

PRICE REGULATION APPROACHES FOR AGED CARE

A Report for the Royal Commission into
Aged Care Quality and Safety

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TABLE OF CONTENTS

KEY MESSAGES	4
1. INTRODUCTION	6
1.1 The Task	6
1.2 What is price regulation?.....	6
1.3 The Structure of this Report	7
2. PRICE REGULATION IN AGED CARE	7
2.1 Residential Aged Care.....	10
2.2 Non-Residential Aged Care	14
2.3 Summary.....	17
3. PRICE REGULATION: THEORY AND PRACTICE...	18
3.1 Rate of Return Regulation	20
3.2 Price Cap Regulation.....	21
3.3 Benchmarking	22
3.4 Price Regulation and Quality.....	23
3.5 Price Regulation and Multiple Services	23
3.6 Price Regulation in Practice	24
Measuring and assessing costs under price cap regulation	24

Setting prices under rate of return regulation.....	26
Determining efficient costs and prices under benchmarking	27
Service quality	30
Transition to price regulation	31
3.7 Summary.....	33
4. PRICE REGULATION OF AGED CARE	36
4.1 Rate of return regulation.....	37
4.2 Price Cap Regulation.....	43
4.3 Benchmarking	45
4.4 Summary.....	48
5. INTERNATIONAL EXPERIENCE	50
5.1 Switzerland	50
5.2 United States	53
5.3 Summary.....	54
6. CONCLUDING REMARKS.....	55
REFERENCES	56

KEY MESSAGES

- *Price regulation entails the setting of maximum prices for individual services based on efficient costs.*
- *The characteristics of the Home Support and Home Care programs do not lend themselves to price regulation.*
- *Home Support is funded through grants and individuals do not face cost reflective prices. Home Care funding is allocated to individuals rather than providers, and there is scope for competition to drive the costs of the services to efficient levels. Competition-style regulation, aimed at reducing information asymmetries and making it easier for individuals to switch providers, may increase the effectiveness of competition for home care services. Reducing regulatory barriers to entry may also increase the effectiveness of competition. Competition regulation, however, has limits. When providers have considerable market power and entry is restricted, as in the case of residential aged care, there may be a potential role for price regulation.*
- *Under some circumstances, competition within the Home Care program may simply not be feasible. For example, the demand for particular services or in specific areas may not be sufficient to support more than one provider. In these instances, a standard market design prescription is to have competition for the market, rather than price regulation.*
- *The potential gains from setting prices based on efficient costs are the largest in the residential aged care sector. Residential care receives the largest amount of government subsidies and attracts the largest quantum of customer contributions (including in the form of accommodation bonds) in the aged care system.*
- *The scope for competition in residential aged care is limited due to local monopoly characteristics, the costs of switching to another facility, the information gap between providers and users of aged care services, and the often difficult circumstances under which decisions to enter into residential aged care are made.*
- *The capitated prices of residential aged care services (adjusted for the level of disability) **and 'hotel' services are** already currently determined by the government. If these maximum prices are set instead by an independent regulator, based on efficient costs, providers would face increased incentives to pursue cost and process innovation. However, price regulation, if not well-designed, may have a negative impact on quality and product innovation, and affect the financial position of the providers. This could lead to the exit of non-government providers.*
- *Under price regulation, the government sets the level of subsidies to pursue its objective of achieving equity of access given its budgetary constraints. If subsidies are such that residents are not excluded from services at the regulated price due to a lack of capacity to pay, then the amount of the subsidies will **not interfere with the providers' ability to recover efficient costs.***

- *There does not seem to be a case to regulate accommodation prices. It is unclear that providers can exercise market power in setting accommodation prices when there is excess capacity. Moreover, the government has a number of levers that it can use to drive an increase in the supply of accommodation. Importantly, once a resident chooses a residential aged care facility, the facility has a greater ability to exercise market power in **setting prices for care and 'hotel' services** given the practical difficulties associated with residents switching facilities. Therefore, the focus ought to be on setting regulated prices **for care and 'hotel' services**.*
- *Neither rate of return nor price cap regulation would be appropriate to adopt to set regulated prices for residential aged care services. Both types of price regulation are too costly and intrusive to be applied to set prices for 873 different providers. A regulatory process that sets a nationally **uniform efficient price for each level of care and 'hotel' services**, accounting for genuine differences in costs and accounting for quality, seems the only feasible alternative to implement price regulation in the sector.*
- *The AN-ACC classification and funding model may be a possible starting point, as it defines inputs (cost drivers) and relevant outputs (levels of care), with a similar exercise to be **undertaken for 'hotel' services**. **Setting up a regulatory regime, however**, goes considerably beyond defining a national weighted activity unit (NWAU), or using benchmarking to determine an efficient price for the NWAU.*
- *Crucially, the design of the price regulation regime involves several choices. For example, it includes the choice of the regulatory period (e.g., annual reviews) and the mechanics of the process (as in Figure 3). The determination of the methodology – how efficiency will be measured – is also an important step. Another important step is the choice of the range of mechanisms that complement high power incentives – aimed at reducing costs - with financial incentives (and the associated system of audits and accreditation) to meet well-defined and measurable quality of service standards. Particular attention needs to be given to ensuring a smooth transition and avoiding the exit of providers.*
- *A simple mechanism to achieve quality and financial sustainability would involve adding an uplift to the national efficient price (e.g., 10%) subject to the achievement of well-defined quality standards. Under this mechanism, a provider could be penalised for not achieving the quality standards by losing the uplift. Depending on the level of the quality breach, the provider could be further penalised (e.g., by receiving 95% of the efficient price). Clearly, careful modelling is required to determine the details of such a mechanism, including ensuring that entry into the sector can occur as a response to higher regulated prices.*

1. INTRODUCTION

1.1 THE TASK

I have been engaged by the Royal Commission into Aged Care Quality and Safety to prepare a report on price regulation approaches for aged care. In this report, I provide a high-level review of possible price regulation regimes and how they may apply to **Australia's aged care services**. I also provide a brief discussion of the role of price regulation in aged care funding systems in other countries that have common elements to the Australian system and review existing empirical evidence on the performance of the different regulatory regimes.

1.2 WHAT IS PRICE REGULATION?

For the purpose of this report, I define price regulation as the setting of maximum prices by an independent (from the government) economic regulator based on efficient costs. There are two requirements that need to be met for costs to be efficient. First, goods and services need to be produced at least cost (technical or productive efficiency). Second, firms must modify their technology and products in a timely manner to respond to changes in consumer preferences and in production processes (dynamic efficiency).

When prices reflect efficient costs, resources used to produce goods or services are allocated to their highest value uses, providing the greatest benefit relative to costs (allocative efficiency). In setting prices based on efficient costs, regulators attempt to mimic the outcomes, but of course not the workings, of a market where competition is effective.

There are good reasons to strive for effective competition. It increases allocative efficiency because firms that can use resources more productively bid those resources away from firms that are less productive. Effective competition can also enhance technical efficiency by incentivising firms, for example, to improve work practices and managerial performance, and to make more productive use of other inputs. Firms are also incentivised to pursue dynamic efficiency when competition is effective. To remain competitive, firms need to undertake research and development, pursue process, cost and product innovation, and adapt or change management structures and strategies.

In contrast to regulated prices set based on efficient costs, the disability-adjusted capitated prices, which **are prevalent in Australia's aged care regulatory and payments framework**, are

determined by the Department of Health with a broader set of objectives. These include protecting taxpayers from significant increases in budgetary expenses. An independent price regulation process would allow the government to dissociate the funding decision on the level of subsidies (and equity considerations) from the determination of consumer prices that ought to reflect the efficient costs of the services being provided.

1.3 THE STRUCTURE OF THIS REPORT

The starting point is the identification, in Section 2, of the role that price regulation, as described above, may play in the aged care sector. This requires an understanding of the interplay between existing price controls, funding, supply constraints, and competition in the current system.

In Section 3, I consider possible regulatory regimes and their strengths and weaknesses, in both conceptual (e.g., the embedded economic incentives and expected outcomes) and practical terms (e.g., implementation issues and information requirements).

Having established the broad characteristics of each price regulation regime, Section 4 examines, at a high level, the appropriateness and practical challenges in setting prices for aged care services. This involves consideration of how asset values could be determined, how the prices of individual services could be set, how the maximum allowable revenue could be translated into a price, and, crucially, how each regulatory regime could account for quality.

To shed additional light on how different price regulation regimes may work in aged care, Section 5 reviews the limited empirical evidence that examines the experience of other developed countries that share some common characteristics with the Australian system. This limited empirical evidence helps to inform the assessment of how alternative price regulation regimes may work in the context of the Australian aged care system. Section 6 contains my main conclusions.

2. PRICE REGULATION IN AGED CARE

The Australian Government is involved in all aspects of the provision of aged care services. The regulatory and funding framework that governs this provision encompasses the subsidies and supplements that the government pays to providers, funding that is allocated to individuals for home care, maximum fees that providers can charge individuals, and the conditions that must be met for funding to be provided. Such conditions include the

assessment of who is eligible to receive care, the number of individuals who can receive care through the system, the providers who can offer the services and the quality of the services.

It is widely understood that such a framework is complex, entails a heavy regulatory burden, **imposes constraints on individuals' choices**, and, to a great extent, shapes the structure of **the markets for aged care services**. **The framework impacts providers' entry/exit decisions** and affects how they respond to changes in demand, as well as to broader changes in market conditions.

The complexity of the framework and its impact on choice and innovation have been common themes across the many reviews of the Australian aged care system that occurred over the last few decades. As I note in Section 5, complexity is a feature of most, if not all, aged care systems in developed countries that also aim to achieve sound levels of equity in terms of access to and quality of care.

In this section, I canvass the role that a price regulation regime may play under existing arrangements. To be clear, while price controls are already pervasive in a system where disability-adjusted payments to providers are capitated, I focus on formal regulatory processes for price determination as defined in Section 1.2 above. To identify where price regulation may be desirable, one needs to understand the interplay between price controls, funding, supply constraints, and competition in the current system.

Rather than presenting a complete description of **Australia's aged care** system, which is available elsewhere,¹ the focus here is on the characteristics of the system that will assist in identifying where price regulation may improve societal outcomes. Figure 1 below provides a summary of some of the key features of the funding and payment arrangements that are directly relevant to the task at hand.

Figure 1 highlights that residential care receives the largest amount of government subsidies and attracts the largest quantum of customer contributions (including in the form of accommodation bonds) in the aged care system.

¹ See, for example, Royal Commission into Aged Care Quality and Safety (2019).

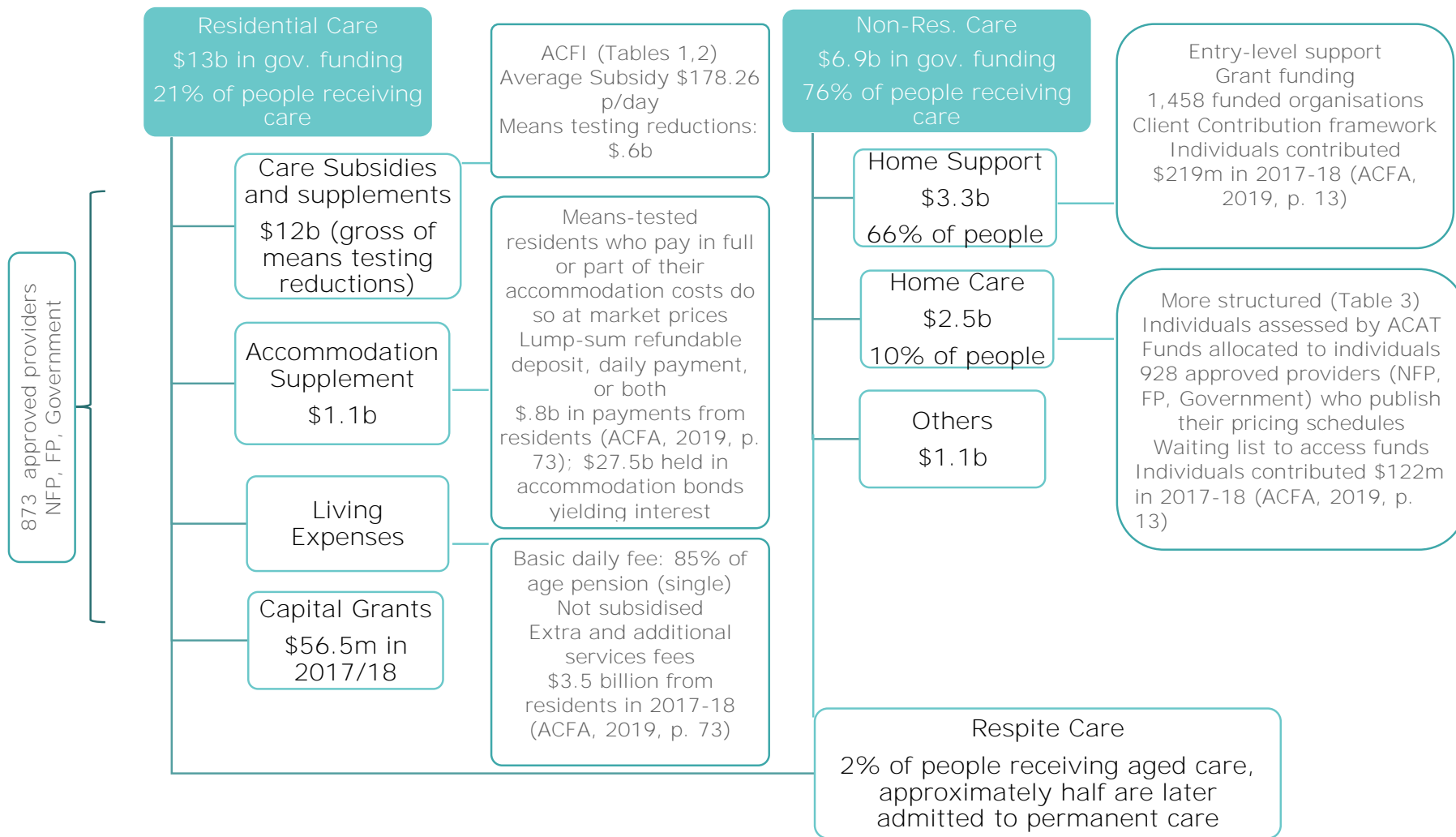


Figure 1: A snapshot of some key funding and payment arrangements for aged care; 2018-19 FY. Source: Department of Health.

