

Assistive technology pricing in Australia: is it efficient and equitable?

Michael P. Summers¹ BAppSocSci, MA, PhD, Honorary Associate

George Verikios^{2,3,4} PhD, Associate Director

¹Centre for Health Communication and Participation, Australian Institute for Primary Care and Ageing, La Trobe University, Bundoora, Vic. 3086, Australia. Email: michaels@minopher.net.au

²KPMG Economics, 71 Eagle Street, Brisbane, QLD 4000, Australia.

³Department of Accounting, Finance and Economics, Griffith University, 170 Kessels Road, Nathan, QLD 4111, Australia.

⁴Corresponding author. Email: gverikios@kpmg.com.au

Abstract

Objective. To examine available systematically collected evidence regarding prices for assistive technology (AT; e.g. disability aids and equipment) in Australia with other comparable countries. Issues of appropriate AT pricing are coming to the fore as a consequence of efforts to move to consumer-centric purchasing decisions with the National Disability Insurance Scheme (NDIS) and also in the recent aged care reforms.

Methods. We identified and present three sets of AT price comparisons. Two comparisons were based solely on the lowest prices advertised on the internet, and one comparison examined recommended retail prices. Variables essential to ensuring accurate comparisons, as well as significant supply-chain issues were also examined and considered in the analyses.

Results. The first internet-only price comparison found that overall AT prices were 38% higher in Australia compared to other countries, but did not factor in shipping and other related costs that are essential to include given that most AT is imported. The second internet-only price comparison found that overall Australian prices were 24% lower when shipping and related costs were included. The recommended retail price comparisons found that Australian prices were between 14% and 27% lower. Prices for internet-only retailers (those with no bricks-and-mortar presence) are consistently lower for all products than those sold by retailers with actual shop-fronts. Further, there is no evidence of suppliers earning supranormal profits in Australia.

Conclusions. The results indicate that AT prices in Australia are efficient and equitable, with no significant indicators of market failure which would require government intervention. Efforts to reduce prices through the excessive use of large-scale government procurement programs are likely to reduce diversity and innovation in AT and raise AT prices over time. Open markets and competition with centralised tracking of purchases and providers to minimise possible over-servicing/over-charging align well with the original intention of the NDIS, and are likely to yield the best outcomes for consumers at the lowest costs.

What is known about the topic? Government-funded programs are used extensively to purchase AT because it is a primary enabler for people of all ages with disabilities. Perceptions of unreasonably high prices for AT in Australia are resulting in the widespread adoption of bulk purchasing and related strategies by governments.

What does this paper add? Carefully undertaken systematic price comparisons between Australia and comparable Organization For Economic Cooperation and Development countries indicate that, on average, Australian prices are lower than elsewhere when delivery to Australia is taken into account. It was also found that prices at brick-and-mortar shops, with all the services they provide to ensure the appropriateness of the products provided to meet the consumers' needs and goals, are substantially higher than Internet purchases in which the consumer bears all the risks and responsibilities for outcomes.

What are the implications? Overuse of government bulk purchasing and similar arrangements will lead to less diversity in the available AT products, related services and retail outlets, resulting in less choice for consumers and higher risks of poor outcomes through less focus on matching consumers with the 'right' products for their needs and goals, and ultimately higher AT prices over time as competition is reduced to a few major suppliers.

Received 23 February 2016, accepted 9 December 2016, published online 6 February 2017

Introduction

The World Health Organization defines assistive technology (AT) as ‘... an umbrella term for any device or system that allows individuals to perform tasks they would otherwise be unable to do or increases the ease and safety with which tasks can be performed.’¹ ‘Medical and disability aids and equipment’ is another, older term for AT. Recently, concerns have been raised that compared with prices for AT in other countries, Australian AT retailers’ prices are excessive.^{2,3} This, in turn, has led to the assumption that the Australian AT retail market and overall supply chain is inefficient and is providing supranormal profits to AT suppliers, and thus requires significant government intervention to generate more appropriate pricing through measures such as large scale bulk-purchasing programs that effectively by-pass most local retailers. For example, in 2014, two state government AT schemes, namely the Victorian State-Wide Equipment Program and the South Australian Domiciliary Equipment Scheme, jointly tendered a bulk procurement order. In the same year, the Queensland government tendered a bulk procurement order for non-customised AT, and for hoists and slings via its Medical Aids Subsidy Scheme. Given this trend, it is timely to examine the empirical evidence relating to Australian AT prices and possible market failure.

Further, this research is also timely given that the 3-year roll-out of the National Disability Insurance Scheme (NDIS) began in mid-2016. This consolidation of the myriad state, territory and national disability programs includes the creation of an NDIS procurement program for AT for people under 65 years of age. It has also been proposed that eventually public funding for AT for people over 65 years of age is included in this single national AT program to strengthen government purchasing power and further drive down prices.⁴ This degree of consolidation, procurement and market impact will be enormous relative to previous programs. In 2019–20, when the NDIS is expected to be fully implemented, expenditure on AT for those under 65 years of age is estimated to be just over A\$1 billion.⁴ Historically, 65–80% of expenditure in state-based AT programs has been on people aged 65 years and older.

Unlike mass-marketed retail products, much AT is complex and requires significant complementary services by suppliers to ensure products are well matched to individual users. Consequently, individual AT retailers depend extensively on their capacity to generate a strong match between the needs and goals of individual consumers and the appropriate AT products at a competitive price in order to maintain and hopefully grow their market share. There are only limited licensing requirements (via the Therapeutic Goods Administration) for selling AT in Australia beyond the general requirements on all retail enterprises; that is, entry barriers are low. *A priori*, economic theory suggests that markets with low entry barriers provide products at close to marginal cost (i.e. prices are efficient) and prevent the earning of supranormal profits in the long run (i.e. the market is competitive).

