

**Housing in the CPI:
The South African Experience and Concerns**

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1. Introduction

In 2008, there was a major overhaul of the Consumer Price Index (CPI) in South Africa. One of the components under review was housing. In the South African CPI (CPI all urban areas¹), owner-occupied housing has a weight of over 12%, the largest single item in the basket.

Prior to 2008, Statistics South Africa (Stats SA) used interest rates on mortgage bonds to calculate this index, which was not inline with accepted international methods. In bringing South Africa into line with international norms for CPIs, significant changes were made to the measure of owner-occupied housing in 2008 by introducing the Owners' Equivalent Rent (OER) approach. Stats SA had no other option but to use OER approach as none of the other approaches could be applied due to the lack of adequate data in South Africa.

Even though the OER approach is in line with international standards, Stats SA faces the challenge of measuring types of informal housing (which makes up 10% of the housing types in South Africa). As part of its analytical series, Stats SA publishes a CPI for the very-low expenditure group, in which the weight for owner-occupied housing and rentals combined is approximately 8%. Within this group, most homeowners live in informal housing. However, rentals on formal housing (houses, townhouses and flats) are used as a proxy, which is not a fair reflection of their prices. A better solution is required.

2. Transition to the OER approach

In bringing South Africa into line with international norms for CPIs, significant changes were made to the measures for owner-occupied housing in 2008 by introducing the Owners' Equivalent Rent (OER) approach as opposed to measuring changes in interest rates. The reason for selecting this method as opposed to the user cost or net acquisitions method was the lack of availability of data in South Africa to calculate these methods accurately. Additionally, it is relatively easy to calculate the rental equivalence approach to measure owner-occupied housing.

¹ CPI all urban areas is the official measure of inflation in South Africa; used for inflation targeting.

The Income and Expenditure Survey (IES), published by Stats SA in March 2008, forms the basis for the CPI weights. The survey estimates the 'rent' of owner occupiers by asking households three questions regarding housing costs.

1. Monthly mortgage payment for the last month
 - of which – Capital
 - of which – Interest
2. If you were to rent this dwelling, how much would you pay for it per month?
3. What is the value of the dwelling?

Respondents had difficulty with the first two questions but were able to provide a reliable estimate of the market value of their property. The value in question was turned into a rental equivalent by a firm of property economists who conduct regular surveys for the property market and of rentals in particular. The value was adjusted by a rental yield for formal housing in order to obtain the rental equivalent.

In investigating whether the OER approach would be more or less sufficient, Stats SA considered the following criteria:

- Are at least 25% of all dwellings in the country rented?
- Is the rental market large enough for there to be types and sizes of properties in the rental market which are comparable to those in owner-occupied housing?
- Is the rental market controlled or are rents subsidised by the authorities or are market prices governed in some other way?
- Are more than half of the rented dwellings not occupied by foreigners or by employees paying low rents (subsidised)?
- Are rented dwellings distributed over all parts of the country (ILO Manual, Chapter 10)? and
- Is there a survey of accommodation rentals (see section 2.1 below)?

Five out of the six criteria above were met, the exception being that only 23% of total formal housing in South Africa is rented. These figures were obtained from the 2001 population census.

Table 1: Owner-occupied versus rented (Census 2001)

Housing type	Owned	Rented	Total
House or brick structure on a separate stand or yard	4 159 674	952 964	5 112 638
Flat in block of flats	184 107	340 543	524 650
Town/cluster/semi-detached house (simplex: duplex)	206 916	85 693	292 609
Total	4 550 697	1 379 200	5 929 897
% of total	77%	23%	100%

Additionally, the 2001 Census provides reliable estimates of different formal housing types broken down by owner-occupiers and renters. Table 2 shows that while houses represent the majority of dwellings in both categories, flats and townhouses are used by a higher proportion of renters than owner-occupiers.

Table 2: Formal housing types (Census 2001)

Housing type	Owner occupiers	Renters
Houses *	91,4%	69,1%
Flats	4,0%	24,7%
Townhouses	4,6%	6,2%
Total	100,0%	100,0%

* House or brick structure on a separate stand or yard (full-title status)

The primary limitation of using OER is that the rental market in South Africa is less than 25% of the total housing market. In addition, there is the argument that owner-occupied and rented dwellings are different markets and their prices/costs do not move together. In South Africa, rental leases are normally agreed to over a period of a year, and may even be held constant for even longer periods. Rental prices do not change as additional costs such as interest rates and costs of homeownership change. Another concern with this approach is the estimation of the weights; using a rental yield per area for formal housing is not necessarily optimal since other types of housing in certain areas, say rural, do not necessarily show the same trends as in formal housing.

