



**EXECUTIVE SUMMARY**

# Matching markets in housing and housing assistance

From the AHURI Inquiry  
Potential of new technologies to disrupt housing policy

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## Executive summary

### Key points

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This research proposes ways policy makers might consider the digital platform revolution in relation to housing markets. Platforms such as Airbnb and Uber replaced existing matching market managers. Their very substantial improvement in performance has been made possible by technology—more powerful computer chips; the Internet; the World Wide Web; broadband communication, and programming and operating systems that have dramatically reduced the search and transaction costs that previously meant many matching markets did not function well.

The housing system is comprised of numerous matching markets. This research identifies five sub optimal matching markets in housing, and proposes solutions:

- **swaps and transfers in public housing**—we outline how social housing tenant mobility and stock utilisation can be improved by the use of an algorithm to facilitate chain-letting.
  - **accessible housing**—a reiteration of the Victorian-based *Housing Hub* would improve the discoverability of accessible properties and matching to people living with disability.
  - **low-cost private rental housing**—some low-cost private rental housing, currently occupied by higher income households can be matched to lower-income households using a headlease program.
  - **apartment supply for low/mid income earners**—development of apartments can be de-risked by a focus on owner-occupiers, quality and design, which addresses settlement risk, reduces the profit margins required, thus improves affordability, and better matches supply and demand.
  - **precinct-level urban development**—coordination is a problem impeding the redevelopment of greyfield suburbs. A citywide platform is proposed, which can enrol landowners and others at any time, permitting them to indicate their interest in participating in potential redevelopment projects.
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### Key findings

Matching markets are markets in which agents seek to be paired with someone or something, with the criteria for matching often highly specific and requiring reciprocity (Abdulkadiroglu 2013; Abdulkadiroglu and Sönmez 2013; Agarwal 2017). Matching markets differ from commodity markets, in which price connects buyers and sellers. Successful pairing in matching markets is often difficult and costly, so matching making intermediaries have evolved to facilitate pairing. Governments and relevant market authorities have, in some special markets, led the creation of new mechanisms to facilitate better performance—for example in the markets of: kidney donation, medical intern programs, university college accommodation, radio spectrum auctions,

airline landing slots and vegetation offsets (for an overview see Sönmez and Ünver (2011)). New computing power and algorithms have been central to these efforts. In many industries, technology is allowing old matchmaking structures to be being swept aside by entrepreneurial market actors, who establish themselves as the new, more efficient and effective matching market manager (Evans and Schmalensee 2016). These intermediaries are known as platforms.

Parker, Van Alstyne et al. (2016) describe a digital platform as:

*a business based on enabling value-creating interactions between external producers and consumers. The platform provides an open, participative infrastructure for these interactions and sets governance conditions for them. The platform's overarching purpose: to consummate matches among user and facilitate the exchange of goods, services, or social currency, thereby enabling value creation for all participants.*

In this definition, which we adopt, intermediation involves *pulling* producers and consumers to the platform, *facilitating* interactions between them and *matching* producers and consumers 'using information about each to connect them in ways they will find mutually rewarding' (Parker, Van Alstyne et al. 2016: 44). The value created need not be financial. Parker, Van Alstyne et al. (2016) describe the impact on markets as a 'platform revolution'.

This research proposes ways policy makers might consider the platform revolution in relation to improving housing markets by examining five suboptimal matching markets in housing. Our objective is a conceptual exploration to seed ideas rather than provide detailed implementation principles or feasibility analysis.

- Firstly, we examine swaps and transfers within social housing, with the objective of providing greater choice to social housing tenants and better stock utilisation.
- Secondly, we consider accessible housing for sale or market rental and the role a new platform could play in providing the means by which people living with disability could discover accessible market housing and ensuring there is a national inventory of accessible housing.
- Thirdly, we examine the occupation of low-cost private rental housing by higher-income groups and assess whether some of this housing could be reallocated to lower-income households.
- The fourth investigation relates to the lack of supply of new apartments for owner-occupation by low- to middle-income households: we evaluate how search and transaction costs inhibit this market.
- The fifth case we consider is the role a new platform could play in aiding reaggregation of land for precinct-level urban redevelopment and the renewal of 'greyfield' suburbs.

