

An Analysis of Value Capture Instruments

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Abstract

This paper examines the concept and application of value capture. Value capture means generally capturing the value of an investment in public infrastructure, especially but not only transport infrastructure. It is often advocated as a panacea to justify and fund major projects. Value capture methods include five forms or taxes (a betterment tax on land value uplift, a broad-based land tax, selective land tax, property taxes, and transaction taxes). They may also include three forms of user charges (developer charges, consumer charges and sale of development rights). The paper finds that all three main forms of user charges meet policy objectives of efficiency and equity and are practical value capture instruments. Special area land and property taxes may be appropriate but only in limited cases. Pure betterment taxes on land value uplift are not practical.

1 Introduction

1.1 The Meaning of Value Capture

The term “value capture” has arisen largely and informally in the literature surrounding the financing of transport infrastructure. It is not a recognised formal term in economics.¹ This creates some difficulties in writing about, and assessing, the term.

Thus, the Australian Department of Infrastructure and Regional Development (DIRD, 2016) states:

“The core idea of ‘value capture’ is that a new piece of infrastructure such as a freeway or railway line creates economic value ... and tapping into part of this value increase offers a source of funds to contribute towards the cost of the project... While the focus is on transport infrastructure, the approach could also apply to health and education infrastructure.”

In the same vein, in a Grattan Institute report, Terrill (2017) wrote:

“At its core, value capture is a tax on the increase in land values that results when a new or upgraded piece of infrastructure improves an area’s accessibility”.

Infrastructure Australia (2016) takes a slightly broader view of possible value capture instruments, though continuing to focus on transport infrastructure.

“Value capture is a term used to describe a range of funding and financing mechanisms which seek to leverage the broad range of benefits (such as uplift in property values and labour force accessibility) which can be generated by new or upgraded transport infrastructure.” ... “This might be by owning part of the land or ... some sort of differential rating arrangements”.

In advice to Infrastructure Victoria, Ernst and Young (2016) also took a broad position on possible value capture instruments based on the concept of charging beneficiaries in one or another way.

“Value capture is an umbrella term, covering a range of revenue mechanisms with a common goal ... funding projects from beneficiaries rather than from taxpayers. Value capture ... describes the spectrum of mechanisms... This includes user pay mechanisms, developer charges and contributions, targeted and broad betterment levies, property development rights, asset sales or leases, major beneficiary contributions, and other non-land taxes or levies.”

In this paper, we focus on the value capture core concept as a tax on land value uplift as defined by Terrill above. But we also discuss the range of other instruments for capturing value and hence financing infrastructure. These may have wider economic impacts, for good or bad, than a direct value capture levy.

The following sub-sections outline these various value capture instruments and discusses evaluation criteria. Section 2 discusses value capture taxes. Section 3 discusses various use charges, Section 4 concludes. Two annexes provide brief supporting information.

¹ The term “value capture” appears nowhere in the Oxford Dictionary of Economics”, 4E, 2013, Black et al.

1.2 The Broad Range of Value Capture Instruments

Value capture instruments can be divided into taxes and user charges.

Value capture taxes: there are five main forms of value capture taxes:

- Betterment levies – a tax on uplift in land values (a pure value capture tax)
- A broad-based land tax
- Special area land taxes
- Taxes on property values, including special area property taxes
- Taxes on property transactions, e.g. transfer tax and taxes on capital gains.

As discussed in Section 2 below, these taxes may be defined and set up in multiple ways. They may also be viewed individually or collectively. This creates complexity for the analysis.

Another instrument that is sometimes described as a form of value capture is tax increment funding (TIF). As described by BITRE (2015), with TIF, typically a public agency issues infrastructure bonds based on the expected increase in property tax revenue (the increment) that will be generated by the project, which is then hypothecated to pay the interest and principal on the infrastructure bond(s). TIF is used quite widely in the United States especially for urban renewal projects, as well as to a less extent in Canada and the United Kingdom (Langley, 2013).

TIF enables governments to finance infrastructure construction by borrowing against the forecast uplift in property tax and other revenues. However, TIF is essentially a funding mechanism based on **hypothecated use** of an existing tax or an increase in an existing tax. Thus, it is covered by the land or property taxes discussed in Section 2. It does not provide a new form of revenue or value sharing and is not discussed as a separate instrument in this paper.

Value capture user charges are payments for services. User charges reduce value uplift and are therefore an indirect form of value capture. The three main forms of user charges are:

- Producer service charges, generally described as developer charges
- Consumer (user) service charges
- Sale of development rights.

