

# Ownership illusions: When ownership really matters for economic analysis

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## Abstract

*A common unit of economic analysis is the firm. Firms are assumed to maximise profits, subject to the well-recognised caveat that incentives of owners and managers can differ. Less well recognised is how ownership structures themselves affect incentives, behaviour and economic outcomes. With the wrong assumptions about ownership and when it matters, economic analysis can misrepresent economic reality. Such situations we refer to as ownership illusions.*

*We show how attention to ownership structures can change subsequent economic analysis through four examples of **ownership illusions**.*

*In competition policy, the incentives of firms are blurred by cross-ownership, leading to questions around the validity of default models and exactly how the incentive-driven process of competition is to be understood.*

*When assessing the economic performance of privately or government owned businesses, the capital value of ownership is often ignored when in public ownership but is a primary metric of success when in private ownership.*

*Retirement income systems reliant on individual ownership of financial assets are often inaccurately described as “pre-funded”, by way of contrast with pay-as-you-go or “unfunded” public pensions, regardless of differences in underlying capacity to support cashflows but simply because there exist no priced ownership rights for future pensions.*

*In housing policy, the idea that competition between landowners can push down land prices reflects incentives from product market models where ownership dispersion matters, not those from the “location franchise” model of monopoly that land involves in reality.*

*Identifying this class of problems in economic reasoning can help refine our economic understanding and foster more consistency in future analysis.*

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## Introduction

The economic discipline suffers from many ownership illusions. These are where commonly held assumptions about ownership characteristics and their economic significance lead economic analysis to misrepresent economic reality. Sometimes ownership structures have importance that is under-recognised; sometimes treating ownership as material is a distraction. The common thread is that misleading (and often implicit) assumptions about ownership in default models and default thinking can misguide economists and policymakers.

In this paper we profile ownership illusions in the areas of competition policy, public services and privatisation, retirement income systems, and housing policy to illustrate our contention that how and when ownership matters for economic analysis is the subject of frequent confusion.

A simple example relates to competition. When two firms are wholly owned by another they are generally treated as a single entity. There is no illusion in this case; the incentives of the two mirror those of a single firm. But when many firms are owned in part by a group of investors, this broader cross-ownership network is generally ignored.

Another example concerns inconsistent valuation of assets depending on ownership. The value of owning public services such as the land titles system, driver's licence and registration system or public parks is not usually recorded in public accounts as an asset. But if those services had private owners their capital value would be a paramount concern. Ignoring the equivalent value in public hands is an illusion that skews financial reporting and economic analysis, and colours political decisions.

This illusion is a product of the "ritual of capitalisation" (Fix, 2022). Capitalisation is the process of putting a number on the value of owning property rights. In the world of finance, doing so involves certain regularities in behaviour that can be described as a ritual. But the ritual also extends to the choice of *when* to apply capitalisation. Capitalisation occurs in certain ownership situations, where it is a prized metric of economic evaluation, but not in others, where it is ignored and ownership value is therefore downplayed.

In this vein we also discuss how the right to a public pension could be capitalised. This right has a value to the recipient, and the value could even be measured (as we do other assets) using market prices, such as by issuing tradeable "pension bonds" that grant the right to the future pension payments. But our rituals mean this value is not capitalised, despite the cost being measured in analysing the "economic burden" of public pensions. In this way, analysis lends support to language and concepts round pension policy that represent normative preferences more than neutral description.

Attention to ownership can also mislead when it steers economists toward the wrong conceptual model. We discuss how the popular idea in housing policy of engineering more competitive land markets stems from an illusion that land markets function like product markets, where less concentrated ownership typically produces more competitive incentives and outcomes.

In these ownership illusions we see complexity leading economists to the wrong default model, accounting inconsistencies misrepresenting economic reality,

normative premises shaping supposedly neutral analysis, and intellectual reflexes from economic training applied even where ownership has no material significance.

We do not claim these specific examples to be completely original. In fact, we draw on the work of many others. What we contribute is a way to classify these errors in economic reasoning within a coherent umbrella concept.

Our framing also points towards better research methods. To avoid ownership illusions means first asking who owns what, and what value those rights provide. Attention to ownership structures and the value of ownership can guide research and analysis away from error and towards better insight.

## Competition policy

Competition (antitrust) policy relies on simplified models of market dynamics to help inform policy choices intended to foster desirable outcomes of lower prices and higher output. A fundamental assumption in such models is that firms always have some degree of incentive to deviate from the cooperative monopoly equilibrium and undercut each other on price, thereby increasing their own supply and competing down the profits of others.

