

Using technology to redesign and improve housing markets

Based on AHURI Final Report No. 307:
Matching markets in housing and housing assistance



Australian Housing
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What this research is about

This research identifies five Australian housing markets that could be improved or made more efficient using online technology to match highly specific ‘buyers’ and ‘sellers’. The five markets considered are: swaps and transfers in public housing; accessible housing; low-cost private rental housing; apartment supply for low/mid income earners; and precinct-level urban development. The research also proposes solutions to improve how the matching markets operate.

The context of this research

Matching markets differ from commodity markets, where price connects buyers and sellers, and are often difficult and very costly to operate. For these reasons, many matching markets, including the housing market (which is based not just on the price of a house but also its location, size, design etc.), do not function well.

Increasingly, new technologies, such as AI and algorithms, are reducing search and transaction costs. This has given rise to new ‘platforms’ which act as more efficient and effective matching market intermediaries.

These intermediaries pool producers and consumers together and, using their relevant information, match them in mutually rewarding ways.

Market design is a field of economics that studies the design of the institutions and arrangements that govern exchanges in a market, with the objective to improve overall market performance. It can be effectively applied in markets in which the price

mechanism does not (or cannot) produce a mutually beneficial outcome; e.g. market participants may hold private (i.e. hidden) information that impacts on market performance; and buyers and/or sellers care about the identity/characteristics of their trading partners.

Market design should be as simple as possible given that simplicity makes the mechanism operational and easy to implement. The participants should understand the range of choices available to them and the consequences of their choices.

The key findings

The housing system is comprised of numerous matching markets. This research identifies five sub optimal matching markets in housing, and proposes solutions for policy makers to consider.

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, i.e. between two parties only). Bilateral swaps involve finding or matching tenants who wish to swap their dwellings and is thus difficult and uncommon. Transfers occur when a tenant leaves a property and is rehoused in a vacant property.

In the United Kingdom (UK), the cost to government of poor tenant mobility has been estimated at £542 million per annum. ‘Right to Move’ provisions were introduced by the UK government in 2011 to address better stock utilisation; increased opportunity for employment and education; improved health outcomes for both tenants and their extended families; and a reduction in crime and antisocial behaviour. The most significant cost saving (£305 million) would be achieved by enabling tenants to care for relatives, and a further £81 million saved by addressing the physical and health consequences of inappropriate housing.

Social housing landlords in the UK have established house exchange platforms to facilitate transfers and mutual swaps, and have addressed the barrier to mobility caused by bilateral exchanges through ‘chain letting’. Chain letting is when multiple properties are swapped as part of a

sequence, enabling a larger number of swaps to occur.

In Australia, 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.

Key requirement for a successful social housing exchange platform include:

- no tenant would be forced into a swap against their will;
- potential tenants know as much about each property available for swap as possible;
- tenants will get their best outcome by reporting their preferences for properties truthfully;
- the interface should be sufficiently simple to enable the inclusion of tenants with disability or impairment, limited education, language barriers, etc.;
- the platform should be able to implement the objectives of the housing provider as they relate to the relocation of existing residents or housing of waitlisted tenants (e.g. no singles in four bedroom houses);
- the platform should be flexible enough to adapt to, and implement, the housing provider's objectives as they evolve over time.

Accessible housing for sale or market rental

The National Disability Insurance Scheme (NDIS) estimates there is

unmet need for affordable housing for 80,000–120,000 NDIS participants many of whom are among the poorest in the community as they are less likely than those without a disability to participate in the paid labour force (53.4% compared with 83.2%). However, little private housing (whether to buy or rent) is appropriate for people with a physical disability. Finding accessible housing is difficult as there is no inventory or register of accessible stock, which reduces the opportunity for matches.

Government could promote the discoverability of accessible housing through mandating reporting of accessible properties, particularly those modified as part of a government programs such as the Commonwealth Home Support Programme, Home Care Packages Program and by transport accident agencies. 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*, that matches accessible properties and people living with disability. The register would provide the status of properties: current tenure (if known) and whether or not it is on the market. People living with disability would become members of the scheme and provide information on their needs and housing preferences. Strict privacy provisions would apply. Members could activate their status

(e.g. currently seeking, interested in potential opportunities), ensuring members only receive advertising they are interested in.

In addition to supporting an inventory and mandating disclosure of accessible properties by landlords and vendors, government could:

- fund the gap between the modified value of a property and the market value (both rental and sale) if owners agreed to not remove modifications—the purchasers could repay this funding after an agreed period using the uplift in property value;
- soften the impacts associated with mandatory reporting of accessible properties, such as the possible delay in lettings or sales, by providing support to cover such costs;
- in the absence of mandatory reporting, incentivise owners of accessible properties by providing small grants to vendors and landlords to advertise on a registry.

A social housing provider could use the register to identify existing properties with appropriate attributes and could then approach the owners about either head leasing or outright purchase.