2.1 Future improvements to the measure of owner-occupied housing

Improvements to the measurement of owner-occupied housing over the next five to ten years will include the piloting of the net acquisitions and user cost approaches. The aim is to assess whether one of these would be a more appropriate measure of housing in South Africa. With the last reweighting in 2008, Stats SA specifically encountered

problems in estimating the value of housing stock of the country. This problem will hopefully be solved by the 2011 population census. In order to do these studies as accurately as possible the following questions have been included in the population census questionnaire for 2011:

- Type of dwelling
- Total number of specific rooms used by the dwelling (bedrooms, bathrooms, toilets and communal living areas are especially important; this count should cover all buildings occupied by the household)
- Main materials of construction (brick, cement, iron etc.)
- Period of construction (not subsequent renovations or improvements)
- Tenure status (rented or owned)
- Monthly rental amount (for renters)
- Estimated value of the property (only for owner-occupiers).

Data obtained from these questions will be used to derive a value of the national housing stock and obtain accurate weights for owner-occupied housing irrespective of the approach that will be used in the end. Rental equivalence will be the approach that Stats SA uses in the interim, but eventually there will be a move to a user cost or net acquisitions approach.

2.2 The current rental survey

Stats SA's quarterly rental survey tracks actual rental values for specific dwellings in each relevant geographic area, for houses, flats, and townhouses. Actual rentals for a given dwelling are compared from one quarter to the next, enabling the calculation of quarterly price relatives for that dwelling for actual, and owners' equivalent, rent.

In order to obtain data for rentals and OER, Stats SA collects rental data using Letting agents (usually Real Estate Agents) as the respondents. The survey is conducted by Stats SA's price collection team throughout the country. Samples of actual rental properties are selected from the books of the letting agency. The sample covers a wide geographic spread to ensure that all of the CPI regions are represented, as well as different housing types. The sample is composed of actual properties (dwelling units), using actual locations (i.e. street address) of rented properties. The rent paid for these

properties is recorded each quarter for as long as the property is available for rent. Currently approximately 6 500 price quotes are collected per quarter.

In addition to the actual rental value, other information obtained from the respondent includes:

- Property address to ensure accurate tracking
- Property status (rented, vacant or no longer listed)
- Property class (Standard, Upper-class, Other)
- Other features (such as whether it includes a swimming pool, etc.)
- Other charges included in the rent price (such as electricity, water, etc.)
- Comments to explain change in rent (when it occurs).

The survey is managed by a dedicated team in head office which quality assures the results. Fieldworkers are provided with feedback concerning their quality and improvements are tracked on a monthly basis. The survey is also subject to random audits by the CPI quality audit team.

Previously, the sample was equally distributed over the three major housing types. Its composition was adjusted so that it represents the fact that houses account for the vast majority of owner-occupied accommodation and flats and townhouses for a smaller share. The sample is designed by using the Neymann optimal allocation approach, where quotes are allocated to each CPI area² by variation in prices as well as weighting and availability of resources in the specific areas.

While the results of the survey are of a high standard, it does have certain limitations.

These include:

- Difficulty in obtaining prices excluding water, electricity, levies and other service costs, therefore for most of the prices these are included and the index for OER is calculated with prices including these additional costs.
- The number of rental units for which price data is collected in the CPI is lower than ideal. Stats SA would like to collect at least 10 000 price quotations per quarter.

² See the document *Boundaries and Buying: Realigning the publication areas of the CPI with current political and economic geographic realities*. www.statssa.gov.za

- Respondent fatigue. Respondents have to spend a long time with fieldworkers in order to complete the survey forms.

Changes and improvements that Stats SA will undertake in the rental survey over the next five to ten years:

- Increase the sample to 10 000 price quotations during 2010
- Collect data on prices for water, electricity, levies and other costs, so that a pure rent can be calculated (by 2012).
- Include rentals on other housing types (within the next 5 – 10 years)

3. Informal housing in the CPI

According to the population census of 2001, approximately 1,8 million households live in informal dwellings in South Africa. This constitutes 15% of all households in South Africa. The CPI only measures formal housing and excludes all other types of housing, mainly due to lack of data on the informal housing market and the fact that the CPI is driven by expenditure. The following section will discuss the implications of this omission for the CPI.

3.1 What is the housing market in SA?

From the population census (2001) data, the results are as follows for tenure status in SA (for all dwelling types).

