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Are exclusion factors capitalised in housing prices?

Michael Brennan [a], Doina Olaru [b], Brett Smith [b,*]

[a] Pracsys, 23 Lyall Street, South Perth, WA 6151, Australia
[b] The University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia

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ABSTRACT

Social exclusion defines the degree to which an individual is limited in their access to the services and facilities to engage with their local and broader community. This paper investigates the relationship between exclusion and the level of accessibility to services provided by locality and transport. We provide household valuations of the factors that affect access and which can inform various policy directions.

A Hedonic Price Analysis of an urban residential area is used to estimate implicit household monetary valuations on some key exclusion indicators. The value of access to schools, shops, parks and transport facilities is observed in the market price of the house. The application to social exclusion focuses on the outer suburbs of Perth, Western Australia with low socio-economic status. Locations are drawn from a prior cluster analysis that identifies local areas with distinct accessibility differences. Depending on the model structure, these evaluations may differ. Current results reveal a 6–8% premium for houses conveniently located near local shops, schools, railway station and to the CBD, a 20–25% premium for the quality of the neighbourhood, the remaining being embedded in the dwelling features.

The analysis has both practical and academic implications: (i) it informs policies that aim to alleviate social exclusion. The implicit pricing is an important advance in this area because the household valuations may be imported into cost–benefit analysis of transport or service provision projects; (ii) the implicit prices are important inputs into the designing of experiments for follow-up stated choice surveys aimed at understanding residential choice; however, differences in evaluations lead to different designs, supporting the wider adoption of Bayesian designs, which can be more robust to variations of prior parameters. The models accounting for spatial effects provide more robust estimates, however the interpretation and prediction are not straightforward.

1. Introduction

It is without doubt that the housing market sorts households into areas of advantage and areas of disadvantage. High property values and consequent high rental costs effectively price out the less affluent families from access to quality neighbourhoods. United States housing prices show a rapid decline once the concentration of poverty exceeds about 10% (Galster et al., 2008). The composition of the social community can present the locality as more or less attractive (higher or lower land value) to prospective residents. Gibbons and Machin (2008) suggest that the quality of local government schooling and crime rate have an effect on housing values. Furthermore, the value of the quality of education, capitalised in housing prices, is a function of the school's composition as well as the performance of the school (Gibbons et al., 2012). The effect of socio-economic agglomeration may "*seriously distort the valuation of specific amenities*" and hedonic regression analysis must carefully consider the effect of spatial correlation (Theriault et al., 2003).

Whilst acknowledging the evident social segregation within urban areas, it is still worth investigating whether the lower socio-economic areas differ in terms of access to services. Furthermore, are residents paying a premium for access to transport and other services? The Social Exclusion Unit (SEU) reported a link between lower socio-economic households and their increased challenge to access education, employment, health services and cultural or leisure activities (Social Exclusion Unit, 2003). Even if transport disadvantage does not necessarily lead to transport-related exclusion (Lucas, 2012), mobility is a predictive indicator of a person's self-reported level of inclusion (Stanley et al., 2011). Currie et al. (2010) suggest that residents on the fringe of Melbourne, Victoria, exercised a choice between household affordability and vehicle ownership. Some residents opted for a

* Corresponding author. Tel.: +61 8 6488 3979.
E-mail addresses: mbrennan@pracsys.com.au (M. Brennan), Doina.Olaru@uwa.edu.au (D. Olaru), Brett.Smith@uwa.edu.au (B. Smith).

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higher valued property with better access to services and forwent a private vehicle; others invested in a car by moving to a more affordable area.

The purpose of this paper is to identify whether the neighbourhood attributes, in particular access to services and transport, are valued by those at highest risk of exclusion: Do the lower socio-economic groups value access? We use the implicit prices for closeness to services, estimated in spatial hedonic regression models, to proxy the value of accessibility. The sample is limited to lower socio-economic areas in Perth and the values do not represent the average 'market' values. Given the importance of spatial effects in obtaining unbiased parameter estimates and understanding the role of dwelling characteristics, neighbourhood features and access in housing prices, we estimated a sequence of spatial models starting with models including only coordinates of the house location and distances to various services, to models incorporating lagged and error effects. The final model, we are discussing here, has a mixed structure, with both lag and error, and meets the assumptions of normality, independence of errors, heteroscedasticity.

The paper opens with a discussion on social exclusion and the relationship with location choice (Section 2.1) and mobility (Section 2.2). The hedonic regression modelling incorporating spatial autocorrelation is presented in Section 3. The data and statistical modelling results are given in Section 4, followed by a discussion of the policy implications (Section 5).