### **Swaps and transfers within social housing**

*Swaps* (or mutual exchanges) are when social housing tenants are able to swap houses with other social housing tenants (traditionally, these transactions are bilateral). *Transfers* occur when a tenant leaves a property and is rehoused in a vacant property. Bilateral swaps involve finding or matching to another tenant who wishes to swap their dwelling for yours and is thus difficult and uncommon. In Australia, social housing tenants have little effective choice over their housing. Tenants on the waitlist are matched to housing according to administrative criteria rather than the preferences of the tenant. Lack of choice extends to post-allocation of initial housing, with policy generally unsupportive of swaps, despite tenants often desiring to move. The resulting lack of choice and mobility has been criticised by the Productivity Commission (2015). In the United Kingdom (UK), the cost to government of poor tenant mobility has been estimated at £542 million per annum (Gulliver 2010). Right to Move provisions were introduced

by the UK government in 2011 to address problems of employment access and poor stock utilisation.

Social housing landlords in the UK have established house exchange platforms to facilitate transfers and mutual swaps. These house exchange platforms are one-sided matching markets and they address the barrier to mobility caused when exchanges are bilateral through 'chain letting'. Chain letting is when multiple properties are swapped as part of a sequence, enabling a larger number of swaps to occur, and is an example of a mechanism design known as a top trading cycle (TTC). The TTC mechanism is well-understood and provides for stable matching, meaning the swapping tenants always obtain a dwelling that is preferable to the one they previously occupied. House exchange programs are more complex than other matching market programs, such as the National Residency Matching Program (NRMP) in the US, but as with the NRMP problems with the UK platforms have been addressed over time.

### **Accessible housing for sale or market rental**

Home ownership and private rental housing are major tenure types providing housing for people living with disability in Australia; however, little private housing is appropriate for people with a physical disability (Beer and Faulkner 2009; Bridge 2005; Bridge, Kendig et al. 2002; Casas 2007; Clarke and George 2005; Harrison 2004; Heywood 2005; Imrie 2004; Imrie 2005; Wiesel and Habibi 2015; Wiesel, Legacy et al. 2015). Finding accessible housing is difficult as there is no inventory or register of accessible stock (Bridge 2005). This discoverability problem reduces the opportunity for matches.

Modifications are typically not advertised, reflecting the adverse impact of such modifications on property value (Imrie 2005), again making accessible housing for market rental or purchase difficult to discover. Furthermore, the lower value of accessible housing often means modified stock is converted to mainstream housing and lost. Some proportion of vendors are, however, likely to prefer to sell to a person living with disability. In addition, a proportion of accessible market housing is occupied by people who are not living with disability, rendering it undiscoverable and unavailable to people living with disability.

### **Low-cost private rental housing**

Many households in the lowest two income quintiles attempt to match to private rental housing that is affordable to them, only to find that it is unavailable as a result of occupancy by higher-income groups (Hulse, Reynolds et al. 2015). This mismatch between affordable stock and low-income households results in housing stress and increased homelessness. Sometimes matching fails because of issues such as discrimination. Facilitating matches of affordable stock to corresponding income groups would be an inexpensive public policy intervention. The National Rental Affordability Scheme (NRAS) and Commonwealth Rent Assistance (CRA) are examples of existing policy interventions aimed at aiding matching in the private rental sector (PRS).

### **The supply of new apartments for owner-occupation by low- to middle-income households**

Developers of new apartments often have difficulty finding matches (i.e. presales). Investors are relatively easier to find than aspiring owner-occupiers and are less concerned with amenity, resulting in apartment product that is orientated to investors rather than owner-occupiers. Aspiring owner-occupiers with low to middle incomes therefore find it very difficult to match to apartment product that is both affordable and of decent quality and design.

Investors are inclined to renege on presale contracts if property prices decline between precontracting and settlement, and developers are able to void contracts or change designs (Sharam, Bryant et al. 2015a). Investor matches are therefore unstable in that they are inclined

to un-match or 'unravel'. The inability of developers to address this 'settlement risk' means their profit margins must be significantly higher than otherwise. This has implications both for cost and supply of new apartments.

Growth of the owner-occupier market segment would provide new supply of relatively affordable and well-located stock. Growth requires buyers who are 'sticky', that is, matches that are stable, in order to minimise settlement risk and competition that would facilitate resulting savings being passed through.