Competition policy focusses in large part on promoting this by maintaining a range of potential competitors in a market. This is done by prohibiting company mergers and acquisitions, or even forcing demergers or break ups. In this way, regulators seek to promote competition.<sup>3</sup>

But how exactly is a potential competitor defined? The firm is a common unit of analysis in economic models, but surely a firm's interest and incentive are defined by its ownership. Only firm owners have an incentive to compete against one another to increase profits. Employees generally do not.<sup>4</sup>

The past decade has seen a rise in passive investment and cross-ownership of companies, with growing awareness of the importance of cross-ownership to the competitive incentives of firms. Some three investment funds now constitute the largest shareholder in 88 per cent of S&P500 firms (Fichtner et. al, 2017). Globally, the connected component of the ownership network of over 30 million entities mapped by Vitali et. al (2011) was found to comprise three quarters of these entities and 94.2% of their revenue, with the tightly-knit core of financial institutions described by the authors as an "economic super-entity".

Direct ownership of one firm by another is generally recognised as important when examining incentives in competition policy and other areas of economic analysis.

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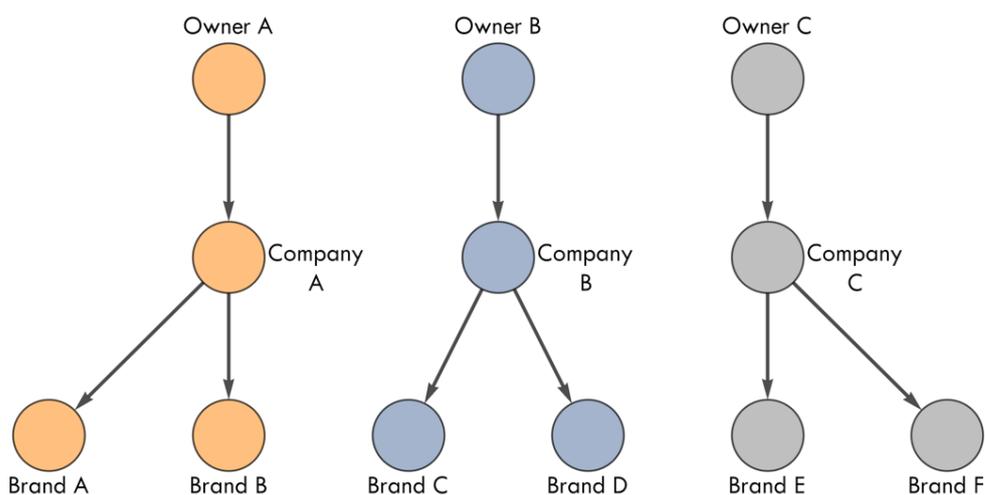
<sup>3</sup> See for example Blair and Kaserman's (2009) treatment of antitrust economic rationale. Other branches of competition policy are directed towards market conduct, including by way of prohibiting restrictive practices like collusion and regulating monopoly prices.

<sup>4</sup> Employee incentives can conflict with those of a firm's owners in a range of ways explored by the literature on "principal-agent problems". Though contract design can better align incentives, it is worth noting, contra our general thesis in this section, that remuneration based on a firm's net revenue may create incentives for profit-maximising by the firm regardless of the structure of ownership. Imperfectly aligned contracts (from the owners' perspective) may drive firms under related ownership to act like competitors, in other words.

Economists rightly appreciate that companies or brands that are subsidiaries of a single corporate owner will not compete in a way that undercuts collective returns.

Yet despite this, and despite its dominance of the transnational corporate landscape, the cross-ownership by large investors of minority shares in many firms is usually ignored, or in some cases assumed to be irrelevant to the process of competition (as discussed by Schwalbe (2018) in their review of cross-ownership debate).

We illustrate this ownership illusion below. Figure 1 shows the standard way of defining firm boundaries, which acknowledges direct ownership of firms or brands by another firm, but at the top level assumes a single owner on the financial side. The six brands in the diagram would not be considered competitors, but each of the three companies would.



*Figure 1: Ownership structures that are acknowledged when defining potential competitors*

Figure 2 shows the same company structure with an alternative ownership structure in which the three owners instead own minority shares of all three companies. Here there are no detached ownership units in the network with independent incentives to compete. Instead, the incentive of all owners is to maximise the collective economic gains from the total network of firms and brands. This runs counter to standard assumptions about the process of economic competition being driven by profit-seeking independent and uncoordinated owners.

For reasons of complexity, missing data, or otherwise, economic analysis here is subject to an ownership illusion in which the incentive effects of corporate ownership structures are recognised while those of shareholder ownership structures are generally not.

