

When homes earn more than jobs: the rentierization of the Australian housing market

Josh Ryan-Collins

Head of Finance and Macroeconomics, Senior Research Fellow, UCL Institute for Innovation and Public Purpose

Cameron Murray

Research Fellow, Henry Halloran Trust, University of Sydney



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When homes earn more than jobs: the rentierization of the Australian housing market

Josh Ryan-Collins^a and Cameron Murray^b

Abstract

This article develops the concept of housing market 'rentierization' to describe the shift in the treatment of housing away from its use as a consumption good to an asset from which economic rent can be extracted, with Australia as a canonical example. Rentierization encompasses, but goes beyond, the financialisation of housing that has been the focus of attention in recent political economy literature as it involves policy changes and coordination across the land and housing market, fiscal-policy as well as financial policy spheres. In addition, we argue, rentierization offers a better explanation of rising house prices than the decline in real interest rates which has come to the fore in the recent economics literature. Our study of Australia examines the returns to land and housing over time and traces the roots of rentierization to developments that preceded the financial liberalisation of the 1980s, including the privatisation of public housing in the 1960s and 70s. We consider some of the reasons for the resilience of Australia's rentier-oriented housing model, and policy alternatives which might help reduce the logic of rentierization and, in doing so, reduce housing-related inequalities.

Keywords: housing, land, economic rent, financialization, credit, taxation, Australian economy

JEL codes: R21, R30 R31, R38, 018, E44, G21, G28

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^a Institute for Innovation and Public Purpose, University College London, <u>i.ryan-collins@ucl.ac.uk</u>

^b Henry Halloran Trust, University of Sydney, c.murray@sydney.edu.au

1. Introduction

Housing affordability is a major economic and public policy challenge for advanced economies (The Economist, 2019). Australia is a leading example of the problem. Real home prices across the country have increased 150% since 2000, while real wages increased by less than a third (Pawson et al., 2020, p. 54). Sydney and Melbourne rank among the most expensive cities in the world. The affordability crisis has resulted in falling rates of home ownership, in particular for younger people who can no longer afford to save for a deposit (Pawson et al., 2020, p. 142), widening inequalities of wealth and rising household debt to income ratios, which weigh down on consumption and increase financial fragility (Adkins et al., 2019; Price et al., 2019).

Supply-side explanations for high house-to-income ratios largely dominate the policy discourse and economics literature (see, *inter alia*, Kulish et al., 2012; Coates, 2018; Glaeser and Gyourko, 2018). While it is true that a reduction in the supply of housing relative to the population will reduce housing per person and increase housing rents, insufficient supply and high rents are not evident in many markets where supply has been put forward as a key explanation of high home prices, including Australia (McNulty, 2009; Mulheirn, 2019; Murray, 2019). More generally, supply-side factors cannot explain the growing divergence between the cost of housing as a service (rents) and the price of housing as a financial asset. Demand-side factors that make investment into housing for the purpose of securing financial returns — both capital gains and rental income — would appear to be an important alternative explanatory basis for this observed divergence (Goodhart and Hofmann, 2008; Duca et al., 2011; Jordà et al., 2015; Aalbers, 2016; Rolnik, 2019; Ryan-Collins, 2019).

In this paper we explore the historical emergence and political economy of such demand-side dynamics in Australia. We focus on the interaction between financial policy, financial innovations and the wider set of policies — including fiscal policy and taxation as well as housing policy itself — that shapes the Australian housing market. Tracking these developments over the course of the 20th century, we describe a process of housing market 'rentierization'. By this we mean a broad shift in both policy, and in market and household behaviour, towards the treatment of housing as a source of economic rent extraction rather than a source of (affordable) shelter and security. We show that housing returns in Australia have become a dominant income source (in some cases more substantial than wages); that home equity as well as home ownership rates have declined, meaning rents have become more concentrated; and that patterns of (speculative) investment rather than home ownership seem to be a key driver of price formation in housing markets.

We use the term rentierization rather than financialisation, since it is not only changes in the financial sector (e.g. financial liberalisation, increasing household debt, residential mortgage-

¹ A reduction in home ownership also has implications for retirement income policies that traditionally rely upon home ownership to provide affordable housing (Stebbing and Spies-Butcher, 2016).

backed securitisation) that have led to the current dynamics, but how these have interacted with shifts in multiple other policy spheres.²

Our findings also challenge the economic narrative that rising house prices are primarily driven by the long-term fall in real interest rates creating a divergence between rents and prices (Weeken, 2004; Miles and Monro, 2019; Saunders and Tulip, 2019). Instead, we find that low rates are a necessary, but not sufficient, condition for high house prices. A combination of policy settings, including the liberalisation of finance, declining public involvement in housing development, and the tax treatment of home ownership and investment, allows for interest rates to have a large price effect. These factors, combined with the political power of home owners, make rentierization of Australia's housing market a canonical, and hence informative, case in a global trend.

The remainder of this article is set out as follows. In Section 2 we define what we mean by rentierization and situate our approach in the related literature. Section 3 is our historical case study of the Australian housing market. Section 4 considers policies that might be able to reverse rentierization, with Section 5 providing the conclusion.

2. Conceptualising housing-market rentierization

2.1 Related literature

Economic rent is income extracted from ownership or control over an asset required for economic production in excess of the costs required to maintain that asset or activity in use.³ Land was recognised by the classical economists Ricardo, Mill and Smith as the most important resource from which rentier income could be extracted. Unlike the other factors of production, such as produced capital and labour, land was inherently scarce in supply yet was still vital for production. As a result, landowners were natural monopolists, able to absorb an increasing portion of the economic surplus as the economy grew, reducing the funds available for capital investment and wages necessary for capitalist growth (George, 1884; Ryan-Collins et al., 2017). Rents can also be generated from assets that are not naturally scarce via the creation of monopolistic controls (e.g. patents) or other competition-reducing interventions.

In modern times the most valuable land use is residential housing. Housing is a composite good consisting of property rights to a location (the land) and the structures built upon that land (the capital). With the spread of home ownership to the middle classes following World War II, land and land rents became less concentrated than in the times in which the classical economists were writing, when a limited number of land-owners controlled the majority of land. Yet land rents remain and have been growing rapidly in the last four decades.

² Christophers (2019b) uses the term rentierization in a similar fashion to describe the shift in the UK economy that has occurred since the 1970s, also arguing that financialisation fails to capture the breadth of policy developments that enabled rentier interests to flourish across different sectors of the economy, including monetary and fiscal policy shifts.

³ See Christophers (2019a) for a recent critical discussion of the concept of economic rent.

The huge increases in home prices relative to incomes in advanced economies in the post-war period has mainly been driven by rising land values, accounting for around 80% of growth since the 1950s on average, with construction/replacement costs increasing only at the rate of inflation (Knoll et al., 2017). Wealth accumulation since the 1970s in many capitalist economies has largely been driven by increases in property prices via capital gains, rather than increases in profits from the production of goods and services (Rognlie 2014; Stiglitz 2015). Across advanced economies, the return on housing (capital gains and rental yield) has averaged 7% (Jordà et al., 2019). This is over twice as high as that on benchmark financial assets (government bonds/Treasury bills) and similar to equities, but with markedly less volatility, in particular since World War II (ibid). The term 'safe as houses' has some merit from an investment perspective.

Noting these developments, urban economic geographers and political economists revisited the classical concept of land rents in the 1980s, arguing they were becoming central to modern capitalist patterns of accumulation and had a coordinative as well as exploitative function (Harvey, 1978, 1982; Ball, 1985; Haila, 1988). It proved challenging, however, to develop an overarching theory of land rent, partly because it was recognised that social, cultural and political dynamics mediate urban rent creation and extraction. However, in determining modern land-rent extraction patterns, less attention was given in these debates to financial and macroeconomic policies at the national level (Ryan-Collins, 2019).

Recently, post-financial crisis interventions have focused on the financialisation of housing (as opposed to land explicitly) as a key channel for the transmission for rent extraction (Seabrooke and Schwartz 2008; Rolnik 2013; Aalbers and Christophers 2014; Aalbers 2016). Rising housing wealth and equity withdrawal have been theorised as a means via which capitalist economies can maintain demand in the face of stagnating wages and productivity. Relatedly, housing market financialisation has also supported the emergence of 'asset-based welfare', enabling the state to withdraw from universal provision of social security with property wealth taking its place as a new, but socioeconomically uneven, safety net (Kemeny, 2005; Doling and Ronald, 2010; Watson, 2010). As with the urban rent theory literature noted above, the housing financialisation literature emphasises the diversity of forms of 'residential capitalism' (Seabrooke and Schwartz 2008; Aalbers 2017) but also postulates a general tendency in advanced economies of housing becoming more tightly interwoven into banking systems and financial markets, and housing policy being increasingly determined by the needs of those markets, rather than supporting broader access to owner-occupied housing (Aalbers 2016; Rolnik 2019).

With regard to Australia specifically, there is a sizeable literature on the Australian housing affordability problem, going back to the 1970s. However, few studies have focused on land rents as a frame for conceptualising developments in the housing market, despite its centrality in classical economic analysis. One of the first scholars to pose systemic questions about housing was John Kemeny (1978, 1983). Kemeny challenged the prevailing ideology of home ownership, claiming it was a key means via which certain interests, in particular 'finance capital', are able to generate profits from the housing sector, driving up the cost of housing overall and inequality of access to housing as a by-product. Kemeny was critiqued for placing too much emphasis on home ownership itself (a form of consumption of housing) rather than the *system* of housing provision, and its underlying social and economic structures, as the driver of housing inequality

(Ball, 2017; Hayward, 1986). The Australian *system* was notable for its failure to provide for a decent quality, sustained public housing option, making home ownership a rational and culturally dominant tenure choice, including for the working class (Hayward, 1986).