AT is a primary enabler: it assists people with disability of all ages to undertake activities that others can accomplish without special aids or equipment. One in every 10 Australians relies on AT,⁵ and this AT is central to achieving both individual goals and national policy outcomes regarding participation, inclusion and

independence. Consequently, AT pricing has an important equity aspect in terms of affordability and accessibility for people with disability of all ages. The importance of AT is also the basis for the ongoing funding of AT through numerous federal, state and territory schemes across a wide range of government portfolios, including disability, aged care, health, education and employment. The scale of government funding programs for AT, and the associated rules regarding eligibility (of both individual consumers and different AT products) and their procurement processes, have major impacts on the AT market, including diversity of products, supply chain efficiency, competition and pricing.

Assistive Technology Suppliers Australasia (ATSA) consultations with AT suppliers frequently reveal the view that the Australian AT supply sector is very competitive, as reflected by high levels of efficiency and low levels of profitability for most suppliers. Anecdotal evidence of low profitability is supported by IBISWorld,⁶ which analysed one part of the Australian AT marketplace, wheeled mobility, and found that, on average, over the period 2008–12 profitability was only 0.9%.

In the present study we evaluated the available evidence on the efficiency and equity of AT prices in Australia.

Results and discussion

The Australian AT market

Suppliers of AT consist of manufacturers, importers, distributors and retailers. ATSA estimates that there are between 350 and 400 Australian specialist retailers focused primarily on AT, including small family-owned businesses, international companies and not-for-profit organisations.⁷ Other sources of basic AT products, such as continence aids, crutches or very simple wheelchairs available from chemists and supermarkets, are not included in these figures. There are approximately 40 major specialist AT importers and many smaller importers. Approximately 80–90% of AT is imported.

AT retailers provide aids and equipment, but they also provide essential services to ensure a strong match between the consumer and their AT, with most of the costs for these services being incorporated into the retail price of AT products being sold. Typically, higher service levels are necessary as the complexity of the AT required by the user increases (see Fig. 1)^{8,9} and the complexity of the AT user’s needs and situation increases. In addition to working with the consumer, AT retailers also often work extensively with consumers’ health professionals, such as occupational therapists and physiotherapists, to generate the best AT solution. Most government AT funding schemes require the provision of a ‘prescription’ from an appropriately qualified allied health professional. Thus, some suppliers treat the health professional as a primary customer because oftentimes that is who brings the consumer to the supplier.

The AT pyramid

Figure 1 (the AT Pyramid) illustrates the variety and different levels of complexity of diverse AT products. The vertical arrows on each side of the pyramid indicate the interrelationships between complexity, costs, risk and scale (volume of any particular product). Costs to AT retailers increase as scale decreases and as risk and complexity rise. As those costs increase, so too do retail prices. More sophisticated products cost more to produce, and

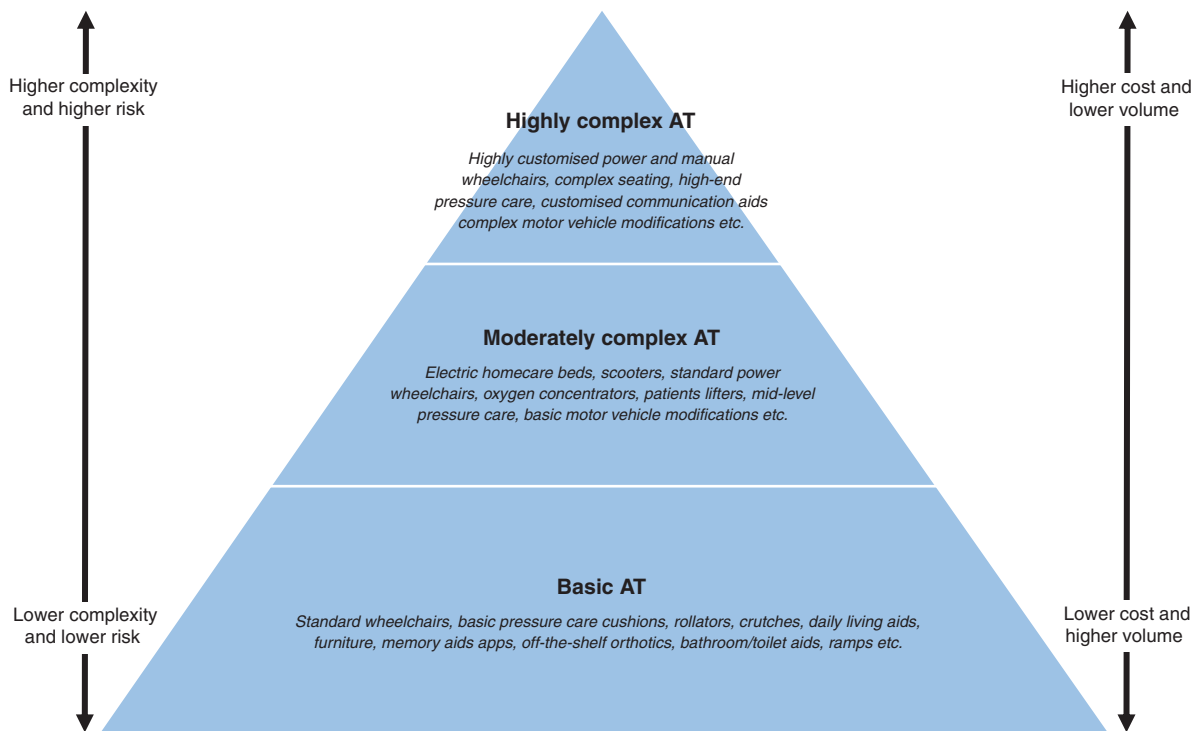


Fig. 1. The assistive technology (AT) pyramid.

more sophisticated products require more services to ensure a good match with the consumer, driving up costs and prices towards the top of the pyramid. The shape of the pyramid, with a wide base and a narrow peak, reflects the high volume, low cost of less complex items compared with the low volume, high cost of more complex AT.

