

5th Australasian Housing Researchers' Conference



17-19 November 2010, University of Auckland, New Zealand.

Housing and Child Development: Key Dimensions, Knowledge Gaps and Issues for Future Research in Australia

Alfred Michael Dockery

School of Economics and Finance

Curtin University, mike.dockery@cbs.curtin.edu.au

Phone: +61 8 9266 3468, Fax: +61 8 9266 3026

Garth Kendall

School of Nursing and Midwifery

Curtin University, g.kendall@curtin.edu.au

Phone: +61 8 9266 2191, Fax: +61 8 9266 2959

Jianghong Li

Curtin Health Innovation Research Institute, Centre for Developmental Health

Curtin University, Jianghong.Li@curtin.edu.au

Phone: +61 8 9489 7800, Fax: +61 8 9489 7700

Anusha Mahendran

Centre for Labour Market Research

Curtin University, anusha.mahendran@cbs.curtin.edu.au

Phone: +61 8 9266 1752, Fax: +61 8 9266 1743

Rachel Ong

School of Economics and Finance

Curtin University, r.ong@curtin.edu.au

Phone: +61 8 9266 2841, Fax: +61 8 9266 3026

Abstract

This paper begins by reviewing the existing international literature on the links between housing and child development. The housing environment can significantly improve or hinder a child's physical, social, emotional, behavioural and cognitive development directly and via its impacts on the child's parenting methods. The review of international literature is drawn from a range of disciplines including sociology, epidemiology, economics, housing policy, social welfare, health, medicine, child development and psychology. It highlights key dimensions of children's housing circumstances that are associated with their health and development. These include housing tenure, neighbourhood conditions, housing affordability,

homelessness, frequency of residential moves, extent of crowding, housing disrepair, environmental allergens and toxicants used in the home.

The paper also raises some important conceptual and methodological issues that need to be addressed in examining the causal pathways through which housing factors influence child developmental outcomes. In particular, there is a need to isolate housing factors from confounding influences such as parental socio-economic status and identify mediating factors such as parenting behaviour, and the inter-relationships between different housing factors that need to be accounted for.

There is currently a dearth of empirical studies that analyse the links between housing and child development in Australia, despite the plethora of studies examining these links in other developed countries such as the United States and United Kingdom. Hence, the third part of this paper utilises officially published statistics and the limited pool of Australian studies to highlight key policy issues requiring urgent empirical research in Australia in the near future. These issues include the disparity in housing conditions between Indigenous and non-Indigenous children, the impact of homelessness on children and measuring the impacts of housing affordability stress on child development.

Keywords: Housing. Child Development. Wellbeing

Introduction

It is well established that optimal early child development sets the foundation for an individual's health and capability to participate in society economically and socially across the life-course. For example, literacy, numeracy and success at school have significant impacts on labour market outcomes in adult life. Given the ageing of the population, children are increasingly seen as a valuable resource as they will play a critical role in Australia's future economic development. Disturbingly, despite the economic progress Australia has enjoyed in recent years, many indicators of children's development and wellbeing are exhibiting adverse trends, such as rising rates of diabetes, learning disabilities, adolescent suicide, aggressive behaviours, mental problems, neglect and child abuse (Li et al., 2008). Furthermore, these adverse outcomes are disproportionately found in families with limited financial, social and other resources, and by virtually every conceivable measure of wellbeing Indigenous children face profoundly inferior outcomes.

Clearly, reversing these adverse outcomes in children and youth and addressing inequalities in opportunity for young Australians should be a top priority and the research required to guide policy must be cross-disciplinary. Existing evidence has established that interventions are more effective if implemented earlier rather than later in life (Shonkoff et al., 2009). Hence, investments in services that impact on child and adolescent development are likely to result in improved life outcomes for children and reduce the need for more public expenditure on services in the later years, which may be more expensive but less effective in achieving positive outcomes.

While the links between housing and child development is well established, there is currently a dearth of empirical evidence in Australia about the nature of these connections. Hence, this paper has three keys aims. Firstly, this paper presents a review of the existing international literature on the links between housing and child development. We will highlight the key dimensions of children's housing circumstances that are associated with their health and

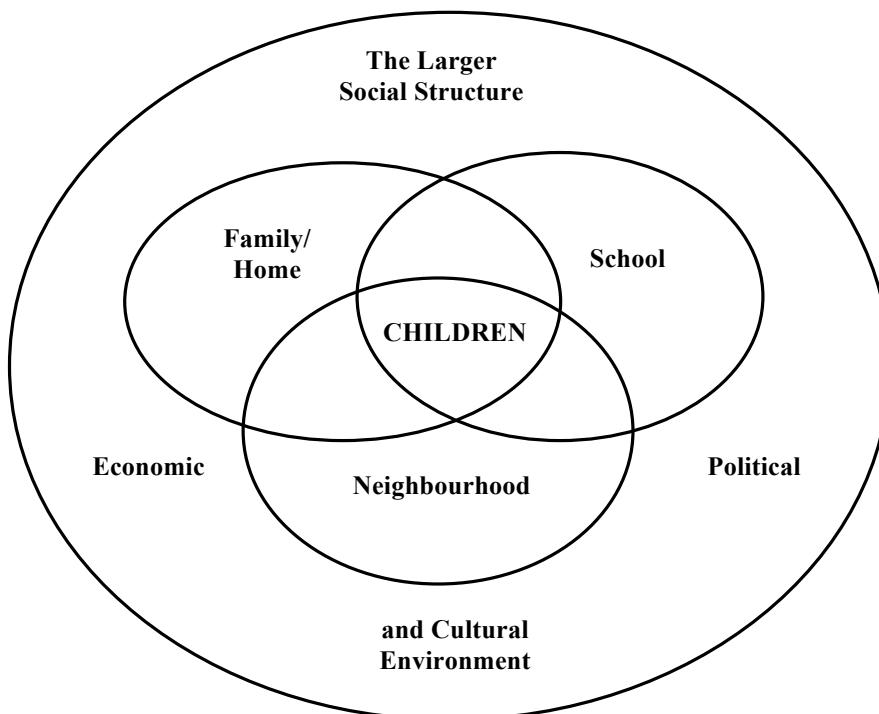
development. Secondly, this paper raises methodological issues that need to be addressed in examining the causal pathways through which housing factors influence child developmental outcomes. In particular, there is a need to isolate housing factors from confounding influences such as parental socio-economic status and parenting behaviour, and the inter-relationships between different housing factors need to be accounted for. Thirdly, this paper reports some officially published Australian statistics to highlight key issues pertaining to housing and child development requiring urgent research in Australia in the near future.