Since the 1990s the financial sector has become a focus of housing scholars. Many studies have identified the role of financial liberalisation and increased mortgage credit flows as a driver of prices (Yates, 1994; Berry, 1999; Burke and Hulse, 2010; Williams, 2009; Yates and Yanotti, 2016). However, the majority of conventional accounts focus more on supply-side dynamics, particularly Australia's failure to develop a sizeable public housing programme (Hayward, 1996; Troy, 2011; Pawson et al., 2019). One of the few studies that explicitly focusses on land rents in Australia is Putland (2018), which estimates that land rents (rental values plus smoothed realised capital gains) have increased from 2% of GDP in the 1950s to more than 20% by 2017.

2.2 Key dynamics of housing-market rentierization

This paper builds on the aforementioned literature, but elaborates a more general theory of rentierization that goes beyond the financialisation of housing and focuses more specifically on a wider range of national-level policies — including tax policy, land policy, and subsidies and financial innovation — that have given rise to rentierization. We argue that housing market rentierization has three mutually reinforcing features (summarised in Table 1).

Table 1: Summary of key features of housing market rentierization

Policy area	Rentier features
Housing policy	Private landed home ownership is strongly favoured as a superior form of tenure and the majority of the population own homes
	Residualised or insignificant non-market housing provision or effort to socialise land rents
	Subsidies aimed at the demand-side rather than the supply-side
	Housing policy influenced by the property lobby
Financial policy	A liberalised and deregulated mortgage credit market
	Lending against real estate dominates bank balance sheets and creates a feedback cycle by generating higher prices and collateral values, which in turn stimulates more lending
	Housing equity withdrawal is permitted and encouraged, enabling homeowners to monetise a portion of land rents
	A liquid market in Residential Mortgage Backed Securities (RMBS) enables institutional investors to also extract land rents
Fiscal policy	Subsidies go to buyers or renters of existing homes at market prices and are capitalised into prices
	Taxes on increases in home values are minimised; typically no capital gains taxes on primary residences and infrequent revaluations of property taxes where they exist
	Subsidies also directed at reducing cost of borrowing (e.g. mortgage-interest tax relief and/or other forms of cost-offsetting)

The first is the dominance of private landed home ownership as the preferred form of tenure. The term 'landed' is important here for it is the land (or location) that is the primary driver of economic rents related to property (namely capital gains and ground rents). Home ownership, per se, does not have to lead to privatised rent extraction since the ownership of land can be separated from the ownership of the home. Land can be publicly or cooperatively owned and its value also captured by the state via taxation. This is the case in some East Asian economies, notably Singapore, Hong Kong and to some extent South Korea (Haila, 2015).

Examples of policies supporting landed home ownership can include the withdrawal from public housing development, and the privatisation of existing public housing and land, on a large scale (Aalbers and Holm, 2008; Christophers, 2018). Or it can be the abandonment of policies enabling the purchase and assemblage of land at existing (e.g. agricultural) use values via compulsory purchase powers or via infrastructure levies that enable the development of new settlements with minimum rent extraction by existing land owners (Ryan-Collins et al., 2017).

Secondly, housing market rentierization requires a liberalised financial system where a large proportion (if not a majority) of bank lending supports the purchase of existing property. Households use newly created credit to bid up prices via leveraging their incomes and more money flows into a limited supply of desirably located housing.⁴ As is common in asset markets, this home price growth itself attracts more demand for home buying as an investment, leading to higher leverage and larger mortgages as house prices accelerate away from incomes in a positive feedback cycle (Ryan-Collins, 2018, 2019). Since banks collateralise their mortgages against the property being purchased, collateral values rise in parallel with debt, providing confidence to continue lending. In addition, liberalisation involves the creation of a large and liquid secondary market in mortgage-backed securities, drawing in the institutional investment sector.

As land values rise, so economic rents rise, but the financial sector (both banks and investors who purchase mortgage-backed securities from banks) extract an increasingly large proportion of this rent from home owners as interest payments on ever larger mortgages (Hudson, 2010). However, liberalised finance also typically allows home owners to monetise a proportion of land rents via home equity withdrawal. This means housing can help fund consumption in the short to medium term, as well as enabling longer term wealth gains and wealth transfer. At the macroeconomic level, home equity withdrawal mediates the dampening effect on consumption of rising house-price-to-income ratios and rising mortgage debt-service ratios. An expected outcome will be declining household home equity over time, suggesting ultimately it may not be a sustainable form of consumption demand.

Thirdly, rentierization is supported by a tax regime that favours landed property both as a form of tenure and as a financial asset. In most advanced economies, capital gains on primary residences are tax free, unlike nearly all other financial assets, and there is no imputed rent tax. Recurrent property taxes or transaction-based property taxes are more common, but generally low or based on infrequent revaluation.

⁴ That financial liberalisation is a key factor in driving up house prices is borne out in a number of empirical studies, e.g. Andrews et al. (2011), Aron et al. (2012), Duca et al. (2011), IMF (2011), Kelly et al. (2018), Muellbauer (2018). For Australia specifically, see Williams (2009).

These above three phenomena are mutually self-reinforcing. Both home owners and housing investors have a strong interest in their property value increasing to privately capture these rents. Financial actors have a strong interest in home ownership becoming the dominant form of tenure and in reducing property taxes in order to increase the demand for mortgage credit and hence profits. Meanwhile, governments become drawn into the rentierization process once home ownership becomes established as the most desirable form of tenure and a vote winner. An alignment of political interests with the financial interests of rentiers also creates avenues for regulatory and policy capture via revolving doors between government, developers and the banking system (Gurran and Phibbs, 2015; Jacobs, 2015; Murray and Frijters, 2017).

A country experiencing rentierization of its housing market would exhibit the symptoms described in Table 2. Excess economic rents accruing to home owners will come to dominate the available incomes in the economy, having a large influence on investment decisions. Home owners will, on average, own less of their home, as more recent buyers increase leverage to outbid investors at higher prices. Investor buyers will grow as a share of the housing market, as they have strong incentives to speculate on the excess rents to housing. Finally, home ownership rates will decline as fewer households are able to meet the financial hurdles of ownership.

Table 2: Symptoms of rentierization

Symptom	Description/indicator
Returns to owning housing dominate economic incomes	Wages form a smaller part of total household economic gains relative to the return from home ownership
Increased dominance of bank lending and investor behaviour in setting market prices	Investor buying, supported by bank lending, will become a larger share of home purchases, and their entry and exit from the market will be the main determinant of price movements
Decline of home ownership and reduction in home-equity of owners	Because of the growing financial hurdles to home ownership, more households will rent for longer portions of their life and recent homebuyers will have larger mortgages, taking longer to repay

As we show in the next section, Australia fits this categorisation worryingly well. Indeed, we argue, it can be viewed as something of an ideal type with regard to housing market rentierization with few limits on the pursuit of unearned income from real estate. This contrasts with most other advanced economies, particularly in Europe which has generally had more substantive provision of non-market housing. However, the direction of travel for many advanced and emerging market economies would appear to be towards rentierization as the role of finance grows in the housing sector and forms of privatisation continue to emerge (Aalbers 2016; Ryan-Collins 2018; Rolnik 2019), making Australia an interesting case for analysis.

3. The rentierization of housing and land in Australia: a historical perspective

3.1 A long-term view of the returns to land

As noted in Section 2, a simple way of comprehending the rent that accrues to property is to examine the returns to land, normally including both ground rent and increases in value over time, or capital gains. What are the long-term dynamics of the returns to land and housing in Australia? Despite multiple major boom and bust cycles, including the infamous 1880s land boom, land values and home prices were relatively low compared to the total value of economic activity in the century prior to the 1960s. In the 1800s, land booms were common, but brief. The 1880s Victorian land boom, which attracted new settlers and capital from around the world following the discovery of gold, led to prices rising 57% between 1880 and 1889. However, this was quickly followed by a bust and the 1890s depression. In contrast, since 1980, real Australian home prices have increased 215% and have shown few signs of reversion to long-term trends, despite brief corrections in 2009-10 and 2017-2019. The rise in Australian house prices has been driven by rising land values (Figure 1), as construction costs have grown at a rate closer to general price inflation.

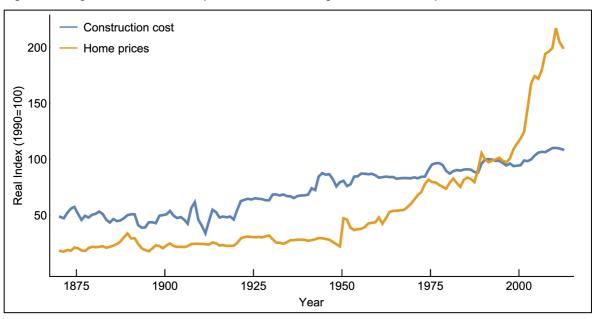


Figure 1: Long-term Australian real price index for housing and construction prices⁶

When compared to the total value added in the economy, Australia's land values, which are dominated by residential land in the capital cities, surpassed their previous record peak in the early 1980s and have continued to grow, with few temporary interruptions to the trend. Figure 2 shows how large the economic returns to land and housing have become relative to Gross Domestic

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⁵ Described in detail by Silberberg (1975).

⁶ Data from Knoll et al. (2017).