Issues of complexity also arise from the person who needs AT and their situation. Some common factors include cognitive or intellectual impairments, progressive illnesses such as multiple sclerosis, mental health issues, family dysfunction, living in rural or remote areas, lifestyle choices, extreme poverty, lack of other essential supports, extreme physical deformities or limitations and the nature of client goals and aspirations. Consequently, costs in terms of time and skills required can sometimes be quite high even for relatively 'simple' AT in many situations.

Achieving a good match becomes more resource intensive as the complexity of the AT and the consumer increase; the risk and cost of potential failure also increase. An inadequate solution may not only limit the consumer's life unnecessarily, but also put them at risk of injury or death. Failure also drives up overall costs as consumers are less able to participate in society, expensive equipment is abandoned and the expenditure incurred is of little value to the consumer or the funder. The availability and use of a highly skilled workforce within AT retail shops is a critical element in ensuring good outcomes for consumers and value for money for funders (which include individual consumers, government and insurers).

Services provided by AT suppliers

AT is a service industry at least as much as it is a goods/products industry as a consequence of the essential requirement to match

the AT to the client. Over time, individual AT suppliers have had to constantly innovate and develop highly efficient means of providing these essential services for as low a cost as possible, driven by competition and the lack of funding streams to pay for these services separately from the costs of the AT itself in most government AT funding programs (except for highly customised AT solutions). Government-funded AT programs elsewhere, such as in the US, typically include a separate funding stream to cover most of the services to individual consumers that aim to ensure a strong match and good outcomes.

ATSA categorises the services provided by AT suppliers into those related directly to individuals and those that promote good outcomes for individuals;⁷ these are summarised in Box 1. With the exception of the costs of constructing highly customised solutions and the provision of spare parts, maintenance and repair services, the costs of the services to both individuals and the sector are usually incorporated into the retail price of each AT product.

The provision of information and advice from AT retailers to consumers are essential given the information asymmetries in the AT market: (1) many consumers cannot determine which are the most appropriate products or combination of products for their situation and environment; and (2) AT prescribers (usually occupational therapists, physiotherapists and others) often use the knowledge and experience of AT retailers to help identify the most appropriate products for a particular consumer given the extensive diversity of products and the effect subtle product differences can make for an individual user. Allied health professionals receive relatively little training in AT in their undergraduate studies and few specialise in AT afterwards. The result is that very few have in-depth AT product knowledge and they

Box 1. Services provided by assistive technology (AT) suppliers (Assistive Technology Suppliers Australasia, 2014⁷)

Services to consumers

- Information and advice to consumers and prescribing therapists
- Assistance with product selection, including investment in both display and demonstration stock
- Development of detailed specifications for an AT solution
- Free home trials
- Assembly or construction of the final AT product
- Delivery, adjustments and instructions for safe use
- Maintenance, spares and repairs

Services to the sector

- Sourcing new products, including research and development of new products
- Standards and compliance testing, including detailed product specifications
- Training and education of prescribing therapists
- Product inventory and spare parts
- Warranties, product recalls and participation in standards development
- Long-term loan of products to public sector organisations, such as Independent Living Centres and spinal or rehabilitation facilities

often have limited skills in matching and fitting AT products to individual consumers, particularly as complexity increases.¹⁰ In addition, AT suppliers are one of the major sources of specialised training about AT and AT products for therapists in Australia. Further, ATSA notes:

Therapists and AT suppliers who have worked in other countries, particularly the USA, UK and NZ, report that AT retailers generally have to provide higher levels of service and assistance in Australia because therapists usually have lower levels of specialised AT training and skills. That is, some AT-related work that would routinely be done by therapists in other countries is usually undertaken by AT retailers in Australia, such as determination of complex specifications and adjustments to a wheelchair and associated seating.⁷

The extent of services provided by AT suppliers to individual consumers, therapists and the health, aged care and disability sectors affects the marginal costs of providing appropriate and well-matched products for consumers. The provision of these services also raises fixed costs, such as free in-home trials. A trial can include delivery, assembly, set-up, adjustments, instructions on use, determination of detailed specifications and pick-up and cleaning and/or sterilisation. In addition to AT products for their showrooms, retailers must also have on hand an extensive selection of demonstration products for trialling, including a wide range of sizes and configurations of many different products to facilitate trials. Holding a significant inventory of stock for trials and showroom purposes further adds to fixed costs. Australian AT retailers anecdotally report making sales on approximately only 50–60% of the trials they undertake.

Why is there a perception that Australian AT prices are high?

There appears to be a wide range of factors contributing to perceptions that AT is over-priced in Australia.

Media reports

In recent years there have been several media reports of excessive AT prices, and ATSA⁷ reports that it has closely looked into these when they have been reported. In all cases investigated, no evidence of excessive pricing was found. Two examples are presented in Box 2.