2.1 RESIDENTIAL AGED CARE

Most of the budgetary expenses on residential aged care relate to care subsidies and supplements. They accounted for approximately \$12b in 2018-2019 FY, or around 60% of direct federal government expenditure on aged care, covering around 21% of individuals receiving aged care.

Care subsidies and supplements are allocated to providers on behalf of the residents for whom they care. The eligibility of residents to receive a subsidy and the amount of that subsidy depend on the level of care required by the resident and their financial situation. The Aged Care Funding Instrument (ACFI) is used to determine the actual level of care required by residents (Table 1) and thus the maximum subsidy that they are to receive (Table 2).

TABLE 1

ACFI DOMAINS AND THEIR CHARACTERISTICS

Domain	Characteristics
Activities of Daily Living (ADL)	Nutrition
	Mobility
	Personal hygiene
	Toileting
	Continence
Behaviour (BEH)	Cognitive skills
	Wandering
	Verbal behaviour
	Physical behaviour
	Depression
Complex Health Care (CHC)	Medication
	Complex health care

As described in Table 2 below, the subsidy is means-tested. Providers can recover any means-tested reduction in the subsidy from residents, and therefore the subsidy is effectively the

maximum fee that a resident may be levied. The amount recovered by providers from residents in FY 2018-2019 was approximately \$.6b.

TABLE 2

DAILY ACFI SUBSIDY RATES (\$) (FY 2019-20)
Covid-19 Supplements in bold

Level	ADL	BEH	CHC
Nil	0.00	0.00	0.00
	0.00	0.00	0.00
Low	37.68	8.61	16.71
	0.46	0.11	0.21
Medium	82.05	17.85	47.61
	1.01	0.22	0.59
High	113.67	37.21	68.74
	1.40	0.46	0.85

Means-tested fees are calculated based on incomes and assets.
Annual cap: \$28,087.41.
Lifetime cap: \$67,409.85.

In addition to subsidising residents' care costs, the government allows providers to charge a basic daily care fee as a contribution towards living expenses such as meals, laundry services, utilities, and toiletries. While the level of the fee may be negotiated between residents and providers, it may not exceed 85 per cent of the annual single basic aged pension. There are also unregulated extra and additional service fees. Providers collected approximately \$3.3b from residents in basic daily fees and \$.2b in extra and additional services fees in 2017-2018 FY. (ACFA, 2019, p. 73)

In addition to fees covering care costs and living expenses, the government also allows providers to charge for the cost of residents' accommodation and subsidises some residents through the Accommodation Supplement. The amount of the subsidy is means-tested. Residents who pay all or part of their accommodation costs do so at market prices, with providers publishing their prices online.

Residents' contributions towards their accommodation costs can take the form of a daily accommodation payment/contribution, an accommodation bond, or a combination of both. The accommodation payment/contribution is disbursed in lieu of an accommodation bond and is calculated based on the retention amount and interest payments forgone. The government sets the maximum permissible interest rate and the maximum refundable accommodation deposit that can be charged without prior approval from the Aged Care Pricing Commissioner (currently \$550,000). The average value of the refundable deposits held by providers was \$303,000 in 2017-18 FY (ACFA, 2019, p. 90).

Accommodation payments, consisting of accommodation supplements paid by the government (approximately \$1b) and daily accommodation payments/contributions paid by residents (approximately \$.8b), accounted for 10.2 per cent of total provider revenue in 2017-18 FY (ACFA, 2019, p. 73). There are currently \$27.5b held in accommodation bonds.

In summary, the government intervenes in all areas of the residential aged care sector. The interventions are complex and the net effects on individuals, providers and market outcomes are difficult, if not impossible, to determine precisely. Here, instead, the focus is on interventions that take the form of price ceilings as described above. These include care payments and living expenses, and to a lesser extent the accommodation payment.

The capitated prices are set administratively by the Department of Health rather than through an independent regulatory process. In setting ceiling prices, the Department balances the interest of consumers and the financial viability of providers with the need to protect taxpayers who fund a large share of residential aged care services. In contrast, an independent price regulation process would allow the government to dissociate the funding decision (and equity considerations) from the determination of consumer prices that should reflect the efficient costs of the services being provided.

Attempts to promote the role of competition in the provision of services can be seen from the perspective of separating the role of the government as a funder from a price maker. The effect of competition is illustrated by the reforms that saw unsupported residents facing market prices for accommodation. Despite this example, the role of competition under the current arrangements is limited. While unsupported residents do face market prices for accommodation, the government retains a large role in shaping supply. For example, the government determines the form that payments can take, accreditation and quality of care regulation, the number of supported places, and sets care and living expenses capitated prices.

Importantly, the role of competition in promoting socially desirable outcomes is unclear. The reason is that market power is a structural characteristic of residential aged care markets.

Market power refers to the ability of a provider to sustainably raise prices above the level that would prevail under effective competition. It arises in the context of residential aged care for

several reasons. One such reason is that location matters for residents in their choice of residential aged care facility. They may want to stay close to family, friends, and familiar environments. However, the number of providers in each location is limited by regulation instead of being driven by demand or competition. This limits the ability of residents to choose between providers and gives rise to market power associated with local (geographic) monopoly. Switching costs and information gaps pose additional limits to effective competition. Once a resident enters residential care, the costs of transferring to another facility (switching costs) limit competition. Market power also arises from the significant information gap between providers and users of aged care services and the circumstances under which decisions are made. Switching costs and information gaps could in principle be addressed by competition regulation (e.g., information requirements, codes of conduct, and standard contract terms to facilitate exit) rather than price regulation.

However, in the case of residential aged care services, competition regulation is unlikely to fully mitigate market power given the importance of location and the difficult circumstances under which a choice of provider is often made, as evidence provided by the Royal Commission (2019a, p. 112) suggests:

'In some instances, older people can end up in an unsuitable location or non-preferred facility because there are no places available elsewhere at the time. Decisions are often made in haste due to the urgency of their health and care needs, or because people find they do not have the finances to move to their desired location.'

The relationship between competition for residents and quality of care is also an important consideration in determining the role that price regulation may play. Given the changes in the ACFI in 2016 and 2017, and the pause in ACFI indexation in 2017-18, the financial performance of providers has deteriorated (ACFA, 2019a, p. 2). Under these circumstances, providers have little incentive to compete through better quality of service. Moreover, as explained above, vertical (i.e., tiered levels of care) and horizontal (i.e., geographic) product differentiation, alongside government certification of providers, restrict entry and investment decisions, further limiting competition.

By adding quality to a simple model of competition, White (1972) shows that the quality per unit that will be provided by a competitive industry subject to price regulation will be dependent on the price set by the regulator. The higher the price, the higher the quality per unit. In contrast, if competition were feasible and price regulation unnecessary, consumers would have access to more options through higher variety. Thus, whether increases in capitated prices or competition increase social welfare is theoretically ambiguous, as it depends on regulated price levels and the feasibility of competition. This is ultimately an empirical question (Gaynor, 2006).

Section 5 provides international empirical evidence that suggests that increasing regulated prices leads to better quality than promoting competition in the aged cared sector. Price

regulation allows setting prices that reflect efficient costs (including an appropriate return on capital and depreciation), and that may induce higher quality of output than further attempts to promote competition when additional competition is unlikely to be feasible.

It follows that for residential aged care, price regulation, as a replacement for the existing capitated prices, may be a preferred mechanism for promoting prices that reflect efficient costs than additional competition (if it could be engineered) or competition regulation. The discussion above highlighted two key objectives of price regulation in residential aged care: (i) to promote the efficient provision of and investment in residential aged care services; and (ii) to ensure that services provided meet some guaranteed standards. Achieving the second objective requires well-defined, measurable quality standards.

Section 4 discusses how price regulation may work in practice for residential aged care. Regardless of the approach, price regulation entails a separation of the determination of the efficient costs (and associated prices) to provide the services and the quantum of the subsidy allocated by the government.

2.2 NON-RESIDENTIAL AGED CARE

As shown in Figure 1, non-residential aged care accounts for \$6.9b of government expenditures on aged care. The two largest programs, Home Support and Home Care, account for 60 per cent and 10 per cent, respectively, of individuals receiving government funded aged care.

Home Support funds a range of entry-level services such as meals, transport, domestic assistance, and personal care. Services are provided through 1,458 organisations (government, non-government, and not-for-profit) to individuals who have been assessed by the Regional Assessment Service.

The program is funded by the government through grants. Under **the Government's Client Contribution Framework**, individuals receiving care can be asked to make a financial contribution based on their income. The contributions from recipients of care amounted to \$219m in FY 2017-18 (ACFA, 2019, p. 13), representing less than 10 per cent of disbursed grants.

Given how the Home Support program is structured, there is no scope for price regulation. Unless funding becomes based on activity levels (that is, the number of individuals who have received services and the mix of services), setting individual regulated prices for each service makes little sense.

Home Care is a government program that subsidises packages of services to support older Australians who want to remain living independently in their own home. Packages may include personal care, support and clinical services, and a range of other services.

Individuals are assessed by the Aged Care Assessment Team. When eligible, they are placed on the National Prioritisation System (a queue) and offered a package when one becomes available. As shown in Table 3 below, there are four levels of care. Supplements are paid to recipients to cover the costs associated with a range of specific situations (e.g., oxygen, enteral feeding, and dementia). Table 3 also reports current waiting lists for the different package levels, including the interim package (allocated at a lower level of care than what has been assessed) and the approved package.

Individuals can be asked to pay a contribution towards their home care costs. This includes a basic daily fee, capped at 17.5% of the single rate of the basic aged pension, and an income-tested care fee, as shown in Table 3. The basic daily fee and income-tested care fee do not change according to the level of the package, which implies that individuals with the same income make a proportionally higher contribution towards their care costs the lower is the level of their home care package. Total contributions from individuals amounted to \$122m in FY 2017-18 (ACFA, 2019, p. 13), compared to a government funding of \$2 billion in the same time period. The long waiting times for packages suggests that there is currently excess demand for home care services.

Unlike other aged care programs, funding under the Home Care program is allocated to the individual receiving care rather than to the provider.² Additionally, it is a requirement that providers publish their pricing schedules. These arrangements are presumably designed to allow individuals to choose their preferred providers. Of course, whether individuals can exercise their choices and benefit from these arrangements depends on whether competition for home care services is effective.

The nature of competition in the market for home care services is different from that in the market for residential aged care services. First, as home services are centred around **participants' homes, the geographical location of the market** is likely to in most cases include several different providers, whereas residential aged care providers have a much higher degree of horizontal (geographic) monopoly power.

Second, one can think of home care **providers as competing for individuals' budgets (the sum of the home care package and the maximum fees that providers can charge based on income)**. In this case, individuals do not necessarily face cost-reflective prices for individual services, although under effective competition the prices of the bundle of services should reflect the

² I note that this allocation may create incentives to choose inefficient levels of care so as to expend the entire budget. In this instance, it may be desirable to allow individuals to carry a fraction of any unspent moneys forward.

efficient costs of provision.³ In residential aged care, residents face individual prices for accommodation and capitated, disability-adjusted prices for care and living expenses.

TABLE 3

*Home Care Daily Subsidy Rate (\$) (FY 2019-20)
and Covid-19 Supplements in bold
Estimated waiting times (as of 29.02.2020)*

Level	Daily Rate	Interim Package	Time to 1 st Package	Time to approved Package
1	24.07 0.29	Level 1	3-6 Months	3-6 Months
2	42.35 0.51	Level 1	3-6 Months	12+ Months
3	92.16 1.11	Level 1	3-6 Months	12+ Months
4	139.70 1.68	Level 2	12+ Months	12+ Months

Income-tested capped fees: \$15.42 daily (\$5,617.47 annually) for incomes between \$27,736.80 and \$53,627.60, and \$30.86 daily (or \$11,234.96 annually) for incomes higher than and \$53,627.60. Lifetime cap: \$67,409.85.

Given the existing funding arrangements described above, competition, rather than price regulation, may be best able to drive providers to pursue cost efficiency. Whether competition is effective in broadly equalling **individuals'** total budgets to the efficient costs of providing the services is an empirical question beyond the scope of this report.⁴ I note, however, the decline in the financial performance of home care providers in FY 2017-2018, which followed the introduction of packages allocated to consumers rather than providers.⁵ This decline suggests that providers may lack significant market power, which is one of the conditions for effective competition.

Moreover, introducing price regulation for individual services under the current arrangements, where individuals are allocated budgets, may have a negative impact on competition. For example, if regulated prices are set too low, even efficient providers may leave the market.

³ Moreover, in deciding the values associated with each level of care, the government may have regard to the efficient costs of providing various services.

⁴ An assessment of competition typically involves an examination of prices, **consumers' switching** rates, barriers to entry, market concentration, and actual entry and exit.

⁵ ACFA (2019a, pp. 10-11)

On the other extreme, if regulated prices are too high, they may act as a coordination device for providers. Instead, standard competition regulation prescriptions may be used to promote effective competition, such as ensuring that there are no unnecessary regulatory barriers to entry⁶ and addressing information asymmetries between providers and individuals (e.g., by providing standard terms and conditions for home care contracts and making it easier for individuals to switch providers). There may also be a case to remove the fee caps in order to promote entry.