2. Social exclusion

Rene Lenoir (1974) was the first to regard the disadvantaged section of the population as "socially excluded" in his assessment of the French population who were not covered by the social security net. These included: mentally and physically handicapped, suicidal people, the aged, invalids, abused children, substance abusers, delinquents, single parents, multi-problem households, marginal, asocial persons, and other social "misfits" (Silver, 1995: 63). These people made up around 10% of the French population. The concept has since broadened and is currently used to refer to a range of dimensions which marginalise people and reduce their opportunities to engage in social or political life (Scutella et al., 2013: 279).

The study of social exclusion became prominent in Britain under the Blair Labour government in the 1990s when they introduced the Social Exclusion Unit (SEU). The unit outlined social exclusion as "*what can happen when people or areas suffer from a combination of linked problems such as unemployment, poor skills, low incomes, poor housing, high crime, poor health and family breakdown*" (Social Exclusion Unit, 2004). The unit has addressed a number of different areas including elderly disadvantage, youth unemployment, and teenage pregnancy, repeat criminal offenders, homelessness and transport disadvantage.

What became apparent was the breadth and complexity of issues associated with the term social exclusion. Hence, a coherent definition and framework for the concept is imperative so that we can identify which individuals are socially excluded, the extent of their exclusion and what type of policies can effectively lessen exclusion.

Burchardt (2000) attempted to fill the definitional void by defining social exclusion based on Townsend's concept of relative deprivation.

> "An individual is socially excluded if he or she does not participate to a reasonable degree over time in certain key activities of his or her society and
> (a) *This is for reasons beyond his or her control*
> (b) *He or she would like to participate*" (Burchardt, 2000: 388)

The key point here is that for an individual to be socially excluded they must *want* to participate in an activity that is customary or common in society, without being able to do so. These activities are multi-dimensional and address various facets of an individual's life. Burchardt (2000) developed four dimensions addressing a diverse spectrum of activities, which were thought to be important for people to participate in Britain in the 1990s:

(1) *Consumption* is having a reasonable standard of living;
(2) *Production* is engaging in a socially valued activity such as paid work or volunteering;
(3) *Political engagement* is participation in the democratic process, or 'having a voice' in society;
(4) *Social interaction* is relations with friends and family – or the opposite of isolation.

The first two dimensions identify the economic contribution of individuals in society. Limited access to the job markets, due to a lack of transport infrastructure or education and training, not only affects engagement in the labour force, but also the level of consumption undertaken by the household to which the individual belongs. In a sense, social exclusion is self-fortifying in that limited access to social infrastructure limits the household's capacity to buy their way out of exclusion.

Most contemporary measures of social exclusion are derived from Burchardt's four-factor model. For example, the Australian government's new social inclusion agenda aims to allow Australians to have the resources, opportunities and capability to:

- *Learn* by participating in education and training;
- *Work* by participating in employment, in voluntary work and in family and caring;
- *Engage* by connecting with people and using their local community's resources; and
- *Have a voice* so that they can influence decisions that affect them (Social Inclusion Agenda, 2011).

Other authors have identified social exclusion with a count of the number of welfare problems faced by the household. Bask (2005) said a household in Sweden was socially excluded if they faced two or more welfare problems; these being long term unemployment, financial hardship, health problems, exposure to threats or violence, crowded housing and lack of social networks. Using a subset of these measures, Halleröd and Bask (2008) note that the level of exclusion is fairly stable over time and may intensify for households having a high degree of hardship.

2.1. Social exclusion and household location

Given the percentage of income allocated to it, housing is an extremely important factor in lower socio-economic consumption decisions. Housing stress has become a debilitating influence on low-income families in the last decade in Australia as house prices have increased by 400%, while incomes have only risen 120%. Using a measure of median house prices compared to median income, every Australian capital city is rated as severely unaffordable. Sydney, Melbourne, Adelaide, Brisbane and Perth are among the top 14 most expensive cities in the world (Demographia, 2012: 11). This has led to over one million low and middle income Australians spending more than 30% of their entire budget on housing (Healey, 2011: 2).

A major determinant on a person's risk of social exclusion is her/his residential location. Kelly and Lewis (2002) suggest that spatial frictions may occur that prevent complete integration of a metropolitan labour market, such as access to employment rich areas like the CBD. Donaghy et al. (2004) identify that the high cost