Product (GDP). The returns to land show a structural increase since the end of the 1970s, with the 1960-80 period having a mean annual value gain of 9.3% of GDP and the 2000-20 period having a much higher 16.8% of GDP annual value gain, although with some volatility during each period.

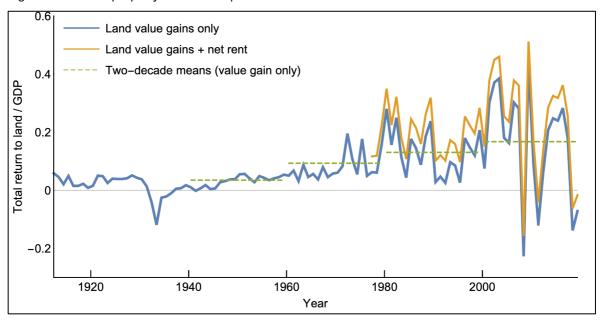


Figure 2: National property returns compared to GDP7

To further demonstrate the outsized scale of returns to landed property, Figure 3 compares the annual return to a typical home over a year with the return to labour in the form of wage income, both nationally and for Sydney (where only recent data is available). When this metric is greater than one it implies that the average home had a larger annual economic return, made up of rent and capital gains, than the average worker. Prior to June 2019, in 16 of the previous 29 quarters (55% of the time) the median Sydney home earnt more than the median full-time worker.

These historical snapshots suggest that the returns to housing have begun to dominate incomes in the Australian economy; evidence of the first symptom of rentierization described in Section 2. These figures are averaged across an enormous continent with considerable diversity across regions. However, this long-term view does suggest a structural shift in the economy since the 1980s. The rise in the returns to land is not only a radical deviation from the post-war norms, but a deviation from a century-long norm that cannot be easily attributed to cyclical market dynamics.

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⁷ Land value gains are the year-on-year change in the value of residential land, and the net rent is sum of the imputed and paid residential rents (ABS, 2019a; Butlin, 1985; Stapledon, 2007). ABS data used from 1979 onwards.

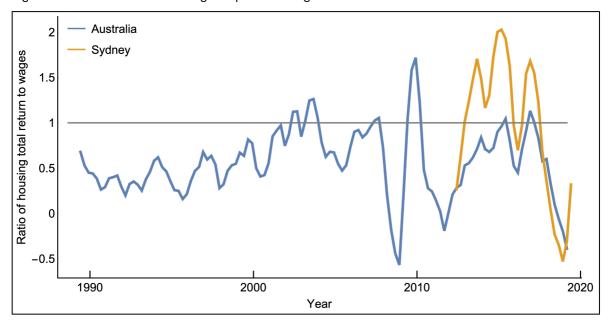


Figure 3: Total return from housing compared to wages⁸

3.2 The drive towards landed home ownership

Like many other nations, rapid post-war growth in home ownership — involving the democratisation of economic rents — is a feature of the Australian story. However, home ownership rates peaked in the mid-1960s, much earlier than other comparable economies (see Figure 4). Since then it has flatlined until the early 2000s, when it began an unprecedented decline, from 70% to 65%, in the following decade.

The rise in home ownership was the product of policy. The Commonwealth and state governments directly contributed 221,700, or 24% of the total increase in the housing stock, through programmes financed under the Commonwealth State Housing Agreements (CHSAs) or under the War and Defence Service Homes Schemes (Eslake, 2013, p. 2). By 1956 War Service Home Loans constituted 20% of all housing finance, with government housing authorities providing another 8.8% on top of state and federal funds made available through the savings banks (Kemeny, 1978).

Public funds for housing were overwhelmingly allocated to the construction of new housing. In 1956 almost three-quarters of War Service loans were for new housing, compared to one-third for major trading bank loans (Hill, 1959). According to one estimate, 36% of homes and flats completed in Australia between 1945 and 1970 were funded on terms and conditions which made them much cheaper than if they had been produced by the private sector alone (Jones, 1972).

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⁸ Calculated for Australia as (Change in housing stock value - Housing capital investment + Net rents) / Total employee compensation); and for Sydney as (Change in median Sydney dwelling value + Median house rent) / Median NSW full-time wage) (ABS, 2019b, 2019g, 2019h; SQM, 2019).

Public housing finance was complemented by rising wages and economic growth to propel a large expansion in the private building of homes, with new dwelling construction running at about 80,000 per year during the 1950s. Between 1947 and 1961 the housing stock increased by 50%, compared with a 41% increase in Australia's population over this period. Owner-occupation levels reached 63% by the mid-1950s, well ahead of most other industrial economies (Berry, 1999). There was little investment in the rental sector as widespread rent controls put off investors. Indeed, many landlords sold their dwellings in inner city areas to owner-occupiers.

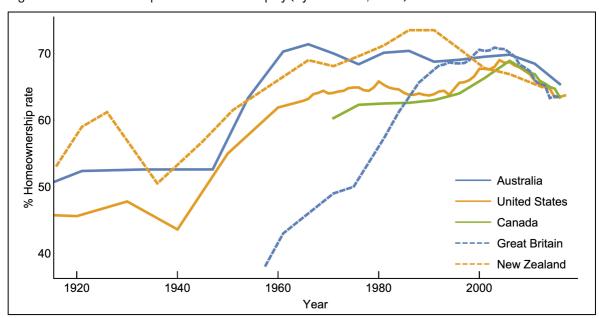


Figure 4: Home ownership rates and home equity (Ryan-Collins, 2018)

While the original CSHA envisaged the development of a strong public rental sector to serve as an alternative to privately financed housing, public finance constraints prohibited the expansion of public rental housing. Around 15% of new dwellings were public housing in the decade following the war, but by the early 1950s many states wished to sell housing built with CSHA funds due to financial losses. Increasing rents to meet the shortfalls was not possible due to ongoing rent controls (Beer, 1993, p. 153).

The Liberal-Country Party coalition government that came to power in 1956 oriented public housing firmly back towards home ownership with the passing of the second CHSA. This diverted a significant proportion of CSHA funds into the building societies and allowed state housing authorities to sell public housing dwellings to sitting tenants on much more favourable financial terms than those available from private banks

What followed was a vast privatisation of public housing (Figure 5) and, crucially, the land underneath it. This occurred a full two decades before the better known 'right to buy' privatisation of public housing initiated by the Thatcher government in the UK in the 1980s, but has received considerably less scholarly attention. The Commonwealth and state governments became a key source for increasing the stock of privately owned homes, enabling home ownership rates in Australia to reach a high of 71% in 1970, decades prior to the UK and the US reaching a similar level.

By 1971, 40% of all CSHA stock had been sold off. The effect of this policy — which was pursued with some vigour until the early 1980s — was to privatise land rents on a massive scale. Yet the policy was popular because it supported rising home ownership among the middle and working classes. It helped establish home ownership as a key cultural and political requirement for Australian households, and in doing so created a political constituency with a strong interest in capturing land rents via home ownership. While the Hawke government of the 1980s did invest in public housing, this was something of a blip on a generally downward trajectory. The 1996 CSHA further reduced funding for new homes and instead shifted towards the subsidisation of rents. By the 2000s, less than 5% of new homes were publicly provided.

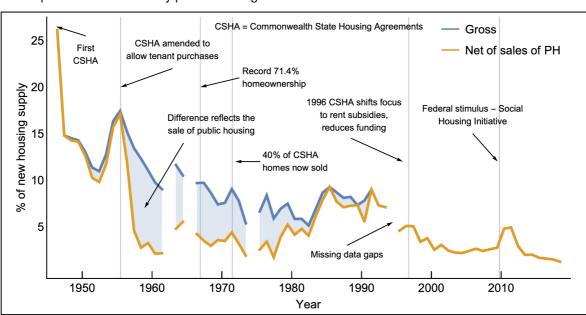


Figure 5: Share of new housing supply from public housing initiatives in Australia. Blue shaded area shows privatisation of formerly public housing.

Today the market provides 95% of all housing in Australia, a much higher figure than most comparable advanced economies where the public sector plays a larger role. This nearly complete reliance on private landowners to provide new housing also creates a rent allocation issue within a rules-based planning system. Changes to planning rules, which are often necessary to direct where new private housing occurs, provide windfall gains — i.e. land rents — to private landowners rather than being captured by the public. As Troy (2011) notes:

The planning processes that the States introduced in response to modernist notions and to Commonwealth pressures ignored the problems that were inherent in planned urban development in a situation where land was privately owned. These processes had no provision for the capture of planning gain nor could they require that land be brought into production when it was needed. The result was the securing of large unearned increments for existing homeowners. Homeowners and those developers who could afford to assemble land holdings were placed in the position of dictating the pace, nature and direction of development of the city. The effect of the process was to significantly inflate 'costs' of development which,

allied to the ability of major landowners to hold land off the market, ultimately led to inflation in house prices significantly above the underlying rate of inflation.

Another distinctive feature of the Australian system of housing provision is the separation of the building industry from the land development sector; in most countries these are usually combined into one as 'housing developers'. Land developers acquire land, obtain zoning rights, and then clear and subdivide the land, as well as putting in place the necessary infrastructure. They generate profits by selling parcels of subdivided land onto households, who buy it up and instruct builders to build their home according to a preferred specification. This 'build-to-order' model results in land taking up a relatively large proportion of the value of housing relative to countries where multi-unit housing developments with high densities enable a reduction in land costs and create infrastructure savings (Burke and Hulse, 2010). The beneficiaries are primarily the land developers and existing homeowners who monopolise increases in land value at the expense of builders and non-homeowners.