These are discussed in Section 3 below.

1.3 Evaluation Criteria

Consistent with general principles of public finance, revenue raising instruments should be efficient, equitable and administratively practical and cost-effective.

Efficiency: Resources are used efficiently when firms or households obtain the goods or services that they want at least cost. Thus, efficient resource use requires that the benefits of goods produced exceed or at least equal the costs.

User payments aligned to the medium-term marginal cost of services generally promote efficient use of resources. Also, so long as taxes are levied on economic surplus, they are efficient as they do not

affect the allocation of resources. Importantly, they should not deter development that would otherwise occur.

Equity: The beneficiary equity principle suggests that, in general, the beneficiaries of public expenditure and public decisions should pay for the benefits. The beneficiaries may be property owners or consumers of services provided.

Equity also requires (i) that payments for goods should be based on a household's ability to pay for them and (ii) that benefits should go to those with greatest need(s). Thus, in some cases, user payments may not be appropriate, for example for some public health and education services.

Practical Administration: A policy is only as good as its administration. This requires that the base of a tax or user charge can be measured accurately. As will be seen, this is a key issue for a tax on land value uplift due to transport infrastructure (or other public spending) as the uplift is generally not observable directly in market prices. In this case, value uplift must be inferred from statistical analysis or based on valuations by property experts.

2 Value Capture Taxes

2.1 Betterment (Value Uplift) Tax

A pure value capture tax is a tax on the uplift in land values due to some government action that creates the value uplift, most often associated with transport infrastructure. This is often described as a betterment tax and this term is used in this paper.²

Note that land value is here known as "unimproved capital value". This includes investment in the land and so is not a pure land value. But it is distinct from a tax on property (improved capital value), which includes structures on the land.

A basic issue is that there is no clear, single description of how a betterment tax would be implemented.³ In this paper we make the following assumptions.

- The tax would be a significant percentage of the estimated uplift in land values (say 30% to 50%) due to the new infrastructure as determined by valuations at the end of each year.
- The tax would apply to specified areas that are deemed to benefit from new or improved infrastructure. The tax rate could vary by area.
- The tax would apply for a limited time, possibly only one year as land values capitalise future benefits.

These three dot points differentiate a betterment tax from a broad-based low land tax.

The main advantages and disadvantages are outlined below.

² A tax may also be levied on rezoning land. In this paper we treat this as a charge discussed in Section 3.3.

³ In a lengthy paper on the subject produced for the Property Council of Australia, there was no statement as to how the proposed tax would actually work. PricewaterhouseCoopers, 2008, *Tax Increment Financing to fund infrastructure in Australia*, prepared for the Property Council of Australia.

Advantages

In principle, a betterment tax is both efficient and equitable.

As a tax on unearned economic surplus, there is no efficiency cost because it is not a tax on private economic activity or use of resources and would have little, if any, effect on landowner behaviour. A proviso is that the tax not be an unduly high percentage of the estimated lift in land values.

In so far as it generates substantial revenues, it will enable infrastructure investment and have no deadweight cost of taxation.

Such a tax is highly equitable because the value increment is created by the public sector and unearned by the landowner. It satisfies the beneficiary principle.

Disadvantages

However, the benefits identified above are highly dependent on accurate valuations of land that account for variations in (i) timing (ii) locations and (iii) cause and effect.

- (i) Most land values include expectations of future values. To be an accurate measure of value uplift, the valuations would have to strip out expectations from the estimated land values before the infrastructure is constructed.
- (ii) The locations (boundaries) of areas affected by various levels of value uplift would need to be determined. Property prices depend on many factors. The relationship between accessibility and land value is far from simple. In communities that are already well-served by multiple transport options, or otherwise have high levels of accessibility to jobs and services, new infrastructure may deliver little improvement to accessibility and, consequently, little value uplift. Proximity to infrastructure does not necessarily deliver residential property value uplift.
- (iii) Many factors affect land values, including general economic conditions and landowner investments. The valuation would need to identify cause and effect. The property market data across these 10 projects shows a high degree of variability. (table 2, p.290)

Also, a betterment tax would have to be integrated with other taxes, such as capital gains taxes.

Conclusions

In theory, betterment taxes are completely efficient and “marvellously fair” (Tirrell, 2017). They would also resolve financing requirements, at least partially. Anyone paying the tax would still be at least as well off with the infrastructure as without it.