Conceptual framework

The belief that features outside the child's immediate environment can, and frequently do, impact on the child's development was popularised by developmental psychologist Urie Bronfenbrenner. Bronfenbrenner (1979) conceived of development as occurring within:

- nested settings beginning with the developing person, the 'microsystem', and
- immediate social settings of home, school and neighbourhood, the 'mesosystem', and
- settings that do not involve the developing person as an active participant, such as the parent's workplace, the 'exosystem' and the wider society and culture, the 'macrosystem' (see Figure 1).

Figure 1: Ecological contexts shaping child development



Source: Jessor (1993)

Bronfenbrenner (Bronfenbrenner & Ceci, 1994) has subsequently extended the ecological model to include the biological processes of development. This approach has become known as the 'bio-ecological perspective'. By drawing attention to the proximal contexts of family, school and community and the distal 'structural' components of society, culture, economic influence and politics that are largely outside the sphere of the child's and family's influence, Bronfenbrenner's bio-ecological theory challenges the predominant view that individuals have the capacity to act independently and to make their own free choices. 'Structure' refers to those factors such as socioeconomic status, social class, religion, gender, ethnicity, customs

and institutions (such as education, law enforcement, health, welfare, and housing) that seem to limit or influence the opportunities that individuals have.

Bronfenbrenner's bio-ecological model of child development is concerned with the immediate *social* settings of the child's home (Bronfenbrenner, 1979). In more recent years other academics such as Wachs (1990) have argued that the physical and social environment work jointly and independently to influence a child's development. In recent years a great deal of attention has also been focused on the neighbourhood as a context for children's development. Numerous recent empirical studies have confirmed Bronfenbrenner's proposition that neighbourhood conditions have the potential to improve or hinder the development of children (e.g. Leventhal & Brooks-Gunn, 2003).

Key findings from the literature

What are the roles of housing and neighbourhoods in shaping child development?

The physical environment

Environmental allergens have been found to trigger asthma and other respiratory illnesses (Breysse et al., 2004). In addition, heavy metals and pesticides are commonly found in the home environments that some children function in. These can have adverse impacts on child development, including lower birth weights among infants (Whyatt et al., 2002), behavioural and social problems (Chiodo et al., 2004), impaired neurological development, IQ reductions (Dietrich et al., 2001), poorer academic outcomes (Lanphear et al., 2000) and juvenile delinquency (Needleman et al., 1990). Unclean or unsafe housing results in reduced cognitive development (Gottfried & Gottfried, 1984) and falls (Breysse et al., 2004). Residence in high-rise buildings has been found to restrict opportunities for outdoor play (Oda et al., 1989). Outdoor play increases the potential for active play, provides a range of stimulation to children and supports their autonomy (Moore, 1986). It has been found that children with restricted opportunities for outdoor play are less independent and sociable, and exhibit reduced motor skill competencies and ability to perform routine tasks (Oda et al., 1989). The lack of space that children experience when living in crowded areas has been found to have a direct negative impact on their sense of autonomy (Bartlett, 1998), social behaviour (Evans, 2006), health (Baker et al., 1999), other aspects of development such as cognitive development (Gottfried & Gottfried, 1984) and school performance (Ray et al., 1982).

Housing affordability

The effect of housing affordability on child development and wellbeing is closely tied to the adverse effects of poverty. The material hardship model postulates that income enables families to purchase material goods and services that benefit children's development and wellbeing (Becker, 1981). High housing expenses relative to income can impede the capacity of families to account for other living costs associated with such things as food, clothing and health care (Bratt, 2002). Housing affordability can exert its effect on child development and wellbeing indirectly because families with high housing costs might be forced to trade down into lower quality housing or reduce consumption of other basic necessities such as food or health care, which could in turn lead to poorer health outcomes for children (Meyers et al., 1995; Harkness & Newman, 2005).

Security of housing tenure

Several studies have demonstrated that homeownership has both short-term and long-term favourable effects on the emotional and social wellbeing of children. Children with parents who owned their homes were found to be less likely to display behavioural problems (Haurin

et al., 2002) and better health (Fogelman et al., 1989). Existing evidence also indicates that children with home-owning parents also perform better academically and have better lifetime prospects than children whose parents do not own their home. Homeownership provides families with greater opportunity to maintain more consistency in their daily routines (Haurin et al., 2002). It promotes longer tenures in a constant place of residence and minimises the number of school transitions that children have to undergo (Aaronson, 2000). Studies have found that frequent residential moves have a negative impact on educational outcomes for children (Kerbow, 1996). When children move residence and have to change schools, they have to contend with many issues including adapting to new peers, teachers and curricula that may disrupt their educational progress and achievement. Repeated residential mobility has been associated with reduced social connectedness for children and their families (South & Haynie, 2004). Homelessness can be a severe source of stress for children who experience it. It can lead to intervention by child protection agencies and the placement of children in foster care, which can cause more stress for these children. In 2004, Harburger & White (2004) found that homelessness was the reason behind foster placement of children in as many as three in ten cases. A review by Choca et al. in 2004 also found that 10-36% of youth who grew up in foster care subsequently experienced homelessness. Furthermore, homeless children are more likely to exhibit significant psychological distress (Molnar et al. 1990), social developmental difficulties (Hicks-Coolick, et al., 2003), emotional developmental delays (Neil & Fopp, 1992), health problems and hunger (Molnar et al., 1990), language development difficulties (Hicks-Coolick et al., 2003) and poorer educational performance (Rafferty et al., 2004).