### **Precinct-level urban redevelopment**

Australia's low-density 'greyfield' suburbs, built between the 1950s and 1980s, are now the focus for provision of a new supply of well-located, sustainable housing (Newton, Murray et al. 2011). Greyfield redevelopment presupposes that many existing landowners would retain property ownership, although the redeveloped property would be different from their original holding. Reaggregation of currently fragmented land parcels to enable precinct-level redevelopment would deliver environmental, social and economic benefits. However, aggregation of lots is challenging because of the complexity of coordinating multiple landowners. The high transaction costs involved deter private developers and reduce the return when public agencies undertake renewal projects. The coordination role to be filled by a new platform can be conceived as facilitating matches between landowners and future opportunities.

## **Policy development options**

### **Swaps and transfers within social housing**

Governments could embrace the aspirations of many social tenants who wish to move, and facilitate mobility amongst tenants more generally, as a means of enhancing opportunities for employment and education, to promote better stock utilisation, and promote better connection with services and their families. The cost savings would likely be significant. A social housing exchange platform would facilitate swaps and transfers using a computer program that identifies chains of moves, which provides for more opportunities for swaps than traditional bilateral swaps.

### **Accessible housing for sale or market rental**

Government could promote the discoverability of accessible housing through mandating reporting of accessible properties. This would be a vital step in the creation of a national inventory of accessible housing, which in turn, is necessary for understanding how much accessible housing there is and the effectiveness of measures to increase the stock. The inventory could form the basis for a new reiteration of the Victorian-based *Housing Hub*, a service that matches accessible properties and people living with disability.

### **Low-cost private rental housing**

Governments could support a program, such as a brokerage service, to head lease low-cost private rental housing, effectively quarantining some of this stock for the exclusive use of low-income households. The degree of government subsidy would be minimal, covering administration only: households are simply reallocated from a higher-cost market rent to a lower-cost rent. These households would receive no additional subsidies. Any subsidy is essentially that of management costs of the program. The brokerage could operate as a platform with tenants as members and community services and real estate agents providing property services.

## The supply of new apartments for owner-occupation by low- to middle-income households

Government could support the establishment of a matching market platform that matches aspiring owner-occupiers with developers who are willing to share the financial benefits of improved matching with buyers. This support could take the form of financial guarantees and giving preferential access to surplus government-owned land to deliberative development syndicates.

## Precinct-level urban redevelopment

A citywide matching market platform could be established by a government agency as a permanent intermediary, providing the opportunity to match people, land and opportunities. Such a platform would provide a cost-effective mechanism for managing engagement with stakeholders over a long period.

A citywide platform would require a different administrative framework than for a single, limited redevelopment site. Data analytics platforms such as Envision Scenario Planner tool (Trubka, Glackin et al. 2016) and AURIN (Delaney and Pettit 2014) provide powerful knowledge about our urban environments, including redevelopment potential, and it would make sense to link such capacity with any platform established to engage with landowners.

## The study

This research is part of a wider Australian Housing and Research Institute (AHURI) Inquiry into the *Potential of new technologies to disrupt housing policy*. The study is unusual for AHURI in that it is concerned with new knowledge derived from applying conceptual understandings of market design to housing markets and housing assistance, rather than being an empirical investigation. The intention is exploratory, with the outputs a series of propositions. The purpose of the propositions is not to provide proof of concept but to be a stimulus for reflection and debate. Further research is necessary to test the potential policy and practice applications.

A transdisciplinary research team of academics, policy experts and practitioners explored housing and housing assistance provision through two reiterative workshops aimed at answering the following question and sub-questions:

- How could technology-enabled market ‘redesign’ drive innovation in housing policy and housing assistance to deliver efficiency gains and improve social and economic outcomes?
  - How could social and economic outcomes for tenants and landlords in the PRS be improved by redesigning the market, and how could housing assistance be used to drive such innovation?
  - Could social housing allocations be improved by new mechanism design(s), and what are the opportunities and barriers to realising successful implementation?
  - What potential is there for market design to contribute to improved housing affordability?

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AHURI undertakes evidence-based policy development on a range of priority policy topics that are of interest to our audience groups, including housing and labour markets, urban growth and renewal, planning and infrastructure development, housing supply and affordability, homelessness, economic productivity, and social cohesion and wellbeing.

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