Such a model is poorly designed from an affordable housing perspective, since if land values rise faster than incomes there will be less demand for new units and less building, pushing up prices and rents further. In addition, there is evidence of systemic land banking by developers, where land able to be profitably developed for housing is withheld from the market in anticipation of future gains, including capital gains. A recent study of the Queensland region found that over 200,000 housing lots, or 13 years of new supply, are held by the eight largest housing development companies, eight years' worth of which are held in housing subdivisions that are approved and already for sale (Murray, 2020a). In this sense the concept of 'landed property', and the rentier gains that go with it, are built into the DNA of the Australian system of housing provision.

In sum, the seeds of the rentierization were sown early in Australia relative to other advanced economies, well before the onset of market-oriented reforms to financial, fiscal and monetary policy of the 1980s. The strong cultural affiliation to landed home ownership, the use of public finance to subsidise private sector home loans and the privately owned building stock make Australia something of a unique case, although the US has some similarities.

3.3 The liberalisation and deregulation of housing finance

A liberalised financial sector centred on lending to, and generating returns from, real estate is the second key characteristic of housing market rentierization. In Australia, the evidence for such a state of affairs is compelling. Figure 6 shows the total bank credit to GDP ratio for housing lending and business lending (defined as loans outstanding or net lending) since 1975. The former now dominates Australian bank balance sheets, with outstanding mortgage loans having risen from less than 15% of GDP in 1990 to over 80% today. Over the same period, outstanding loans to firms for investment and working capital — the textbook role of the commercial bank — has increased only slightly from about 38% to just over 40% of GDP.

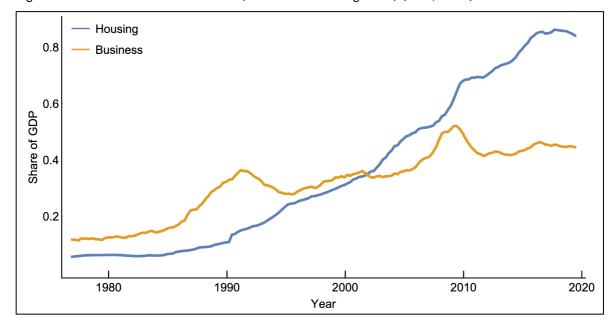


Figure 6: Bank credit as a ratio to GDP (stock of outstanding loans) (RBA, 2019)

Financial liberalisation and deregulation

How did Australia's banking system transform into one so focused on real estate lending? Australia's financial sector was strongly regulated in the post-war period, in common with most other industrial economies, with a range of qualitative, quantitative and price controls on bank lending and funding, alongside a fixed exchange rate and restrictions on foreign bank entry. Interest rates were not viewed as an effective tool for monetary policy, and were held below market rates to support active fiscal policy and social objectives, including affordable home ownership (Grenville, 1991).

The housing finance circuit was protected from the wider financial sector by regulations that required savings banks and building societies to limit the maximum interest rate they could charge on home loans and pay on deposits. Selective credit policies were used to direct lending towards priority sectors, including new housing and rural industries, well into the 1960s (Jones, 2003). Portfolio restrictions were also applied to the assets of savings banks, requiring them to hold a minimum 40% of liquid assets and government securities, which also helped finance the government (Yates, 1983). All of this meant that mortgage credit, although cheap, was effectively rationed for those on lower incomes. This was recognised as having the benefit of restraining house price inflation (Hill, 1959).

The entry of non-bank financial corporations into the financial system in the 1970s was viewed as reducing the effectiveness of these financial controls and stimulated the process of deregulation. The Australian Financial System Inquiry (AFSI) (or 'Campbell Commission') of 1981 resulted in the abolition of credit controls and portfolio restrictions (in 1982), the floating of the dollar, the abolition of the distinction between savings and trading banks, and the relaxation of entry restrictions. Deregulation led to greater competition in the financial sector in the late 1980s, most notably after the relaxation of the ceiling on mortgage interest rates for new loans in 1986 (Wood, 1990). The Commonwealth government also introduced capital adequacy guidelines, in line with

the international Basel guidelines, which favoured housing mortgages which received a risk weighting of 50%, compared to 100% for business loans (Debelle, 2010).

During the 1980s the banking sector's share of the mortgage sector grew from 60% to 80% as there was a major consolidation of the Australian banking system (Kent and Debelle, 1999). Building societies were unable to compete with the larger banks following deregulation and, in a process also seen in the UK, they merged, demutualised and were taken over by larger banks and financial groups. Credit unions also declined.

There was also a major privatisation of the state-owned savings banks, which were the key conduits of government mortgage financing from the 1950s to 1970s. By 1990, a third of the domestic assets of the banking system were controlled by five majority-owned government banks, including the largest and fifth largest bank. By 1999 all five had been either privatised or purchased by other banks (Gizycki and Lowe, 2000, p. 192). While some states have continued to provide affordable housing finance to lower income households through direct lending programmes, these have operated on a relatively small scale (AIHW, 2018).

A further mortgage credit boom set in from the late 1990s up to the financial crisis of 2008. Mortgage loans outstanding more than doubled from 30% to nearly 70% of GDP, in the process overtaking business lending (Figure 6). Unlike in other countries, this was primarily driven be an increase in rental investors who went from 15% of the market in 1996 to 29% by June 2007.

As a result of this consolidation, the Australian mortgage market came to be dominated by one particular model of bank: the large, shareholder-owned national bank. Shareholder banks typically operate a transaction banking model characterised by a preference for centralised and automated credit-scoring techniques to make loan decisions; a need for high quarterly returns on equity; and a strong preference for collateral, with landed property as the preferred form of collateral (Collins, 2012; Ryan-Collins, 2019). Increasingly, the model favours the generation of profits through residential mortgage debt and mortgage-backed securitisation issuance (Berger and Udell, 2002).

Whereas the focus of public housing finance was on the construction of new homes, for private banks, loans against housing development were more risky than lending for the purchase of established dwellings (Kemeny, 1978). The result was an increase of credit flowing to existing land and housing (Figure 7) with an inevitable inflationary impact on home prices. This set in motion the housing-finance cycle (Ryan-Collins, 2018) that is key to the rentierization process, as described in Section 2.2, as higher prices generated greater demand for mortgage lending. Banks generated higher rentier profits from rising interest payments and fees from selling on Residential Mortgage Backed Securities (RMBS).

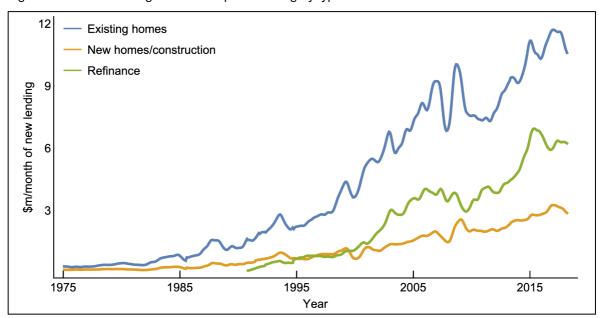


Figure 7: Value of lending owner-occupied housing by type

These dynamics occurred not just for investor lending, but owner-occupier lending as well. Lending to owner-occupiers to construct new dwellings fell from over 30% of owner-occupier lending in the 1970s to less than 20% in the 2000s (Figure 7).

It is a common view that greater access to home finance is favourable, because it allows more people to enter the market and facilitates more home building (Kohl, 2018). However, for Australia the data suggests that these claims are problematic. The increase in mortgage credit relative to GDP since the 1980s has not led to any increase in the rate of home ownership, which has flatlined since the 1960s and has been falling since 2006. The rate of home building has also fallen.

Both investor and owner-occupier homebuyers only spend around a quarter of new mortgage debt on building new housing (Figure 8), a level that has not significantly risen, despite major additional first-home buyer subsidies, as discussed further in Section 3.4.

The rentier-oriented dynamics of the Australian mortgage credit boom are also distinguished by the huge growth in credit for investor housing. Whereas the late 1990s and early 2000s mortgage credit booms supported home ownership and construction in many countries (see Figure 4), in Australia this was predominantly an investor boom. The investor share of new mortgage lending grew from 10% in the early 1990s to 40% a decade later (Figure 9), while first-home finance approvals fell from almost 22% to around 17% of the total (Figure 11). This occurred despite repeated efforts by the Commonwealth government and more recently state governments to kickstart the First Home Buyer (FHB) mortgage market by offering grants, subsidies and tax discounts of various types.

FHOB for new homes New investor data reduced to \$7,000 Share of housing finance to new dwellings \$14,000 FHOB for new homes/constr. 0.25 0.2 Owner-occupier (value) 0.15 Owner-occupier (quantity) Investor (value) Investor (quantity) 2005 2010 2015 2020 Year

Figure 8: Share of housing finance to new dwellings (excl. refinance) (ABS, 2019e)

Figure 9 shows the breakdown of monthly new investor and homeowner mortgage lending. From 1985 to 1995, investor lending averaged 14% of new bank housing lending. From 2000 onwards it averaged 38%, a substantial rise in the importance of investors in determining housing market outcomes.