However, betterment taxes face severe practical issues. Land values rise for many reasons and it is impossible to identify accurately the boundaries or the beneficiaries or the extent to which the beneficiaries receive value uplift.

In practice, a betterment tax would often not be fair (or readily accepted). Thus, as BITRE (2015) notes, virtually no such instruments are, or have been used, in Australia.

Notwithstanding, acknowledging these drawbacks but attracted by its potential benefits, several authorities recommend that consideration should routinely be given to possible utilisation of a betterment (pure value capture) tax, e.g. BITRE (2015) and Infrastructure Australia (2016).

This is an understandable position. But applying a betterment tax for one project but not for others would create a further issue of inconsistency.

We conclude that there may be some projects for which a betterment charge is appropriate and practical, especially where more appropriate financing instrument such as user charges of one or another kind are not available (see section 3). But a betterment (value capture) tax is not seen as a general solution to financing public infrastructure.

2.2 A Broad-Based Land Tax

A broad-based land tax is a tax on the value of the land (including improvements to land) usually levied annually.

Such a tax passively captures some value uplift. In these cases, government secures increased revenues from an infrastructure project without taking any further action. Specific land or property taxes are more active measures to capture value uplift. However, unlike betterment levies, land taxes are not levied specifically on changes in property values.

It is widely recognised that a broad-based land tax is one of the most efficient forms of tax (Henry Tax Review, 2010; Freebairn, 2016). A general tax on a resource, such as land, with a fixed supply has little impact on the use of the resource.

Drawing on various work as well as their own, Cao et al (2015) estimate that Australian land taxes usually have a marginal excess burden (MEB) in the order of 0.08 to 0.10. That is, for every \$1.00 raised in tax, there may be a cost in the order of 8 to 10 cents. This compares with various other taxes with MEB's ranging from 10 to 70 cents in the dollar.

A general tax on the land value would also be practical in that it does not involve locating the benefit on specific locations around new infrastructure or other public benefits more generally.

Thus, reforming state land taxes by removing exemptions to create a broad-based charge represents an efficient way to capture some value uplift over the long term.

However, as a vehicle for value capture, a broad land tax has two significant limitations. First, some state land taxes have a very limited base. For example, in NSW there is minimal state land tax in relation to housing and no tax on any owners of land valued at less than \$549,000 (as at July 2017). Turning the current state land tax into a broad land tax would be a major reform and most likely take years to implement.⁴

Second, a land tax in the order of 1% of land values would capture only a small amount of the value uplift, even after 10 or more years. The real value capture would be minimal.

⁴ In May 2017, the NSW Government reversed a decision to levy households and businesses for fire services via land tax instead of a levy on property insurances.

2.3 Selective Land Taxes

An alternative, or addition, to a broad-based land tax would be selective land taxes in areas where new or improved public infrastructure is provided. Where additional, the land tax would be a supplementary levy. Again, this could be time limited.

In principle, a selective land tax is both fair and efficient. It would pick up a small part of the value uplift and it would have little, if any, distortionary impact on the allocation of resources.

As a tax on the new land value, it does not depend on estimates of value uplift attributable to the new infrastructure or associated rezoning. It is therefore more practical than a betterment tax.

On the other hand, it is again necessary to identify the property owning beneficiaries. Dividing an area up into property owners who are beneficiaries of new infrastructure and those who are not is often a difficult and imperfect exercise. To be fair and gain community support, there needs to be a clear nexus between the payment being made and the benefit received as a result of the infrastructure.

We conclude that a selective land tax may be feasible and appropriate when either (a) there is a clear area of beneficiaries (railways are sometimes cited in this regard) or (b) a supplementary land tax can be levied over a large area for a limited time to help finance a major urban infrastructure project such as the Gold Coast light rail.

But as noted, the tax needs to be perceived to be fair. And, if the revenue collected is not significant, this may not be perceived to be a worthwhile levy.

2.4 Property Taxes: Broad-Based or Selected Areas

Like a land tax, a property tax (a levy on improved capital value) could be broad based or area based. Like land taxes, it is generally an annual levy. However, it can be a one-off or time limited levy.

A significant obvious challenge for a broad-based property tax is that they are generally not part of the tax system in Australia, whereas land taxes are.

While the NSW Independent Pricing and Regulatory Tribunal (2016) proposed that local councils be allowed to choose between a property tax and a land tax so that they can better capture values from apartments and new developments, this is only a discussion concept at this stage.

Moreover, a tax on property values would be less efficient than land tax because it would be a tax on production of housing and other non-residential buildings and hence have a larger marginal excess burden than land tax.