We are not the first to note that breaking free from this ownership illusion may be important for competition analysis and policy (Fichtner et. al., 2017). This issue is attracting the attention of competition regulators and economic theorists. Indeed, passive cross-ownership is now the subject of experimental tests on competitive outcomes (Hariskos et. al., 2022). However, the full implications are yet to be broadly incorporated into mainstream debates amongst the broader economics, law and politics disciplines (Schwalbe, 2018).

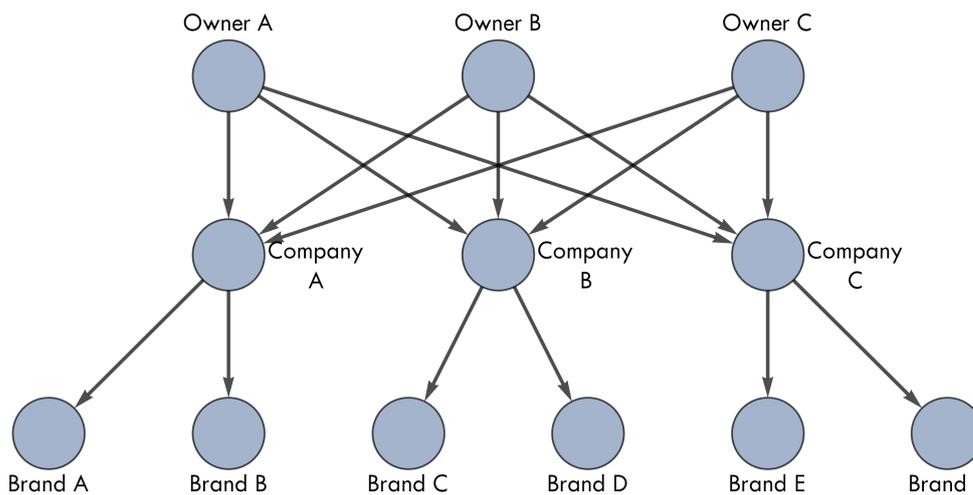


Figure 2: Broad cross-ownership in a market where defining potential competitors is unclear

One implication concerns the fundamental basis for competition itself. If cross-ownership does *not* affect the behaviour of firms, then the premise that competition is driven by the profit motive of owners is called into question. If it is not owners' incentives that cause markets to deviate from monopoly outcomes, then what is it?

One possibility is that while incentives drive competition as normally understood, effective co-ordination of incentives under cross-ownership relies on operational control; ownership per se is necessary but not sufficient. Owners of minority stakes in multiple firms may be unable to effectively pursue their collusive interest when the controlling majority owners have incentives to compete. A further confounding factor is the rise in interlocking company directorships which has occurred alongside the rise of cross-ownership (Heemskerk, 2013). Does the control exerted via these formal corporate positions support cartel-like coordination? Would interlocking directors have the same collusive incentives without cross-ownership? These are questions that need further examination.

Alternatively, the notion that market outcomes have their causal origin in market concentration as the key determinant of firm behaviour may be incomplete (this is referred to as the structure-conduct-performance paradigm; Sutton 2001). The correct arena of competition may not be one of strategies set by reference to rivals and demand, within which more competitors mechanically produce more competition. It is known that if individual firms use trial-and-error experimentation for price or output decisions, a single market with many firms can converge to the monopoly outcome without explicit cooperation (Huck et. al., 2004). If collusion through trial and error is common, it raises deeper questions about the value of multiple firms, and the causal significance of concentrated ownership. Independent ownership may be of lesser relevance to price-setting than other elements of competition, like free entry.

A second implication concerns the policy environment. Regardless of how the theoretical understanding of competition evolves in an environment of broad cross-ownership, secrecy in ownership networks is likely to inhibit progress in understanding their implications. In most countries, a complete mapping of beneficial company ownership is either impossible, or held secret, and additional

ownership layers are often added to the network to conceal the underlying beneficiaries. If progress is to be made in understanding firm behaviour and competition under well-connected ownership structures, observing those structures is a first step.

## Public business ownership

Selling government businesses is commonly thought to generate additional cash revenue for general spending. It is also commonly thought that buying businesses through sovereign wealth funds can generate a risk margin over cash, and thus improve the long-term public budget position via differential returns.

How can selling a business for cash improve the budget position yet the reverse trade of buying a business with cash also have the same effect?