Bundled pricing

As noted above, AT retailers do not charge separately for most of the services they provide. They typically bundle the price of their services into the retail price of an AT product. As is usually the case where bundling is practiced, the end result is that most of these services are effectively hidden from the public gaze and few people other than AT suppliers are aware of the extent and costs of these services. These services are described above in ‘Services provided by AT suppliers’. The costs for these services, other than major customisations, spare parts, maintenance and repairs, are usually recouped only if and when a sale is made.

Price differences

It is well established that for most goods prices charged by local retail shops are usually significantly higher than the prices for the same goods when purchased over the Internet.¹¹ This also holds true for AT products (e.g. Case Study B in Box 2). In most retail markets, the prices of Internet-only AT retailers (i.e. those with no physical retail store presence) are lower than those of retail outlets, reflecting the absence of services and lower overhead costs.

Across most retail sectors, different stores charge different prices for the same or similar goods (i.e. prices vary) and AT products fit this pattern. These variations arise as a consequence of retailers using different business strategies and operating in different locations, such as city centres, urban, suburban, rural and remote areas. Different business approaches require different cost structures, and thus also require different pricing and marketing strategies. Scale, number of staff and the skill level of

Box 2. Complaints of excessive prices**Case study A: complaint to Assistive Technology Suppliers Australasia (ATSA December 2010)⁷**

A parent of a young child with significant disability stated, 'In March 2008, my child's wheelchair cost \$13 000 in Australia, yet I could have bought it online from the USA for just \$3750.'

The results of the investigation revealed the following (note, all prices quoted are in A\$).

- The total cost invoiced was \$11 846, of which the wheelchair was just one component of the AT solution and was priced at \$5888. This was 5% below the importer's recommended retail price at the time.
- The quoted US Internet price of \$3750 was for the base wheelchair with no options and no freight, whereas the local AT retailer's price included several options and air freight to Australia.
- The importer of the wheelchair advised the cost of air freight for the wheelchair was close to \$1000 due to its large size, and the additional domestic freight (also paid by the AT supplier) would have been around \$45.
- The balance of the cost was for complex seating components (\$3004), postural supports (\$2663) and labour for custom wheelchair modifications, fitting and delivery (\$291).
- The detailed assessment and associated AT trials were performed at no cost.
- Labour was charged at \$85 per h plus the goods and services tax (GST) for custom wheelchair modifications (1 h billed) and \$60 per h plus GST for setup and delivery (3 h billed).

Case study B: complaint to ATSA (December 2012)⁷

An Australian consumer contacted the US-based manufacturer of highly bespoke, custom manual wheelchairs and stated, 'Prices through your Australian dealer network are double the US cost for titanium wheelchairs and triple the US cost for aluminium wheelchairs'.

The results of the investigation revealed the following (note, all prices quoted are in A\$).

- When purchased in Australia, the titanium wheelchair's recommended retail price was \$6135 through a full-service AT retailer and \$6290 through a similar retailer in the US (including \$450 for air freight to Australia). The US website price was \$4530 (including \$450 for air freight to Australia).
- When purchased in Australia, the aluminium wheelchair's recommended retail price was \$2550 through a full-service AT retailer, and \$2545 through a similar retailer in the US (including \$450 for air freight to Australia). The US website price was \$2000 (including \$450 for air freight to Australia).

staff are also significant factors affecting costs. Smaller businesses have less capacity to generate volume discounts when purchasing products from wholesalers, and cannot spread their overhead costs over a large number of transactions like bigger businesses can. Costs and pricing will also vary based on the choices businesses make regarding the quality of products and the level of product complexity (e.g. customised power wheelchairs with individualised seating systems vs continence aids and simple items such as grab sticks), as well as focusing on different customer client groups, such as younger active clients with complex disabilities and environments, children or frail older people.

The Queensland Competition Authority (QCA) undertook an inquiry into AT pricing and found price variations across the marketplace for similar items, but no indication that these arose from anticompetitive actions in the supply chain or by retailers.¹²

Geo-blocking and exclusive supply arrangements

Like price differences, geo-blocking and exclusive supply arrangements are normal throughout many different retail sectors in Australia and internationally, including AT. Geo-blocking is a consequence of the rise of online purchasing and is a common practice by manufacturers who want to limit or control the online sales of their products in particular regions or countries. Exclusive supply arrangements give a particular distributor exclusive access to products in a particular location (region, country, state etc.). Although both practices are common, they do create potential for anticompetitive behaviour, but are not in themselves considered anticompetitive practices.

The use of geo-blocking and exclusive supply arrangements for some AT products in Australia has helped ensure that Australians have access to an exceptionally diverse range of AT products for such a relatively isolated and small country compared with the US or Europe. Internationally, Australia represents only approximately 5% of the AT market.

Anticompetitive behaviour leading to excessive prices is typically avoided through the competitive pricing of comparable products from different manufacturers in many different product sectors (e.g. the Australian motor vehicle sector). This is also practiced in the AT supply chain.

Note also that geo-blocking and exclusive supply arrangements can help promote high-quality and safe provision of AT by ensuring that retailers have the capacity to support the products they are selling. The QCA¹² inquiry uncovered no evidence of anticompetitive activities arising from geo-blocking and exclusive supply arrangements. They also observed that:

...[w]here customer service and customisation is a significant component of the purchase, exclusive dealing arrangements may enhance economic efficiency... [because]... a dealer [that] has not been granted exclusivity by a manufacturer, importer or wholesaler... may be reluctant to carry inventory, provide a showroom... a trained workforce, or offer equipment trials because other dealers may 'free ride' on those services and undercut prices.¹²

This free-rider problem is not specific to AT and occurs in other retail markets for manufactured goods.