Neighbourhood effects

Low-income families tend to become concentrated in neighbourhoods with high levels of rental housing, high-rise housing, housing disrepair, and crowding, and high frequencies of moves. Typically, children experience not just one, but many of these disadvantages, which can have a multiplicative, or even exponential negative effects on their development. Human capital is important for neighbourhoods because, as well as creating an economic base, adult residents who are educated and/or employed provide an important resource for the community as well as being role models for children and youth (Woldoff, 2008). Australian researchers have for some time used the SEIFA Index to study relationships between neighbourhood disadvantage and children's development and wellbeing (Malacova et al., 2009).

The amount of social capital available in the neighbourhood also plays an important role in determining development and wellbeing outcomes for children. Social capital is formed in social relations – in generating trust; in establishing expectations and obligations; and in creating and enforcing norms. Social capital is seen as an important resource for the cognitive and social development of children and adolescents that can constitute an important advantage in the development of their human capital (Coleman, 1990). Neighbourhood belonging has been found to have a significant positive impact on pro-social behaviour in Australian children (Edwards & Bromfield, 2008).

The influence of housing and neighbourhood conditions across child development stages

Variations in the effects of a housing characteristic at different stages of a child's life course exist. For example, the negative effects of environmental allergens resulting in asthma and other respiratory illnesses have been found to be strongest during infancy and early childhood (Salam et al. 2004; Franklin, 2008). Housing disrepair, such as leaks under the sinks and peeling paint, are particularly likely to have adverse effects on young children, who spend most of their time indoors at home (Bradman et al., 2005). The negative impact of residence on higher floors is stronger for preschoolers possibly due to greater parental restrictions on outdoor play on younger children (Churchman & Ginsberg, 1984). The effects of toxicants

pervade all stages of child development, though young children are most susceptible because they typically play on the ground and put their hands in their mouths. Furthermore, because they are smaller, they receive higher doses of toxicants per kilogram of body weight (US Agency for Toxic Substances Disease Registry, 2003).

Neighbourhood effects have been found to be strongest on adolescents, in particular their educational outcomes due to the influence of peers (Ellen & Turner, 1997). Negative peer effects, known as ghetto-specific behaviour triggered by isolation from mainstream influences, can result in criminal activity and low-achieving schools in specific neighbourhoods (Hannerz, 1969; Wilson, 1987). Fertig & Reingold (2007) point to the prevalence of youth gangs and drug trades in public housing neighbourhoods in the US. Children in such neighbourhoods are more likely to be involved in crime themselves because of negative peer influences (Case & Katz, 1991).

Housing conditions and parenting practices

Research has found that children living in less than ideal housing environments are likely to experience poorer development and wellbeing outcomes through the indirect impacts housing factors has on parental practices. For example, Bartlett (1998) and Eamon (2000) found that children living in housing that contains potential hazards are more likely to experience a restraining of their natural inclinations to explore and learn as a result of the fact that they were more likely to hear ‘no’ as a default response from their parents to many of their questions due to the increased dangers associated with their surroundings (Bartlett, 1998; Eamon, 2000). The same is true of children living in high-rise buildings (Churchman & Ginsberg, 1984) and dangerous neighbourhoods (Molnar et al., 2004). Indirect negative impacts of crowding on children are also transmitted through parental stress and increased likelihood of experience of abuse (Bartlett, 1998). The family stress model posits unaffordable housing indirectly affects children’s wellbeing by inducing parental stress as a result of bearing the burden of financial hardship (Harkness & Newman, 2005).

Multiplicative effects of housing variables on child development

The factors shaping childhood development and wellbeing are complex, often interrelated and frequently multiplied by coincident factors (Saegert & Evans, 2003). As a result, housing can impact on children’s development and wellbeing through both direct and indirect mechanisms. For example, asthmatic children tend to be exposed to multiple allergens or neurotoxicants simultaneously (Crain et al., 2002). Inability to afford housing can contribute to residential instability as lower-income families may be forced to make frequent moves, share housing with other families resulting in overcrowding, or undergo periods of homelessness (Anderson et al., 2003).

Contrasting effects of housing variables on child development

The housing factors shaping child development can also be simultaneously contrasting. Despite the risk of financial hardship, some families still decide to allocate a large proportion of their income towards meeting housing costs in order to secure quality housing and/or live in good neighbourhoods. This trade-off and resultant compromises may explain some of the mixed findings that have surfaced in relation to research undertaken into how high housing costs impact on the wellbeing of children. Although the children of these families are likely to be directly advantaged by more favourable neighbourhood conditions, these beneficial effects may be offset by the negative outcomes that might result from the family’s income being stretched to such an extent that it becomes difficult to adequately cover health and food expenses or the costs involved in maintaining the physical quality of their homes. The results of one study indicated that children belonging to families that paid more than half their income to cover housing expenses, were more likely to be in fair or poor health compared to children from other families, but were less likely to be involved in accidents or incur injuries requiring medical attention (Vandivere et al., 2004).