The contradiction is due to another ownership illusion. Governments do not record accurate balance sheets, and the capitalised value of revenue from operations is not generally reported. But when a business is held in a sovereign wealth fund or other such financial entity its capitalised market value is regularly estimated and reported.<sup>5</sup>

In this illusion, ownership patterns are irrelevant to the economic reality of asset wealth, but economic analysis may be misled by reliance on reporting metrics that misrepresent this reality due to accounting inconsistencies. Political messaging that portrays cash proceeds from sale as additional revenue misleads to an even greater extent, trading on the public's confusion about these concepts.

A real-world example and thought experiment can illustrate this point.

The Australian states of New South Wales and Victoria have in recent years privatised their land titles office (LTO) operations. The LTOs manage the property titles system and charge fees to users to record property sales or access records, generating a cash surplus. These privatisations effectively swapped ownership of a non-cash asset in the form of business equity for ownership of a cash asset, the sale proceeds.<sup>6</sup>

The sales were described by government agencies as unlocking capital for investment with the upfront proceeds "recycled" into funding new infrastructure (DTF 2018; NSW Treasury 2017). Both states also run investment funds that invest in, amongst other things, company ownership in the form of direct ownership or equity shares.<sup>7</sup>

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<sup>5</sup> Government businesses providing market goods and services are typically valued based on capitalisation of operating results (in Australia, this refers to the public financial and non-financial corporation or PFC and PNFC sectors). However general government operations such as the collection of regulatory fees and taxes are not so valued (only the value of physical assets such as land and buildings is reported).

<sup>6</sup> The sales reaped AUD\$2.6 billion and AUD\$2.9 billion respectively (NSW Parliament, 2017; Willingham, 2018). In a similar example of privatising the revenue stream from a core service function Victoria also sold 40-year ownership rights to its driver licence and vehicle registration service (VicRoads, 2022).

<sup>7</sup> See for example the Victoria Future Fund <https://www.budget.vic.gov.au/victorian-future-fund> and the NSW Generations Fund <https://www.treasury.nsw.gov.au/documents/nsw-generations-fund->

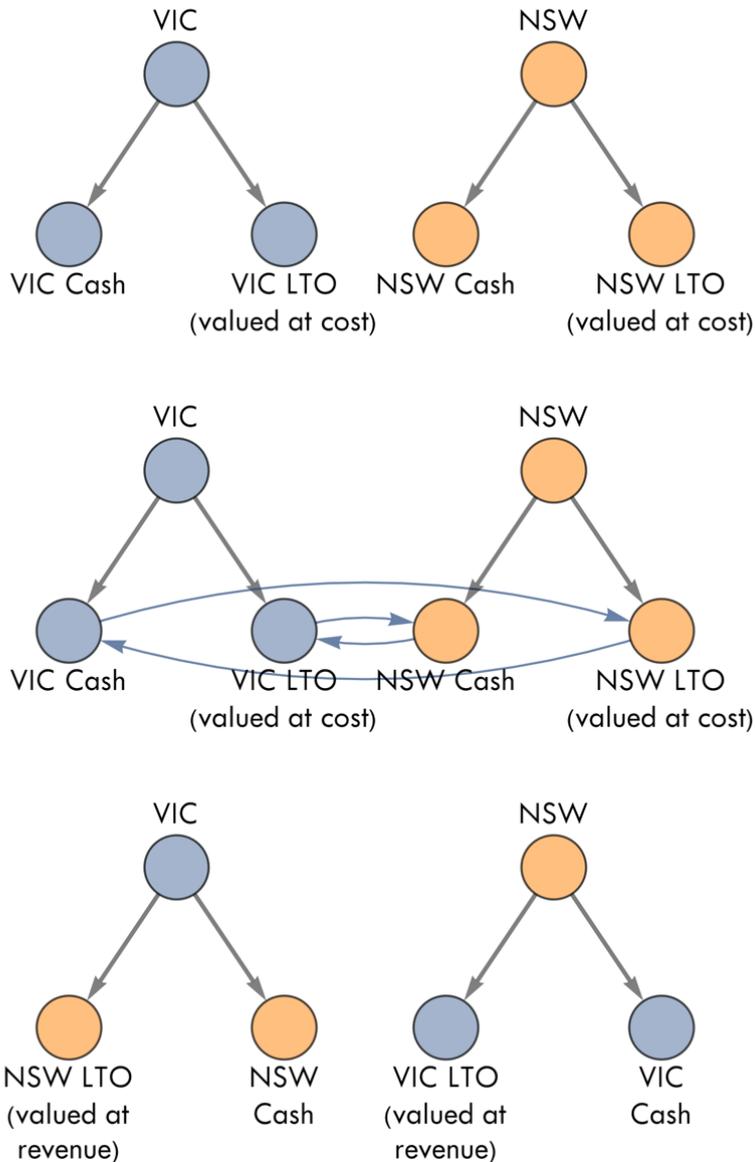


Figure 3: Ownership change with privatisation and public investment funds

In principle, each state could have sold their LTO to the investment fund of the other state, as shown in Figure 3. Prior to this each state would have owned cash and its LTO business (top panel). After the ownership swaps, each state would have owned the cash proceeds and the other's LTO business (bottom panel). Reported net assets would increase for both, since the LTO revenue stream would be valued more highly when owned as an investment than as a government operation. Despite the ownership swap making no difference to combined revenue or costs, each state would appear better off economically.