The role of competition regulation is to ensure that competition is effective in ensuring that prices reflect efficient costs. Competition regulation, however, has limits. When providers have considerable market power and entry is restricted, as in the case of residential aged care, there may be a potential role for price regulation.

Finally, under some circumstances, effective competition within the Home Care program may simply not be feasible. For example, the demand for particular services or in specific areas may not be sufficient to support more than one provider. In these instances, a standard market design prescription is to have competition for the market, rather than price regulation.

2.3 SUMMARY

The analysis in this Section suggests that price regulation may improve outcomes in residential aged care, given the limited capacity for competition to result in prices that reflect the efficient costs of providing the services. Under a price regulation approach the government would set the level of subsidies independently from the regulated prices that residents would face.

In contrast, the structure of the funding for Home Support and Home Care limits the role for price regulation. For Home Support, government funding takes the form of grants to providers who can charge fees from individuals based on their income, not on the cost of supplying the services. Unless funding becomes activity based, there is no scope for setting prices for individual services.

For Home Care, government funding takes the form of a fixed budget, which depends on the level of care required. Funding is allocated to individuals, not providers. If competition is effective, then there is scope for competition by providers, rather than price regulation, to drive the costs of the services to efficient levels. Competition-style regulation, aimed at reducing information asymmetries and making it easier for individuals to switch providers, can increase the effectiveness of competition. I note that competition is not unfettered. By

⁶ For example, services such as gardening and cleaning, which are currently supplied through Home Care providers, could perhaps be procured more broadly subject to accreditation requirements.

determining the funding associated with each level of care, and by capping fees, the government can rein in excessive industry costs.

For residential aged care, price regulation has two key roles: (i) to promote the efficient provision of and investment in residential aged care services; and (ii) to ensure that services provided meet some guaranteed standards. Price regulation interacts with competition for residents in complex ways. In particular, the design of price regulation needs to pay attention to the incentives for providers to enter the market and to compete for residents through better quality of care.

Price regulation of residential aged care services can also have an impact on the demand for home care, especially at the highest level of care. For example, if regulated prices for residential aged care are too high (or the subsidies too low), individuals may stay in home care longer than what is desirable due to affordability. In a similar vein, if regulated prices are too low and residential aged care providers are not incentivised to offer better quality, or if they exit the market, individuals may have no choice but to stay in home care for longer.

In Section 4, I discuss at a high level how price regulation may be applied for residential aged care services. This includes consideration of how price regulation will be applied. For example, whether price regulation is applied at the service level and is the same for all providers (adjusting for specific factors) across the country, or whether price regulation applies at the provider's level. It also includes consideration of the format that regulation can take. For example, prices could be set to cover operating costs retrospectively (with mechanisms for recouping losses or returning surpluses to residents), or it could involve a forward-looking exercise estimating the efficient costs of providing the service. Alternatively, prices for services could be set relative to national benchmarks accounting for economies of scale, location and disability levels. Next, I turn my attention to the different forms that price regulation can take, their weaknesses and strengths, and information requirements.

3. PRICE REGULATION: THEORY AND PRACTICE

In this section, I introduce the different forms of price regulation by means of an abstract example where a monopolist – or a provider with significant market power – supplies a single, homogenous service. Later I consider the implications when there is more than one service and services are not homogenous (which means that quality matters).

The provider needs to incur both fixed and variable costs to supply the service. Fixed costs do not vary with the number of consumers served and may include purpose-built facilities and the long-term lease or purchase of specialised equipment. Variable costs change with the

number of consumers served and may include labour and consumables. A regulator sets the price that the supplier can charge consumers for the service.

The regulator aims to set an efficient price for the service. In the absence of fixed costs, the efficient price is equal to the marginal cost (i.e., the incremental cost of providing one additional unit of the service) associated with the least costly technology. This price is efficient as it reflects the best societal use for the resources. Consumption will occur at the efficient price only when the value of the service to the consumer is greater than or equal to the cost of the service being provided.

Here I consider that the value of the service is the same across individuals, and any gap between the ability to pay for the service and the value of the service to the consumer at the efficient price is covered through a government subsidy. This is a simplification, as for some services (e.g., some non-essential services) setting prices closer to the ability to pay may enhance efficiency.

In the presence of fixed costs, marginal cost pricing does not allow the provider to recover its fixed costs. In this instance, average cost pricing is the least uniform price (that is, all consumers pay the same price for the same service received) that allows the provider to recover its costs. For average cost pricing **to be efficient, the provider's costs must be efficient.** This requires the service to be provided by using the most efficient combination of inputs – the least costly combination of inputs, which are all assumed to be variable (including capital), to produce a unit of output, considering the demand for the services.

In practice, regulators setting prices based on efficient costs face the problem of information asymmetry. The regulator knows less than the supplier about the costs of providing the service. A price that allows the firm to recover its costs (either actual or expected) will lead to inefficient outcomes if allowed costs are not efficient in the first place.

The problem faced by a regulator who has limited information about the efficient costs of providing a service can be illustrated by assuming that these costs can be either high or low. The difficulty arises when the regulator asks the provider, who has the better information, about the efficient costs of providing the service to consumers. Even if efficient costs are low, the provider has an incentive to suggest that costs are high. By doing so, the provider may secure a higher regulated price, hence a higher profit or surplus that can be used to support other unrelated activities. This phenomenon is known in economics as the *adverse selection* (hidden information) problem.

Different price regulation mechanisms address this information asymmetry problem differently and, as we see next, they create different incentives for providers to pursue cost efficiency.⁷

3.1 RATE OF RETURN REGULATION

A regulator operating under rate of return regulation sets the regulated price (or resets it) to allow the provider to recover costs that have been incurred. Under this approach and for the case of a single service, the regulated uniform price is equal to the total costs incurred divided by the quantity supplied by the provider.

Since the price is based on actual costs and services delivered the issue of hidden information is no longer relevant. I note the costs are subjected to auditing, and other requirements (for example, that inputs were purchased from third parties through competitive tendering). Rate of return regulation, at least in this stylised form, can be thought of as a form of ex post regulation.

The guarantee of cost recovery, however, introduces another problem known as *moral hazard*. As it is not possible for the regulated provider to outperform the cost benchmark in order to earn a higher return, there are no incentives to undertake effort to reduce costs. In addition, capital attracts an allowed rate of return, while operating and maintenance expenses do not. Thus, if the allowed rate of return is greater than the provider's **true cost of capital**, then the provider has an incentive on the margin to overinvest in capital assets. This is known as the Averch-Johnson effect, which can manifest itself through gold plating or biased technology choices.⁸

In practice, the scope for moral hazard is mitigated under rate of return regulation as this regime often requires that approved costs are efficient.⁹ **The regulated firm's actual spending**, in particular capital investment, is typically subject to ex post prudence and efficiency reviews by the regulator.

Rate of return regulation has evolved over many decades, mostly in the US, through a combination of judicial and legislative oversight, advocacy by firms, governments, and other interest groups, and an increased understanding of the challenges involved in regulating prices.

⁷ For a more complete discussion on the incentives embedded in different regulation regimes, see for example Queensland Competition Authority (2014).

⁸ See, for example, Averch (2008).

⁹ See, for example, Joskow (1974, 1989) and Joskow and Schmalensee (1986).

3.2 PRICE CAP REGULATION

Under price cap regulation, a regulator sets ex ante a maximum price that a provider can charge its consumers. Under the most common form of price cap regulation, referred to as CPI-X, the maximum price is adjusted periodically to take account of the inflation rate (Consumer Price Index, CPI) and expected efficiency gains (X). Price cap regulation also relies on several auxiliary mechanisms, such as information gathering, auditing, and accounting systems that have been traditionally associated with rate of return regulation.

When faced with a fixed price, the regulated provider has the incentive to supply the service at the lowest cost possible. By outperforming the efficient cost benchmark, the provider earns a higher return. It follows that, at least from a theoretical viewpoint, there is no moral hazard problem. Customers benefit because the regulated price, in real terms, is declining over time.

While the theoretical properties of a stylised price cap regulatory regime imply that firms have the incentive to control costs, the practice is somewhat different. The main difficulty with a price cap regime arises when regulated assets have long lives and economic circumstances can change over time. Under these circumstances, it is neither feasible nor desirable to set regulated prices for the entire duration of the life of the assets.

Thus, prices are set for much shorter periods, typically five years in sectors such as electricity transmission and distribution, and water. This short time horizon allows the regulator to account for information such as actual realised costs and demand during the previous regulatory period. The regulator can then adjust the new regulated price to reflect the lower, more efficient cost levels.

Doing so, however, introduces adverse selection. Providers may be reluctant to reveal their costs for fear that they would not be able to fully benefit from their lower costs as prices might be reduced at the next review to reflect these lower costs. This issue is pervasive in the implementation of price cap regulation. It involves consideration of the optimal regulatory period during which the price path is fixed, and the introduction of mechanisms to allow firms to carry over the benefits from cost reduction for longer periods of time.

When price caps were introduced in sectors such as electricity, telecommunications, and rail in the 1990s, there was an expectation that competition would eventually replace regulation as the governance mechanism for the determination of prices.¹⁰ Competition did not eventuate in many segments due to monopoly power. Moreover, price cap regulation was introduced in other sectors, such as in the case of termination charges for mobile telephony (the rate that mobile companies charge other companies to terminate a call in their network), where competition was feasible but perhaps not effective.

¹⁰ See, for example, Beesley and Littlechild (1989).

Price cap regulation, like rate of return regulation, has evolved over time. However, even seemingly simple price cap mechanisms such as a CPI-X regime are more complicated in practice, often interacting with other features of the regulatory regime. For example, while the X factor often aims at incentivising the provider to improve efficiency over time, there is still a need to determine the initial price that will evolve according to the CPI-X rule. This requires establishing the maximum revenue the provider can earn (equal to the efficient costs of provision), and then dividing this revenue by expected demand to determine the price cap. The lower is the expected demand, the higher is the price cap. This may incentivise providers to underestimate demand.¹¹

3.3 BENCHMARKING

Competitive benchmarking or ‘yardstick regulation’ can be used to set prices when there are many different regulated providers supplying the same service across different geographic areas. Under yardstick regulation, the price for each firm is based on the actual costs of the other firms, and thus each firm has no influence on the price it can charge.

When regulated prices are set in this manner, firms are effectively competing against each other even though their consumer base is different. For instance, if a provider does not undertake effort to reduce its costs, and other providers do, then these other providers will profit because the prices they can charge will be above their costs. However, the provider with the higher cost experiences losses as it charges a price that is based on the (lower) efficient costs of the other providers.

It follows that, under yardstick competition, each provider produces at the least cost possible in order to maximise its profits. Since firms are identical in this formulation, the regulated price simply covers all **the firm’s efficient costs as they all produce at their efficient levels.**¹²

In practice, firms in the same regulated industry may have genuine reasons for having different costs. For example, providers operating in remote regions may experience higher unit costs, or providers facing a larger market may have lower unit costs due to economies of scale. There is a range of techniques, including regression analysis, data envelopment analysis, and stochastic frontier analysis, that can be used to control for differences amongst heterogeneous firms, provided there is enough data. This is further discussed in Section 3.6 below.

¹¹ If there is significant demand uncertainty, and the provider has limited ability to manage the uncertainty (e.g., an electricity transmission company has limited ability to impact the demand for electricity, which is driven by a number of other more significant factors than the cost of transmission), then a revenue cap is usually preferred over a price cap. Under a revenue cap, the provider can change the price as demand changes, so long as the revenue cap, which is equal to the total efficient costs, is not breached.

¹² Schleifer (1985).

3.4 PRICE REGULATION AND QUALITY

The discussion above abstracts from considerations about quality as it assumes that the service is homogenous in nature. However, when services can vary in quality, price cap and benchmarking regulatory regimes, which provide incentives for the regulated firm to reduce costs, may impact adversely on quality. Therefore, in practice, regulatory regimes attempt to mitigate such an effect with additional incentives and penalties linked to the service quality delivered. These incentives interact with the overall regulatory framework, as further discussed in Section 3.6 below.

3.5 PRICE REGULATION AND MULTIPLE SERVICES

There are two additional and related issues that arise when the regulated provider supplies more than one service. The first issue is the allocation of common costs across different services, and the second issue is the determination of prices for individual services in the presence of common costs.

A common cost is usually a fixed cost that is incurred to supply more than one service but cannot be attributed in whole or in part to any particular service. For example, corporate overheads (e.g., the salary of the CEO) cannot be attributed to the provision of a particular service. Determining a price for an individual service based on efficient costs requires a regulator to allocate a share of fixed costs to each service, so that the provider recovers its total costs. Common costs are typically allocated to individual services based on shares of total revenue or total cost from each service.

The different price regulation regimes account for multiple services differently. Under rate of return regulation, regulators consider the actual costs incurred by the provider, which include an allocation of common costs and prices charged for individual services. Regulators may assess the efficiency of both the quantum of the common costs and their allocation. Under benchmarking, the prices of individual services are also determined based on the reported costs for each individual service, which includes an allocation of common costs often determined by providers.

Where a regulated firm provides several services, instead of setting a single price cap for each service with an allocation of common (efficient) costs, the regulator can set a global price cap. It is expressed as a weighted (often by quantity) average across different prices for different services, with the provider having the flexibility to set a range of prices for the different services as long as the global cap and the maximum allowable revenue are not breached. Under this approach, the provider has flexibility to allocate the common (efficient)

costs. Alternatively, rather than setting a price cap, the regulator could set a revenue cap with the provider having complete flexibility for setting prices that consumers pay. Under some circumstances, this flexibility can enhance efficiency.¹³

I will not consider global price caps or revenue cap for the remainder of this report as they would represent a significant change from current arrangements, where providers receive a fixed payment, determined by the government, but which can include a contribution from residents based on the level of care they receive. Instead, in Section 4, I consider that the regulator sets a price for each level of care **and 'hotel' services**, either at the facility level, in the case of rate of return or price regulation, or nationally, in the case of benchmarking. Under this approach, individual prices would be set by an independent regulator with the explicit objective of promoting efficient provision and investment, rather than set by the government with broader objectives.