Clearly, introduction of any broad-based property tax would be complex and problematic in the immediate future and thus this is not considered further here.

There is a stronger case for a special area property tax to reflect the benefits of new infrastructure. Property values may better reflect the relative benefits of infrastructure development than do land values. And a small, time-limited, levy on property values would have little impact on property development.

A property levy has been adopted in London to help fund the major CrossRail project. This applies to commercial as well as to residential properties. Commercial property owners may have more capacity to pay the levy than households. And as IPART (2016) observed, a property tax levies apartment owners more fairly.

Of course, similar selection (boundary) problems would arise with a special area property tax as with a special areas land tax.

For these reasons, an area based property tax is not a general answer to value capture. However, as with a selective land tax, there may be some cases where a special property tax would be appropriate.

2.5 Transaction (Turnover) Taxes

Transaction taxes are levied on property transfers in Australia and are an important source of revenue for the states via stamp duty on most property transactions and for the Commonwealth government via capital gains tax (CGT) on non-owner occupied dwellings. Where publicly funded infrastructure increases the value of private property, some of the investment will be recovered by these transaction taxes.

In principle, it would be possible to identify properties within the catchment of new infrastructure and to levy an **additional** stamp duty or CGT, subject of course to determining the effective catchment. However, there are strong reasons not to adopt such a form of value capture.

Stamp duty taxes are inefficient because they deter property transfers and tax capital investment and so have a high marginal excess burden (see Cao et al. 2015). They are also inequitable because they tax people who move more often and would not capture any value when properties are not transferred. In practical terms, it would be hard to identify an appropriate increase in stamp duty. And, as has been seen, it is very difficult to identify beneficiary catchment areas.

The CGT represents a more targeted form of value capture because it captures a portion of the increase in property values. Thus, any uplift in value arising from local infrastructure developments would be included in this new value.

However, as with stamp duty, it would be hard to identify beneficiary catchment areas for application of a higher CGT. Also, as a Commonwealth tax, it could realistically apply only to Commonwealth projects.

3 User Charges

3.1 Developer charges

Developer charges (or contributions) are payments made by a property developer to governments to contribute to the shared infrastructure and services in the area surrounding their development. The charges are generally levied as a one-off payment at a specific decision point of the planning approval process.

Resources are used efficiently when purchasers of a good (producers or final consumers) are charged the marginal cost of supplying the good. When prices are set higher than the relevant costs, goods are under-supplied. When prices are below the relevant costs, goods are over-supplied.

Developer charges do not inhibit development where developers can pass on the costs to another party, either to the landowner or the final home purchaser. On the other hand, they discourage inefficient development where households are not willing to pay for the full costs of housing.

Accordingly, where developer charges reflect the marginal cost of supplying urban infrastructure, the charges encourage developers to make efficient development decisions and provide an efficient amount and distribution of housing and commercial development. Average metropolitan-wide developer charges are less efficient. There will be excess development in some areas and too little in others.

In addition, developer charges are equitable. Figure 1 illustrates how house prices are determined and, by implication, who bears the cost of developer charges. In this figure, the market price for Q_0 new houses in a new release area is set by the demand for the new house. The price of \$750,000 is the *highest price* that the developer can obtain for a new house in this sub-market. The developer *cannot* simply raise this price because the cost of some input (or tax) has risen.