Table 3: Tenure status - all housing in SA (census 2001)

Housing type	Owned	Rented	Occupied rent-free	Not applicable
House or brick structure on a separate stand or yard	4 159 674	952 964	1 125 816	-
Traditional dwelling/hut/structure made of traditional materials	944 602	85 394	624 791	-
Flat in block of flats	184 107	340 543	64 459	-
Town/cluster/semi-detached house (simplex; duplex)	206 916	85 693	27 259	-
House/flat/room in back yard	125 859	180 715	105 802	-
Informal dwelling/shack in back yard	141 927	209 634	107 964	-
Informal dwelling/shack NOT in back yard	508 346	175 764	692 595	-
Room/flatlet not in back yard but on shared property	25 653	59 530	35 427	-
Caravan or tent	11 419	6 879	12 314	-
Private ship/boat	2 371	679	610	-
Not applicable (living quarters is not housing unit)	-	-	-	564 565
Total	6 310 874	2 097 795	2 797 036	564 565

Housing units that are occupied rent-free can be excluded on the basis that these households are neither renting nor do they own a dwelling. These households were counted as separate households in the census, but they in all probability live with the owner or renter of an actual dwelling. Rationally, not many people would be allowed to live in a house, townhouse or flat rent-free. “Not applicable” tenure status describes those whose living quarters cannot be defined by any housing type description.

For rentals and owner-occupied housing, the “occupied rent-free” and “not applicable” household tenure status should be excluded (reasons explained above); subsequently the proportions of rent and owner-occupied housing for the CPI in South Africa is as given in table 4.

Table 4: Tenure status (Proportions between rental and owner-occupied housing for all types of housing) - housing in SA (census 2001)

Housing type	Owned	Rented
House or brick structure on a separate stand or yard	81,36%	18,64%
Traditional dwelling/hut/structure made of traditional materials	91,71%	8,29%
Flat in block of flats	35,09%	64,91%
Town/cluster/semi-detached house (simplex; duplex)	70,71%	29,29%
House/flat/room in back yard	41,05%	58,95%
Informal dwelling/shack in back yard	40,37%	59,63%
Informal dwelling/shack NOT in back yard	74,31%	25,69%
Room/flatlet not in back yard but on shared property	30,12%	69,88%
Caravan or tent	62,41%	37,59%
Private ship/boat	77,74%	22,26%

The proportions within rentals and owned housing are given in table 5.

Table 5: Tenure status (Proportions within the groups owned and rented housing) - housing in SA (census 2001)

Housing type	Owned	Rented
House or brick structure on a separate stand or yard	65,91%	45,43%
Traditional dwelling/hut/structure made of traditional materials	14,97%	4,07%
Flat in block of flats	2,92%	16,23%
Town/cluster/semi-detached house (simplex; duplex; triplex)	3,28%	4,08%
House/flat/room in back yard	1,99%	8,61%
Informal dwelling/shack in back yard	2,25%	9,99%
Informal dwelling/shack NOT in back yard	8,06%	8,38%
Room/flatlet not in back yard but on shared property	0,41%	2,84%
Caravan or tent	0,18%	0,33%
Private ship/boat	0,04%	0,03%

The current CPI only includes houses, townhouses and flats. This implies that only 72% and 66% of owned and rented housing respectively is covered in the CPI. Informal housing makes up 10% of the owned market and 18% of the rental market, and this type

of housing is growing rapidly. From the 1996 to 2001 census, informal housing increased by 26% as a proportion of total housing.

3.2 The problem in the CPI

Given South Africa's political history, the measurement of products in the CPI should be as representative as possible of the population's expenditure. As indicated earlier, the CPI publishes a very low expenditure index, and owner-occupied housing and rentals combined has a weight of approximately 8% in this index. Most of the expenditure of households living in informal dwellings is recorded here.

What is an informal dwelling?

- Residential areas where a group of housing units has been constructed on land to which the occupants have no legal claim, or which they occupy illegally;
- Unplanned settlements and areas where housing is not in compliance with current planning and building regulations (United Nations; 1996);
- In South Africa informal dwellings are typically built out of corrugated steel plates for the walls and roof (shack);
- These dwelling are mostly built by the households themselves.

The very low expenditure index includes households that spend up to R14 564 per annum, which is approximately R1 215 per month (roughly US\$150). This can be translated into a state grant received by a grandmother who is the principal provider in a household and who is looking after one child.

There are also indices for four other expenditure groups, which are the low, middle, high and very high expenditure groups. These groups were calculated on expenditure quintiles – each quintile being one of five segments of the expenditure distribution of the CPI for all urban areas. Estimated expenditure by these groups per annum is respectively (from the HES):

- Quintile 2 (Low) - R 14 565 up to R 23 278;
- Quintile 3 (Middle) - R 23 279 up to R 36 755;
- Quintile 4 (High) - R 36 756 up to R 79 152; and
- Quintile 5 (Very High) - R 79 153 and more.