Low-cost private rental housing

Many households in the lowest two income quintiles attempt to find private rental housing that is affordable to them, only to find that it is unavailable as a result of occupancy by higher-income groups. This mismatch

Table 1: Sub optimal matching markets in housing and proposed solutions

Market	Solution
1 Swaps and transfers in public housing	Social housing tenant mobility and stock utilisation can be improved by the use of an algorithm to facilitate chain-letting.
2 Accessible housing	A reiteration of the Victorian-based Housing Hub would improve the discoverability of accessible properties and matching to people living with disability.
3 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.
4 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.
5 Precinct-level urban development	Coordination is a problem impeding the redevelopment of greyfield suburbs. A citywide platform can enrol landowners and others at any time, permitting them to indicate their interest in participating in potential redevelopment projects.

between affordable stock and low-income households results in housing stress and increased homelessness. Facilitating matches of affordable stock to corresponding income groups would be an inexpensive public policy intervention.

Governments could support a program, such as a brokerage service, that would head lease low-cost private rental housing, effectively quarantining some of this stock for the exclusive use of low-income households.

The brokerage service would enter into a head-lease contract with private landlords for a set period, utilising commercial leasing arrangements that set out rental payments for the period, maintenance arrangements, grounds for breaking the contract, make-good provisions and dispute resolution. The duration of the head lease could vary from a few years up to ten years. The rent paid by the tenant reflects the rent paid by the brokerage service to the landlord.

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 and would receive no additional subsidies.

The brokerage could operate as a platform with tenants as members and community services and real estate agents providing property services. Landlords would be encouraged to enter into head-leasing agreements by a long-term cash-flow guarantee, as well as additional incentives such as competitively priced landlord's insurance and property management. Philanthropic landlords could be matched with tenants they would like to support. The scheme would seek a tax ruling for 'deductible gift' for these landlords.

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). Costly presale campaigns (generally around 10% of project cost) to find buyers can take years.

Even so, 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 find apartments that are both affordable and of decent quality and design.

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, i.e. with reduced costs for finding buyers developers can offer less expensive dwellings. Government support could take the form of financial guarantees and giving preferential access to surplus government-owned land to 'deliberative development' syndicates.

Deliberative development is when groups of consumers form syndicates to undertake a development, supplanting the speculative developer. This form of development occurs in a number of European countries and is particularly well established in Germany where it is known as *baugruppen*.

In some German states, up to 20 per cent of new housing is delivered by *baugruppen*. *Baugruppen* has consistently delivered savings of 25–30 per cent and delivers more affordable housing that is also of a much higher standard, although the equity requirements to obtain debt financing are high.

Government could facilitate deliberative development by:

- providing credit enhancement (such as a guarantee for loans) that would enable a debt-to-equity ratio of 90:10, thus permitting more low-income households to access this form of housing;
- offering surplus government land to deliberative/NFP developers;
- reforming stamp duty to ensure duty is payable only once and on the unimproved value of the land only (currently stamp duty is paid twice as the land is transferred twice);
- supporting the creation of a service system for deliberative developers,

such as through education and developing model rules, template agreements and dispute resolution processes.

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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. Greyfield redevelopment presupposes that many existing landowners would retain property ownership, although the redeveloped property would be different from their original holding.

Aggregating currently fragmented land parcels to enable precinct-level redevelopment would deliver environmental, social and economic benefits. However, aggregation 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.

A citywide matching market platform could be established by 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, and would:

- permit discovery of interested landowners and their preferences;
- permit clusters of landowners to be identified, enabling identification of localities that are 'ready-to-go';
- allow sequencing of projects and infrastructure planning;
- allow planners to identify uncommitted landowners who could be targeted for recruitment into schemes;
- provide a means by which residential landowners can discover other contiguous landowners in order to initiate their own redevelopment;
- provide a means by which aspiring purchasers and renters can register interest in location and dwelling type;
- provide a cost-effective mechanism for managing engagement over a long period.

Data analytics platforms such as Envision Scenario Planner tool and AURIN 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.

What this research means for policy makers

There are a number of barriers and key considerations for policy implementation.

The requirement of a lead agency

In all cases, some agency or organisation has to undertake the development of the platform. There will be set-up costs and, in some instances, 'freeloader' implications (i.e. benefit will flow to those not carrying the original costs). This suggests a public agency would be most suited, whether an existing government department or a large but subsidised NFP organisation.

Organisational inertia

For most organisations, to undertake building such a platform would take them out of their comfort zone. Developing digital platforms is not part and parcel of human service agencies and uncertainty about risk may limit enthusiasm for moving toward implementation.

Risk and uncertainty

This has largely been a conceptual report and has not provided hard data, costs or potential take-up rates of the various platforms. This means uncertainty and associated risks in

moving towards implementation. One way to proceed is through small-scale pilot schemes with appropriately monitored research.

Policy resistance

In some cases (e.g. the urban renewal and rental brokerage models) an initiative by a public or NFP agency might be resisted by private sector interests who may see such a model as usurping their role or reducing their potential for profit. This would require consultation and/or consideration of how to actually use the private sector.

Methodology

This research brought together a transdisciplinary research team of 12, including academics from various disciplines, industry/economics policy-makers, and housing and housing assistance practitioners.

The researchers considered new knowledge derived from applying conceptual understandings of market design (an economics discipline) to housing markets and housing assistance, rather than undertaking 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 stimulate reflection and debate. Further research is necessary to test the potential policy and practice applications.

Further information

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