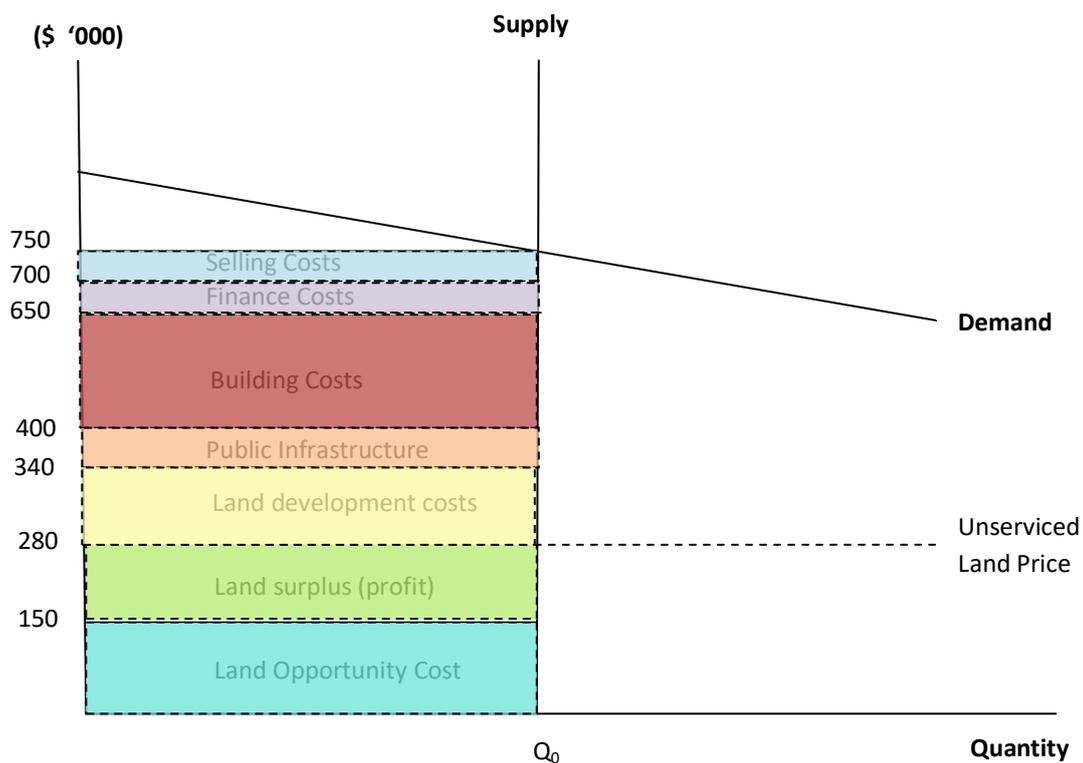


Figure 1 New houses: demand supply and price

This house price is the sum of seven main components:

- The opportunity cost of the land (its value in its highest alternative use, probably rural residential),
- The surplus land value accruing to the land owner (in excess of the opportunity cost),
- Land development costs borne by the developer,
- Public infrastructure costs passed on to the developer,
- Building costs,
- Finance costs,
- Selling costs.

When housing supply is fixed, variations in developer charges change the surplus land value for the landowner (who may be the developer in some cases). Developer charges do not affect any other input prices. Thus, developer charges do not affect the price of new houses unless they actually reduce the supply of new housing or increase the quality of infrastructure provided.

Of course, these conclusions assume that developer charges reflect reasonably accurately the costs of urban public infrastructure in different locations.

In practice, there can be problems in application of developer charges. There needs to be a nexus between the charges and the development costs. Developers often complain about a lack of nexus. Special problems arise when development requires lumpy infrastructure which may also service other areas. Also, it can be hard to identify marginal incremental costs when development occurs in established areas.

Accordingly, work is often required to ensure that developer charges are appropriate. However, the estimation issues are not particularly complex. These are practical problems to be resolved rather than reasons for not adopting an efficient and equitable pricing system.

In conclusion, although developer charges are cost recovery charges rather than value capture mechanisms per se, they achieve similar funding objectives and outcomes to value capture taxes albeit usually limited to provision of key utilities. However, this scale may be increased from basic utilities to include local roads, footpaths, green spaces and community centres.

Thus, cost-based developer charges remain one of the most efficient and fair forms of value capture in Australia. In general, they do not get passed through to final prices, despite the warnings of some prominent members of the property industry.

Of course, if developer charges exceed the costs of the infrastructure provided, they become a tax and further reduce value uplift. This is another, slightly different, form of value capture.

Such developer charges not linked to costs would be somewhat arbitrary and may discourage development. They would not be an efficient levy on value uplift (as it would not reflect value uplift) and this form of tax is not proposed here.

3.2 Consumer Charges

It is a basic theorem of economics that setting prices equal to the marginal costs of production encourages efficient supply and use of services. This is demonstrated in Figure 2. Here the marginal cost of supply of a good is assumed to be constant. The demand for the good increases as the price

falls. If someone is charged the marginal cost (price P_0) he or she will tend to purchase Q_0 units, which is the efficient level of supply (and use).

At a higher price of P_1 , there will be under-consumption of the good (at Q_1 units) and the net economic loss (the marginal excess burden or deadweight economic loss) is given by area A. This is the difference between consumer valuations of the good and the marginal cost of supply. At a lower price of P_2 there will be over-consumption of the good (at Q_2 units) and the net economic loss is given by area B (the excess of costs of supply over consumer valuations of the good).

