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## "Dying to get a house?" The health outcomes of the South African low-income housing programme

### Lochner Marais<sup>\*</sup>, Jan Cloete<sup>1</sup>

Centre for Development Support (IB 100), University of the Free State, PO Box 339, Bloemfontein, South Africa

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#### ABSTRACT

This paper examines the health impacts of the South African housing subsidy programme. A distinction is made between subsidised housing units, informal settlements (slums), informal housing units and formal urban areas, and the differences and similarities between the various typologies are explored. Binomial logistic and linear regressions are utilised in order to understand the relationships between the different housing typologies and health outcomes. Although subsidised housing units score better in terms of some adult and child health indicators, the binomial logistic and linear regressions show that health outcomes are more impacted by service-related factors than by housing structure. The results suggest that the housing subsidy policy framework should be reconsidered, taking into account the important role of urban services, particularly in regard to the upgrading of informal settlements.

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#### Introduction

The link between housing and health has been firmly established in epidemiological research (Thomson & Petticrew, 2005). However, arriving at a full understanding of the causal relationships in this respect has proven to be more problematic (Bradley, Stephens, Harpham, & Cairncross, 1992; Galea & Vlahov, 2005; Thomson, Petticrew, & Morrison, 2002). Studies have noted that: "there is no widely shared consensus about the nature of the relationship between health status and domestic living conditions" (Roderick, 2006: 540) and that the "current interventions linking housing and health are woefully limited in both scope and scale" (Northridge, Sclar, & Biswas, 2003: 557). A systematic review of the literature considering the relationship between housing and health indicates that poor housing is strongly linked to poor health, giving rise to the question of whether "poor health can be improved by improving housing." (Thomson & Petticrew, 2005: 3). A number of studies have debated this possible link between improved housing and improved health (Ambrose, 2000; Howden-Chapman et al., 2005; Krieger & Higgins, 2002; Krieger, Takaro, Song, & Weaver, 2005; Thomson, Petticrew, & Douglas, 2003; Thomson, Petticrew, & Morrison, 2009). Thomson and Petticrew (2005: 3) note that "[t]he well-established links between poor health, poor housing and poverty suggest that housing improvements in disadvantaged areas or social housing may provide a population-based strategy to improve health and reduce health inequalities". On the other hand, some research findings indicate that improved housing increases the financial burden on households, which results in deterioration in health outcomes (Bradley et al., 1992; Krieger & Higgins, 2002). A recent paper on urban health in low-income countries argues that there is a strong "need to better understand how changes in the built environment in LMICs affect health equity" (Smit et al., 2011: 875). Since 1994, the South African government has embarked on one

of the largest low-income housing programmes in the world, constructing approximately 3.3 million new housing units to date (Sexwale, 2013). Despite a substantial amount of international research and a few local case studies on health and housing, a national understanding of the potential impact of these subsidised housing units on health outcomes remains limited. This paper fills this gap by providing a national assessment of the health impacts of the South African subsidised housing programme. The intention is to provide a broad overview which can lay the foundation for more detailed and narrow assessments in the future.

#### Housing and health: the international debate

According to Roderick (2006), empirical studies show that eight main components of residential environments should be taken into consideration when examining the relationship between housing





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<sup>\*</sup> Corresponding author. Tel./fax: +27 514012978.

E-mail addresses: Marais]GL@ufs.ac.za, charlene.lochner@gmail.com (L. Marais), CloeteJS@ufs.ac.za (J. Cloete).

<sup>&</sup>lt;sup>1</sup> Tel.: +27 514019111; fax: +27 514014324.

and health. Three of these aspects are relevant to this paper. First, safe drinking water, adequate sanitation and adequate refuse removal have all been associated with good health (Hardoy, Milton, & Satterthwaite, 1992). It is particularly children's health and growth that are compromised by poor access to water and sanitation (Agarwal, Satyavada, Patra, & Kumar, 2008; Bartlett, 1999, 2010: Moe & Rheingans, 2006). The health benefits of in-house water, as opposed to public stand-pipes, have also been noted (Bradley et al., 1992). A study in Brazil found that children with access to public stand-pipe water were 4.8 times more likely to die of diarrhoea than children who had water available on their stand (Bradley et al., 1992). Similarly, research in urban slums in India showed that better-serviced slums had lower levels of child mortality and morbidity (Agarwal & Taneja, 2005), while slums were worse off than formal urban areas (Agarwal, 2011). In Kenya, slum areas had even worse mortality and morbidity figures than rural areas (African Population and Health Research Center, 2002). Research conducted in slums in Nairobi has shown that infant, child and under-five mortality rates are respectively 20, 65 and 35% higher than in rural Kenya (Zulu et al., 2011). Higher infant mortality resulting from inadequate water access has also been noted in Brazil (Agarwal et al., 2008; Bradley et al., 1992). In addition, the outbreak of cholera is associated with poor water access and quality (Penrose, de Castro, Werema, & Ryan, 2010). Researchers have argued that the poor health outcomes of slums-dwellers of all ages can be attributed to poor environmental and infrastructural conditions, limited access to health services and preventative healthcare, and the poor quality of health services in such areas (Zulu et al., 2011). In the last decade, researchers have started to warn about deteriorating urban infrastructure, as this could likely have a negative impact on water quality (Galea & Vlahov, 2005). Meanwhile, poor housing conditions associated with the lack of refuse removal have been linked to asthma and other chronic diseases (Krieger & Higgins, 2002).