Often, AT manufacturers try to bar Internet-only retailers from selling AT in other countries to prevent their products from

being sold where there are no product-specific services available to back their products and minimise associated risks. For example, particularly for products in the middle and top of the AT pyramid, issues of good matching, proper fit, training in use etc. are critical. If a product such as a wheelchair does not fit or function as needed, resolving the issue through returning the product via international freight is very expensive, with little certainty of a good resolution. In addition, overseas manufacturers are well aware that they must have trained product-specific support in locations to provide pre- and post-sales services for their products (e.g. showrooms, product trials and timely repairs and maintenance) to achieve the highest level of sales as possible. Compliance with Australian regulatory requirements, particularly the Therapeutic Goods Administration, is required for AT purchased from retailers in Australia (but not when individuals purchase and import AT from overseas sources). Finally, there would be no reason for any business to make the very significant investment to import and market a new product if the likely outcome was that a substantial number of potential purchasers, after becoming aware of the product, purchased it from overseas via the Internet.

Government procurement programs

Many state government programs, which either purchase or partially fund AT for eligible consumers, have increased their use of various bulk-procurement programs in the past 5 years. These have typically, but not exclusively, focused on products of low to moderate complexity. These programs aim to leverage large-scale government purchasing to procure AT at significantly lower prices due to the perception by policy makers that prices are excessive in Australia.

However, there are indications that these programs are generating a range of unintended consequences, such as reducing competition, shifting costs to consumers, therapists and suppliers and compromising consumer outcomes. For example, under one of the recent bulk-procurement contracts, one supplier has a contract from a government procurement program for the provision of hoists and another has a contract for the provision of slings; nevertheless, both the hoists and slings need to be trialled and sold together. Thus, the two suppliers have to be involved for each transaction. In another example, one supplier has a contract for a specialised seating cushion that maximises skin integrity and minimises pressure sores, but another supplier has the contract to supply the wheelchair that the cushion is used with. Clearly, the wheelchair cannot be trialled by the consumer without the cushion. In both these examples, the additional transactions required by the consumer, the therapist and the retailers involved actually reduce efficiencies and drive up overall costs, even though the bulk purchaser may be able to reduce purchasing costs.

Further, bulk procurement and tendering generally favours larger companies because government authorities desire broad geographical coverage and smaller local and/or specialist retailers are often disadvantaged given the volume and costs of completing and competing on tenders. Thus, smaller providers are gradually squeezed out of the market, reducing competition and choice.¹³

Although some state government bulk-procurement programs routinely make claims of 20–50% lower prices as a result of their bulk-purchasing strategies, it is likely that these are based on

individual AT products rather than a whole range of products, or savings from essential services that are not included in prices and/or not provided with the products. There are no publicly available data to enable independent verification of these claims, and no comprehensive independent evaluations have been published in the peer-reviewed or grey literature. Regardless, claims of very high price savings by government procurement programs fuel perceptions that AT retailers are over-pricing their products.

ATSA has estimated that the possible savings through increased procurement efficiency via bulk purchasing and related strategies by government programs are unlikely to generate savings outside the range 5–15% when total costs are considered.⁷ Overall costs include costs of the procurement processes, the costs of warehousing, staffing, management, distribution, trials, training consumers and therapists in the use of the products and the provision and sourcing of spares, maintenance and repair services. All these activities are vital for maximising AT outcomes. So, unless these services are also being provided and funded by these programs, these programs are simply ‘saving money’ by limiting choice and diversity in the AT market regarding both products and services essential to getting a good match, and shifting costs to others, including consumers, therapists, suppliers and sometimes other government programs.

Both the QCA¹² and Jenny Pearson & Associates¹³ cite research demonstrating that well-constructed government-funded AT procurement programs using direct consumer control for AT purchases get improved consumer outcomes and, at the same time, lower AT prices. This is consistent with the view that consumers understand their needs better than a third party purchasing on their behalf, and are likely to make better price and quality comparisons than a third party. Shifting control to consumers is also consistent with the new paradigm underpinning the NDIS and aged care reforms in Australia.

Moderately and highly complex AT is expensive

Many AT products in the middle and top of the AT pyramid are expensive, usually reflecting the overall manufacturing costs of complex products, the bundled services that ensure a good match and the lower volume of production and sales. For example, a customised powered wheelchair using an individualised seating system could sell for A\$15 000–40 000 based on exactly what was required to meet the consumer’s needs. Less complex AT, such as simple bent metal and plastic products, have gradually fallen in price over time, as they have for many comparable manufactured goods and for similar reasons: improved manufacturing technologies and the transfer of production to emerging economies with low labour costs (e.g. China). In contrast, costs to produce more complex AT products have increased over time. Most complex and highly complex AT products are made in the US and Europe, with much higher manufacturing costs relative to emerging economies. The lower volumes of manufacturing, as well as costs of innovation, testing and regulatory compliance for complex AT products, mean that manufacturing costs are also higher for complex AT products. Thus, complex AT products seem to exhibit the cost disease similar to health care in general,¹⁴ that is, the tendency for prices to grow more quickly than prices in general (inflation).