Consumer charges are a basic form of value capture. When services are charged for, there is a reduction in value uplift. When services are subsidised or free, there is an increase in value uplift. Thus, if the aim is to capture some (or sometimes all) of the value provided, consumer charges are a major instrument. They are efficient and generally fair except when the users have a right (as a matter of social equity) to subsidised or free services.

This finding applies especially to provision of transport infrastructure, be it roads, buses, rail or whatever. Indeed, if users see that the value of the time saving exceeds the toll charged per trip on new infrastructure, there is often a willingness to pay rather than forego the infrastructure. For example, the Australian Trucking Association supported the NorthConnex, the proposed toll road under Pennant Hills Road in Sydney to connect the M1 in Wahroonga with the M2 in Pennant Hills.

There is therefore a strong case for consumer charges. They are efficient and fair and capture some, or even most, uplift value. Certainly, for social infrastructure, subsidies for all or some users, including free provision, may be considered appropriate. Also, user charges cannot be used for infrastructure with public good characteristics, namely where users are non-excludable. Nevertheless, application of consumer charges should be a primary consideration in value capture.

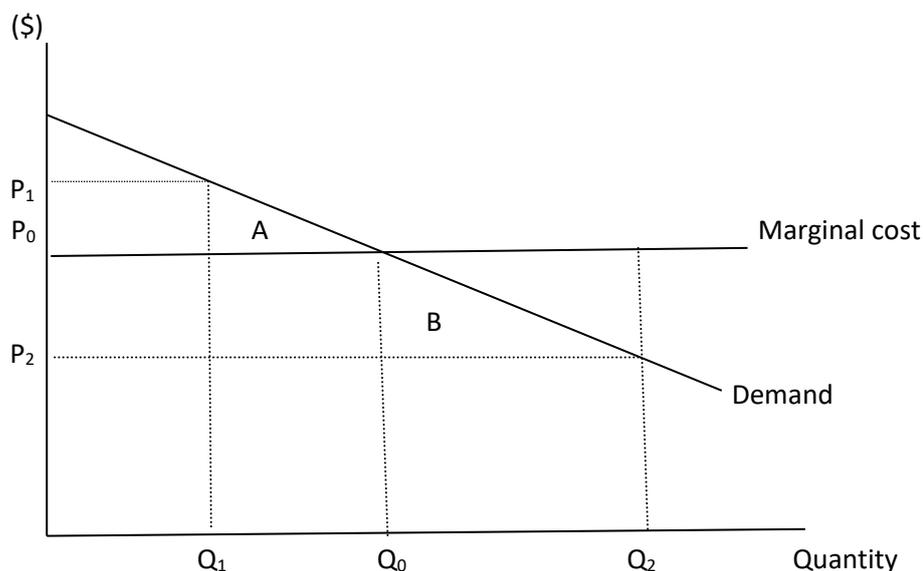


Figure 2 The benefit (deadweight loss avoided) of efficient pricing

3.3 Sale of Development Rights

The sale of development rights is another form of user charge and value capture. This may involve any, or all, of the following:

- (i) Sale of public land and air rights near or above an infrastructure investment
- (ii) Taxation of rezoning rights allowed to private parties
- (iii) The obligation and right to build and operate the infrastructure along with rights to land and air space in close proximity to the infrastructure (e.g. railway line and stations).

Option (i) is relatively straightforward and does not involve any special financial issues, though it may raise the question as to what is the efficient level of development density taking economic, social and environmental factors into account?

In fact, there are several Australian and international examples of infrastructure funding via a combination of (i), (ii) and (iii).

In Australia, an example is the payment made by industrial property company Goodman at the Eastern Creek employment hub near the M7 in Western Sydney. To unlock 160 hectares of its land and 250 hectares of land owned by others, Goodman funded a \$23 million four lane industrial road. Without this access, there could be no construction on the land – and no employment generated.⁵

In Hong Kong, the Metropolitan Transit Railway Corporation jointly develops its transit infrastructure with land development as part of its rail + property program.

In San Francisco, the Transbay Transit Centre is partly funded by private developers purchasing the right to develop nearby buildings higher than the usual limits.

In Oregon (USA), a private consortium was contracted to contribute \$US28.2 million to help fund the Cascade Station and light rail to Portland International Airport project, in return for an 85-year rent-free lease to develop 120 acres of land at Cascade Station.

In São Paulo (Brazil), the government raises funds for new urban infrastructure by auctioning tradable development certificates, being the right to develop residential sites near the proposed infrastructure.