Misleading metrics and political messaging aside, much economic commentary on privatisation makes clear that the proceeds from selling public businesses are not a true budgetary gain (e.g. Quiggin, 2018). In instances such as the LTO sales these transactions are better understood as "tax farming", in reference to the historical

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[annual-report-2020-21](#). These states also own businesses classed as PFCs or PNFCs outside their sovereign wealth funds.

examples of administratively weak or non-creditworthy governments selling the right to collect tax to private collectors (see Stella, 1993).

Economic gains from privatisation may still be expected in the form of efficiency improvements due to competition and innovation (Kikeri and Nellis 2004), though often overlooked is that competition can be fostered without changing ownership. Norway's oil market, for instance, shows that it is possible to have public and private firms compete, and even have public investment funds hold part-shares of private firms in the same market.

These are more valid and economically significant policy objectives, and seeing through the ownership illusion in public versus private business holdings can allow a clearer focus on the question of whether and when privatisation is the best means to achieve them.

## Retirement income policy

Another ownership illusion arises in the analysis of retirement income, or pension, systems. Increasingly, these systems rely on ownership of financial assets to fund the incomes of retirees, by way of compulsory savings used to purchase assets like listed company shares, company and government bonds, and cash. These can be in individual accounts, like Australia's superannuation system and Singapore's Central Provident Fund (CPF) accounts, or in jointly owned social security funds.

In some countries, the value of assets in "pre-funded" retirement systems is significant. The Netherlands, for example, has retirement funds valued at more than 200% of GDP, while Canada, Australia, Switzerland and the United Kingdom each have pre-funded pension systems holding assets valued at over 100% of GDP (OECD, 2020).

The alternative is known as a "pay as you go" or "unfunded" system. Here a country's Treasury pays pensions from its account. This reduces the government budget balance, instead of reducing the balance in individual accounts, as in a pre-funded system.

However, the notion that a compulsory saving system "pre-funds" retiree spending whereas a pay-as-you-go system does not is another ownership illusion. It is based on the idea that society's capacity to pay retirement incomes depends on capitalisation, rather than real economic flows, which is wrong. The illusion treats capitalised asset wealth as a funding source but the state's uncapitalized power to raise revenue otherwise – and in so doing inserts a normative assumption about *who* should pay into the ostensibly-neutral economic concepts of "funded" and "unfunded" systems.

To illustrate this we consider the value of ownership rights in each system, and what it means to fund retirement income payments.

What does the value of a financial asset in an individual pension account represent? Simply what a buyer is willing to pay for the future stream of income from the asset.

Just as the value of a house comes from the future occupancy it provides, the value of a financial asset comes from the goods and services its income stream can buy. The occupancy, and the goods and services, are real. The lump-sum valuations of the

housing rent or income stream are not. They are the agreement of a seller and a buyer as to the exchange value these rights to occupancy or income are worth.

An economically consistent approach to comparing retirement systems must compare either the capitalised values of each system, or the income streams available to fund ongoing retirement payments.

But what is the capitalised value of the future taxes, bonds and seigniorage that funds retirement incomes in a pay-as-you-go pension system? It is not measured, because there are no markets valuing it, and no routine practices of non-market valuation.

The capitalised value of public revenue is as (un)real an economic phenomenon as the capitalised value of asset income, yet our rituals of capitalisation do not let us see it.

In principle valuation is possible, however. The right to a pension payment could be converted to an asset by creating an ownership right. We could call these financial instruments *pension bonds*, give one to each eligible pensioner, and allow them to be traded. The total market capitalisation would represent the asset wealth of pension bond holders available to fund future income (retirement or otherwise). Equivalently, it would represent the capitalised value of the public revenue stream that in a pay-as-you-go system funds these payments. There would be no change in economic flows, but a capitalised value would exist where it did not before.