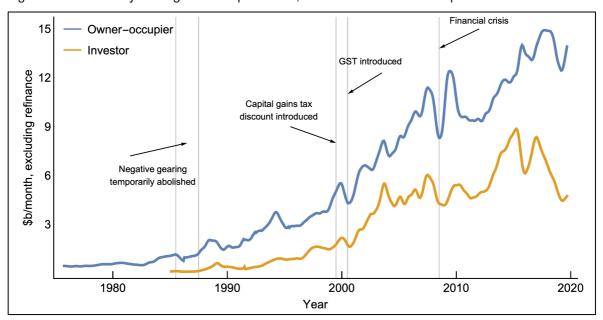


Figure 9: New monthly lending for home purchases, investors and owner-occupiers

Significant financial innovations in the mid-1990s also saw the emergence of non-bank mortgage originators and mortgage brokers whose rapid growth was supported by the expansion of the residential mortgage backed securities (RMBS) market, which provided a relatively cheap funding source. As they were not regulated as strictly as deposit-taking institutions, these lenders took advantage of the cheap funding to introduce riskier, interest-only or low-documentation loans and

revolving credit lines (Yates and Yanotti, 2016, p. 43). By the time of the financial crisis, RMBS had grown in size from roughly 3% of bank mortgage funding in the mid-1990s to 25% (ABS, 2019c), though this proportion has been stable since. Low real interest rates enabled households to leverage up, leading to a trebling in debt-to-income ratios, a feature we explore further in the next section.

Financial liberalisation and home equity

The trend in aggregate home equity (the share of total home values in excess of mortgage debt) has been steadily declining in Australia since the 1980s, from above 90% to 74% in 2019. This is a puzzle, since the major price booms of the 2000-2006 and 2012-2017 periods should be associated with increases in aggregate equity, given the majority of homeowners not involved in property trading benefit from additional equity without additional mortgage debt.⁹

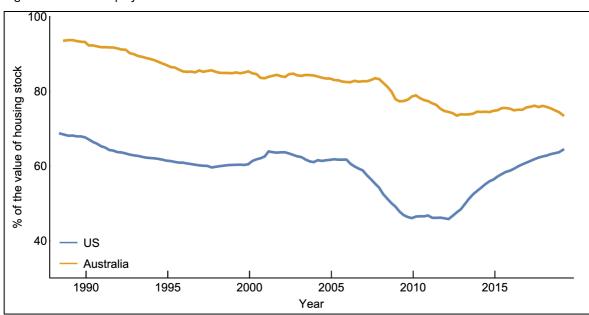


Figure 10: Home equity in Australia and the United States¹⁰

However, both of these boom periods saw no significant rise in aggregate equity, even a slight decline (see Figure 10). The answer to the puzzle must be the rapid increase in home equity withdrawal by home owners who are not purchasing, as well as heavy reliance on bank credit for those who are buying properties. This conclusion is supported by the data on home equity withdrawals, which shows a large increase in home equity withdrawals during the 2000-2006 boom (RBA, 2005). A comparison with the US is informative here. The US bank data shows a similar surge in the balance of revolving home equity loans, rising from \$100 billion in 2000 to

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 $^{^9}$ For example, if housing turnover is 5% in a year where prices grow 10%, the 95% of homeowners at the end of the year who did not purchase get additional equity worth 10% of their housing stock from the price-setting behaviour of these marginal buyers. Even if the 5% of new buyers borrowed 100% of their home value, that is an increase in borrowing that is at most 5% of the value of the housing stock. In this example, the increase in equity is twice as high as the increase in mortgage debt, meaning that the aggregate measure of home equity — value of housing stock minus value of mortgages — should be increasing during this price boom.

¹⁰ Aggregate home equity is total value of residential property minus total value of residential mortgages (ABS, 2019g; FRED, 2020; RBA, 2019).

\$480 billion in 2007 (FRED, 2020). This explains the common aggregate home equity pattern seen in the early 2000s boom (Figure 10). However, since 2009 the balance of US equity loans has consistently fallen from \$600 billion to \$310 billion, while prices have been slowly rising since 2012. More conservative bank lending against home equity during a period of rising prices has seen US aggregate equity rise to 64% in 2020; its highest point since 1991. In Australia, perhaps because the house price fall of 2008 was minimal, home equity withdrawal has continued apace and with it the monetisation of land rents.

3.4 Government spending and taxation

The third pillar of the rentierization of the Australian housing market concerns the wider role of government in supporting a model of housing provision in which land rent extraction is both enabled and maintained. We noted in Section 3.2 that a bias towards landed-property as the preferred from of tenure was a feature of the Australian policy mix from the early part of the 20th century. A range of both direct and indirect subsidies and taxes have solidified this arrangement, complementing the changes in the financial system.

Direct assistance

Direct assistance from the state was provided through the long-term use of subsidies for homebuying, via various forms of deposit assistance and First Home Buyers Grants (FHBGs). Since the 1960s these types of grants been used to support home ownership for low-income households, but since 2000 they have been adopted by states and territories, as well as the Federal government, to support prices in cyclical downturns (Eslake, 2013). In Figure 11 the effect of these grants in attracting new buyers to the market can be seen. The value of these grants is mostly capitalised into home price, negating any affordability benefits for buyers (Dungey et al., 2011). The main effect of these popular discretionary fiscal policies is thus to support the flow of economic rents to homeowners, even while they are promoted as being of benefit to non-homeowners.

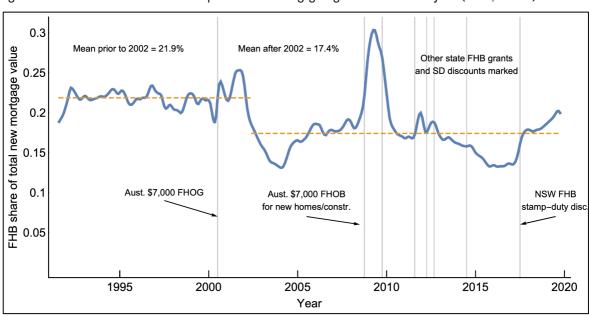


Figure 11: Share of total owner-occupier bank lending going to first-home buyers (ABS, 2019f)

As well as fiscal subsidies, public expenditure has seen a shift away from direct provision of public housing to subsidising rents and private housing investors through systems such as the National Rental Affordability Scheme (NRAS). Introduced in 2008, this scheme paid housing investors a fixed subsidy of \$11,000 per year (\$8,000 when the scheme began) to rent to qualifying tenants at 20% below the market rent. Unfortunately, not only was the benchmarking to market rents easy to game by inflating market rent estimates, the subsidy was far in excess of the \$4,000 rent discount required to meet the 20% discount in the typical suburb these homes were in. It has been estimated that this scheme was, on net, a billion-dollar fiscal transfer to selected housing investors with little benefit to renters (Coates and Horder-Geraghty, 2019).

Indirect assistance

Indirect financial assistance via the taxation system has provided a more significant form of government support for home ownership and rent extraction in the Australian housing market than direct subsidies. Most notably, Australians have paid no tax on capital gains from their primary residence, nor on any form of imputed rent (i.e the value of occupation homeowners receive from their asset), with the exception of an eight-year period between 1915-1923 (Pawson et al., 2020, p. 140). This contrasts with the UK, for example, where imputed rent taxation was charged up until the 1960s.

In response to rapid house price inflation in the 1970s, in 1985 the Australian government did introduce a capital gains tax (CGT) that also applied to housing. This was applied using an indexation method, allowing asset owners to index the purchase price by inflation to pay this tax on real realised gains. Owner-occupiers were exempted from this tax, as in nearly all advanced economies. However, in 2001, the CGT rules were changed to remove indexation and instead provide a 50% discount to the capital gains tax rate on assets owned for more than one year. This meant housing investors who speculated on relatively short-term price movements were provided with a major tax advantage compared to those who relied on long-term ownership and incomes from rents. For example, under the indexation method, a \$100,000 capital gain realised after two years when inflation was 2% would have been taxed as a \$96,000 income, whereas under the discount method it would have been taxed as a \$50,000 income — a massive tax advantage.

Investors have also been able to deduct the (nominal) operating costs, including interest costs, against income from any source. This process is called 'negative gearing' as it can involve deductions exceeding rental incomes. A recent study found that the combination of negative gearing and the CGT discount allows investors to reduce and defer personal income tax, at an annual cost of \$11.7 billion to the public purse (Daley and Wood, 2016).

These arrangements complement Australia's liberalised mortgage market since they encourage investors to borrow to reduce their effective tax rate. One analysis found that the real effective tax rate for an investor borrowing at an 80% loan-to-value ratio is 20%, around half that of an investor borrowing nothing (Daley and Wood, 2016). Thus the Australian tax regime further reinforces the drive towards rent extraction and the housing-finance cycle described in Section 2.2 and 3.2.

Australian states do have land value taxes, unlike many advanced economies. However, most state land tax systems do not apply to owner-occupiers and also contain numerous exemptions, again enabling rent extraction. As a result, while home values have more than doubled as a share of GDP since the late 1990s, land taxes remain a small part of state revenue, as shown in Figure 12. Stamp duty is the only significant tax on land rents, but even this has been only 20-25% of total state revenues since the early 2000s, despite the huge increases in house prices.

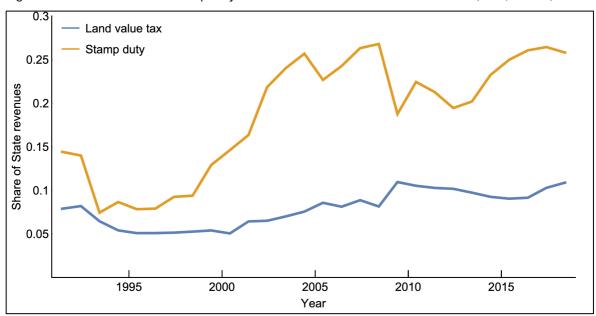


Figure 12: State land tax and stamp duty revenues as share of total state revenues (ABS, 2019d)

Taken together, these fiscal policies ensure the economic rents from landed property are almost fully privatised. They make home ownership more attractive as a financial investment than other financial assets, as well as a more attractive form of tenure. The generous CGT discount and tax-offsetting arrangements have biased the Australian private rented sector towards rent extraction from rising prices rather than long-term flows of income.