This general approach has some key attractive efficiency and equity features. The approach:

- Is an active value capture strategy for the public benefit
- Provides funding or underwriting for funding **in advance** of the infrastructure being provided
- Reduces project risk.

There are again practical issues of identifying catchments and rezoning. However, the approach has the significant general advantage that it is based largely on voluntary ex-ante market exchanges of willing parties rather than on ex-post taxation.

⁵ Australian Government of Infrastructure and Regional Development (2016) is the source for these examples.

4 Conclusions

The most common meaning of Value Capture is the capture of part (or all) of the increases in property values which arise from investment in public infrastructure, especially though not only transport infrastructure. The paper discusses two types of value capture instruments: taxes and user charges.

Value capture taxes include a value uplift (betterment) tax, land and property taxes and transaction taxes that capture changes in property values.

Value capture user charges include consumer charges, sales of development rights and developer charges. These user charges also capture the value of infrastructure. In doing so, they often pre-empt increases in property values. They are nevertheless a form of value capture.

This paper finds that value capture user charges (especially consumer charges and sale of development rights) generally meet the policy objectives of efficiency, equity and practicality more effectively than do value capture taxes. They can also fund services that are financed initially by borrowing.

Application of consumer charges should be a primary consideration in value capture. Consumer charges are generally efficient and fair and capture value. However, user charges cannot be applied for infrastructure with public good characteristics, namely where users are non-excludable. And, for social infrastructure, subsidies for all or some users, including free provision, may be considered appropriate.

The sale of development rights, including sale of rights over public land and sale of rezoning rights, is a common international approach to value capture. The approach has the significant general advantage that it is based largely on voluntary ex-ante market exchanges of willing parties rather than on ex-post taxation. It is practical in some circumstances.

Developer charges that reflect the relevant infrastructure costs are efficient: they tend to ensure that development occurs where and when the benefits exceed the costs. They are also fair in that they tend to reduce the pure economic surplus of land owners rather than increase house prices. However, developer charges are essentially a cost-recovery instrument. They are not fundamentally an instrument of value capture.

Turning to value capture taxes, in principle a betterment tax on a significant proportion of value uplift is efficient and equitable. However, it is very hard to design a practical betterment tax and there is no one version of how a betterment tax would work or when it would apply. The tax would be based on valuations rather than on market transactions. But land values rise for many reasons and it is impossible to identify accurately the boundaries or the beneficiaries or the extent to which the beneficiaries receive value uplift. In practice, a betterment tax would often not be fair (or therefore readily accepted).

A general tax on the land value would be efficient and practical in that it does not involve locating the benefit on specific locations around new infrastructure or other public benefits more generally. However, as a vehicle for value capture, a broad land tax has two significant limitations. First, some current state land taxes are very limited. Turning these into a broad land tax will be a major reform

and most likely take years to implement. Second, a broad-based low land tax would capture only a small amount of the value uplift.

A selective land tax may be feasible and appropriate when either (a) there is a clear area of beneficiaries or (b) a supplementary land tax can be levied over a large area for a limited time to help finance a major urban infrastructure project. However, the tax needs to be targeted accurately as beneficiaries and perceived to be fair (non-discriminatory). If the revenue collected is not significant, this may not be perceived to be a worthwhile levy.

Given the existence of land taxes generally, introduction of a broad-based property tax would be complex and problematic in the immediate future and is not considered a practical value capture option.

There is a stronger case for a special area property tax to reflect the benefits of new infrastructure. Property values may better reflect the relative benefits of infrastructure development than do land values. And a small, time-limited, levy on property values would have little impact on property

However, similar selection (boundary) problems would arise with a special area property tax as with a special area land tax. Accordingly, an area based property tax is not a general answer to value capture. As with a selective land tax, there may be some cases where a special property tax would be appropriate.

Transaction taxes capture some value uplift but are not recommended. Stamp duty taxes deter property transfers and tax capital investment and so have a high marginal excess burden. They are also inequitable because they tax people who move more often and would not capture any value when properties are not transferred. In practical terms, it would be hard to identify an appropriate increase in stamp duty. And, again, it is very difficult to identify beneficiary catchment areas.

The CGT represents a more targeted form of value capture because it captures a portion of the increase in property values. However, as with stamp duty, it would be hard to identify an appropriate increase in the CGT and beneficiary catchment areas. Also, as a Commonwealth tax, it could apply only to Commonwealth projects.