Price comparisons

In comparing prices across jurisdictions, it is essential to compare products that are the same, because variations in details and quality can have a significant impact on manufacturing costs and retail pricing. The QCA AT pricing inquiry identified the following elements that should be considered to ensure like-for-like comparisons: differences in product specifications; differences in supplier services; exchange rates; customs duty and taxes; delivery charges, including handling and insurance; warranties; transaction costs; discounts and special offers; and other factors, such as convenience and timeliness.¹¹ In addition, the inquiry observed that some of these issues are not easily quantified and incorporated into data analysis and should always be kept in mind when doing price comparisons.¹¹ For example, as noted above in 'Services provided by AT suppliers', Australian retailers often provide higher levels of service (paid for through the retail price of the AT), such as developing detailed specifications and making individualised adjustments for a wheelchair and its seating system; these services are typically provided (and billed) separately by allied health professionals in other countries.

In terms of exchange rates, the Australian dollar has been as high as US\$1.10 in 2011 and as low as US\$0.48 in 2001. Consequently, consideration of exchange rates is critical in any international price comparison. The QCA and the ATSA price comparisons took this into account in their analyses. Although the value of the Australian dollar has changed since these comparisons, the relative values of Australian and overseas AT prices are unlikely to have changed significantly when converted to Australian dollars. Below we present three price comparison approaches.

QCA Internet price comparison, excluding delivery costs

The QCA inquiry looked exclusively at AT pricing details that were available on the Internet.¹¹ Their focus included a very wide range of AT products, including continence aids, hoists, bath chairs, pressure care mattresses, scooters and manual and powered wheelchairs. The QCA investigation examined the lowest advertised prices on foreign Internet sites, primarily in the UK and US, for comparison with Australian Internet prices.

Although this is a useful and valid method, it does have limitations. Most notably it resulted in comparing UK and US Internet-only sellers with no storefront presence and the lack of associated services and significantly lower overheads with Australian Internet prices, in which all retailers have actual shopfronts (no Australian Internet-only AT retailers were used in the price comparisons), incorporating extensive pre- and post-sales services and all the associated costs of these. Australian consumers purchasing AT from overseas Internet-only retailers take on the responsibility for all risks associated with ensuring the AT is a good match, as well as adjusting and/or assembling the product and learning how to use it safely. In addition, overseas warranties are often difficult, if not impossible, to enforce, with Australian consumer law inapplicable in these situations; sourcing spare parts and repairs can also be problematic.

In January 2014 the QCA examined prices on 35 products, but only 24 were deemed to have adequate details available to facilitate like-for-like comparisons.¹² The QCA found that:

...of the 24 products 19 were less expensive overseas. On average the difference between the lowest Australian price and the lowest overseas price was 38% (as a percentage of the lowest price).¹²

Importantly, the overseas prices do not include costs associated with exchange rate commissions or costs of delivery to Australia, which typically entail shipping, insurance, customs and sometimes GST. This finding does not support the view that Australian prices are excessively high given that these overseas prices exclude these unavoidable costs if the AT is going to be used in Australia. Furthermore, these AT price differences largely reflect general price differences across all products between Australia and other high-income countries on a purchasing power parity (PPP) basis. The QCA recognised this and estimated that:

...general price levels...in Australian currency terms, are 20[%] higher [in Australia] than in relevant comparator countries...[and that]...[t]he difference in relation to the United States is around 30[%].¹²

QCA Internet price comparisons including delivery costs

The QCA also conducted a price comparison between Australian and overseas prices with delivery costs included.¹² In that study, they found that:

...Australian prices were lowest for 13 (54%) of the 24 items sampled. On average Australian prices were 24% lower than overseas prices (as a percentage of the lowest price).¹²

Thus, the inclusion of delivery costs makes an enormous difference in the price comparison.

There are several reasons why the QCA's price comparison inclusive of delivery charges still understates how much lower Australian prices are: it underestimates delivery costs and ignores currency exchange commissions and, most significantly and as already noted, does not include the associated services that are typically bundled into the Australian retail price. The delivery costs applied by the QCA used parcel post costs for modelling delivery costs of all items. Parcel post costings used by the QCA are detailed in appendix C of their report,¹² and the QCA states that they used the cheapest available prices relevant to the size and/or weight of different products and shipping distances, based on rates from Australia Post, the Royal Mail and the United States Postal Service. Although parcel post costings are suitable for some AT products, air freight is commonly used by Australian retailers when ordering items from overseas to reduce wait times for consumers; not surprisingly this is much more expensive than parcel post. In addition, the QCA did not include currency exchange commissions in their price comparisons, which can range widely for consumers depending on their method of purchase and can be as high as 10%.

In summary, comparing Australian AT prices with overseas prices taking account higher Australian prices for almost all goods relative to other high-income countries, the absence of pre- and post-sales services and consumer protections available when purchasing from foreign website-only AT retailers versus Internet sales in Australia (backed by full-service shopfront Australian

Table 1. International recommended retail price comparisons of assistive technology (AT) products (Assistive Technology Suppliers Australasia, 2013¹⁵)

All prices are given in Australian dollars. Values in parentheses indicate a negative result. OECD, Organisation For Economic Cooperation and Development; RRP, recommended retail price; –, no data; values in parenthesis and bold indicate negative (–) results.