4. Discussion and alternative policy directions

In this section we consider the current policy debates around housing in Australia and propose some policy alternatives that would deal in a more structural fashion with the rentierization dynamics discussed above.

However, first, it is worth considering the surprising fact that Australia's rentierized housing market has persisted for so long. Despite its apparent fragilities, high house price conditions have proven to be remarkably economically and politically resilient. Unlike almost every other advanced economy, Australia did not endure significant house price falls during the financial crisis of 2007-8, nor experience a technical recession, while its financial system emerged relatively unscathed. A combination of active government policy responses, including lowering interest rates, which flowed through the variable rate mortgage market, and stimulus payments for home buying, as well as the fact that rental investors — typically on higher incomes and owning existing property — drove the Australian mortgage credit boom in the run-up to the financial crisis, meant the country was better able to absorb income shocks and price falls (Bullock, 2019).

The relative financial stability of the Australian economy may be one reason why, despite increasing public pressure, policy makers have been reluctant to enact significant structural reforms to the Australian housing sector. There has been some acceptance by policy makers that financial deregulation, coupled with a generous property taxation regime, has contributed to the growing demand for housing and the resulting increase in the home price-to-income ratio in Australia (Ellis, 2006). However, rather than question the logic of these policies, most recently there has been a renewed interest on the supply side, despite evidence that new supply has more than kept pace with housing demand (Kendall and Tulip, 2018; Murray, 2019). In particular, there seems to be a reluctance to challenge ever-expanding rates of mortgage lending as a means of controlling house prices.

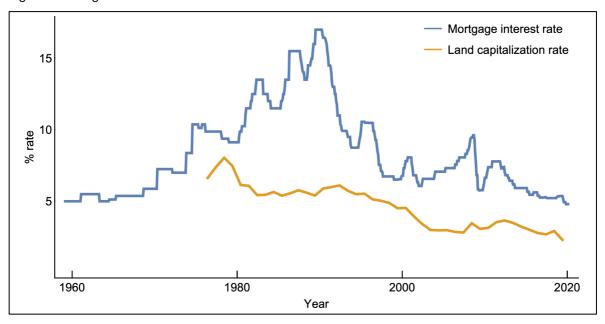
One argument that has recently come to the fore is that it is low real interest rates — rather than financial liberalisation or supportive tax policies — that are the key demand-side driver of housing and house prices (Saunders and Tulip, 2019; and see Miles and Monro, 2019 for the UK case). Low interest rates enable households to take out larger mortgages relative to their incomes as their debt-servicing ratio falls, while reducing the risk-adjusted interest rate at which returns to housing are capitalised for investors.

This approach helps explain the puzzle mentioned in the introduction of this article: housing rents have not kept pace with house prices, but have tracked incomes. Since rent prices reflect, in a pure sense, the demand for housing as a consumption good, the explanation for the discrepancy must be a rise in demand for housing as a financial asset. Since low real interest rates are a global phenomenon not unique to Australia, there is assumed to be little financial policy makers can do to ameliorate this natural increase in asset demand.¹¹ Rather, the focus should switch to increasing supply.

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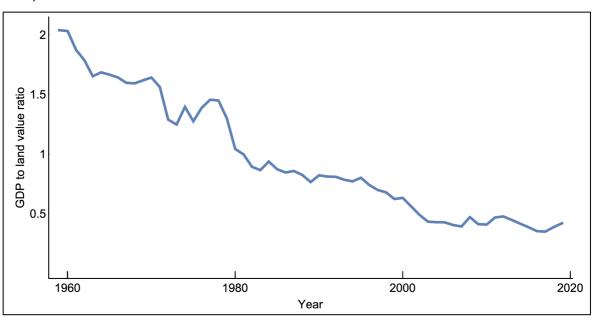
¹¹ The causes of low real interest rates are contested. One argument is that they are related to ageing populations in advanced economies who are more inclined to save (Krugman, 2014; Summers, 2005).

Figure 13: Long-term view of interest rates



But low interest rates alone do not appear to cause high home prices. Throughout the 1960s mortgage interest rates were similar to those in the 2010s in Australia (see Figure 13), yet prices relative to incomes were lower. If we take total imputed housing rents in GDP to total land value, we can estimate a land capitalisation rate — a proxy for the effect of interest on asset prices — back to 1976 (the orange line in Figure 13). This shows a steady decline, despite rising, then falling, interest rates. If we look at the GDP-to-land value ratio as a longer-term indicator of this same capitalisation rate, as in Figure 14, we see that in the low interest rate environment of the 1960s, land prices were much lower than would be expected if they were merely capitalised based on prevailing bank mortgage lending rates.

Figure 14: Long-term decline in the GDP-to-land value ratio (ABS, 2019a; Butlin, 1985; Stapledon, 2007)



High interest rates will clearly discourage borrowing. However, low interest rates are a necessary, but not sufficient, condition for high asset prices (Ryan-Collins, 2020). The sufficient conditions, we would argue, are the liberalisation of the mortgage market to remove credit constraints, and a favourable fiscal and tax regime that favours landed-property both as a form of tenure and financial asset. When credit for housing is constrained in some way, and where potential home buyers have alternative ways to access secure housing, the effect of low interest rates need not be to inflate residential property values.

The housing policy choices many countries have adopted — with Australia perhaps the canonical example — are not choices that make sense if the aim is keep house prices stable relative to incomes. Indeed, recent empirical research suggests liberalising mortgage credit has actually led to *lower* levels of home ownership as affordability has worsened across many advanced economies (Kohl, 2018). So what options across the three policy areas are worth considering to reverse the process of rentierization?

Financial policy options

While the central bank could raise interest rates to reduce home prices, historically high household debt levels and the high proportion of Australian households with variable rate mortgages make such a policy politically and economically unpalatable, and may increase financial instability.

Macroprudential policy — which aims to repress the flow of credit via sector-specific regulations such as increasing loan-to-value or loan-to-income ratios for mortgages — would seem a more effective option to reduce home prices towards more affordable levels. Such a policy has been used successfully in Switzerland and Singapore (Haila, 2015). The likely effect of macro-prudential policy tools was demonstrated following the Australian government's Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry in 2017. To avoid the risk of being caught contravening minimum legal lending standards, banks tightened access to housing credit. This came in the form of lower loan-to-value ratio and higher interest rates for investor buyers compared with owner-occupiers. The result was an immediate fall in prices and an increase in first-home buying. It may be time to revisit the credit controls used in Australia in the 1950s and 1960s, which favoured investment into new housing rather than existing housing and helped increase home ownership.

Financial regulation of private mortgage lending can be complemented by direct public financing of social and public housing to develop new non-market-priced housing. Currently the National Housing Finance and Investment Corporation (NHFIC) acts as a 'bond aggregator' to fund social housing projects. However, being backed by government, these AAA-rated bonds sell at an unnecessary interest rate premium, adding cost to this funding mechanism when compared to the direct public financing of social housing, which is exposed only to the official cash rate.

Fiscal policy options

Property taxation also needs a major rethink. Taxes should focus on land rents, in the form of increasing residential property values or windfalls from changing land use. Taxing away future rents would strongly push against speculative housing investment. Broadening annual land value taxes to primary residences as well as investor housing would be the obvious policy option, introduced at a low initial rate and with options for delayed payment or equity withdrawal for those on low incomes.

While shifting away from stamp duty to a more comprehensive land value tax has been proposed as one way to do this, and is being implemented in the Australian Capital Territory (ACT), there are limits to this 'tax swap' (Coates and Nolan, 2019). Since stamp duty also adds costs to realising economic rents from house price growth, and because price speculation involves a period of rapid investor housing turnover, this tax reduces windfall rents while also serving an automatic stabiliser function at the macroeconomic level (Murray, 2018). There is no reason to eliminate one good tax on land rents to implement another when both taxes could function perfectly well together.

Tax advantages available to housing investors, such as negative gearing and discounted capital gains taxes, could also be scrapped to reduce investor competition for home buying (Daley and Wood, 2016). These tax breaks simply allow investors to set market prices for housing that factor in the value of these tax concessions.

There are clearly political limits to be taken into account when considering these tax reforms, given the influence of corporate lobbyists in Australia (Jacobs, 2015; Gurran and Phibbs, 2016). The Australian Labor Party promised reforms to negative gearing and capital gains tax discounts at the 2019 federal election, only to face major opposition by vested interests and lose the election. This included a well-funded TV advertising campaign by the major property developers warning about the crash in property prices that would occur if a Labour government was elected. Nevertheless, if the rate of home ownership continues to fall in Australia a sizeable constituency may emerge in favour of such reforms.

Housing policy options

On the direct housing policy front there are two major areas available for reform. The first is to remove the way that the planning system generates windfall economic rents for landowners. In Germany, local authorities cap land values at pre-permission prices at the time planning permission is granted, giving public authorities the right to acquire land for infrastructure at a reasonable cost. In contrast, in Australia the landlord gains the windfall uplift from planning permission (Murray and Frijters, 2017). A betterment tax, or value capture mechanism, can capture these economic rents for the public while removing some of the incentive for private landowners to delay development in order to capture higher value planning changes in the future. Such a tax existed in NSW from 1969-73 at a 30% rate, while in the Australian Capital Territory a betterment tax at a 75% rate has existed since 1971.

The second housing policy reform should establish direct public involvement in new housing supply — a feature that has been missing from the Australian housing market for decades. This could perhaps take the form of a publicly owned housing developer with a mandate to compete on price and meet ambitious sales targets, regardless of whether these sales reduce its overall economic return. While Australia still has some legacy public housing developers, they are small and not incentivised to use their power to supply new housing to affect wider market prices.