Housing assistance and child development

Four critical features of public housing have been highlighted by studies as impacting on child development and wellbeing. First, public housing is subsidised so it promotes housing affordability. In a multivariate analysis that controlled for confounding influences, Meyers et al. (1995) found that only 3.3% of children in families receiving public housing subsidies had low growth indicators as compared to 21.6% of children on public housing waiting lists. Second, a housing quality effect has been found to exist. Phibbs & Young (2005) found that after moving into public housing, children had more space to do their homework without disturbances from their siblings. Fertig & Reingold (2007) argued that the close regulation within the public housing sector ensures that residents in public housing are less exposed to health hazards such as lead or pest infestation. However, the study also noted that there is potentially wide variation in the quality of the public housing stock. Hence, some public housing units could in fact be of poorer quality than private housing. Third, the greater security of tenure provided to public housing tenants may directly enhance the sense of security felt by a child (Newman & Harkness, 2000). Fourth, mixed findings have been put forward with regard to the effects of public housing neighbourhoods. Households in public housing neighbourhoods can provide informal support to one another by sharing information on services that provide assistance to the poor (Venkatesh, 2000). However, public housing is often situated in low-income neighbourhoods and its residents can be subject to negative peer influences.

Research on tenant relocation programs has mainly focused on the impacts of moves into low-poverty neighbourhoods on the educational outcomes of children in those families. Examples of tenant relocation programs that have been widely studied are the Movement to Opportunity (MTO) and Gautreaux programs in the US, which are based on the assumption that poor public housing tenants would benefit if they were relocated into low-poverty neighbourhoods. The evidence on the impacts of tenant relocation programs has been mixed. Evaluations of the Gautreaux program show that only 5% of children who moved to suburbs dropped out from high school compared to 20% among those who moved to another city location. It was also found that 54% of suburb-movers enrolled in college, compared to 21% of city-movers (Rosenbaum, 1991; Rosenbaum, 1995). A series of studies of the MTO program found that the children of housing assisted families from disadvantaged neighbourhoods who were permitted to move to anywhere they wished did not experience an improvement in educational outcomes (Katz et al., 2001). This was because they generally made moves to other neighbourhoods where school quality was no better than their previous neighbourhood.

Methodological challenges and approaches

Interactions between housing and non-housing factors

The literature review has uncovered key methodological challenges in identifying causal relationships between housing circumstances and developmental outcomes for children. The methodological challenges can be generalised as shown in Figure 2. As with previous figures:

- the continuous arrows (→) represent direct pathways through which each factor impacts on child development
- the dashed arrows (---→) represent interrelationships between two housing factors
- the dotted arrows (.....→) represent interrelationships between a non-housing factor and a housing factor.

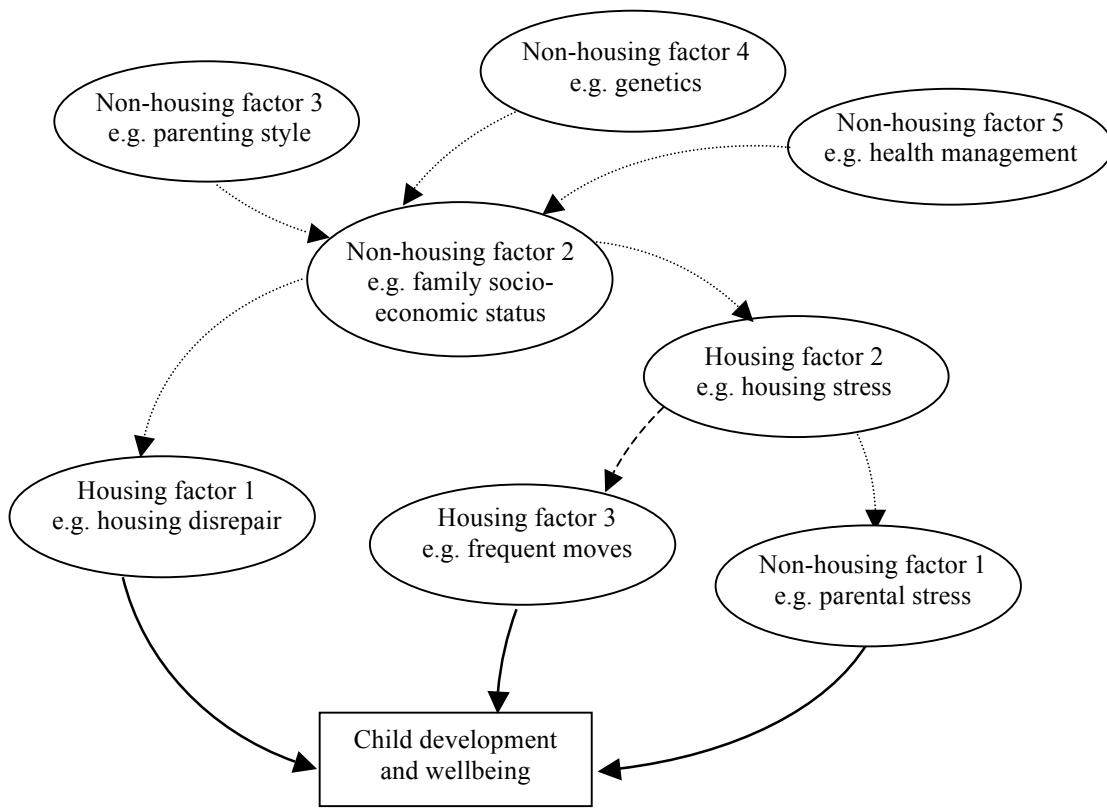
First, there is a wide range of potentially ‘causal’ housing factors. A simple hypothetical example of children being impacted by more than one causal housing factor is as follows. A low-income family may have insufficient income to meet their housing costs and hence suffer from both housing affordability stress and housing disrepair. In the diagram these multiple housing factors are represented by housing factors 1 and 2.

Second, there is a diverse range of channels through which housing factors might impact upon children. A housing factor may have:

- a *direct* impact on child development, e.g. housing disrepair can increase the probability of injuries suffered by children at home (in Figure 2, housing factor 1 has a direct impact on children's development)
- an *indirect* impact on child development through other *housing* factors, e.g. housing stress can indirectly affect child development by necessitating frequent moves that in turn reduces stability for children (housing factor 2 has an indirect impact on children's development by creating housing factor 3)
- an *indirect* impact on child development through *non-housing* factors, e.g. housing stress can increase parental stress and reduce parenting quality that can in turn adversely affect child development (housing factor 2 has an indirect impact on children's development through non-housing factor 1).