From a broader perspective, the weight of the very low expenditure group out of the CPI all urban areas are 1,78%. The weight for owner-occupied housing and rentals for the very low expenditure index is insignificant in the overall CPI, with a weight of just 0,15%. However, for the very low expenditure index, the weight for owner-occupied housing and rentals are respectively 4,65% and 3,97% (see table 6). Given the calculation of this index, the CPI should be measuring informal housing. This weight is significant and suggests that the informal housing sector should be measured in the CPI.

If an index is calculated for a specific purpose (in this case the very low income group), it should be calculated on the weights as well as price movements of the average household in that particular group. Therefore, using houses, townhouses and flats, which represents the formal housing market, as a proxy for an index is inaccurate. At this point in time, however, Stats SA cannot measure informal housing and the formal housing market is the closest proxy.

The weights distribution at COICOP level for the very low expenditure index is given in table 6. It is expected that food, housing and transport should have the largest weights (basic needs).

Table 6: Proportions of the very low expenditure group weights (COICOP)

COICOP	Group	Proportion
01	Food and non alcoholic beverages	39,96%
02	Alcoholic beverages and tobacco	5,48%
03	Clothing and footwear	7,77%
04	Housing, water, electricity and other fuels	16,24%
	<i>Rentals</i>	3,97%
	<i>OER</i>	4,65%
05	Furnishings, household equipment and maintenance	4,40%
06	Health	1,40%
07	Transport	7,78%
08	Communication	2,78%
09	Recreation and culture	1,97%
10	Education	0,83%
11	Restaurants and hotels	4,94%
12	Miscellaneous goods and services	6,44%

The dilemma is how to measure informal housing. Problems with measuring this type of housing include:

- No organised market exists for informal housing.
- No reliable estimates exist about the cost of this type of housing.

- It is difficult to measure in the context of a user cost, net acquisitions approach and rental equivalence approach. However, if a rental survey is run one might be able to get a good estimate of rentals.
- Movements of informal settlements from one area to another might pose a problem in tracking the prices of this type of housing.

3.3 Possible ways to address the issue of informal housing measurement

There are a few ways in which the issues with measuring informal housing may be addressed. The most obvious is to run a survey of informal housing. Whether the user cost, net acquisitions or rental equivalence approach is used, a survey of these households would be the best option. Another option is to obtain estimates of the informal housing sector from the Department of Human Settlements (Department of Housing) or obtain data from provincial administrations. Both these options will be explained in detail in the following section.

3.3.1 Regular survey of informal dwellings

The CPI division would have to run this survey, since the household surveys do not track the same dwellings over time and they change their samples for every new survey or rotate proportions of their samples. Fieldworkers would have to visit informal settlements to obtain price and other required data. Possible concerns of this method include:

- If a net acquisitions approach is adopted, the fieldworkers should be very familiar with the area, as informal housing does not necessarily follow the pattern of a street; a dwelling can be erected on a street or on the same piece of land that another informal dwelling is already located on.
- For the net acquisitions approach to be used, land will be excluded (most informal settlements are not built on land that is owned by the community), and there is no consensus on the exclusion of land as yet in the CPI literature.
- If a rental equivalence approach is adopted, there might be an issue with informal settlements moving from one area to the other, so tracking informal dwellings might be problematic if fieldworkers are not informed.

3.3.2 Building materials proxy

The second option is obtaining data from the Department of Human Settlements (DHS). DHS would be able to provide data on the number of dwellings per informal settlement. Since most informal housing (shacks) is made of corrugated steel, the prices of the steel may be used as a proxy for prices. For this option, only the net acquisitions approach can be calculated. The drawbacks are:

- Data for the number of dwellings may not be up to date from the DHS.
- Corrugated steel might not be a reliable proxy.
- For the net acquisitions approach to be used, land will be excluded (most informal settlements are not built on land that is owned by the community), and there is no consensus on the exclusion of land as yet in the CPI literature.
- The characteristics of the dwelling unit will be unknown, i.e. Stats SA will not know how many rooms make up the dwelling to calculate a more reliable estimate of informal housing.

4. Conclusion

The challenge is more clear than the solution. The current measure of housing prices for very low expenditure groups is inadequate. This is a challenge that faces many countries with large numbers of people living in informal housing. We need to develop norms internationally to provide guidelines.

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