3.6 PRICE REGULATION IN PRACTICE

This subsection considers some of the key implementation issues associated with the different price regulation regimes introduced above. A better understanding of their weaknesses and strengths is obtained by examining how these regimes are implemented in practice.

Measuring and assessing costs under price cap regulation

A framework to assess costs is needed to implement price cap regulation as prices are based on an assessment of the expected costs of provision. The building blocks methodology is employed in various sectors in Australia and internationally to implement price and revenue cap regulation. The building blocks are cost blocks, based on information submitted by the provider, and are added together to form the maximum allowable revenue (MAR).¹⁴

A regulated firm's cost base comprises operating and maintenance costs, taxes, as well as the return on capital and depreciation. The cost assessment involves setting up appropriate cost accounting rules, reporting requirements, and auditing systems. Financial components such as depreciation rates, the rate of return, the debt to equity ratio and tax rates are also

¹³ Efficiency is enhanced if common costs are allocated to individual services based on the Ramsey pricing rule. Under this rule, the mark-ups above marginal cost that are needed to cover common costs are lower for services with more elastic demand, and conversely mark-ups are greater for services with more inelastic demand. See, Ramsey (1927).

¹⁴ The efficient cost is not necessarily forward-looking as a large part of capital costs are sunk and have been rolled into the Regulatory Asset Base, which is usually not re-optimised at every new regulatory decision. Under price cap regulation, the forward-looking components are operating expenditures, new capital expenditures and the allowed rate of return.

applied. Once the MAR is established, it can then be applied to determine a revenue cap or a price cap based on forecast volumes.

In the case of price cap regulation, a choice is made regarding the initial price – the price that is set for the first year of the regulatory period – and the value of indexation factor. In this case, X (as in CPI-X) is simply an indexation factor to help smooth prices rather than an efficiency factor.¹⁵ This is because under the building blocks approach the cost estimates are already supposed to represent efficient costs. I explain below how X is determined under benchmarking.

There are many implementation challenges with the building blocks approach. These arise from the fact that the notion of efficient costs is inherently abstract. What should be the debt to equity ratio of an efficient firm? What is the cost of capital for an efficient firm? How should an efficient firm organise its operations? These questions have many different possible answers and the process to determine these answers under a building blocks approach relies on an examination by experts.

Price and revenue cap regulation is ubiquitous in the regulation of water and electricity transmission and distribution in Australia. It is typically implemented through a process that includes an initial submission by the regulated provider. The submission contains proposed operational and capital costs (including a rate of return) for the next regulation period. The proposed costs make up the maximum allowable revenue that the provider considers it should be able to recover from consumers.

The **provider's initial submission will include demand forecasts**, so that the maximum allowable revenue may be divided by the forecast demand to obtain a tariff (the price cap).¹⁶ In the case of multiple services and individual price caps for each service, the submission includes a proposed allocation of common costs and forecast demand for the various services.

This initial submission is made public by the regulator to seek submissions from interested parties, including consumers. Once the regulator examines the proposed costs, which usually requires engaging consultants with industry expertise, and submissions from interested parties such as consumer or industry groups, a draft decision is made and published. Once further submissions are received and examined, the regulator makes a final determination.

Breunig and Menezes (2012) have documented this process in the Australian infrastructure sector and **shown that regulators give significant weight to the regulated provider's cost**

¹⁵ Smoothing is often adopted to avoid sharp price rises and allows for the regulated provider to recover its efficient costs over the entire regulatory period (rather than on an annual basis).

¹⁶ Electricity distribution and transmission businesses, and water utilities, are monopolies, and therefore regulated businesses set their prices at the cap. In other industries, where there may be competition at the margin, and residential aged care falls into this category, providers may choose to set prices below the cap.

proposals. On average, **regulators have allowed around 92 per cent of a firm's cost proposal** during the time period analysed by these authors.

In summary, price cap regulation typically involves elements of rate of return regulation (e.g., for determining the return on capital) and yardstick competition.¹⁷ High-powered incentives associated with a price cap are mitigated by having price reviews every five years rather than at longer intervals. This allows consumers to benefit through lower prices, arising from reductions in costs in the previous regulatory period, whereas the regulated provider retains the profits from reducing costs during that period.

As I discuss below, a pure price cap mechanism may provide incentives to reduce both costs and the quality of service. Accordingly, price cap mechanisms are increasingly accompanied by specific performance or quality standards, where there are penalties and rewards for achieving or falling below these specified standards.

I note that regulatory outcomes are sensitive to each of these implementation choices. For instance, if the regulator allows costs that are substantially higher than the efficient costs, then consumers will pay a price that is higher than the socially optimal price. Conversely, if allowed costs are set too low, the regulated provider's **financial viability may be compromised** and efficient investment may be deterred.

Setting prices under rate of return regulation

Rate of return regulation adjusts overall price levels according to the provider's **accounting costs and cost of capital**. The most common case for the regulator to initiate a review of the provider's overall price level is when the provider claims that the rate of return it receives is less than its cost of capital, or when consumer groups or the regulator considers that the **actual rate of return is greater than the provider's cost of capital**.¹⁸

Although rate of return regulation is ex post, it still requires the regulator to make decisions on how to value assets, whether to add capital expenditure to the regulatory asset base when they are made or when the facilities go into service, and the amount of depreciation. Crucially, the regulator has to come to a view of the prudence of incurred costs. That is, in practice, the implementation challenges associated with rate of return regulation are similar to those of

¹⁷ Benchmarking against other firms (yardstick competition) can also be used within the building blocks approach by, for example, assisting the regulator to determine efficient operating costs. This can be done informally (by comparing simple indicators across regulated firms operating at different locations) or using the statistical techniques described below. See, for example, the discussion about the potential use of total factor productivity to benchmark costs in the energy sector by Australian Energy Market Commission (2011).

¹⁸ See, for example, Jamison (2007).

price cap regulation as described above. I do not know any relevant example of the use of rate of return regulation in Australia.

Determining efficient costs and prices under benchmarking

Under benchmarking, the most efficient providers should be able to charge prices that allow them to recover at least their existing costs, with less efficient providers only allowed to recover a fraction of their existing costs. Providers under benchmarking regulation have a sharp incentive to reduce costs.

When setting regulated prices based on benchmarking, the regulator faces a number of decisions. As with price cap regulation, the regulator sets the price that providers are allowed to charge at the beginning of the regulatory period. For example, if the regulator sets the initial price equal to the cost of the most efficient firm, then providers may exit the sector. As a result, usually regulators using benchmarking set a target price at some future date, and then defined a **“glide path” or transition** from prices that reflect the current observed level of costs to those reflecting the benchmarked level of cost. Regulators also need to choose the methodology used to estimate efficient costs. Different choices of the initial price, the glide path and the methodology will likely result in very different regulated prices.

Three broad techniques are used to measure efficient costs: (i) Total Factor Productivity (TFP) indices, which measure productivity based on index numbers; (ii) Data Envelopment Analysis (DEA), which uses linear programming (optimisation) techniques to determine the efficiency frontier; and (iii) an estimation of the production function or cost frontier using econometrics.¹⁹

TFP indices are defined as the ratio of a particular measure of output quantity (or change in output quantity) and a particular measure of input quantity (or change in input quantity). Output and input quantities are weighted in different ways by means of various indices. For example, a common TFP index is given by the ratio of Tornqvist output and input indices. These indices can be expressed as the geometric mean of output (input) quantities weighted by moving average revenue (cost) shares.²⁰

A possible, simple approach entails setting initial prices at current levels, and then adjusting prices annually by $CPI-X$, where X is the long-term estimate of TFP growth. Under this approach, regulated businesses that are operated inefficiently can only recover any increases in costs that are efficient. This approach has been used by different US regulators

¹⁹See, for example, T. Coelli, A. Estache, S. Perelman and L. Trujillo (2003), A primer on efficiency measurement for utilities and transport regulators. World Bank. Available at <http://elibrary.worldbank.org/doi/book/10.1596/0-8213-5379-9>.

²⁰For a detailed analysis of a range of productivity indices, see for example Diewert and Nakamura A. (2007).

for setting prices for electricity network businesses.²¹ In the long-run, inefficient businesses that cannot adjust their costs to efficient levels would exit the market as prices would converge to efficient costs.

The DEA method entails enveloping the data (input-output pairs observed) to determine the best practice (efficiency) frontier by linear programming (optimisation). Under this approach, efficiency is defined as the ratio of a linear combination of outputs to a linear combination of inputs, where weights are chosen to maximise efficiency for each firm subject to the constraint that all efficiency scores are less than or equal to one. There are different approaches for considering economies of scale²² and economies of scope²³ in DEA models. By definition, the most efficient firm is the one that produces more of all outputs using less of any input.

A possible approach to setting regulated prices involves using a DEA methodology to determine efficient costs, setting initial prices at the current level, and determining a glide path for current prices to converge to the efficient level. As efficient costs may change over time, this approach may require the application of a TFP growth estimate to adjust efficient costs over time.

Finally, the econometric regression method involves the estimation of a cost or production frontier based on specific assumptions about the underlying technology. Under this approach, a **firm's distance from the frontier is either entirely due to inefficiency (deterministic frontier)** or is decomposed into a random component and an inefficiency term (stochastic frontier analysis, SFA).

The estimates obtained through the econometric regression model represent an average level of efficiency. This implies that there are firms that are more efficient than the frontier, and if prices are set based on the estimated efficient costs, these firms to earn extra returns. This has led some regulators²⁴ to adjust the regression outcomes so that no business is more efficient than the frontier, which reduces regulated prices further. Once efficient costs are determined, as in the case of the DEA methodology, the regulator needs to set the initial prices and a glide path for prices to converge to the efficient level.

There are several practical challenges to implement price regulation based on benchmarking. The availability of adequate data is a key issue. It requires a well-understood production process with associated inputs and outputs that can be measured adequately (e.g., controlling for quality of outputs). Moreover, providers usually do not collect data in a way that lends

²¹ See, for example, Shuttleworth (2005).

²² See, for example, Banker et. al (2011).

²³ See, for example, Morita (2003).

²⁴ This approach was adopted by OFGEM, the electricity and gas regulator in the UK, in 1999.

itself directly to this type of analysis.²⁵ Providers can also operate across different sectors with fixed costs that are shared across these sectors and there may be limited visibility of costs for the non-regulated sectors.

In assessing productivity performance, there is also a need to adjust for differences in scale, geographical location, density, and other relevant variables faced by similar, but not identical, comparator providers. In principle, the difference between the estimated efficient costs and **a firm's actual costs could** be due to a factor not captured in the model and could vary with the choice of methodology.

Benchmarking is used to fund public hospital services in Australia. There are two different benchmarking exercises undertaken by the Independent Hospital Pricing Authority.

In 2020-21, 480 hospitals nationally are funded for the number and mix of patients they treat, with prices determined for health care and other services (National Efficient Price, NEP). For the same period, 373 smaller rural hospitals are block-funded, with funding based on the National Efficient Cost (NEC).²⁶

The NEP is based on the average cost of an admitted acute episode of care provided in public hospitals during a financial year. Each episode of patient care receives a national weighted activity unit (NWAU). The activities are defined in a detailed classification system for health care and other services.

The **'average' hospital service** is equal to one NWAU. More intensive and expensive activities are allocated multiple NWAUs, and simpler and less expensive activities are allocated fractions of an NWAU. The NWAU is adjusted to reflect variations in the cost of delivering services, such as whether a patient lives in a remote area or is a child.

The price of each public hospital service is calculated by multiplying the NWAU allocated to that service by the NEP. For example, a hip replacement (minor complexity) has a weight of 3.7733 NWAU which multiplied by the current NEP (\$5,320) yields \$20,074 for that patient. The NEP is essentially a unitised cost of providing a particular service. That is, the NEP includes an implicit allocation of fixed and common costs.

The NEP is determined each year, and involves an extensive collection of data and the use of statistical techniques to derive the efficient benchmark. My understanding is that the NEP does not necessarily reflect efficient costs, and instead reflects the average of the observations included in the sample.²⁷ The potential difficulty with this approach is that efficiency may not be achieved in the long-run. For example, if all hospitals included in the

²⁵ Mandating firms to produce data in a way that can facilitate the use of benchmarking techniques in the future is also not without problems. Knowing that the information provided can be used in the future to set prices can lead to incentives to misreport data.

²⁶ See IHPA (2020).

²⁷ See <https://www.iHPA.gov.au/publications/fundamental-review-national-efficient-price>.

sample are equally inefficient, then the NEP will continue to reflect inefficient costs over time. This is different from the mechanisms described above, where in the long-run (or at the end of the glide path) the regulated price does converge to the efficient level.

The NEC is also determined annually through a benchmark exercise that sets efficient fixed and variable costs for rural hospitals with up to 3,500 NWAUs and up to 1,800 NWAUs for city hospitals. Data from 373 small rural hospitals was used to determine a NEC of \$2.04 million to cover fixed costs and \$5,687 per NWAU to cover variable costs. An additional loading of 39.1 per cent is applied to the fixed component for very remote hospitals. **The NEC's fixed component captures fixed costs that are not already covered through the variable component.** That is, the variable component, just like the NEP, reflects an implicit allocation of fixed and common costs.

Service quality

Many price cap regimes around the world, including in Australia, incorporate explicit incentives to counter any potential adverse impact of the price regulatory regime on quality. This might take the form of an additional factor in the price cap formula, which requires the regulator to define the relevant quality dimensions and identify the performance criteria, which then need to be assessed vis-à-vis the actual quality delivered to consumers.