Third, a housing factor may itself be driven by non-housing factors. The example of the low-income family above clearly demonstrates that low income may be the starting point that results in housing stress and disrepair, which in turn results in adverse developmental outcomes (housing factors 1 and 2 can both result from non-housing factor 2).

Figure 2: Pathways through which housing affects child development



Thus, it is difficult to identify causal relationships running from housing variables to differences in wellbeing and developmental outcomes between children, or to disentangle the relative contributions of the various housing and non-housing factors. However, as outlined above, it is robust evidence of causal relationships and an appreciation of their magnitude that is necessary to inform policy.

Temporal nature of the relationship between housing and child development

A further complication relates to the temporal nature of the relationships between housing variables and outcomes. Many of the causal effects of housing factors will be cumulative, with the level of impact dependent upon the length of time living with those conditions. Developmental outcomes observed at any point in time may therefore be a result of previous housing circumstances rather than current ones. Similarly, the impact of housing conditions observed at any point in time may only materialise in the future.

Potential methodological approaches

Longitudinal and retrospective data analysis

Longitudinal data may assist researchers to isolate causal effects from the confounding effects outlined above. It allows controls for initial conditions by, for example, analysing *changes* in child developmental outcomes between two points of time. Other unobservable fixed effects are also controlled for when repeat observations are made on the same individuals. Observing the same child at two multiple points in time and controlling for unobservable fixed effects are not possible with cross-sectional data. In the housing context, the benefit of longitudinal data will be enhanced if we are able to observe the same child living in both ‘good’ and ‘bad’ housing circumstances over the data timeframe.

However, we acknowledge the main confounding factor of socio-economic status is persistent, so generally we do not observe the same child living in both low and high socio-economic settings and certainly any genetic traits passed on are immutable. Equally, in reality, in most datasets those of higher socio-economic status will remain in superior housing over those of low socio-economic status over time.

Longitudinal data helps to address the temporal nature of the relationships between housing and children’s outcomes to the extent that a fuller history of housing circumstances can be constructed, and outcomes can be related to past (lagged) housing variables. Furthermore, some datasets gather recall information that allows researchers to reconstruct housing histories. At the very least, it is critical that information on the time in which the family has lived at the current address is available. This still involves the assumption that the characteristics of the current residence have remained relatively constant, which may not always hold.

Exploiting sources of exogenous variation

Apart from the use of longitudinal data, researchers are still likely to have to seek out and exploit other sources of exogenous variation in housing variables to identify causality. This can be done through the use of instrumental variables techniques, matching methods or natural experiments, which can be applied to both longitudinal and cross-sectional data. For example, to identify the impact of space for playing, one might use the variation in available space between housing in inner-metropolitan, outer-metropolitan and regional areas for families controlling for socio-economic status. While such an approach could be done equally with cross-sectional or longitudinal data, longitudinal data still offers advantages for analysing the impact of policy changes by providing observations on individuals both before and after the policy is implemented. This is particularly useful when some in the sample are affected by the policy change and some are not, allowing comparison groups to be constructed.

Australian statistics on housing and child development

This section presents some preliminary findings based on published Australian statistical data that provide some insight into various housing conditions that pertain to child development in Australia.

The housing conditions of Australian children

The physical environment

In 2004-05, 37% of children aged 0-14 years lived in households with a regular smoker (ABS 2006a). There is a higher rate of household exposure to smokers among Australian children with asthma than those without asthma. In 2004-05, 40% of children aged 0-14 years with asthma lived in households with smokers compared to 36% of children without asthma (ABS 2006b).

Housing affordability

In 2002-03, 862,000 households in Australia were paying more than 30% of their income for housing and were in the lowest two quintiles of the equivalised disposable household income distribution. Among these, more than 354,000 or 40%, were households with children. Among lower-income Australian households, that is, those in the bottom two quintiles, the incidence of housing stress (paying more than 30% of income in housing costs) was higher than average among sole parents. The incidence of housing stress was 36% among sole parents, compared to an average of 28% among lower-income households (Yates & Gabriel, 2006).

A recent study by Wood & Ong (2009) found that after controlling for other factors, housing stressed Australians with young children aged 0-4 years have a 40% less chance of escaping housing stress than those with no dependent children. The study found that large numbers of housing stressed owner purchasers with dependent children have been encouraged by the recent house price boom and new financial instruments to release housing equity to meet the expenses accompanying a growing family. As a result, they have suffered from reduced changes of escaping housing stress, which is to be expected given rising interest rates over the period 2001-06.

Security of housing tenure

Existing data indicates that children make up a significant proportion of the homeless in Australia. In 2004-05, 68,100 or 43% of people who access Support Accommodation Assistance Program (SAAP) services were children. A large proportion of the people who access SAAP services are children. Most were children accompanying a parent or guardian who was accessing the service; around 17% were unaccompanied children aged less than 18 years. Adults with children were commonly seeking assistance because of domestic violence, and unaccompanied children commonly sought assistance because of family or relationship breakdown (AIHW, 2006). A school census was conducted in a study on youth homelessness by Chamberlain & McKenzie (2002). The study reported that there were 12,230 homeless secondary school students during the census week. The numbers of homeless were highest in New South Wales, Victoria and Queensland at over 2800 in each state. It was also found that 93% of homeless secondary school students were in the state school system.