One solution would be to set up a public housing institution with the sole objective of maintaining housing price stability. Just like central banks determine the price of money — the interest rate — using their ability to supply reserves, a 'central housing bank' could use its ability to supply and sell new housing to set a 'home price corridor' and ensure home prices do not rise rapidly, while dampening potential falls in prices and construction declines during crisis periods (Murray, 2020b). A feature of this type of new institution is that it could enact a widely accepted modern type of price-stabilising intervention in asset markets. At the same time, it could be used to provide dwellings in non-market ways through a variety of alternative stable tenures for households, such as:

- 1. renting in the private market to help stabilise rents;
- 2. using dwellings for public housing at discounted rents;
- 3. and selling dwellings to social housing providers at discounted prices.

Just as Australia's public housing policies of the 1950s and 1960s enabled a generation to access secure housing and ultimately home ownership, this modern variation could do the same by providing alternative ways to access decent housing, reducing pressure on households to leverage into private housing markets and reducing rentier incentives in the process.

Finally, boosting the rights of private renters in Australia would also relieve the pressure to purchase housing by offering secure lower-cost housing alternatives. A recent survey of Australian renters found a majority living in poor quality homes, but afraid to request repairs; on insecure tenancies; and struggling with rental affordability and cost of living pressures (Choice, Shelter and Nato, 2019). Renting should not be an inferior alternative to home ownership for residents.

5. Conclusion

This article has developed the concept of housing market 'rentierization' to describe the shift in the treatment of housing away from its use as a consumption good to a financial asset from which economic rent can be extracted. This dynamic goes beyond the financialisation of housing that has been the focus of attention in recent literature. Low interest rates are also not sufficient to explain how increasing credit flows drive up house prices. Rather, rentierization involves structural and systemic policy changes, and alignment across the land and housing, fiscal and financial policy spheres that are self-re-enforcing. They will naturally require structural rather than marginal changes to policy to shift.

We argue Australia is a canonical example of this process and explore how rentierization occurred since World War II. We have traced how a strong political and cultural preference for private landed home ownership combined with the liberalisation of the financial sector to drive up land and house prices. These increasing land rents were privately captured through a highly supportive tax regime and monetised through home equity withdrawal and rents on investment housing. Returns to owning housing in Australia now dominate economic incomes and the prospect of capturing these rents now dominates investment decisions, retirement savings plans, and public investment and subsidies.

Australia serves as an important case given that the levels of home ownership in the country have not increased since the 1960s, in contrast to other advanced economies, meaning the distribution of land rents has not increased. Australia's system, despite being so clearly 'rentierized' has proven relatively resilient to economic and financial shocks. Nevertheless, the current economic downturn may offer a glimpse of hope. As rates of home ownership fall, renters struggle to make ends meet and central banks run out of leverage, with interest rates already at rock-bottom, reforms that previously appeared politically infeasible may gain traction.

References

- Aalbers, M. B. 2016. The financialization of housing: A political economy approach. Routledge.
- Aalbers, M. B. and Holm, A. 2008. Privatising social housing in Europe: The cases of Amsterdam and Berlin. In *Urban trends in Berlin and Amsterdam*. Berlin: Geographisches Institut der Humboldt-Universität zu Berlin.
- ABS. 2019a. 5204.0 Australian System of National Account, Table 61. Australian Bureau of Statistics.
- ABS. 2019b. 5206.0 Australian National Accounts. Australian Bureau of Statistics.
- ABS. 2019c. 5232.0 Australian National Accounts: Finance and Wealth. Australian Bureau of Statistics.
- ABS, 2019d, 5506.0 Taxation Revenue, Australian Bureau of Statistics.
- ABS. 2019e. 5601.0 Lending Indicators: Australian Bureau of Statistics.
- ABS. 2019f. 5609.0 Housing Finance. Australian Bureau of Statistics.
- ABS. 2019g. 6146.0 Residential Property Price Indexes: Eight Capital Cities. Australian Bureau of Statistics.
- ABS. 2019h. 6302.0 Average Weekly Earnings. Australian Bureau of Statistics.
- Adkins, L., Cooper, M., and Konings, M. 2019. Class in the Twenty-First Century: Asset Inflation and the New Logic of Inequality. *Environment and Planning A*.
- AlHW. 2018. Housing Assistance in Australia 2018: Australia Institute of Health and Welfare. Cat. No. HOU 296.
- Andrews, D., Sanchez, A. C., and Johansson, Å. 2011. Housing markets and structural policies in OECD countries. *OECD Economic Department Working Papers*. No. 836, 01.
- Aron, J., Duca, J. V., Muellbauer, J., Murata, K., and Murphy, A. 2012. Credit, housing, collateral and consumption: Evidence from Japan, the UK and the U.S. *Review of Income and Wealth*. Vol. 58, no. 3, 397–423.
- Ball, M. 1985. The urban rent question. Environment and Planning A. Vol. 17, No. 4, 503–25.
- Ball, M. 2017. Housing policy and economic power: The political economy of owner occupation. Routledge.
- Beer, A. 1993. 'A Dream won, a crisis born?' Home Ownership and the Housing Market, pp.147-72, In *Housing Australia*. Springer.
- Berger, A. N. and Udell, G. F. 2002. Small business credit availability and relationship lending: The importance of bank organisational structure. *The Economic Journal*. Vol. 112, no. 477, F32–53.
- Berry, M. 1999. Unravelling the "Australian housing solution": The post-war years. *Housing, Theory and Society.* Vol. 16, no. 3, 106–23.
- Bullock, M. 2019. Property, debt and financial sustainability. Reserve Bank of Australia
- Burke, T. and Hulse, K. 2010. The institutional structure of housing and the sub-prime crisis: An Australian case study. *Housing Studies*. Vol. 25, no. 6, 821–38.
- Butlin, N. 1985. Australian National Accounts 1788-1983. Australian National University Source papers in Economic History No. 6.
- Choice, Shelter and Nato. 2019. Disrupted: The consumer experience of renting in Australia. https://www.shelterwa.org.au/disrupted-the-consumer-experience-of-renting-in-australia/
- Christophers, B. 2018. The new enclosure: The appropriation of public land in neoliberal Britain. Verso Trade.
- Christophers, B. 2019a. The problem of rent. *Critical Historical Studies*. Vol. 6, No. 2, 303–23.
- Christophers, B. 2019b. The rentierization of the United Kingdom economy. *Environment and Planning A: Economy and Space*.
- Coates, B. 2018. Supply sceptics beware: without more housing, it won't be affordable. https://grattan.edu.au/news/supply-sceptics-beware-without-more-housing-it-wont-be-affordable/
- Coates, B. and Horder-Geraghty, J. 2019. Rudd's rental affordability scheme was a \$1 billion gift to developers. Abbott was right to axe it. The Conversation.
- Coates, B. and Nolan, J. 2019. NSW should swap stamp duties for a broad-based property tax: Submission to the NSW Productivity Comission. Grattan Institute. https://grattan.edu.au/wp-content/uploads/2019/12/NSW-productivity-Commission-Tax-submission-final-standalone.pdf

- Collins, M. 2012. Money and Banking in the UK: A History. London: Routledge.
- Daley, J. and Wood, D. 2016. Hot property: Negative gearing and capital gains tax reform. Grattan Institute. https://grattan.edu.au/report/hot-property/
- Debelle, G. 2010. The State of the Mortgage Market. Reserve Bank of Australia. https://www.rba.gov.au/speeches/2010/sp-ag-300310.html
- Doling, J. and Ronald, R. 2010. Home ownership and asset-based welfare. *Journal of Housing and the Built Environment*. Vol. 25, No. 2, 165–73.
- Duca, J. V., Muellbauer, J., and Murphy, A. 2011. House prices and credit constraints: Making sense of the US experience. *The Economic Journal*. Vol. 121, No. 552, 533–51.
- Dungey, M., Wells, G., and Thompson, S. 2011. First Home Buyers' Support Schemes in Australia. *Australian Economic Review*. Vol. 44, No. 4, 468–79.
- Ellis, L. 2006. Housing and housing finance: The view from Australia and beyond. Reserve Bank of Australia.
- Eslake, S. 2013. Australian Housing Policy: Fifty Years of Failure, Submission to Senate Economic References Committee Inquiry on Housing Affordability. https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Affordable_housing_2013/Submissions.
- FRED. 2020. Real Estate Loans: Residential Real Estate Loans: Revolving Home Equity Loans, All Commercial Banks: Board of Governors of the Federal Reserve System. https://fred.stlouisfed.org/series/RHEACBW027SBOG
- George, H. 1884. Progress and poverty: An inquiry into the cause of industrial depressions, and of increase of want with increase of wealth, the remedy. W. Reeves
- Gizycki, M. and Lowe, P. 2000. The Australian financial system in the 1990s, pp. 180–215, in The Australian Economy in the 1990s. *Proceedings of a Conference, Reserve Bank of Australia*.
- Glaeser, E. and Gyourko, J. 2018. The economic implications of housing supply. *Journal of Economic Perspectives*. Vol. 32, No. 1, 3–30.
- Goodhart, C. and Hofmann, B. 2008. House prices, money, credit, and the macroeconomy. *Oxford Review of Economic Policy*. Vol. 24, No. 1, 180–205.
- Grenville, S. 1991. The evolution of financial deregulation: The Deregulation of Financial Intermediaries. Reserve Bank of Australia.
- Gurran, N. and Phibbs, P. 2015. Are governments really interested in fixing the housing problem? Policy capture and busy work in Australia. *Housing Studies*. Vol. 30, No. 5, 711–29.
- Gurran, N. and Phibbs, P. 2016. How the Property Council is shaping the debate around negative gearing, taxes. *The Conversation*. http://theconversation.com/how-the-property-council-is-shaping-the-debate-around-negative-gearing-taxes-61006
- Haila, A. 1988. Land as a Financial Asset: The Theory of Urban Rent as a Mirror of Economic Transformation. *Antipode*. Vol. 20, No. 2, 79–101.
- Haila, A. 2015. Urban land rent: Singapore as a property state. John Wiley & Sons.
- Harvey, D. 1978. The urban process under capitalism: A framework for analysis. *International Journal of Urban and Regional Research*. Vol. 2, No. 1–3, 101–31.
- Harvey, D. 1982. The Limits to Capital. London and New York: Verso.
- Hayward, D. 1986. The great Australian dream reconsidered: A review of Kemeny. *Housing Studies*. Vol. 1, No. 4, 210–19.
- Hayward, D. 1996. The reluctant landlords? A history of public housing in Australia. Advance Access.
- Hill, M. R. 1959. Housing finance in Australia, 1945-1956. Melbourne: Melbourne University Press
- Hudson, M. 2010. The Transition from Industrial Capitalism to a Financialized Bubble Economy. Levy Economics Institute: Working paper No. 627, 1–34.
- IMF. 2011. Housing Finance and Financial Stability—Back to Basics?, in IMF Global Financial Stability Report, April 2011.
- Jacobs, K. 2015. The 'politics' of Australian housing: The role of lobbyists and their influence in shaping policy. *Housing Studies*. Vol. 30, No. 5, 694–710.