In setting up the quality incentive scheme, regulators need to form a view about how much consumers value various dimensions of service quality and the likely costs to meet certain quality thresholds. As with any incentive scheme, lack of enough attention to the details can lead to perverse outcomes. For example, an incentive scheme where penalties for not achieving specific targets (or payments for achieving them) are too high can lead to perverse outcomes such as misreporting.

An example of a quality incentive scheme is the Guaranteed Service Levels (GSL) framework under the Electricity Distribution Network Code, where consumers are financially compensated for supply interruptions that do not meet the minimum standards. Importantly, the GSL framework only sets up the financial incentives, with the distribution companies being able to choose how best to meet the quality standards.

There are also sharp incentives to reduce costs under benchmarking and, to the extent that quality and costs are positively correlated, benchmarking regulation may also lead to a reduction in service quality. It is also theoretically possible to design incentive schemes to mitigate any negative impact on quality, but this relies on quality being verifiable.²⁸ An example of such a scheme is the risk adjustment methodology developed by the Independent

²⁸ See, for example, Tangerang (2009).

Hospital Pricing Authority, which introduces financial penalties for hospital acquired complications.²⁹

The increased certainty of cost recovery from rate of return regulation has a positive impact on quality. Indeed, it is possible that some consumers receive a quality that is greater than the socially optimal quality (over servicing) if the regulated provider overinvests in quality.³⁰

Transition to price regulation

The discussion in this section has not considered the challenges in establishing a new regulatory regime. A key consideration is how to determine the opening value of the assets.

Under price cap or rate of return regulation, this opening value will earn the regulated rate of return for the remaining useful life of the assets. The issue is how to determine whether the original capital expenditures were efficient. For example, should the regulator consider its book or historical value (and assume they were efficient at the time they were made) or should the regulator consider instead what would be the cost if the expenses were incurred under current market conditions (replacement costs). This issue is not as significant under benchmarking regulation, as efficiency may be defined in relative terms with reference to the capital expenditures (including an embedded rate of return and depreciation) incurred by all providers.

As explained earlier, under price cap and rate of return regulation, the initial asset value is rolled over for the next regulatory period (no re-optimisation), and new capital expenditure (tested for efficiency) is added to the regulatory base, with depreciated assets excluded from it.³¹ Thus, over time, the value of the initial capital base will become irrelevant. However, the financial impact of different initial regulatory asset values on the regulated provider can be significant in the medium term.

To understand the challenges involved in determining initial asset values, it is useful to consider markets that are not subject to price regulation. In unregulated markets, asset values reflect market expectations about earnings that may be generated by the assets –

²⁹ See IHPA (2020a).

³⁰ See, for example, Besanko and Donnenfeld (1988).

³¹ The rollover of the (indexed) initial asset value to future regulatory reviews, however, is not ubiquitous. For example, in industries subject to substantive technological change (such as telecommunications), regulators often revisit initial valuations to avoid consumers bearing the full costs of stranded assets. In the context of the regulation of firms that have been privatised with a market value lower than their current book values, UK regulators have applied a discount to the allowed rate of return in the first review following privatisation. Such a discount is based on the ratio of the market value to the book value. This approach has a similar effect to reducing the initial asset value to reflect the lower market valuation.

book value becomes irrelevant. In contrast, in regulated markets, asset values are a key **component of the determination of the firm's revenue and, therefore, cannot be determined** by estimating expected revenue. Instead, the regulator must decide what the initial value should be.³²

In practice, regulators pay attention to historical costs when establishing initial asset values. Focusing on historical costs has advantages. For example, in industries where technology (or competition from other services) does not evolve rapidly, (depreciated) historical costs can be a better proxy for replacement costs than a theoretical construct that aims to estimate such costs. Moreover, setting the initial asset values based on historical costs ensures that the regulated firm recovers the initial investment.

Replacement costs are also often used by regulators, at least as a reference point when determining initial asset values. However, determining the costs of building a facility that can provide the same services as the existing facility usually involves a large subjective component.

The two basic approaches to determining initial asset values reflect the distinction between historical and replacement cost. DAC (depreciated actual cost) represents the original value of an asset net of all accumulated depreciation. If data is accurate, this approach ensures that the regulated firm recovers its actual costs. Moreover, if technology has not evolved too much and input prices have not changed significantly, the original costs (if efficient) will be close to the replacement cost. The important caveat, however, is that there are no guarantees that these historical costs would have been efficient.

The second type of asset valuation approach, DORC (depreciated optimised replacement cost), measures the replacement costs associated with new assets that are optimised and adjusted for depreciation. That is, these optimised assets provide services that are equivalent to those provided by the existing asset. In effect, a DORC valuation is an attempt to estimate how much it would cost to build the best facility possible which would provide the optimal level of service (the ORC component),³³ while considering all of the differences in the forward-

³² Note that in many instances, especially in the case of government-owned companies that were corporatised and subjected for the first time to an independent regulator, book values were not available to set initial asset values.

³³ ORC is determined by estimating the replacement cost of the optimised existing assets with modern equivalent assets (MEA); the lowest cost of replacing the service potential of the existing assets. Asset optimisation can reduce total asset value as redundant or over-sized assets are removed from the asset base.

looking service potential and costs associated with the existing asset compared to the new asset discounted to a present cost (the D component).³⁴

That is, the DORC valuation is an estimate of the price that an asset would sell if that asset was traded in a market for used assets. The difficulty is that such a market does not often exist, and thus the provider cannot purchase it to provide its current services. The choice between DAC and DORC is one of the many issues facing a regulator that is tasked with setting regulated prices in an industry for the first time under either price cap or rate of return regulation.

The discussion above suggests that the technical expertise, including knowledge of how providers operate and cost and demand data, necessary to make these decisions are substantive, and involve a high degree of subjectivity. The regulatory processes under these two types of regulation are often time intensive and costly. While benchmarking also requires **access to data about costs and demand, there is less need for regulator's judgement, making** the regulatory process less costly and intrusive in how businesses operate.

3.7 SUMMARY

Table 4 below summarises the key features of the price regulation regimes described above. It uses a traffic lights system to rank the regimes for each of the identified features. An inspection of Table 4 suggests that benchmarking is the greenest of the price regulation regimes. Indeed, yardstick regulation has often been considered as a lighter and preferred approach to the price regulation of infrastructure businesses.

In practice, however, benchmarking is as informationally demanding as other price regulation regimes, requiring starting point information about cost drivers and industry-wide TFP growth estimates. It also requires knowledge of cost factors that may be out of the control of management. This information collection challenge is difficult to overcome in an industry such as electricity distribution, where there are a small number of distributors across Australia, each with very specific characteristics. Indeed, benchmarking in utility regulation is often limited to operating expenditures, and undertaken mostly as a qualitative exercise, rather than through the quantitative techniques described above.

In the case of residential aged care, however, there are currently 873 approved providers, and a proposed new classification and fund model that has identified cost drivers for the

³⁴ Depreciation of the optimised assets adjusts for the extent to which the original assets' service potential is less (or more) than that of the new assets.

provision of care (i.e., inputs and outputs).³⁵ This suggests that the information challenge associated with benchmarking may be overcome in the case of residential aged care, in a similar way to the funding of public hospitals. I will return to this topic in the next section.

³⁵ See Eagar, K et al. (2019).

Table 4: Weaknesses and strengths of the different price regulation regimes

	Rate of Return	Price Cap	Benchmarking
Transparency	The determination of the allowed rate of return relies on subjective judgement.	The determination of the allowed rate of return relies on subjective judgement. Judgement is also exercised across other parameters.	Much less scope for subjectivity, although there is exercise of judgement on the choice of benchmarking techniques.
Easiness of adjustment to changes in market conditions	A rate review can be initiated by the provider or the regulator at any time. A rate review, however, is a time-consuming exercise. Moreover, rate of return regulation looks to the past, not the future.	While there are mechanisms to deal with unforeseen circumstances (e.g., pass-through of costs), many elements such as the rate of return are fixed for the regulatory period.	Yearly benchmark exercises may reflect in a more timely manner changes in demand and supply.
Ensures financial viability and promotes investment in the provision of the service	Cost recovery is guaranteed subject to ex post efficiency tests and setting an appropriate rate of return.	There may be a need to introduce mechanisms to ensure that providers can transition to efficient costs and to smooth under and over recovery of costs due to changes in demand.	There may be a need to introduce mechanisms to ensure that providers can transition to efficient costs.
Incentives for the provision of quality	As cost recovery is guaranteed, there are no perverse incentives to reduce quality.	To the extent that cost and quality are positively correlated, there are incentives to reduce quality. There are known mechanisms for rewarding/penalising providers for over/under performance.	To the extent that cost and quality are positively correlated, there are sharp incentives to reduce quality. There is a need to introduce mechanisms for rewarding/penalising providers for over/under performance.
Incentives for efficiency	Very limited incentives to pursue cost efficiency.	The sharpness of the incentives depends on regulatory rules. For example, the incentives to pursue efficiency are mitigated when efficiency gains are clawed back in the next regulatory review.	Sharp incentives to pursue cost efficiency.
Costly regulatory process	The regulator's decision process focuses at the level of the provider. It is time intensive and costly, usually involving experts appointed by the parties. The quasi-judicial nature of the regulatory decisions adds to the costs, with submissions and rebuttals from parties.	The regulator's decision process focuses at the level of the provider. It is time intensive and costly, usually involving experts appointed by the parties. The quasi-judicial nature of the regulatory decisions adds to the costs, with submission and rebuttals from parties.	While the data requirements are similar to other regulatory regimes, the process for determining the efficient cost is mostly computationally. Consultation processes tend to focus on data issues and a review of methodologies. It assumes that there is an agreement about cost drivers.
Easiness of transition	Difficult and costly to setup. For example, it may require defining the opening asset base.	Difficult and costly to setup. For example, it may require defining the opening asset base.	It requires a substantive initial effort to develop a classification system, and an ongoing data collection effort.
Cost shifting	Providers may switch costs from competitive markets to regulated markets.	Providers may switch costs from competitive markets to regulated markets.	Providers may switch costs from competitive markets to regulated markets.

4. PRICE REGULATION OF AGED CARE

The analysis in Section 2 suggests that residential aged care could benefit from the introduction of price regulation. The sector receives approximately two-thirds of all federal government funding for aged care, and so there are large potential gains from cost-reflective prices.

Moreover, the sector already faces capitated, disability-adjusted prices for most services it provides, which makes the transition to regulated prices easier. Under price regulation, prices would be set by an independent regulator with regards to efficient costs, while the quantum of subsidies would be determined by the government through a separate process.

In contrast, the introduction of price regulation for Home Support would require a change from grant funding to activity-based funding. For Home Care, providers do not enjoy geographic monopoly power to the same extent as residential aged care providers, and funding is allocated to individuals rather than providers. Thus, for Home Care, competition regulation is a more appropriate tool than price regulation to ensure that prices reflect efficient costs.

I now explore how the different forms of price regulation might work for residential aged care. The material in this section is exploratory in nature and is meant to be illustrative only. It is simply not possible to spell out in detail in this report how price regulation may be implemented without defining key elements of the overarching regulatory regime.

Introducing price regulation involves a number of complex policy choices, which in turn have consequences for implementation, as is apparent in the discussion in Sections 4.1 to 4.3. It takes years to progress from the development and making of policy choices, to the establishment of the supporting legislative and regulatory framework, and to implementation. As an example, it took two years to complete the Resource Utilisation and Classification Study (RUCS), which proposed a new assessment and funding model called Australian National Aged Care Classification (AN-ACC).³⁶ I will discuss the AN-ACC model in Section 4.3 in the context of benchmarking.

The following assumptions are maintained throughout Section 4:

³⁶ See Eagar, K et al. (2019).

1. *The existence of an independent regulator, with appropriate information gathering powers and resources, who makes decisions with the aim to promote the efficient use of and investment in residential aged care.*
2. *Residents receiving the same level of care at a given facility face the same regulated price, regardless of ability to pay. Subsidies are determined by the government through a separate process, but no resident is excluded from receiving care due to inability to pay.*
3. *Facility level prices are set for a given level of care defined, for example, by the ACFI, the proposed AN-ACC, or some other classification. Regulated prices for some supplements (e.g., oxygen) will be set separately.*
4. ***Regulated prices for 'hotel' services such a meal, cleaning, laundry, and utilities are set separately from care prices to aid transparency.***
5. *The price of respite care for non-permanent residents is set through a separate process. This implies that attention will need to be paid to determining the extent that it is possible to shift costs from non-regulated services to regulated services.*
6. *Accommodation prices, if regulated, will be set separately to regulated prices for levels of care **and 'hotel' services.***

These assumptions allow me to narrow down the set of possible implementation paths. For example, **setting separate regulated prices for each level of care, 'hotel' services and accommodation** requires an explicit regulatory mechanism to allocate common costs across the three services.

4.1 RATE OF RETURN REGULATION

Rate of return regulation combines a provider's actual costs and allowed rate of return to **determine the provider's** revenue requirements (usually on an annual basis), which would be used for setting the prices (gross of government subsidies) that residents would pay. The revenue requirement is determined through the various building blocks: the cost of capital (the product of the regulatory asset base (RAB) and the allowed rate of return), operating expenditures, depreciation and taxes.

The RAB is the value of assets that the provider utilises to supply the residential aged care accommodation services (e.g., the building, car park, beds, furniture). The allowed rate of return is the cost that the provider incurs to finance its RAB, including both debt and equity. If accommodation prices are regulated, then the cost of capital (RAB times the allowable rate of return) and depreciation would determine the total costs of providing accommodation, which would then be converted into a price per resident.