In summary, this paper finds that all three main forms of user charges (consumer and developer charges and sale of development rights) meet policy objectives of efficiency and equity and are practical value capture instruments. Special area land and property taxes may be appropriate but only in limited cases. Pure betterment taxes (on land value uplift) are not practical.

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Annex A Some Major Reports and Comments

Australian Department of Infrastructure and Regional Development, November 2016, *Using Value Capture to help Deliver Major Land Transport Infrastructure.*

The report aims to solicit views rather than report findings.

Infrastructure Australia, December 2016, *Capturing Value, Advice on Making Value Capture Work in Australia*, Infrastructure Australia, Sydney.

The report concludes that value capture is a worthwhile source of infrastructure funding and should be routinely considered in project development processes.

However, there are many hurdles, risks and sensitivities and value capture tax has rarely been used in Australia. Estimating value uplift due to new transport infrastructure is complex.

The report also finds that user charges are generally more practical and appropriate. Also, a broad land tax would achieve many project-specific issues in the long run.

Terrill, M., March 2017, *What Price Value Capture?* Grattan Institute, Melbourne

In theory, a tax on increases in land values would be “marvellously fair”. However, it is impractical because land values rise for many reasons and it is impossible to identify boundaries and beneficiaries, so in practice it would not be fair (or readily accepted).

“As a result, state governments should generally avoid value capture taxes because better, fairer and simpler taxes are available to them”. This includes a broad-based, low-rate land tax.

Governments can also sell public land or sell new development rights from rezoning.

Ernst and Young, October 2016, *Value Capture: Options, Challenges and Opportunities for Victoria, Advice to Infrastructure Victoria*

This analysis implies that developer charges are both equitable and efficient. In general, developer charges are effectively a levy on land values and landowners, who are generally able to bear these costs. Developer charges do not increase house prices or reduce housing affordability except in some parts of Sydney where the demand for housing is relatively low and they lead to a smaller increase in the supply of housing.

Annex B Further Examples of Value Uplift and Value Capture Instruments

Examples of value uplift

Many studies have shown investment in transport infrastructure increase local property values. The Australian Bureau of Infrastructure, Transport and Regional Economics (2015) surveyed the changes in land value for 74 projects. It found that heavy rail, light rail and bus rapid transit investments lead to an average uplift in property prices of 6.9%, 9.5% and 9.7% respectively.

Citing various references, the Australian Department of Infrastructure and Regional Development (2016, pp.6-8) reports that Melbourne City Link raised land values by many billion dollars. Further, analysis of industrial land values in the catchments of the M1 Motorway (Brisbane), EastLink (Melbourne) and the M7 Motorway (Sydney) suggests an annual growth rate premium of 2% to 6% for land in surrounding areas, and that the total incremental land value uplifts from when the routes were identified to the start of operations was between 21% and 49%. In the case of the M1 Motorway in Brisbane, average annual growth in industrial land values during the planning, construction and delivery of the Gateway Upgrade Project between 2003 and 2010 was 22%, compared to the industrial market average of 16%.

The report also cites international work by the Royal Institute of Chartered Surveyors summarised around 150 studies of the effect on land values of rail public transport in Europe and the US, and found a trend of positive impact on the value of commercial and residential property.

Further Examples of Value Capture Instruments

The following are some examples of value capture instruments in addition to the sale of development rights examples cited in section 3.3.

The Australian Department of Infrastructure and Regional Development (DIRD, 2016, p.14) cites various examples in Australia. These include: joint development models around railway stations in Sydney and Melbourne, the Gold Coast Council special land rate levy on all landowners to help fund the rapid transit infrastructure, and the Metropolitan Regional Improvement Tax (a tax on property values over \$300,000) to fund public facilities in Greater Perth.

DIRD (2016, p. 11) cites various international examples. For example, value capture mechanisms contributed 32% towards the total cost of the Crossrail project in London and 14% to the Dulles Metro-rail Silver Line Expansion in Washington DC.

The Denver Union Station was financed by a special purpose borrowing entity established to support the leveraging of value capture revenues. Borrowing was raised from central government loan programs, as well as privately. To repay the loans, the regional public transit authority raised a sales and use tax and the Development Authority leveraged uplift in property based local taxes.

User charges were deployed on the High Speed One (HS1) rail connection between London's St Pancras Station and the Channel Tunnel. Fares are 20-30% higher than mainline fares for the same journey. A year after the launch of the new services, patronage had significantly increased and 16% of journeys were made by passengers who had not used the train before.

Bogota (Columbia) has a long-standing value betterment levy system to fund main roads and other transport projects.