Australia's pay-as-you-go age pension, which exists alongside compulsory retirement savings, distributes around AUD\$55 billion per year (ABS, 2022). At the 3-4% yields applying to other government funding (such as Treasury bonds) these pension bonds would have a capitalised value of \$1.2-1.6 trillion. By comparison, the market value of assets in compulsory retirement savings accounts is AUD\$3 trillion (APRA, 2022).<sup>8</sup> Without the ownership illusion, Australia's pay-as-you-go system seems very well funded.<sup>9</sup>

One might raise two objections to the argument that pay-as-you-go pensions are equally meaningfully described as "funded".

First, do asset values in retirement accounts not indicate real production, which provides capacity to pay income, but capitalised taxation only the power to *take* this, which does not?

No – the distinction here is semantic, not real. Asset ownership is only ever a legal claim on real product. Tax powers are also a legal claim on real product. Property is a bundle of rights, but so is taxation, and to treat the value of those differently is an ownership illusion.

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<sup>8</sup> This value was down 20% during the first half of 2022, demonstrating the guesswork inherent in the capitalisation ritual.

<sup>9</sup> This logic can be taken further. Instead of looking only at retirement income payments, total government revenue could be capitalised to estimate a minimum value of the right to tax. For Australia this would be \$15-20 trillion based on current revenue (with the unexercised rights worth more again). For perspective, the market value of all residential property in Australia peaked in 2022 at \$10 trillion.

All that matters for capacity to pay is real production. The value of assets in specially labelled accounts does not measure that. Whether compulsory saving increases real production is the relevant question, and it is ultimately an empirical and context-specific one (discussed further below).

Second, does it not matter *who* funds and receives retirement incomes? Compulsory saving means each individual funds their own income. Whatever the fairness of this, to describe different *systems* as funded or unfunded on this basis not only stretches language, but smuggles a premise of distributional justice into concepts of economic analysis purporting to be ethically neutral.

Another aspect of the ownership illusion in retirement income systems is that the value of financial assets in “pre-funded” systems often merely represents an ownership rearrangement – not additional productive capacity.

When a “pre-funded” system “saves” by buying assets, it usually buys those from a prior owner, rather than investing in new buildings and other real capital assets. Ownership simply moves from outside the retirement system to inside it.

Figure 4 illustrates this point. The left panel shows direct ownership by individuals of an asset class such as listed company shares, bonds, or property. To the extent compulsory saving does not increase savings, or change its composition, the effect is identical to each owner selling some of their assets to their retirement fund. The change is simply one of ownership structure, by inserting a retirement fund intermediary (right panel).

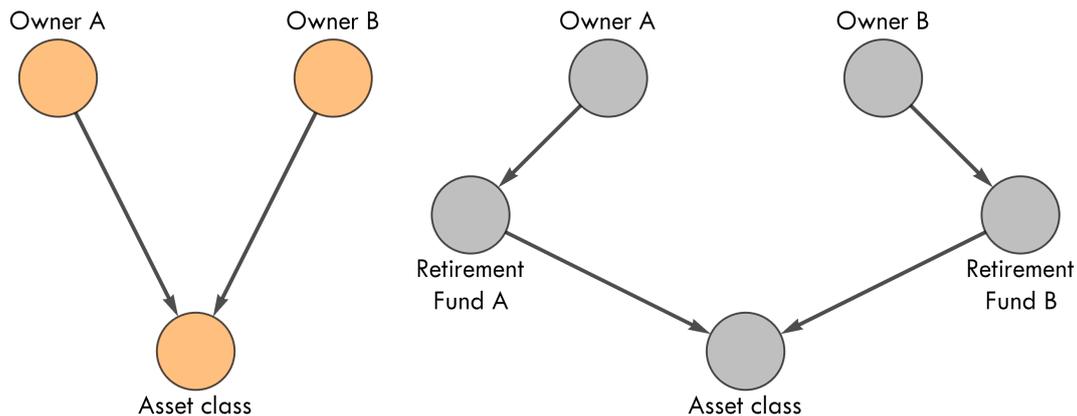


Figure 4: “Pre-funded” retirement system as a change in ownership accounting

This is why the value of retirement funds cannot be measured against the value of the share market or property market without substantial double-counting. Some 37% of the publicly traded share market in Australia is owned by retirement funds, for instance (Myer, 2021).

A “pre-funded” system boosts capacity to fund retirement incomes only to the extent that compulsory saving increases the stock of real capital assets, via more spending on new capital equipment or other productive capacity. But there are theoretical reasons for doubt this will occur: if capital formation is demand-driven, then reducing circulation of spending in the real economy decreases capital investment (a “paradox of thrift”).