Indigenous children

Existing statistics clearly show that the housing experiences of Indigenous children are significantly worse than those experienced by non-Indigenous children. Children in remote Indigenous communities may experience more difficulties in accessing basic housing and services due to their isolation from large population centres. In 2006, there were 80,000 people in 1112 discrete Aboriginal and Torres Strait Islander communities in remote areas of Australia. Indigenous people have higher rates of illness due to poor housing conditions and overcrowding than the rest of the Australian population. While ABS data shows that the housing conditions of Indigenous remote communities have generally improved between 2001 and 2006, the housing conditions of Indigenous people still remain below the standard experienced by the average Australian (ABS, 2008a). Health problems related to inadequate housing in remote communities such as inadequate water supplies, sanitation and

overcrowding have the greatest impact on Indigenous children. These diseases include skin infections and infestations, respiratory, eye and ear infections, diarrhoeal diseases and rheumatic fever (ABS, 2008b). Available statistical data points to links between environmental allergens, housing disrepair, cleanliness and safety, overcrowding, frequent residential moves and homelessness and the development of Indigenous children.

Concluding remarks

This paper's review of the existing literature on the links between housing and child development highlights several key points. First, there are strong links between various housing variables and child development outcomes. Some of these links are irreversible and continue on into adulthood, such as the negative effects of toxicants on various dimensions of child development. Second, there are variations in the effects of a housing characteristic at different stages of a child's life course. Thirdly, factors shaping child development are complex, often interrelated and frequently multiplied by coincident factors. As a result, housing can impact on children's development through both direct and indirect mechanisms including influences on parenting practices.

Three issues arise as being of particular concern for housing policy-makers and in urgent need of research attention in Australia based on existing Australian statistics. First, it is worrying that children make up a significant proportion of the homeless in Australia. Second, the disparity in the housing circumstances of Indigenous and non-Indigenous children is blatantly evident and in need of policy attention in light of the fact that the existing literature has shown many adverse effects of poor housing circumstances to be irreversible and to persist into adulthood. Third, housing stress is particularly prevalent among households with children in Australia. Further research is therefore urgently required to gauge the extent to which housing stress has a detrimental effect on Australian children.

While the existing Australian statistics are useful in uncovering associations between various housing factors and child developmental outcomes, without empirical analysis it is not possible to assess whether these associations are causal in nature after controlling for confounding factors. However, the existing empirical literature on housing and child development is dominated by non-Australian studies. Hence, not all findings are wholly applicable to the Australian context. For example, there exists a plethora of overseas studies that have focused on the impact of housing on the development of children from different ethnic groups, in various countries (e.g. Alwash & McCarthy, 1988). For the most part, these findings are of limited relevance to the contemporary Australian housing policy context, where the disparity in the circumstances of Indigenous versus non-Indigenous children is of primary policy concern rather than other ethnic minorities. The unique cultural context within which Australian Indigenous children are raised indicates that it would be impossible to devise policies that effectively target the deficiencies in their housing environments without government investment in research that is based on Indigenous-specific data.

Another segment of the overseas literature that has limited applicability to Australia is the cluster of studies that have looked at the impacts of vouchers as a form of housing assistance on children's outcomes. While both Australia's Commonwealth Rent Assistance (CRA) system and the US voucher system are tenant-based assistance (rather than place-based assistance such as public housing), the former is available to all income-eligible private renters, while the US housing voucher regime is rationed. It is therefore difficult to generalise findings from the US housing voucher studies to the Australian CRA context due to the different assistance arrangements between the two countries.

The value of further research could supply more insights and evidence to support policy directions within the Australian context. The current scoping study relies on overseas evidence, and the somewhat patchy Australian statistics. Further empirical analysis that

uncovers *causal* links will be required in order to address questions such as whether housing policy is on the right track to promote positive developmental outcomes for Indigenous and non-Indigenous children, and what modifications or additions to housing policy are required to more effectively influence child development in Australia.

Reference List

- Aaronson, D 2000, 'A Note on the Benefits of Homeownership', *Journal of Urban Economics*, vol. 47, no. 3, pp. 356-369.
- ABS (Australian Bureau of Statistics) 2006a, *Asthma in Australia: A Snapshot, 2004-05*, 4819.0.55.001, ABS, Canberra.
- ABS (Australian Bureau of Statistics) 2006b, *Information Paper: An Introduction to Socio-Economic Indexes for Areas (Seifa)*, 2039.0, ABS, Canberra.
- ABS (Australian Bureau of Statistics) 2008a, *Australian Social Trends, 2008*, Cat. No. 4102.0, ABS, Canberra.
- ABS (Australian Bureau of Statistics) 2008b, *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples*, Cat. No. 4704.0, ABS, Canberra.
- AIHW (Australian Institute of Health and Welfare) 2006, *Homeless Children in Saap 2004-05*, Bulletin Issue 48, AIHW, Canberra.
- Alwash, R & McCarthy, M 1988, 'Accidents in the Home among Children under 5: Ethnic Differences or Social Disadvantage?', *British Medical Journal (Clinical research ed.)*, vol. 296, no. 6634, p. 1450.
- Anderson, LM, St Charles, J, Fullilove, MT, Scrimshaw, SC, Fielding, JE & Normand, J 2003, 'Providing Affordable Family Housing and Reducing Residential Segregation by Income: Systematic Review', *American Journal of Preventive Medicine*, vol. 24, no. 3, pp. 47-67.
- Baker, M, Martin, D, Kieft, C, Lennon, D & Jones, N 1999, 'The Evolving Meningococcal Disease Epidemic in New Zealand', *NZ Public Health Rep*, vol. 6, no. 8, pp. 57-61.
- Bartlett, S 1998, 'Does Inadequate Housing Perpetuate Children's Poverty?', *Childhood*, vol. 5, no. 4, p. 403.
- Becker, GS 1991, *A Treatise on the Family*, 2nd edn., Harvard University Press, Cambridge, MA.
- Bradman, A, Chevrier, J, Tager, I, Lipsett, M, Sedgwick, J, Macher, J, Vargas, AB, Cabrera, EB, Camacho, JM & Weldon, R 2005, 'Association of Housing Disrepair Indicators with Cockroach and Rodent Infestations in a Cohort of Pregnant Latina Women and Their Children', *Environmental Health Perspectives*, vol. 113, no. 12, p. 1795.
- Bratt, RG 2002, 'Housing and Family Well-Being', *Housing Studies*, vol. 17, no. 1, pp. 13-26.
- Breysse, P, Farr, N, Galke, W, Lanphear, B, Morley, R & Bergofsky, L 2004, 'The Relationship between Housing and Health: Children at Risk', *Environmental Health Perspectives*, vol. 112, no. 15, pp. 1583-1588.
- Bronfenbrenner, U 1979, *The Ecology of Human Development: Experiments by Nature and Design*, Harvard University Press, Cambridge-Massachusetts.