Operating expenses do not include a rate of return and will form the basis for determining the regulated price for each level of care, as well as supplements where appropriate, **and 'hotel'**

services. Operating expenses include both fixed and quasi-fixed costs (e.g., corporate overheads, care management, night supervision), costs that are shared between care and 'hotel' services, and costs that vary with the level of care (e.g., nursing, physiotherapy) or specific needs (oxygen).

Figure 2 below illustrates how rate of return regulation might be implemented to set prices for residential aged care. The overarching legal and regulatory framework shapes the price setting process. It includes the determination of the actual procedures, such as the format and the information content of the 873 **providers' initial submissions**. The regulatory framework will also specify procedural issues, such as consultation requirements and whether there is a draft decision with further submissions from stakeholders before a final decision.

I first focus on the determination of regulated prices for each level of care and 'hotel' services.

At the initial stage, the regulator specifies the time dimension for the submission (e.g., costs incurred over the last twelve months, or the average over the last three years), and how costs and information are to be reported (e.g., fixed and variable, common costs, number of residents by level of care, number of staff by category), alongside guidance on how to classify costs.

Information required may include: assistance time (expressed in hours per day) given to individuals, including routine daily activities (eating, personal care or performing physiological functions) and medical care; medical care time per individual, as a proxy for case mix; ratio of medical and nursing staff to residents and the services provided within a facility and associated costs (e.g., laundry, meals, pharmacy, special therapies, recreation).

Such guidance may incorporate advice on how to allocate common costs across the different **services (accommodation, care and 'hotel' and/or across levels of care)** or across facilities in the case of multiple-facility providers. The regulator may also seek submissions from providers on the allocation of common costs. The regulator may also choose to seek the **providers' proposed individual prices for** different levels of care (and appropriate supplements), accommodation, **and 'hotel' services**.

Providers' submissions would contain aggregated and disaggregated cost data to support the **regulator's decision-making** process. This process includes both a determination of the MAR that each provider is allowed to recover from residents (and from the government), as well as individual prices per each of the regulated services.

As prices would be set with reference to costs incurred, many of the existing supplements would no longer be necessary. These include the viability supplement for eligible residential services specialising in care for people at risk of homelessness, low-care in rural and remote areas, and care for Aboriginal and Torres Strait Islander Australians. Other supplements, such as oxygen and enteral feeding, may only apply to a small number of residents in a given

facility, and the associated prices would need to be set separately and be based on actual costs.

Upon receipt of the submissions by the 873 providers, the regulator then undertakes two key tasks before deciding what the MAR and individual prices should be for each provider. The first task entails checking data integrity, including unintentional data entry errors, and misclassification or misreporting of data. The second task includes applying an ex post prudence test across all the different categories of costs.

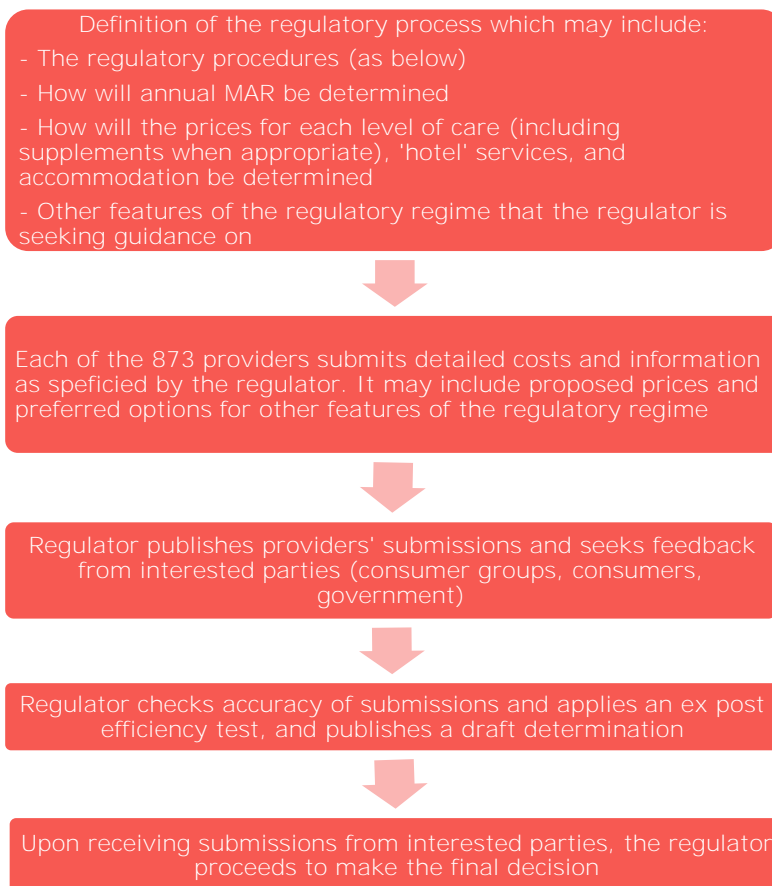


Figure 2: Illustration of a possible implementation of rate of return price regulation for residential aged care services

The second step represents a potential departure from the stylised rate of return regulation model. Under such stylized model, the regulated firm charges a price that reflects its actual costs³⁷, and therefore has no incentive to pursue technical efficiency.

Applying a prudency test, however, changes incentives and involves a degree of judgement by the regulator. Prudency requires the expense to be reasonable and based on cost-minimising criteria. However, there are two possible approaches. One approach is to consider whether the expense was prudent at the time the decision was made. This requires assessing what information management had available and used to make its decision. The second approach is more stringent, as it assesses an expense as prudent if management minimised costs by considering all circumstances that would impact the appropriateness of the expense. This requires assessing what management should have known and should have considered in making its decision. Both approaches are challenging to implement.

Providers who confront regulated prices that deviate from actual costs face incentives to reduce costs. The sharpness of these incentives determines how close rate of return regulation is to other forms of price regulation. The regulatory regime will be closer to the stylised model when **ex post prudency tests simply check whether a provider's costs are overly exaggerated** when compared to the costs of other providers with similar characteristics, and the regulator errs on the side of the provider. In this case, providers are more likely to be able to recover their costs. In the other extreme, if the regulator uses the statistical techniques as described in Section 3.6 to determine the efficient benchmark, then providers face incentives that are as sharp as those faced under pure benchmarking.

A number of issues arise when providers face sharp incentives to reduce costs. For example, providers may require some time **to achieve lower costs, otherwise there is a risk of providers' exit** if they are unable to recover their costs, which would undermine investment in the industry. Conversely, it may be desirable to establish a mechanism to share efficiency gains with residents and the government. That is, rather than waiting for a price review, a profit-sharing mechanism instead requires providers who beat the benchmark to share the efficiency gains before the next price review.

It is important to note that price regulation needs to interact with the overall regulatory framework for the provision of residential aged care and requires coordination with the Aged Care Quality and Safety Commission. For example, quality audits and financial penalties are required to ensure that the care that is provided and paid for satisfies the quality standards. There is also a need for a mechanism, independent from providers, for assigning residents to the appropriate level of care upon entry into the facility, and for assessing changes in the

³⁷ This would require, for example, a mechanism that would return any excess revenue resulting from prices in excess of actual costs to residents and the government and, conversely, increase prices to compensate providers when costs exceed regulated prices.

level of care that may be desirable over time. Moreover, as discussed in Section 3.6, the sharper the incentives for cost reduction, the more significant are the concerns with quality.

Finally, the regulator will also have to decide other key elements of the price regulation regime, including: (i) how the regulated prices for each **level of care and 'hotel' services** are adjusted annually; (ii) how price reviews are triggered; and (iii) how the maximum allowable revenue is adjusted to reflect changes in the number of residents and the case mix over time. A standard answer to (i) is to adjust prices according to a relevant cost index, while a typical answer to (ii), in the context of utility regulation, is to allow either the provider or the consumers to seek a price review if circumstances have materially changed. Changes in case mix at each facility can be accommodated readily by simply changing individual prices to reflect the new mix in a setting where common costs are shared equally amongst residents. The difficulty arises when the number of residents changes, as this can lead to either under- or over-recovery of common costs, which needs to be addressed by the regulatory regime.

I will now turn my attention to the determination of a regulated price for accommodation. The regulatory process was described in Figure 2, and includes the regulator seeking submissions from providers on their total cost of capital (RAB, the allowed rate of return, and depreciation).

The regulator provides guidance on how the information should be reported and, in its first price determination, determines the opening asset base. This entails defining the methodology to be used (e.g., DAC versus DORC as discussed in Section 3.6). Over the next price reviews, new capital is added to the RAB and depreciated assets are removed. New capital expenditures are also subject to ex post prudence tests.

The allowed rate of return includes the actual cost of debt that the provider uses to finance its RAB (e.g., the weighted average of the interest paid on its bonds) and the cost of equity (the return required by shareholders to continue to finance the provider). The regulator combines the costs of debt and equity to determine the weighted average cost of capital (WACC): the cost of debt multiplied by the proportion of debt capital used to finance the provider is added to the cost of equity multiplied by the proportion of equity capital used to finance the provider.

The most common approach to estimating the cost of equity is the capital asset pricing model (CAPM), which has two key components: the risk-free cost of capital (the return an investor expects to earn on an investment that carries zero risk) and the risk premium (how the variation in the return on the **provider's** stock – if the provider is a listed company – follows the variation in the averaged returns on all the stocks in the market). While the cost of debt under rate of return regulation is equal to the actual cost incurred by the provider, estimating the cost of equity involves the regulator coming to a view about key parameters.

It is unclear how the regulator would determine the allowed rate of return for a government or a not-for-profit facility. This complicates the implementation of rate of return regulation to

determine accommodation prices. This issue, however, does not arise under price cap regulation, as the rate of return is set with reference to an efficient firm.

The final component for determining the regulated cost of capital is depreciation, which is a regulatory instrument to facilitate capital recovery. Depreciation spreads the cost of the investment throughout the asset life so that it can be recovered through the MAR. Depreciation allowances are informed by the useful (economic) life of the asset, the resale value at the end of the asset's life, and the depreciation method.

Straight-line depreciation, where the cost of the asset is spread uniformly over its useful life, is the most commonly adopted method. If the regulatory depreciation rates are slower than economic depreciation, the provider's book value of its assets may be greater than the economic value. This raises the possibility of assets being written off.

The total cost of capital is determined on an annual basis consisting of the value of assets on the year times the allowed rate of return plus the annual depreciation allowance. This annual cost is then converted into a regulated price for accommodation, which would increase yearly through an appropriate cost escalator.

Under rate of return regulation, with the focus on allowing providers to recover actual costs, the regulator could use the actual number of residents as the denominator with annual adjustments to the occupancy rate. This would imply that current residents would bear the costs of any excess capacity and providers will be able to recover their full costs, as per the stylised form of rate of return regulation. Alternatively, if the regulator uses the number of actual residents as the denominator, the provider would under-recover its annual capital costs. If the excess demand is due to a structural reduction in demand, then a DORC approach to setting the initial value of the RAB would likely have addressed this issue. If instead the excess demand is a result of fluctuations in demand, then it may be necessary to establish a mechanism to account for over- and under-recovery.

I also note that there is another common approach for recovering the return on capital and depreciation; an annuity approach. Under such approach, a series of annual capital charges (either constant or indexed over time) cover both the return on and the return of capital. The annuity approach differs from the RAB approach in that the two components of the annual capital revenue requirement are determined separately. The annuity approach needs to be applied consistently throughout the life of the assets to ensure cost recovery.

This section has highlighted some of the challenges associated with a possible implementation of rate of return regulation to set prices for residential aged care. Overcoming information asymmetries, and the sheer volume of information associated to 873 regulatory decisions, will require industry expertise and judgement, and will be costly.

4.2 PRICE CAP REGULATION

Broadly speaking, under price cap regulation, prices are set based on the expected efficient costs of providing the service during the regulatory period, which is typically three to five years. In practice, however, price cap regulation shares many common features with rate of return regulation. These include the building blocks approach, which requires the determination of the various components of the MAR (cost of capital, depreciation, operating costs, and taxes), and the nature of the regulatory process (initial submissions by providers, followed by consultation, and further submissions, as described in Figure 2). This section focuses on the key differences on how regulated prices **for each level of care, 'hotel' services and accommodation** are determined under price cap vis-à-vis rate of return regulation.

The determination of efficient costs for the provision of each level of care and 'hotel' services is based on expected costs for the duration of the regulation period. Providers make initial submissions with proposed costs, and potentially proposed prices, including an allocation of common costs. The regulator then determines whether the proposed forward-looking costs are efficient and sets the annual revenue requirements (or MAR) equal to the efficient costs of **providing care and 'hotel' services**.

The annual revenue requirements are converted into prices by dividing the efficient costs of providing care for each level of care by the number of residents under each category, and also by dividing **the efficient costs of 'hotel' services by the total number of** residents. Annual prices are set, as explained in Section 3.2, to match the efficient costs over the regulatory period. The annual revenue requirements may be adjusted to reflect changes in the number of residents and the case mix over time.

A standard approach to determine whether proposed costs are efficient is to benchmark them against the costs of providers with similar characteristics. Benchmarking can be applied qualitatively to assess what efficiency gains can be expected and to provide a timeframe for these gains to be achieved in over the regulatory period. This assessment often involves looking at the costs that were incurred in previous periods. Alternatively, the regulator may use the statistical techniques described in Section 3.3 and determine a timeframe for providers to achieve the efficient frontier.

The sharpness of the incentives for cost reduction are a function of the difference between historical costs and the efficient forward costs approved by the regulator. These incentives are also influenced by the duration of the regulatory period, as efficiency gains are converted to price reductions at the end of the regulatory period. The shorter the regulatory period, the lower the incentives for providers to attempt to beat the efficient benchmark are. Many price cap regimes for utilities in Australia adopt an efficiency carryover mechanism, which allows utilities to retain the efficiency gains beyond the current regulatory period.

