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# Effects of house prices on health: New evidence from Australia



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#### ABSTRACT

Recent house price variation has strongly affected households' housing wealth and debt, yet the non-economic consequences of these changes in housing wealth are still poorly understood. Using a sample of 19,000 individuals from the Household, Income and Labour Dynamics in Australia Survey (HILDA) for 2001–2015, we examine the relationship between house price fluctuations and individual health by exploiting large exogenous changes in house prices in Australia. We find that an increase in local house prices is associated with a positive effect on the physical health of outright owners and a negative effect on the physical and mental health of renters. Improvements in physical health for outright owners can be partially attributed to health-related investments and behaviours such as a reduction in weight, an increase in physical exercise and an increase in time allocated to home production. These findings support the presence of a health-wealth gradient through the wealth mechanism distinct from the effects of local area amenities and macroeconomic conditions. Our findings highlight some of the often-overlooked social impacts — both positive and negative — of fluctuations in the housing market.

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#### 1. Introduction

The precise causal relationship between wealth and health has been heavily debated by health economists in the last 20 years. Although a positive correlation is well established in the data, there is no unanimity on the main direction of causality (see Benzeval and Judge, 2001; Meer et al., 2003; Smith, 1999) and some have questioned whether there is a causal effect at all (see, for example, Adams et al., 2003).

The critical challenge in studying this relationship is identification: ensuring that the estimated wealth effects are not plagued by reverse causality or omitted variables (such as genetics or family background). Given this complication, one strategy pursued by Lindahl (2005), Gardner and Oswald (2007), Kim and Ruhm (2012), and more recently Apouey and Clark (2015), involves the use of lottery wins or inheritances as a source of exogenous variation in wealth to explore the relationship between wealth and health. A related strand of the literature uses the plausibly exogenous variation in house prices to assess the effects of wealth on health outcomes. Ratcliffe (2015) shows that increases in local house prices in the UK have a positive effect on mental health. However this cannot exclusively be attributed to a wealth effect but may also

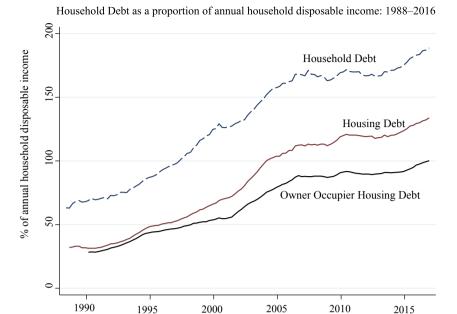
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be a reflection of available amenities and economic opportunities. Fichera and Gathergood (2016), also using UK data, find that house price increases have a positive effect on a homeowner's self-assessed general health and non-chronic health conditions. Recent related studies have also shown effects of foreclosure and mortgage indebtedness on individual health (Currie and Tekin, 2015; Yilmazer et al., 2015; Clayton et al., 2015; Downing, 2016).

In this paper, we contribute to the nascent literature on the relationship between house prices and health by providing evidence from Australia. Our empirical methodology exploits significant and exogenous variation in house prices in Australia from 2001 to 2015 to estimate the effect of variation in housing wealth on health using fixed effects panel data methods. Our identifying assumption is that the geographic variation in the scale and timing of house price movements is conditionally exogenous to health.

The available data allow us to explore the changes in individual's health-related investments and behaviours and hence examine potential mechanisms by which house prices lead to changes in health. Moreover, we contribute to the international literature by examining the link between health and wealth in the unique Australian economic context. The characteristics of the Australian housing market and household balance sheets imply that the impact of house price changes will be particularly salient to Australian households. This is for two main reasons. First, as shown in Fig. 1, between 1988 and 2016 household debt, and in particular, housing debt, as a proportion of annual household disposable



**Fig. 1.** Household Debt as a proportion of annual household disposable income: 1988–2016. Source: RBA Statistics, Table E02, net HDI derived from ABS Cat. No. 5206.0

income more than doubled. Further, while the rate of growth was faster in the mid-1990s and early 2000s, household debt has continued to rise since the Great Financial Crisis (GFC). Moreover, Australian housing debt ratios are relatively high by international standards (Organisation for Economic Co-operation and Development OECD, 2012). Australian house prices have experienced a prolonged increase over the same period, with only a slowing in the rate of growth since the GFC. Indeed, Australia was high on the OECD's list of countries with overvalued house prices in the mid-2000s (OECD, 2005) and remains so (OECD, 2017). Second, compared to many other developed countries, Australia has a high level of home ownership (67% in 2015 - marginally higher than in the US and UK), high levels of mortgage debt, and in contrast to the US, most mortgages are adjustable rate mortgages (Badarinza et al., 2016). Australian households also show a higher marginal propensity to consume out of their illiquid assets than households in either the US or UK (Aron et al., 2012).

We find that a plausibly exogenous increase in local house prices improves the physical health of outright home owners, suggesting a positive wealth effect. At the same time, the higher housing prices are associated with a decline in the psychological wellbeing of renters. Our results are stronger when we restrict our analysis to household heads. This suggests that our results do reflect a true wealth effect as household heads are more likely to be impacted by the financial implications of the housing price variation while other household members are more likely to benefit only from changes in local area amenities or economic conditions that may be reflected in housing prices. Heterogeneous impacts are also observed across genders. A positive wealth effect on the physical health of outright owners is documented for males but no significant effect is observed for females. Health improvements are also observed in the body mass index (BMI) and appear to be partially driven by health-related investments and behaviour. As a result of the positive wealth shock, outright owners appear to spend more time in home production and exercise more often.

This paper is organised as follows. Section 2 describes the possible links between house prices and health. Section 3 discusses the empirical methodology. Section 4 describes the data and

presents key summary statistics. The results are presented in Section 5. Section 6 concludes.

#### 2. House prices and health

While there is a broad consensus about the existence of an association between house prices, household wealth and individual health, there is less agreement about its cause. The literature identifies three main potential mechanisms by which an increase in household wealth due to higher house prices affects individual health.

First, an unanticipated increase in wealth may lead directly to an increase in consumption (Muellbauer and Murphy, 1990; Campbell and Cocco, 2007) or health-related investment and a reduction in hours of work (Zhao and Burge, 2016) for homeowners. We expect that this wealth effect on outright owners is larger than that for mortgaged owners. For mortgaged owners, the positive wealth shock may be offset by larger than anticipated mortgage repayments if the household plans to upgrade their housing in the future. Depending on the size of the repayments, many may be forced to make trade-offs, such as increasing hours of work, reducing leisure and consumption, or compromising on housing quality and suitability. Indeed, studies show that homeowners with large mortgage debts work longer hours than those without such debt (see Fortin (1995), Del Boca and Lusardi (2003), Bottazzi (2004) and Atalay et al. (2016), for studies of homeowners in Canada, Italy, UK and Australia, respectively). This suggests that collateral constrained mortgagors may not be able to translate the wealth gains to health investments. On the contrary, renters may feel the downside of positive house price shocks via two channels. First, renters will face increased rental payments if there is a high correlation between house prices and rental rates. Second, if renters are seeking to progress up the housing ladder and obtain ownership, higher house prices may make this transition to home ownership more difficult. Indeed, recent research shows that housing affordability and stress has a detrimental effect on the financial wellbeing and mental health of Australian renters (Bentley et al., 2011; Mason et al., 2013).

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