In sum, it is not clear either that compulsory savings increase society's capacity to fund retirement incomes, or that the concepts and language of "funded" and "unfunded" systems have any real economic grounding. Both ideas are based in ownership illusions: in the simple assumption that retirement accounts represent funding capacity, and the subtler assumption that capitalised asset values have some economic meaning different in essence to the uncapitalised right of the sovereign to raise tax.

The normative premises embodied in these concepts and language can be seen as part of the power struggles over the ownership, allocation, and control of economic assets (Kolasi, 2022). Ownership illusions, in this light, contribute to concealing such power struggles behind the façade of objective, ethically-neutral analysis.

## Housing policy

A common argument in housing policy is that planning regulations limit competition between landowners to supply housing. With looser regulations, it is said, landowners would build more homes and undercut each other on price.

Some economists go further and suggest cutting regulations can stimulate competition that reduces land rents or eradicates them altogether:

Our alternative view is that housing is expensive because of artificial limits on construction created by the regulation of new housing. It argues that there is plenty of land in high-cost areas, and in principle new construction might be able to **push the cost of houses down to physical construction costs** (Glaeser and Gyourko 2003, emphasis added).<sup>10</sup>

We call these claims the "weak" and "strong" zoning competition hypotheses. The weak hypothesis says that upzoning promotes competition that lowers prices for the product, housing services. The strong hypothesis say that it can also lower prices for the factor of production, land.<sup>11</sup>

The strong hypothesis contains an ownership illusion: an assumption that land prices for any given level of demand are influenced on the supply side by the concentration of ownership, rather than the fixed supply and inherent monopoly of each location alone. It presupposes that there can be meaningful "competition" between landowners and policy changes to promote this can engineer lower land prices.

If ownership concentration is irrelevant for competition and land prices, granting additional use rights to many owners via upzoning can no more push down the value of those rights than can granting them to a single owner. And why would a single

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<sup>10</sup> If houses sell at construction cost then the only price at which land can be acquired for development at normal profit is zero.

<sup>11</sup> The reason these outcomes are not identical is that higher-density housing has a smaller land footprint, meaning housing can be cheaper (on a per-sqm of floorspace basis) even as land is more expensive (on a per-sqm of land basis).

owner place lower value on more rights than on fewer? Absent the illusion that ownership matters, the illogic of the strong hypothesis is clear.<sup>12</sup>

The inherent monopoly in land has two roots: the fixed supply of the physical resource, and the land titles system.

The land titles system is a register of ownership of two-dimensional area (locations) in a jurisdiction. There can be no competing system, nor competing claims on the same location. Monopoly ownership of the system and of each location we take for granted.

The relevant question is whether this monopoly necessarily leads to monopolistic pricing of land. Can anything increase competition between owners of unique, geographically-fixed locations so as to push down the prices they charge for access?

We argue such competition is impossible. Granting extra use rights might change land use incentives and the price of housing, but cannot create incentive to compete down land rents. Belief that it can rests on the illusion that dispersion vis-à-vis concentration in ownership of a fixed factor of production affects competitive pressures as it does in product markets with free entry.

This can be seen via a thought experiment that sets aside land use and focuses on pricing. Landowners can be assumed to make rational land use choices when bundling land and capital for sale, and setting these aside lets us focus on their core role as sellers of location services.<sup>13</sup>

Consider first one individual owning all the land in the titles system. They would clearly act as monopolist, maximising total land rent (equivalently, average land rent per sqm). This means pricing each location at the highest price achievable – since lowering the price for any one location cannot raise the prices received for the others.

Could dispersed ownership change this?

One way to divide ownership is by a share registry in which each owner gets a fixed percentage of the total rent from the titles system. However the owners' incentives here are clearly to preserve the monopoly outcome, i.e. to maximise total land rent.

Another way to divide ownership is by location shares. Each owner gets a geographical portion of the property in the titles system, with each part defined by cadastral mapping.

This more familiar form of land ownership is akin to a franchise model. Indeed, land ownership was historically called 'enfranchisement', as it entailed buying a locational share of the system and freeing oneself from obligations to a (land)lord. Enfranchisement often came with a right to vote as well. Nowadays franchising is a way of dividing ownership within larger organisations, such as fast food chains, by defining rights linked to location.