The pursuit of efficient costs is not the only objective of the regulator. The regulator also aims at promoting efficient investment in the industry. Thus, while incentives for cost reduction matter, setting efficiency goals that are too stringent compromises the ability of providers to recover their costs, with a negative impact **on the industry's financial sustainability and investment**.

As with other forms of price regulation, price cap regulation interacts with the overall regulatory framework for the provision of aged care and requires coordination with the Aged Care Quality and Safety Commission. As the incentives for cost reduction are sharper under price cap regulation than under rate of return regulation, the negative impact on quality is potentially larger. The negative impact on quality can be mitigated by a system of rewards/penalties for over/under achieving quality standards.

Turning to the determination of the accommodation price, in its first price review the regulator defines the value of the opening asset base in the fashion described in Section 4.1. In terms of the allowable rate of return, a key difference compared to rate of return regulation is that the WACC parameters are based on the notion of what would be the cost of capital for an efficient firm.

For example, rather than using the actual ratio of debt to equity, the regulator sets the same gearing ratio of an efficient firm. Similarly, the cost of debt is set with reference to efficiency, and not the actual interest rates that the provider faces. This often involves some benchmarking exercise.

For the cost of equity, while the definition of the risk-free rate does not depend on the format **of price regulation, the parameter that defines the correlation between the provider's stock** (for a listed company, otherwise a proxy for financial performance) and the market is also usually defined through benchmarking.

Once the initial value of the RAB and the WACC are determined, the annual revenue requirement is obtained by adding depreciation to the cost of capital. The annual depreciation allowance is determined in the same way as under rate of return regulation.

The final step involves dividing the annual revenue requirement by the estimated number of residents, yielding the initial accommodation price, which would increase yearly, until the end of the regulatory period, by an appropriate cost escalator. Under these arrangements, current residents would bear the costs of any excess capacity, and the price regulation mechanism will be akin to a revenue cap. Alternatively, if the denominator is the number of beds, the provider would bear the cost of excess capacity. As discussed in Section 4.1, if the excess demand is due to a structural reduction in demand, then a DORC approach to setting the initial value of the RAB would likely have addressed this issue. Otherwise, it may be desirable to establish a mechanism to account for over- and under-recovery of capital costs. Given the fixed time period between price reviews, it may also be desirable to allow the pass-through

of significant changes in costs of providing services to residents that are not under the control of the provider.

The analysis in this section shows that depending on the implementation choices, price cap regulation is, in practice, much closer to rate of return regulation than their stylised models would suggest. Price cap regulatory regimes often take into consideration past costs in addition to expected costs, and in doing so, mitigate the incentives for pursuing cost efficiencies. The two regimes also share their complexity, costs, and intrusiveness in their **detailed examination of providers' operations**, thus requiring industry knowledge and judgement.

4.3 BENCHMARKING

Under benchmarking, regulated prices are set based on efficient costs determined through the empirical methods discussed in Section 3.6. I focus first on operating costs, where benchmarking is more commonly used. Uniform prices for each level of care and 'hotel' services would be determined nationally, with adjustments or loadings for factors such as scale (e.g., number of beds), location, and for facilities that specialise in homeless people or in indigenous people.

Figure 3 provides a high-level description of how benchmarking could be implemented to set regulated prices. The starting point is the identification of outputs (different levels of care and **'hotel' services) and the** inputs used to provide these outputs. The ACFI classification of levels of care could potentially be used as outputs to be priced under rate of return and price cap regulation, as prices are determined at the facility level. However, the ACFI classification of outputs (as levels of care) is likely to be too coarse for the purpose of applying benchmarking techniques to determine nationally consistent prices. Thus, the discussion in this section assumes the existence of a more detailed classification system, such as the proposed AN-ACC model,³⁸ with well-defined outputs (accounting for quality) and inputs. A similar exercise for **defining outputs and inputs would need to be undertaken for 'hotel' services, which were out** of scope for the AN-ACC study.

The AN-ACC model was the outcome of a national study that collected data from 30 facilities, involving 1,877 resident assessments and 315,029 staff time activity records collected by 1,600 staff. The study identified the cost drivers as the clinical and need characteristics of aged care residents that influence the cost of care. It also identified the proportion of care costs that are shared across residents, as opposed to costs that are associated with meeting individual needs. The study arrived at a fifty per cent split between individual and shared costs. The AN-ACC model comprises of 13 classes of care and explains 50 per cent of the

³⁸ See Eagar K et al. (2019).

variance in the cost of individual resident care, with a fivefold difference in cost between the least and most expensive AN-ACC class.³⁹

Under the AN-ACC funding model, residential aged care facilities receive a fixed price per day, per resident for the costs of care that are shared equally by all residents, and which vary according to six categories (very remote with indigenous specialisation, indigenous specialisation, non-indigenous/remote/less than 30 beds, non-indigenous/remote/more than 30 beds, specialised in homeless, and all other facilities). Providers would also receive a variable price per day for the costs of individualised care for each resident based on their AN-ACC classification, a one-off adjustment payment upon entry of a resident, and any approved subsidies (e.g., oxygen and enteral feeding).

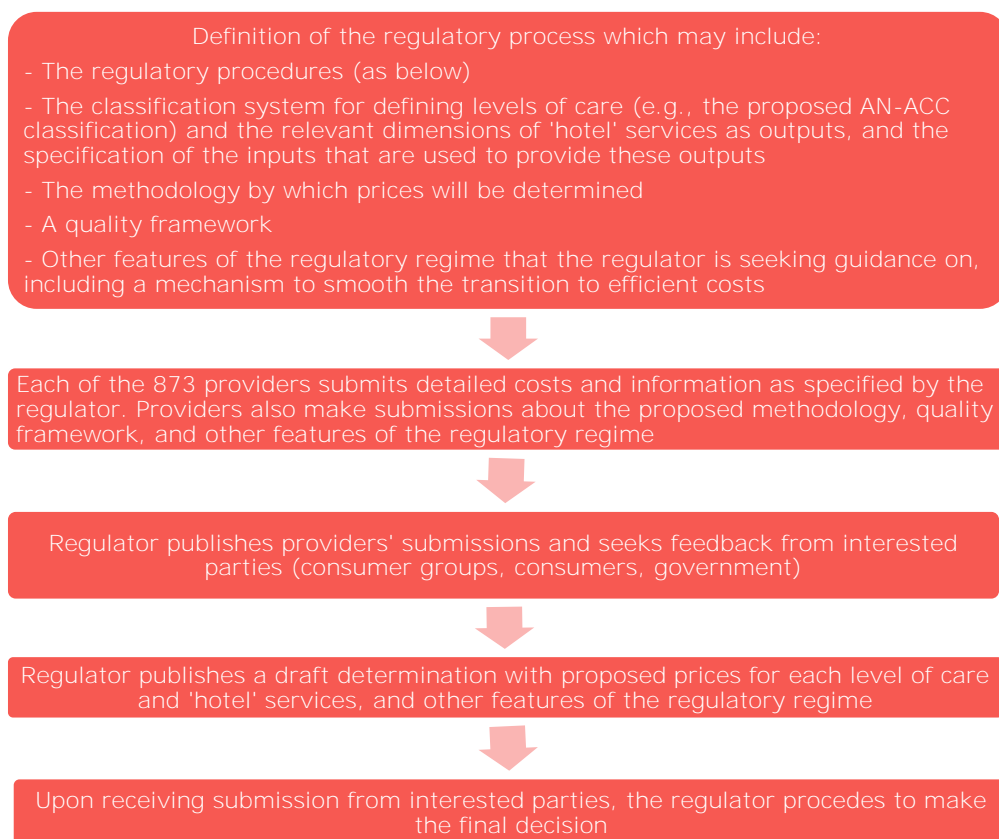


Figure 3: Illustration of a possible implementation of *benchmarking for levels of care and 'hotel' services*

³⁹ Eagar K, McNamee J, Gordon R et al. (2019)

The fixed and variable prices, and the one-off payment, are expressed in terms of a National Weighted Activity Unit (NWAU) for residential aged care. The NWAU is a measure of relative price and plays a similar role as that of the NWAU in the funding of public hospitals described in Section 3.6. **The 'average' residential aged care service** is equal to one NWAU. More intensive and expensive activities are allocated multiple NWAUs, and simpler and less expensive activities are allocated fractions of an NWAU. The NWAU is adjusted to reflect variations in the cost of delivering services.

If we consider that the regulator uses the inputs and outputs as proposed in the AN-ACC, **then the regulator's role is to estimate the efficient price for a national weighted activity unit** through the type of technique described in Section 3.6. While this process suggests a more technical role for the regulator, requiring less judgement than price cap or rate of return regulation, there are several methodological issues to be resolved by the regulator.⁴⁰

Rather than considering these methodological issues in detail here, I focus instead on two important consequences that follow from the implementation of price regulation as described above. First, I note that the AN-ACC model proposes changes in relative prices, compared to the existing ACFI-based funding model. Thus, even if the total amount paid by the government and residents for aged care did not change, some residential aged care facilities would experience a funding increase with the introduction of the AN-ACC, while others would experience a funding decrease. For example, payments under AN-ACC are substantially more than under the current ACFI model for homes that specialise in homeless people and in indigenous people. Eagar et al. (2019a) show that implementing the AN-ACC at the current level of total funding would lead to: (i) a slightly higher proportion of funding being allocated to government and not-for-profit facilities at the expense of private, for profit, facilities; (ii) small reductions for metropolitan facilities, and increases for regional and remote facilities; and (iii) small and medium facilities would benefit slightly at the expense of large facilities.

However, the implementation of an efficient price for the NWAU that reflects efficient costs is likely to lead to even more substantial reductions in the total payments from the government and residents for at least some providers. Thus, implementation of benchmarking should take particular care to provide a feasible path for less efficient providers to approach the efficient frontier. This a key implementation challenge given the financial position of the industry. For example, StewartBrown (2019) reports that in the six months to December 2019, 55 per cent of aged care homes recorded an operating loss, and 29 per cent of aged care homes recorded an EBITDAR loss (operating cash loss).⁴¹

⁴⁰ See, for example, the recent fundamental review of the national efficient price for funding public hospitals, available at <https://www.ihpa.gov.au/publications/fundamental-review-national-efficient-price>.

⁴¹ The AN-ACC model proposes that any facility faced with a significant funding decrease greater than 5% would receive a transition payment up to the 95% threshold for a period up to two years from the date of transition.

An additional consequence from implementing benchmarking regulation is the potential impact on incentives. As noted, the proposed AN-ACC proposes 13 classes of care, resulting in differences in relative prices that are substantially larger than under the current classification. Larger differences in relative prices induce sharper incentives on at least two dimensions.

To the extent that prices for each class deviates from the true costs of providing the service, providers may have a sharper incentive to select residents based on the margin between the efficient price and cost, rather than on care needs. To mitigate these incentives, the AN-ACC **model proposes that the facility is not advised of the resident's AN-ACC payment class** (and, therefore, the actual price) until after the person is in care. The facility would continue to receive standard Aged Care Assessment Team (ACAT) and referral information as described in Section 2.1. The regulator would need to consider whether this approach is enough to mitigate selection incentives as facilities may be able to predict the AN-ACC payment class.

In addition, implementing efficient prices sharpens the incentives for cost reduction. When cost is positively correlated to quality, pursuing cost reductions can result in a deterioration in quality. Mitigation requires introducing a system of rewards/penalties for over/under achievement of quality standards. Setting such a mechanism would require the regulator to work closely with the Department of Health and the Aged Care Quality and Safety Commission.

Finally, I note that benchmarking could also be used to determine the accommodation price. This would involve determining the total cost of capital (the historical value of the assets times the return on capital) and depreciation.

A possible approach, used to determine capital costs of electricity distribution companies in New Zealand,⁴² is to measure the cost of a facility in a given year as the product of a capital service price index and an index of the capital quantity at the end of the prior year. The capital service price index captures both the cost of depreciation and the real rate of return. The current value of the capital stock could be used in the construction of the indices.

4.4 SUMMARY

There are two main lessons from this Section that apply across all three price regulation regimes. First, implementation choices have implications for the trade-off between the power of incentives to reduce costs and the ability of providers to recover their costs. Incentives for cost reduction are sharper when the gap between existing costs and the costs approved by the regulator is large. The larger the gap, the higher the likelihood that **providers' financial**

⁴² See, for example, ACCC (2012, pp. 106-107).

sustainability will be challenged, with negative implications for the future availability of services and future investment.

This suggests that the choice of the power of the incentives may in practice be as or more important than the choice of the regulatory regime. That is, regardless of the choice of price regulation format, consideration needs to be given to the design of mechanisms to facilitate the transition to efficient costs and to **promote providers' financial sustainability**.

The second lesson is that price regulation will be a complex and costly undertaking. It requires judgement and industry expertise from regulators to overcome information asymmetries to set prices that reflect efficient costs. The administrative task of collecting, processing and verifying information from 873 providers will require significant resources. I note, however, that the task of setting disability-adjusted, capitated prices is currently performed by the Department of Health, and the costs of performing these tasks would be shifted to the independent regulator.

In terms of choosing the most appropriate form of price regulation, benchmarking seems to be the most straightforward to implement, requiring less judgement and involving the least cost. Under benchmark regulation, **the national prices of 'hotel' services and levels of care** would be set considering factors such as scale, remoteness, and other specific factors. In practice, however, benchmarking also requires defining regulatory mechanisms to ensure that the industry transitions to a financially sustainable future, without blunting the incentives for cost efficiency.

I note that a regulator implementing price caps would very likely arrive at prices that are nationally consistent when scale, remoteness, and other factors are considered, just as in the case of benchmarking. Price cap regulation also allows regulators to look more closely at individual facilities through the building blocks model, which may facilitate a smoother transition to lower costs than under benchmarking regulation. The key difference, however, is that price cap regulation is costlier and more intrusive than benchmarking.