- Jones, M. A. 1972. Housing and poverty in Australia. Melbourne University Press.
- Jones, E. 2003. Nugget Coombs and his place in the postwar order. *Drawing Board: An Australian Review of Public Affairs*. Vol. 4, No. 1, 23–44.
- Jordà, Ö., Knoll, K., Kuvshinov, D., Schularick, M., and Taylor, A. M. 2019. The rate of return on everything, 1870–2015. The Quarterly Journal of Economics. Vol. 134, No. 3, 1225–98.
- Jordà, Ö., Schularick, M., and Taylor, A. M. 2015. Betting the house. Journal of International Economics. Vol. 96.
- Kelly, R., McCann, F., and O'Toole, C. 2018. Credit conditions, macroprudential policy and house prices. *Journal of Housing Economics*. Vol. 41, 153–67.
- Kemeny, J. 1978. Home ownership and finance capital. Journal of Australian Political Economy. No. 3, 89.
- Kemeny, J. 1983. *The great Australian nightmare: A critique of the home-ownership ideology.* Georgian House Melbourne
- Kemeny, J. 2005. "The Really Big Trade-Off" between Home Ownership and Welfare: Castles' Evaluation of the 1980 Thesis, and a Reformulation 25 Years on. *Housing, Theory and Society*. Vol. 22, No. 2, 59–75.
- Kendall, R. and Tulip, P. 2018. The effect of zoning on housing prices. Reserve Bank of Australia Discussion Paper Series.
- Kent, C. and Debelle, G. 1999. Trends in the Australian banking system: Implications for financial system stability and monetary policy. Reserve Bank of Australia
- Knoll, K., Schularick, M., and Steger, T. 2017. No price like home: global house prices, 1870–2012. *The American Economic Revie*. Vol. 107, No. 2, 331–53.
- Kohl, S. 2018. More mortgages, more homes? The effect of housing financialization on homeownership in historical perspective. *Politics & Society*. Vol. 46, No. 2, 177–203.
- Krugman, P. 2014. Four observations on secular stagnation, in Secular stagnation: Facts, causes and cures. CEPR Press.
- Kulish, M., Richards, A., and Gillitzer, C. 2012. Urban structure and housing prices: Some evidence from Australian cities. *Economic Record*. Vol. 88, No. 282, 303–22.
- McNulty, J. E. 2009. The Long-run Demand for Housing, the Housing Glut, and the Implications for the Financial Crisis. *Business Economics*. Vol. 44, No. 4, 206–15.
- Miles, D. and Monro, V. 2019. UK House Prices and Three Decades of Decline in the Risk-Free Real Interest Rate.

 Advance Access.
- Muellbauer, J. 2018. Housing, debt and the economy: A tale of two countries. *National Institute Economic Review*. Vol. 245, No. 1, 20–33.
- Mulheirn, I. 2019. Tackling the UK housing crisis: is supply the answer? UK Collaborative Centre for Housing Evidence.
- Murray, C. 2018. Stamp duty fever: the bad economics of the stamp duty discourse. *The Conversation*. https://theconversation.com/stamp-duty-fever-the-bad-economics-behind-swapping-stamp-duty-for-land-tax-106841
- Murray, C. 2019. The Australian housing supply myth. OSF Preprints. https://osf.io/r925z/
- Murray, C. K. 2020a. Time is money: How landbanking constrains housing supply. Journal of Housing Economics. Vol. 49.
- Murray, C. 2020b. A 'Central Housing Bank' proposal for a crisis and beyond, Fresh Economic Thinking. https://www.fresheconomicthinking.com/2020/03/a-central-housing-bank-proposal-for.html
- Murray, C. and Frijters, P. 2017. Game of Mates: How favours bleed the nation. Publicious
- Pawson, H., Milligan, V., and Martin, C. 2019. Building Australia's affordable housing industry: capacity challenges and capacity-enhancing strategies. *International Journal of Housing Polic*. Vol. 19, No. 1, 46–68.
- Pawson, H., Milligan, V., and Yates, J. 2020. *Housing Policy in Australia: A Case for System Reform.* Singapore: Palgrave MacMillan.
- Price, F., Beckers, B., and La Cava, G. 2019. The effect of mortgage debt on consumer spending: evidence from household-level data. Reserve Bank of Australia

- Putland, G. R. 2018. Trickle-Up Economics: Assessing the impact of privatised land rent on econoimc growth. Prosper Australia. https://www.prosper.org.au/2018/04/trickle-up-economics-the-report/
- RBA. 2005. Survey on housing equity withdrawal and injection. Reserve Bank of Australia.
- RBA. 2019. Money and credit aggregates, Bank lending classified by sector. Reserve Bank of Australia.
- Rolnik, R. 2019. Urban Warfare. Verso Trade.
- Ryan-Collins, J. 2018. Why can't you afford a home? London: Polity Press.
- Ryan-Collins, J. 2019. Breaking the housing–finance cycle: Macroeconomic policy reforms for more affordable homes. Environment and Planning A: Economy and Space.
- Ryan-Collins, J. 2020. When it comes to high house prices, it's not enough to just blame low interest rates. Medium. https://medium.com/iipp-blog/when-it-comes-to-high-house-prices-its-not-enough-to-just-blame-low-interest-rates-here-s-why-c0d91e63b253
- Ryan-Collins, J., Lloyd, T., and Macfarlane, L. 2017. Rethinking the Economics of Land and Housing. Zed Books Ltd.
- Saunders, T. and Tulip, P. 2019. A Model of the Australian Housing Market. Reserve Bank of Australia.
- Silberberg, R. 1975. Rates of return on Melbourne land investment, 1880–92. *Economic Record.* Vol. 51, No. 2, 203–217.
- SQM. 2019. Weekly rents, Sydney. SQM Research. https://sqmresearch.com.au/weekly-rents.php?region=nsw%3A%3ASydney&type=c&t=1
- Stapledon, N. 2007. Long term housing prices in Australia and some economic perspectives. Thesis. University of New South Wales
- Stebbing, A. and Spies-Butcher, B. 2016. The decline of a homeowning society? Asset-based welfare, retirement and intergenerational equity in Australia. *Housing Studies*. Vol. 31, No. 2, 190–207.
- Summers, P. M. 2005. What caused the Great Moderation? Some cross-country evidence. *Economic Review-Federal Reserve Bank of Kansas City.* Vol. 90, No. 3, 5.
- The Economist. 2019. Global cities house-price index.
- Troy, P. 2011. The rise and fall of public housing in Australia. Australian Cities Research Network.
- Watson, M. 2010. House price Keynesianism and the contradictions of the modern investor subject. *Housing Studies*. Vol. 25, No. 3, 413–26.
- Weeken, O. 2004. Asset pricing and the housing market. Bank of England Quarterly Bulletin.
- Williams, D. M. 2009. House prices and financial liberalisation in Australia. Oxford University Department of Economics Working Paper Series, No. 432.
- Wood, G. A. 1990. Housing finance and subsidy systems in Australia. Urban Studies. Vol. 27, No. 6, 847-76.
- Yates, J. 1983. Access to Housing Finance and the Campbell Report: The Implications of Implementing the Recommendations of Chapter 37. *Economic Papers: A Journal of Applied Economics and Policy.* Vol. 2, No. S1, 101–22.
- Yates, J. 1994. Home ownership and Australia's housing finance system. Urban Policy and Research. Vol. 12.
- Yates, J. and Yanotti, M. 2016. Australia's 25 years with a deregulated housing finance system: looking back and looking forward, pp. 37–53, in Lunde, J. and Whitehead, C. (eds.), *Milestones in European Housing Finance*. London: John Wiley and Sons.

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UCL Institute for Innovation and Public Purpose Gower Street, London, WC1E 6BT

General enquiries:

iipp-research@ucl.ac.uk Tel: +44 (0)20 3108 6961