Product	Australia	US	Canada	New Zealand	UK	Germany	Japan	US website	Mean OECD RRP (excluding Australia and US website)	Australian RRP relative to mean OECD RRP ^A	Mean difference in RRP from OECD RRP (%) ^A
Jay 2 Cushion	\$695	\$455	\$724	\$529	\$697	\$890	\$537	\$332	\$639	\$56	9
Quickie 2 Wheelchair	\$2222	\$2196	\$2820	\$1824	\$3184	–	\$2713	\$1372	\$2547	(\$325)	–13
QM710 MWD Power Wheelchair	\$8897	\$11 693	\$12 285	\$9620	\$12 518	\$15 591	\$11 841	–	\$12 258	(\$3361)	–27
ROHO QuadSelect High Profile Cushion	\$685	\$491	\$748	\$796	\$964	\$550	\$521	\$389	\$678	\$7	1
ROHO Hybrid Elite Cushion	\$695	\$507	\$827	\$796	\$964	\$550	\$521	\$400	\$694	\$1	0
ShopRider QT-3 Scooter	\$1750	\$1923	–	–	–	–	–	–	–	(\$173)	–9
ShopRider RainRider	\$9100	\$9636	–	–	–	–	–	–	–	(\$536)	–6
ShopRider Rocky6	\$5800	\$6422	–	–	–	–	–	–	–	(\$622)	–10
ShopRider Venice	\$3500	\$5351	–	–	–	–	–	–	–	(\$1851)	–35
Permobil M300Corpus3G Power Wheelchair	\$16 582	\$23 531	\$24 672	–	\$19 317	\$26 890	\$14 367	–	\$21 755	(\$5173)	–24
TiLite TR Series 3 Custom Manual Wheelchair	\$3895	\$3637	\$4501	\$5677	\$3950	\$6040	–	\$2665	\$4761	(\$866)	–18
Lecley EDS Seat Base, Backrest & Chassis	\$1589	\$2702	\$2467	–	–	\$1472	–	–	\$2214	(\$625)	–28
Ottobock Ventus	\$2260	–	\$3096	–	–	\$3610	\$1682	–	\$2796	(\$536)	–19
Ottobock B400 Power Chair	\$3959	–	–	–	–	\$7225	–	–	–	(\$3266)	–45
Ottobock Start M1 Wheelchair 40.5 Std	\$695	–	–	–	–	\$1584	–	–	–	(\$889)	–56
Ottobock Start M4 Wheelchair XXL	\$1456	–	\$2810	–	–	\$2279	\$1899	–	\$2329	(\$873)	–37
Ottobock Cloud Cushion	\$736	\$586	\$655	–	–	\$972	\$554	\$415	\$692	\$44	6
Ottobock Trias Carbonfibre Foot	\$795	\$1237	–	\$907	\$730	\$1191	–	–	\$1016	(\$221)	–22

^AFor some comparisons only one non-Australian price was available, for others the mean is based on at least three other prices available for comparison.

Table 2. Mean Organisation For Economic Cooperation and Development (OECD) recommended retail prices (RRP) compared with US website prices

All prices are given in Australian dollars

Product	Mean OECD RRP (including Australia)	US website price	\$ Difference between mean OECD RRP and US website price	% Difference between mean OECD RRP and US website price
Jay 2 Cushion	\$647	\$332	\$315	49
Quickie 2 Wheelchair	\$2493	\$1372	\$1122	45
ROHO QuadSelect High Profile Cushion	\$679	\$389	\$290	43
ROHO Hybrid Elite Cushion	\$694	\$400	\$294	42
TiLite TR Series 3 Custom Manual Wheelchair	\$4617	\$2665	\$1952	42
Ottobock Cloud Cushion	\$700	\$415	\$285	41

Table 3. Australian recommended retail prices (RRP) compared with US website prices

All prices are given in Australian dollars

Product	Australian RRP	US website	\$ Difference between Australian RRP and US website price	% Difference between Australian RRP and US website price
Jay 2 Cushion	\$695	\$332	\$363	52
Quickie 2 Wheelchair	\$2222	\$1372	\$850	38
ROHO QuadSelect High Profile Cushion	\$685	\$389	\$296	43
ROHO Hybrid Elite Cushion	\$695	\$400	\$295	42
TiLite TR Series 3 Custom Manual Wheelchair	\$3895	\$2665	\$1230	32
Ottobock Cloud Cushion	\$736	\$415	\$321	44

AT retailers), air-freight costs for some AT shipped to Australia, currency exchange commissions for overseas purchasers and costs of shipping insurance indicate that Australian AT prices are on par with and often lower than prices elsewhere.

ATSA-recommended retail price comparisons

In contrast with the QCA, ATSA used manufacturers' recommended retail prices for its price comparisons.¹⁵ In its price comparison, ATSA focused on a more limited range of products, primarily wheelchairs (powered and manual) and mobility scooters, and associated seating and postural support products.¹⁵ Table 1 reports the complete list of products. This method entailed contacting the primary importers and overseas manufacturers of these AT products available in Australia. The businesses contacted were Invacare Australia, Otto Bock Australia, Permobil Australia, Pride Mobility Australia, R82 Australia, ROHO USA, Shoprider Australia, Sunrise Medical Australia and TiLite USA. ATSA requested current recommended retail prices for a sample of their most popular products across the same seven countries (including Australia). Some companies could not supply timely data, so comparisons were limited to 18 products. The requirement of like-for-like comparisons of products also constrained the range of products compared because there are often differences in the products manufacturers provide to different countries based on local preferences and regulatory requirements.

There are two significant limitations to this approach. First, retailers are not required to use recommended retail pricing, so actual prices may be higher or lower. Second, the focus primarily

on mobility aids does not represent the very extensive range of AT available, and different market segments may operate differently.