- Bronfenbrenner, U & Ceci, SJ 1994, 'Nature-Nurture Reconceptualized in Developmental Perspective: A Bioecological Model', *Psychological review*, vol. 101, no. 4, p. 568.
- Case, A & Katz, LF 1991, *The Company You Keep: The Effects of Family and Neighborhood on Disadvantaged Youths*, Working paper 3705, National Bureau of Economic Research Cambridge, MA.
- Chamberlain, C, MacKenzie, D & University, R 2002, *Youth Homelessness 2001*, RMIT University, Melbourne.
- Chiodo, LM, Jacobson, SW & Jacobson, JL 2004, 'Neurodevelopmental Effects of Postnatal Lead Exposure at Very Low Levels', *Neurotoxicology and Teratology*, vol. 26, no. 3, pp. 359-371.
- Choca, MJ, Minoff, J, Angene, L, Byrnes, M, Kenneally, L, Norris, D, Pearn, D & Rivers, MM 2004, 'Can't Do It Alone: Housing Collaborations to Improve Foster Youth Outcomes', *Child Welfare*, vol. 83, no. 5, p. 469.
- Churchman, A & Ginsberg, Y 1984, 'The Image and Experience of High Rise Housing in Israel', *Journal of Environmental Psychology*, vol. 4, no. 1, pp. 27-41.
- Coleman, JS 1994, *Foundations of Social Theory*, The Belknap Press of Harvard University Press.
- Crain, EF, Walter, M, T O'Connor, G, Mitchell, H, Gruchalla, RS, Kattan, M, Malindzak, GS, Enright, P & Evans, R 2002, 'Home and Allergic Characteristics of Children with Asthma in Seven US Urban Communities and Design of an Environmental Intervention: The Inner-City Asthma Study', *Environmental Health Perspectives*, vol. 110, no. 9, p. 939.
- Dietrich, KN, Douglas, RM, Succop, PA, Berger, OG & Bornschein, RL 2001, 'Early Exposure to Lead and Juvenile Delinquency', *Neurotoxicology and Teratology*, vol. 23, no. 6, pp. 511-518.
- Edwards, B & Bromfield, LM 2009, 'Neighborhood Influences on Young Children's Conduct Problems and Pro-Social Behavior: Evidence from an Australian National Sample', *Children and Youth Services Review*, vol. 31, no. 3, pp. 317-324.
- Ellen, IG & Turner, MA 1997, 'Does Neighborhood Matter? Assessing Recent Evidence', *Housing Policy Debate*, vol. 8, pp. 833-866.
- Evans, GW 2006, 'Child Development and the Physical Environment', *Annual Review of Psychology*, vol. 57, pp. 423-451.
- Fertig, AR & Reingold, DA 2007, 'Public Housing, Health, and Health Behaviors: Is There a Connection?', *Journal of Policy Analysis and Management*, vol. 26, no. 4, pp. 831-860.

- Fogelman, K, Fox, A & Power, C 1989, 'Class and Tenure Mobility: Do They Explain Social Inequalities in Health among Young Adults in Britain', in *Health Inequalities in European Countries*, ed. J Fox, Gower, Aldershot, United Kingdom, pp. 333–352.
- Franklin, P 2008, 'Household Chemicals: Good Housekeeping or Occupational Hazard?', *European Respiratory Journal*, vol. 31, no. 3, p. 489.
- Gottfried, AW & Gottfried, AE 1984, 'Home Environment and Cognitive Development in Young Children of Middle-Socio-Economic-Status Families', in *Home Environment and Early Cognitive Development: Longitudinal Research*, ed. AW Gottfried, Academic Press Inc, New York, pp. 57-115.
- Hannerz, U 1969, *Soulside: Inquires into Ghetto Culture and Community*, Columbia University Press, New York.
- Harburger, DS & White, RA 2004, 'Reunifying Families, Cutting Costs: Housing-Child Welfare Partnerships for Permanent Supportive Housing', *Child welfare*, vol. 83, no. 5, p. 16.
- Harkness, J & Newman, SJ 2005, 'Housing Affordability and Children's Well-Being: Evidence from the National Survey of America's Families', *Housing Policy Debate*, vol. 16, no. 2, pp. 223-255.
- Haurin, DR, Parcel, TL & Haurin, RJ 2002, 'Does Homeownership Affect Child Outcomes?', *Real Estate Economics*, vol. 30, no. 4, pp. 635-666.
- Hicks-Coolick, A, Burnside-Eaton, P & Peters, A 2003, 'Homeless Children: Needs and Services', *Child and Youth Care Forum*, vol. 32, no. 4, pp. 197-210.
- Jessor, R 1993, 'Successful Adolescent Development among Youth in High-Risk Settings', *American Psychologist*, vol. 48, no. 2, pp. 117-126.
- Katz, LF, Kling, JR & Liebman, JB 2001, 'Moving to Opportunity in Boston: Early Results of a Randomized Mobility Experiment', *Quarterly Journal of Economics*, vol. 116, no. 2, pp. 607-654.
- Keegan, EM 2000, 'Structural Model of the Effects of Poverty on Externalizing and Internalizing Behaviors of Four-to Five-Year-Old Children', *Social Work Research*, vol. 24, no. 3, pp. 143-154.
- Kerbow, D 1996, 'Pervasive Student Mobility: A Moving Target for School Improvement', *Chicago Panel on School Policy and the Center for School Improvement at the University of Chicago*.
- Lanphear, BP, Dietrich, K, Auinger, P & Cox, C 2000, 'Cognitive Deficits Associated with Blood Lead Concentrations 10 Micrograms/Dl in U.S. Children and Adolescents', *Public Health Reports*, vol. 115, no. 6, pp. 521–529.