Secondly, neighbourhood atmospheric conditions and indoor air quality (closely related to ventilation) have considerable impacts on health. Three major factors in this respect are industrial pollution, fuels used for cooking and heating and crowded occupancy conditions. The relationship between indoor living conditions (especially crowding) and airborne diseases such as tuberculosis (Agarwal et al., 2008; Krieger & Higgins, 2002) and respiratory diseases such as asthma has been well established (Alder, 1995; Krieger & Higgins, 2002; O'Campo & Yonas, 2005). Cold, damp and mouldy housing conditions have also been identified as health risks (Wilkinson, 1999). Meanwhile, energy-efficiency measures have been linked with a decrease in respiratory diseases (Thomson et al., 2009), although the outcomes in this regard are not always particularly clear (Wilkinson, 1999). Indoor pollution (related to heating and cooking fuels, smoking, etc.) and outdoor pollution contribute to more than three million deaths annually, of which 90% occur in developing countries (Galea & Vlahov, 2005). Once again, the risk factor for children seems to be higher (Bartlett, 1999; Roderick, 2006), and studies have shown that upgrading housing conditions leads to fewer days of absence from school (Northridge et al., 2003). High variation in indoor temperature has also been identified as a contributing factor to morbidity and mortality (Scovronick & Armstrong, 2012). Other concerns include the high level of injuries associated with a poor living environment (Krieger & Higgins, 2002; Saegeart, Freudenberg, Cooperman-Mroczek, & Nassar, 2003; Ziraba, Kyobutungi, & Zulu, 2011) and the relationship between dampness and headaches (Krieger & Higgins, 2002).

Finally, the location of settlements in relation to social institutions (such as hospitals, health clinics and schools) and the affordability of the services offered by such facilities are important considerations. Access to vaccinations serves as a proxy measure in this respect. It is especially child vaccinations which are problematic; studies in India found that 60% of poor children living in urban areas have not been vaccinated by the age of one (Agarwal et al., 2008), while vaccinations in slums in Nairobi were found to be of poorer quality than those in formal urban areas (Table 1 provides a summary of the discussion).

#### The South African debate: housing policy and health

Historical urbanisation processes in South Africa have been well documented (Mabin, 1991, 1992; Posel, 1991), and the historical context in respect of urbanisation and housing is important to understand. For the purpose of this paper, we concentrate on three historical processes which influenced urbanisation and the housing crisis and delayed the 'epidemiological transition' in South Africa. In the first place, influx control played a profound role from 1910. This was a deliberate attempt to prevent the movement of black South Africans (mainly Africans, but Indian and Coloured communities as well) from rural to urban areas. With the rise of the apartheid state after 1948, influx control mechanisms were tightened (Mabin, 1992), but approximately 500 000 state rental houses were provided between 1950 and 1970. Although influx control managed to limit the rate of urbanisation, it did not prevent urbanisation completely. People continued to move to urban areas legally and/or illegally, in some cases following a process of circular migration (Mabin, 1992). A second process involved the forced removals of non-white South Africans (Mabin, 1991) and in some cases, the bulldozing of informal settlements (Harrison, 1992; Platzky & Walker, 1985). Thirdly, after influx control was abolished in 1985, it was replaced by a policy of orderly urbanisation (Wolfson, 1991). In practical terms, this meant that houses were delivered mainly to higher-income groups, and very little was done to make land available to lower-income households. Consequently, large numbers of black people rented formal and informal housing in the backyards of formal stands or lodged within such households (Hendler, 1991).

The above-mentioned processes had three main consequences. First, because black urbanisation was delayed, the country did not benefit from the improvements in health that go along with urbanisation. Instead, South Africa experienced an urban health penalty as people settled in informal settlements. Second, once the mechanisms used to control urbanisation could no longer be policed (by the early 1990s), informal settlements developed on a large scale across South African cities (Wolfson, 1991), further contributing to the urban health penalty. In an attempt to address the sprawl of informal settlements in urban areas, the apartheid state provided funds to the Independent Development Trust (IDT) between 1992 and 1994 to initiate a site and service programme based on a capital subsidy (R7500). Third, significant numbers of people have settled in backyards of formal households (either informally or formally).

It is within this context of circular migration, increasing urbanisation, increasing settlement in backyard dwellings, extensive informal settlements and the existing capital subsidy mechanisms of the IDT that the National Housing Forum designed a new housing policy just before the political transition in 1994. This policy was by and large accepted and implemented by the new post-apartheid government (Rust & Rubenstein, 1996). A number of key debates dominated the proceedings of the National Housing Forum (see Tomlinson, 1998), of which three are worth mentioning here. The first debate revolved around who the main supplier of housing should be – the state or the private sector. The second debate was about what type of subsidy was required, while the third centred on the size of the housing units to be constructed (the so-called breadth versus depth debate) – a theme which has remained

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