. The resulting estimates should be representative of all households in South Africa.

The GHS sample consists of households and does not cover other collective institutionalised living-quarters such as boarding schools, orphanages, students' hostels, old age homes, hospitals, prisons, military

barracks and workers' hostels. These exclusions should not have a noticeable impact on the findings in respect of children.

Changes in sample frame and stratification

The current master sample was used for the first time in 2004, meaning that, for longitudinal analysis, 2002 and 2003 may not be easily comparable with later years as they are based on a different sampling frame. From 2006, the sample was stratified first by province and then by district council. Prior to 2006, the sample was stratified by province and then by urban and rural area. The change in stratification could affect the interpretation of results generated by these surveys when they are compared over time.

Provincial boundary changes

Provincial boundary changes occurred between 2002 and 2007, and slightly affect the provincial populations. Comparisons on provincial level should therefore be treated with some caution. The sample and reporting are based on the old provincial boundaries as defined in 2001 and do not represent the new boundaries as defined in December 2005.

Weights

Person and household weights are provided by Statistics South Africa and are applied in Children Count – Abantwana Babalulekile analyses to give estimates at the provincial and national levels. Survey data are prone to sampling and reporting error. Some of the errors are difficult to estimate, while others can be identified. One way of checking for errors is by comparing the survey results with trusted estimates from elsewhere. Such a comparison can give an estimate of the robustness of the survey estimates. For this project, GHS data were compared with estimates from the Statistics South Africa's mid-year estimates, as well as the Actuarial Society of South Africa's ASSA2003 AIDS and Demographic model.

Analyses of the seven surveys from 2002 to 2008 suggest that over- and under-estimation may have occurred in the weighting process:

- When comparing the weighted 2002 data with the ASSA2003 AIDS and Demographic model estimates, it seems that the number of children aged 0 – 9 years was under-estimated in the GHS, while the number of children aged 10 – 19 was over-estimated. The pattern is consistent for both sexes. The number of very young males aged 0 – 4 years appears to be under-estimated by 15%. Girls in this age group have been under-estimated by 15.8%. Males in the 10 – 14-year age group appear to be over-estimated by 5.7%.
- Similarly in 2003, there was considerable under-estimation of the youngest age group (0 – 9 years) and over-estimation of the older age group (10 – 19 years). The pattern is consistent for both sexes. The results also show that the over-estimation of males (9%) in the 10 – 19-year age group is more than double the over-estimation for females in this age range (3.8%).
- In the 2004 results, it seems that the number of children aged 7 – 12 years was over-estimated by 6%, as well as the number of persons aged 13 – 22 years. The number of very young children appeared to have been under-estimated. The patterns of over- and under-estimation appear to differ across population groups. For example, the number of White children appears to be over-estimated by 14%, while the number of Coloured persons within the 13 – 22-year age group appears to be 9% too low.
- In 2005, the GHS weights seem to have produced an over-estimate of the number of males within each five-year age group. The extent of the overestimation is particularly severe for the 10 – 14-year age group. In contrast, the weights produce an under-estimate of the number of girls – the error seems greatest in respect of the younger age groups. These patterns result in male-to-female ratios of 1.06, 1.13, 1.10 and 1.09 respectively for the four age groups covering children (ie 0 – 4, 5 – 9, 10 – 14 and 15 – 19 years).
- The 2006 weighting process yielded the same results as in 2005. The one exception is that the under-estimation of females is greatest in the 5 – 9 and 15 – 19-year age groups. This results in male-to-female ratios of 1.03, 1.10, 1.11 and 1.12 respectively for the four age groups covering children.
- The 2007 weighting process produced an over-estimation for boys and an under-estimation for girls. The under-estimation of females is in the range of 3 – 5% while the over-estimation is in the range of 1 – 7%. This results in male-to-female ratios of 1.07, 1.06, 1.08 and 1.08 respectively for the four age groups covering children.

- Overall, assuming the ASSA2003 Aids and Demographic model to be the 'gold standard', it appears that the GHS2008 over-estimates both male and female populations under the age of 19 years, except for 0 – 4- year-old females. The extent of over-estimation for boys is in the range 0 – 7%. It is particularly severe for boys aged 10 – 14 years. Over-estimation is in the range of 2 – 5% for girls aged five years and above. For girls aged 0 – 4 years, the ASSA2003 model suggests that these may have been underestimated by about 1%. The GHS2008 suggests a sex ratio of 1.03 for children aged 0 – 4 years, which is higher than that of the ASSA model and Statistics South Africa's mid-year estimates.

The apparent discrepancies in the seven years of data may slightly affect the accuracy of the Children Count – Abantwana Babalulekile estimates. Since 2005 the male and female patterns vary in respect of a particular characteristic, which means that the total estimate for this characteristic will be somewhat slanted toward the male pattern. A similar slanting will occur where the pattern for 10 – 14-year-olds, for example, differs from that of other age groups. Furthermore, there are likely to be different patterns across population groups.

Disaggregation

Statistics South Africa suggests caution when attempting to interpret data generated at low level disaggregation. The population estimates are benchmarked at the national level in terms of age, sex and population group while at provincial level, benchmarking is by population group only. This could mean that estimates derived from any further disaggregation of the provincial data below the population group may not be robust enough.

Reporting error

Error may be present due to the methodology used, ie the questionnaire is administered to only one respondent in the household who is expected to provide information about all other members of the household. Not all respondents will have accurate information about all children in the household. In instances where the respondent did not or could not provide an answer, this was recorded as "unspecified" (no response) or "don't know" (the respondent stated that they didn't know the answer).

References

- ¹ Statistics South Africa (2003-2009). General Household Survey 2002-2008 Metadata. Cape Town, Pretoria: Statistics South Africa

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