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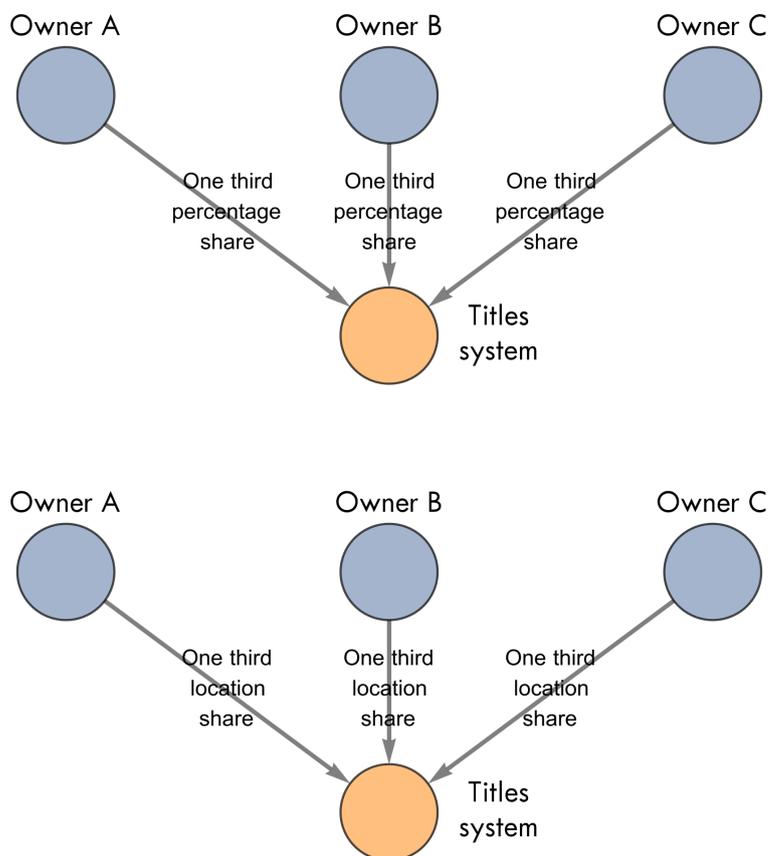
<sup>12</sup> We set aside the weak hypothesis. For discussion, see Murray and Phibbs (2022).

<sup>13</sup> We also set aside land use externalities. The focus is just on how ownership matters for competition. Externalities can change incentives when internalised by common ownership, and upzoning can reduce land rent if the negative externalities from newly-allowed uses outweigh the private value of those use rights.

That landowners could in principle restructure ownership from an evident monopoly to the familiar location share model (or vice versa) suggests the pattern of ownership is not a key factor in determining competition and prices in land markets.

The two structures are illustrated in Figure 5. The percentage share model (at top) is a monopoly by any standard definition. If land markets can be made competitive then swapping to area stakes of equal value (at bottom) should result in lower prices – but it is entirely unclear how this is to occur.

With location shares each owner sells access to their own location at the highest price possible. But this is the same pricing rule as under monopoly ownership. Whether the total rent across all parcels is maximised or the rent of each parcel is maximised, the pricing is the same. In other words, location share ownership provides no more incentive to compete down land prices than under concentrated ownership. It is the monopoly land titles system and impossibility of free entry that matters for incentives – not the pattern of ownership of this system.



*Figure 5: Multiple ownership of the land titles system via percentage shares and locations shares*

The key policy question is not about concentration per se but about upzoning. Can granting additional land use rights see the value of all such rights competed away?

If all land was owned by one individual (or by percentage shares) then the owner (or owners) would clearly retain the option to price access at least as highly as before. Upzoning would allow for higher total land rent, but not lower.

But consider that the equivalence of pricing under monopoly and location-based ownership holds for any given set of zoning rules. There is no reason to expect individual location owners to react to upzoning any differently, such as by competing down prices. The granting of additional rights without additional obligations cannot provide *negative* additional value to the recipients.<sup>14</sup>

Underpinning such claims is an ownership illusion, the idea that ownership concentration *always* matters for competition – an intellectual reflex from training in models where location is irrelevant and entry is free, conditions that never apply to land.

## Conclusions

Economic analysis often relies on understanding the incentives of owners of firms, financial assets, and property. Yet often it is the case that explicitly examining ownership structures changes subsequent economic analysis. We call this class of problem *ownership illusions*.

In policy areas from competition, to retirement, to public businesses, to housing, a closer look at the structure of ownership, and the value of that ownership, reveals that many popular economic positions are contradictory when complete ownership accounting is considered.

While we do not offer prescriptions about how to respond to ownership illusions, acknowledging this class of problem in economic analysis helps highlight where inconsistencies in reasoning occur, and suggests further avenues for research that retain consistency in reasoning.

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<sup>14</sup> Upzoning can clearly provide positive value (i.e. cause higher overall land prices) if the prior zoning rules were binding, that is, for some parcels prevented higher-value uses from occurring.

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