- Leventhal, T & Brooks-Gunn, J 2003, 'Moving to Opportunity: An Experimental Study of Neighborhood Effects on Mental Health', *American Journal of Public Health*, vol. 93, no. 9, pp. 1576-1582.
- Li, J, McMurray, A & Stanley, F 2008, 'Modernity's Paradox and the Structural Determinants of Child Health and Well-Being', *Health Sociology Review*, vol. 17, no. 1, pp. 64-77.
- Malacova, E, Li, J, Blair, E, Mattes, E, de Klerk, N & Stanley, F 2009, 'Neighbourhood Socioeconomic Status and Maternal Factors at Birth as Moderators of the Association between Birth Characteristics and School Attainment: A Population Study of Children Attending Government Schools in Western Australia', *Journal of Epidemiology and Community Health*, vol. 63, no. 10, p. 842.
- Meyers, A, Frank, DA, Roos, N, Peterson, KE, Casey, VA, Cupples, LA & Levenson, SM 1995, 'Housing Subsidies and Pediatric Undernutrition', *Archives of Pediatrics and Adolescent Medicine*, vol. 149, no. 10, pp. 1079-1084.
- Molnar, JM, Rath, WR & Klein, TP 1990, 'Constantly Compromised: The Impact of Homelessness on Children', *Journal of Social Issues*, vol. 46, no. 4, pp. 109-124.
- Moore, RC 1986, *Childhood's Domain: Play and Place in Child Development*, Croom Helm Ltd, London.
- Needleman, HL, Schell, A, Bellinger, D, Leviton, A & Allred, EN 1990, 'The Long-Term Effects of Exposure to Low Doses of Lead in Childhood', *New England Journal of Medicine*, vol. 322, no. 2, pp. 83-88.
- Neil, CC & Fopp, R 1992, *Homeless in Australia: Causes and Consequences*, CSIRO, Australia.
- Newman, S & Harkness, J 2000, 'Assisted Housing and the Educational Attainment of Children', *Journal of Housing Economics*, vol. 9, no. 1-2, pp. 40-63.
- Oda, M, Taniguchi, K, Wen, M & Higurashi, M 1989, 'Effects of High-Rise Living on Physical and Mental Development of Children', *Journal of Human Ergology*, vol. 18, pp. 231-235.
- Phibbs, P & Young, P 2005, *Housing Assistance and Non-Shelter Outcomes*, Final Report No. 74, Australian Housing & Urban Research Institute, Melbourne.
- Rafferty, Y, Shinn, M & Weitzman, BC 2004, 'Academic Achievement among Formerly Homeless Adolescents and Their Continuously Housed Peers', *Journal of School Psychology*, vol. 42, no. 3, pp. 179-199.
- Ray, DW, Wandersman, A, Ellisor, J & Huntington, DE 1982, 'The Effects of High Density in a Juvenile Correctional Institution', *Basic and Applied Social Psychology*, vol. 3, no. 2, pp. 95-108.

- Rosenbaum, JE 1991, 'Black Pioneers: Do Their Moves to the Suburbs Increase Economic Opportunity for Mothers and Children?', *Housing Policy Debate*, vol. 2, no. 4, pp. 1179-1213.
- Rosenbaum, JE 1995, 'Changing the Geography of Opportunity by Expanding Residential Choice: Lessons from the Gautreaux Program', *Housing Policy Debate*, vol. 6, no. 1, pp. 231-269.
- Shonkoff, JP, Boyce, WT & McEwen, BS 2009, 'Neuroscience, Molecular Biology, and the Childhood Roots of Health Disparities', *JAMA: The Journal of the American Medical Association*, vol. 301, no. 21, pp. 2252-2259.
- South, SJ & Haynie, DL 2004, 'Friendship Networks of Mobile Adolescents', *Social Forces*, vol. 83, no. 1, pp. 315-350.
- US Agency for Toxic Substances and Disease Registry 2003, *Agency for Toxic Substances & Disease Registry*. Available from: <<http://www.atsdr.cdc.gov>>.
- Vandivere, S, Megan, G & Moore, KA 2004, *Changes in Children's Well-Being and Family Environments*, Urban Institute, Washington.
- Venkatesh, SA 2002, *American Project: The Rise and Fall of a Modern Ghetto*, Harvard University Press, Cambridge, MA.
- Wachs, TD 1990, 'Must the Physical Environment Be Mediated by the Social Environment in Order to Influence Development?: A Further Test', *Journal of Applied Developmental Psychology*, vol. 11, no. 2, pp. 163-178.
- Whyatt, RM, Camann, DE, Kinney, PL, Reyes, A, Ramirez, J, Dietrich, J, Diaz, D, Holmes, D & Perera, FP 2002, 'Residential Pesticide Use During Pregnancy among a Cohort of Urban Minority Women', *Environmental Health Perspectives*, vol. 110, no. 5, pp. 507-514.
- Wilson, WJ 1987, *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*, University of Chicago Press, Chicago.
- Woldoff, RA 2008, 'Wealth, Human Capital and Family across Racial/Ethnic Groups: Integrating Models of Wealth and Locational Attainment', *Urban Studies*, vol. 45, no. 3, pp. 527-551.
- Wood, GA & Ong, R 2009, *The Dynamics of Housing Affordability: Movements in and out of Housing Affordability Stress 2001-2006*, Final Report 1921610131, AHURI, Melbourne.
- Yates, J & Gabriel, M 2006, *Housing Affordability in Australia*, National Research Venture 3, Research paper 3, Australian Housing and Urban Research Institute, Melbourne.