Importantly, both price cap regulation and benchmarking represent a move away from having **regard to providers' actual costs when determining the prices that consumers will pay** (including government subsidies). As discussed before, such a shift may impact negatively on quality, which will require mitigation through regulatory mechanisms. The next section briefly discusses existing empirical evidence on the impact of shifts from payments to providers that are based on actual costs, as in a rate of return regulation framework, to prospective payment systems (PPS) where payments are set with regards to expected efficient costs, as in a price cap or benchmarking framework.

Finally, I identified in this Section how capital costs could be determined by an independent regulator. However, I am not convinced that a regulated accommodation price is needed or desirable. There does not seem to be a case to regulate accommodation prices. It is unclear

that providers can exercise market power in setting accommodation prices when there is excess capacity. Moreover, the government has a number of levers that it can use to drive an increase in the supply of accommodation. Importantly, once a resident chooses a residential aged care facility, the facility has a greater ability to exercise market power in **setting prices for care and 'hotel' services** given the practical difficulties associated with residents switching facilities. Therefore, the focus ought to be on setting regulated prices for **care and 'hotel' services**.

5. INTERNATIONAL EXPERIENCE

This section briefly reviews the funding of residential aged care in Switzerland and in the US. Switzerland funding arrangements share several common features with the Australian system. These include an industry structure characterised by a mix of public, not-for-profit and, for-profit providers, and funding as a share of GDP is similar to Australia's. **US aged care residents' private contributions are substantially lower than government contributions and prices are largely regulated, as is the case in Australia.** However, funding as a share of GDP is substantially lower, and providers are predominantly for-profit.

While the three countries share similar characteristics, the nature of the challenges each face is different given the different age profiles of the population and sheer differences in population sizes. To illustrate, **Switzerland's population** is approximately one-third the size of **Australia's population, which in turn is less than 8 per cent of the population of the US.**

The choice of Switzerland and the US also serves another purpose. There is relevant empirical evidence for these two countries, which is reviewed in the Sections below. Sections 5.1 and 5.2 explore the relationship between regulated prices, competition, and quality.

5.1 SWITZERLAND

About 18.6% of the Swiss population (15.9% in Australia) is over the age of 65 years with about 5% (2.5% in Australia) over the age of 80 years. The overall (public and private) expenditure on long-term care is estimated at around 1.6% of GDP for residential aged care (0.9% in Australia), and 0.1% for care services at home (0.4% in Australia). In terms of residential aged care workers and beds per 1000 population aged 65 years and older, Switzerland ranks among the highest in the OECD.⁴³

⁴³ See <https://stats.oecd.org/Index.aspx?ThemeTreeId=9>.

Municipalities and, to a lesser extent, Cantons organise and provide or guarantee care for the aged. While long-term care has historically been considered as an individual and family responsibility, part of the aged cared expenditure is covered by the mandatory health insurance (Health Insurance Law, LAMal), the Old-Age and invalidity benefit system (AVS-AI), and the supplementary benefits to AVS-AI pensions.⁴⁴

LAMal is a compulsory health insurance organised through competing not-for-profit insurers. It provides universal in-kind benefits, covering the medical costs and a contribution to the care costs in residential facilities (but not other costs such as accommodation), as well as part of the cost of home-care services. The reimbursement varies with the intensity of care needs and the out-of-pocket contribution of the insured, with the outstanding amount paid for by the Canton of residence of the insured person.

Invalidity allowances are provided to recipients affected by permanent or long-term incapacity. These allowances are provided to individuals with severe, moderate or mild invalidity, and the amount of the cash benefit varies depending on the degree of disability and whether they reside at home or in a residential aged care facility. There are no restrictions on the services that can be purchased or financed with this allowance. In addition, supplementary benefits are means-tested benefits provided to the elderly, the survivors, and disabled people. The amount corresponds to the share of living expenses exceeding their own income and resources. The federal law defines the living expenses that are included in the calculation, for example, per-diems paid in facilities and some home care costs. Per diems are fixed by Cantons for nursing homes located on their territory.

The Swiss residential aged care sector shares many similarities with our sector. The choice of the facility is often determined by the system's ability to find a vacancy in a short time for those who urgently need because of the state of their health and the inability of the family to care for them. Many for-profit, not-for-profit, and government providers operate in the 26 different Cantons, with governments responsible for accrediting new providers. The different Cantons use different types of regulatory approaches to funding. Crivelli et al. (2002) studied 16 out of the 26 Cantons and distinguished between five different types of regulation. These authors used this variation, along with considerable differences in average cost per patient per day in aged care across cantons, to assess the performance of the different regulatory regimes **on providers' technical efficiency**.

In most Cantons, the government intervenes in public and private for-profit facilities by regulating the daily rates, setting quality standards, determining the minimum necessary infrastructure and staff requirements, and by providing subsidies. Usually, but not always, private for-profit facilities are excluded from receiving subsidies.

⁴⁴ See <http://www.oecd.org/switzerland/47878092.pdf>.

The lightest form of regulation involves the Canton government granting a subsidy in form of a voucher to individuals whose economic situation (income and wealth) precluded them from entering a facility. In some Cantons, the voucher system is complemented by local governments covering part of the investment cost of the facilities.

Under a different regulatory approach, some Cantons finance residential aged care through payments to the institutions covering both investment costs and part of the operating costs. There are two different forms of payments aimed at covering operating costs: a retrospective coverage of the deficit and a fixed contribution to the costs in the form of a global budget. In terms of incentives to pursue cost efficiencies, the former is similar to rate of return regulation, and the latter to price/revenue cap regulation. The sharing of costs between the different municipalities also vary across Cantons.

Crivelli et al. (2002) found high levels of technical efficiency, with more than 50% of the facilities having a mean inefficiency score lower than 15%. They also found that not-for-profit and government facilities are just as efficient as for-profit facilities, and that the type of regulation does not impact efficiency.

The main limitation of this study is that its cross-sectional setting does not allow to control for unobserved characteristics of the 26 systems, which may affect the assessment of the impact of the type of regulation on technical efficiency. Using more recent data, Di Giorgio et al. (2014) studies the impact on costs of a change from a payment system based on acknowledged financial needs (RPS) to a system based on an ex ante determined budget (PPS) in the Swiss Canton of Ticino. Assessing this change is akin to considering what may happen when prices are fixed for the next regulatory period and set based on expected, rather than actual costs.

Their econometric analysis showed that the new payment system reduced costs by about 9% after five years of policy implementation, controlling for quality aspects using different measures of the nursing staff ratio. The small effects may be explained by the lower power of the incentives, as facilities could only retain 25% of any savings (i.e., difference between payments and actual costs).

The low power of the incentives may also explain why the authors have not found evidence that the cost savings were achieved through a reduction of quality as measured by the number and types of nurses. This contrasts with evidence, mainly from the US⁴⁵, which is characterised by for-profit provision, where the introduction of PPS has resulted in significant reductions in quality as measured by a reduction in the number of professional staff.⁴⁶

⁴⁵ In the US, the use of PPS has been extended from hospitals to the residential aged care sector in 1997 through the Balanced Budget Act. Similarly, many European countries have incorporated more incentives into their existing funding systems.

⁴⁶ See, for example, Chen and Shea (2002), Konetzka et al. (2004), and Zhang et al. (2008).

5.2 UNITED STATES

There are more than 1.4 million individuals in residential aged care in the US across over 15,000 facilities.⁴⁷ Despite the differences in scale and institutional characteristics (e.g., for-profit providers account for nearly 70 per cent of the total number of providers), there are some important common features. As in Australia, residents' **private contributions are** substantially lower than government contributions and prices are largely regulated. Medicaid and Medicare set the reimbursement rates for 62 per cent and 14 per cent of nursing home residents, respectively. Only 24 per cent of residents pay the private rate set by the residential aged care facility.⁴⁸

If reimbursement rates are low, as usually claimed for Medicaid, facilities have little incentive to compete for Medicaid beneficiaries through better quality of care. Moreover, as in Australia, competition in the industry is limited due to vertical and horizontal (geographic) product differentiation, and because state Certificate of Need (CON) laws restrict entry and investment decisions.

Hackmann (2019) developed a structural model of the US residential aged care industry to simulate the effects on the quality of care of policies that either raise regulated Medicaid reimbursement rates or increase local competition via directed entry. Using data from Pennsylvania, he finds that moderate increases in Medicaid reimbursement rates lead to significant increases in the quality of care as measured by changes in the number of skilled nurses. In contrast, an increase in competition through entry has a relatively small positive effect on the quality of care.

Hackmann's results suggest that increased competition through entry decreases social welfare, as consumer gains are smaller than the reduction in industry profits that follows from the fixed costs of entry. He also finds that new entrants are unable to recover their fixed costs. Considering the annual losses of the new entrants as requiring additional public spending, he finds a return in skilled nurses per resident per \$100 million in public spending of only 0.4 per cent. In contrast, Hackmann finds a return of 2.6 per cent from an equivalent increase in Medicaid reimbursement rates.

This positive relationship between regulated prices and quality is also found in the residential aged care sectors of other countries. Herr and Hottenrott (2016) use quality report cards of 7400 nursing homes in Germany to establish a positive relationship between prices and the reported measures of quality across seven dimensions. In Germany, health insurance and

⁴⁷ See https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandCompliance/Downloads/nursinghomedatacompendium_508-2015.pdf.

⁴⁸ Hackmann (2019).

long-term care insurance are mandatory. Prices are negotiated between the provider and the **resident's health insurer** for a period of at least one year. Care is partly paid by the health insurer and partly out-of-pocket. However, as in Switzerland, there are means-tested subsidies to cover shortfalls in a **resident's contribution**. The insurer's **payment** is constant across all facilities, and only depends on the care level. This payment can be thought as a disability-adjusted capitated price, which is prevalent in Australia's **residential aged care** sector.

There is another feature of the US regulatory and payments framework for residential aged care that is of interest. Before 2009, the assessment of the quality of a facility was publicly available in the form of 18 distinctive clinical measures. In 2009, Centers for Medicare and Medicaid Services introduced the Five-Star Quality Rating System. The new rating system was added to the existing multi-dimensional clinical measures.

Zhao (2016) uses panel data from 2006 to 2010 to determine the impact of competition on quality, and how this impact varied when consumers had access to the new rating system. The effect of competition is identified using exogenous variation in the geographical proximity of nursing homes to their potential consumers. Zhao finds that the effect of competition on nursing home quality is either non-existent or small (and with limited statistical significance). However, this effect becomes statistically stronger (but very small) after the introduction of the new rating system. These results highlight the limits of standard competition regulation prescriptions, in the form of publishing easier to understand information, to increase quality.

5.3 SUMMARY

The empirical evidence reviewed in this section supports two propositions advanced in this report with regards to introducing price regulation for residential aged care services.

The first proposition is that determining the power of incentives is a crucial component in the design of the price regulation regime. The sharpness of the incentives is determined both by the difference between the regulated price and actual costs, and by how much (or for how long) the regulated provider can retain profits before lower costs are converted into lower regulated prices. When prices are set with regards to expected efficient costs, as under price cap or benchmarking regulation, and when providers can retain profits for longer, the incentives for cost reduction are the sharpest.

The second proposition is that sharper incentives, in the form of lower regulated prices, may lead to a deterioration in the quality of services. In particular, the evidence reviewed above suggests that higher regulated prices are more likely to lead to higher quality than competition.

6. CONCLUDING REMARKS

This report has canvassed the potential to apply price regulation to the delivery of aged care services. I found that the characteristics of the Home Support and Home Care programs do not lend themselves to price regulation.

In contrast, the capitated prices of residential aged care (adjusted for the level of disability) **and 'hotel' services are already determined by the government**. If these prices are set instead by an independent regulator, based on efficient costs, providers would face increased incentives to pursue cost and process innovation. However, price regulation, if not well-designed, may have a negative impact on quality and product innovation, and it may affect the financial position of providers, which may lead to the exit of non-government providers.

Under price regulation, the government can set the level of subsidies to pursue its objective of achieving equity of access given its budgetary constraints. If subsidies are such that residents are not excluded from services for the lack of capacity to pay, then the amount of **the subsidies should not interfere with the providers' ability to recover efficient costs**.

The report makes it clear that neither rate of return nor price cap regulation would be appropriate to adopt to set regulated prices for residential aged care services. Both types of price regulation are too costly and intrusive to be applied to set prices for 873 different providers. A regulatory process that sets a nationally uniform efficient price for each level of **care and 'hotel' services**, accounting for genuine differences in costs, seems the only feasible alternative to implement price regulation in the sector.

The AN-ACC classification and funding model may be a possible starting point, which defines inputs (cost drivers) and relevant outputs (levels of care). A similar exercise would need to be **undertaken for 'hotel' services. Setting up a regulatory regime, however, goes considerably beyond defining a NWAU, or using benchmarking to determine an efficient price for the NWAU**.

The design of the price regulation regime involves several choices. For example, it includes the choice of the regulatory period (e.g., annual reviews) and the mechanics of the process (as in Figure 3). The determination of the methodology is also an important step, and so is the choice of the range of mechanisms to complement high power incentives to reduce costs with incentives (and the associated system of audits and accreditation) to meet the quality of service standards and to mitigate the possibility of resident selection by providers based on their classes of payment. Finally, particular attention needs to be given to ensuring a smooth transition and avoiding any inefficient exits of providers.

A simple mechanism to achieve quality and financial sustainability would involve adding an uplift to the national efficient price (e.g., 10%) subject to the achievement of well-defined quality standards. Under this mechanism, a provider could be penalised for not achieving the

quality standards by losing the uplift. Depending on the level of the quality breach, the provider could be further penalised (e.g., by receiving 95% of the efficient prices). Clearly, careful modelling is required to determine the details of such a mechanism, including ensuring that entry into the sector can occur as a response to higher regulated prices.

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