Table 1 reports detailed results of ATSA's comparisons.¹⁵ It shows that recommended prices vary widely between products and countries, illustrating the effect of the differences and complexities of local markets and related supply chains. For 12 AT products, pricing data were available from a minimum of three countries. For these 12 products, Australian prices were 13–37% lower than the mean prices of the six Organisation For Economic Cooperation and Development (OECD) comparison countries for nine of 12 products, and between 1% and 3% more expensive for the other three products. On average, across these 12 products, Australian prices were 14% lower. For the other six AT products, pricing information was only available from one country for comparison. All six of these products were priced lower in Australia, with a range of 9–56% lower, and an overall average of 27% lower.

ATSA also compared these recommended retail prices with an Internet-only retailer.¹⁵ Two comparisons were undertaken. First, the comparison of the mean prices of the recommended retail prices for the seven OECD countries (including Australia) found that Internet prices were 44% lower on average (see Table 2). Similar results were found when just comparing Australian recommended retail prices with the mean Internet price across all items. Internet prices were 42% lower, with individual product differences ranging from 41% to 49% lower (see Table 3). Internet prices for comparisons used one of the largest and most successful Internet-only retailers, www.sportaid.com (accessed 13 September 2013), which is based in the US.

Although the price comparison methodology differed between the ATSA¹⁵ and QCA¹¹ studies, the findings are consistent. Further, these findings are supported by ATSA consultations with Australian AT suppliers (including manufacturers, importers, distributors and retailers).

Conclusion

AT is a primary enabler: it assists people with disability of all ages to undertake activities that others can accomplish without special aids or equipment. One in every 10 Australians relies on AT to participate in everyday activities, work and education, as well as to live socially inclusive and independent lives, to strive for the highest levels of participation, inclusion and independence they can achieve. For this reason, pricing of AT has equity implications in terms of affordability and accessibility for people with disability and seniors. Perceptions of excessively high retail prices for AT in Australia imply that the local AT market is not competitive and efficient. These concerns are driving the widespread adoption of bulk purchasing and related strategies by governments in Australia. In the present study we examined the available evidence on Australian and foreign AT prices to test the validity of these concerns.

We examined price comparisons conducted on a like-for-like basis across a range of AT products. The analysis took into account: (1) higher Australian prices for all goods relative to other high-income countries (on a PPP basis); (2) the absence of pre- and post-sales services by overseas Internet-only AT sellers relative to full-service AT retailers in Australia that are typically bundled into the retail price; (3) shipping costs, including air-freight costs for some AT shipped to Australia; (4) currency exchange commissions for overseas purchases; and (5) exchange rates. Noting that most AT is manufactured overseas, and so approximately 80–90% of AT is imported, the findings indicate that Australian AT prices reflect the cost of products shipped to Australia and some fixed costs relating to services provided by AT retailers. AT prices in Australia are relatively low in comparison with overseas prices, and even more so with the recognition that other countries, such as the US, have separate government funding streams to pay for presales services that ensure a good match between the AT and the consumer. This finding is consistent with other evidence that suggests that the Australian industry is not particularly profitable, such as the IBISWorld research in 2012 on mobility equipment stores.⁶

Carefully undertaken systematic price comparisons show that AT Internet prices, particularly from US and UK retailers that only have an online presence and no physical retail stores, are much cheaper than Australian retailers. This is also true for most goods, not just AT. Online-only retailers of AT are usually brokers who never see or handle the equipment that manufacturers ship directly to the consumer, with payment made in advance, further enabling these sellers to keep operating costs down. Internet-only sellers can charge very low prices for AT because their costs are much lower. This is because Internet-only retailers: (1) do not provide any pre- or post-sales services to the consumer to ensure the product is a good match and no local product-specific knowledge or skills and spares are available for adjustments or modifications, maintenance and repairs; (2) do not provide any services to the sector, such as training

allied health professionals and supplying demonstration equipment to rehabilitation centres; (3) provide warranties that are difficult to enforce with no protection for consumers under Australian consumer law; and (4) do not include costs of delivery to Australia, such as shipping, customs, insurance and exchange rate commissions, as part of the advertised price. Of these differences between AT provided by Australian retailers and overseas online retailers, ensuring suitability of purpose and fit between the individual and their AT is critical, in general, but particularly so for moderate to highly complex AT.

Given the absence of evidence of inefficient pricing in the Australian AT market, substantial efforts to reduce AT prices below current levels via the ongoing large expansion of government bulk procurement programs are likely to reduce prices below profitable levels for marginally profitable AT suppliers and thus reduce the number and range of AT suppliers. Fewer suppliers will mean less diversity of AT products and services. Fewer suppliers will also mean less competition and ultimately higher prices for AT products. Overall, this will lead to a situation of reduced choice for consumers, worse consumer outcomes and eventually higher costs for funders. Given the current policy commitment of Australian governments for increasing direct consumer control over the individualised provision of government-funded goods and services via major initiatives such as the NDIS, it would be more appropriate and efficient to focus on assisting and enabling AT purchasers to directly purchase the AT that meets their needs, with monitoring of prices and providers to minimise potential over-servicing/over-charging rather than relying on bulk purchasing programs.

Competing interests

None declared.

Acknowledgements

The authors want to thank Chris Sparks, Executive Officer of ATSA for providing key insights into the AT supply chain and pricing issues. Michael Summers was employed by ATSA when the ATSA research cited herein was undertaken.

References

- 1 World Health Organization (WHO). A glossary of terms for community health care and services for older persons. Centre for Health Development, Ageing and Health technical report volume 5. Geneva: WHO; 2004.
- 2 Wells R. Disabled say equipment providers 'profiteering'. *The Sydney Morning Herald*, 9 June 2012. Available at: <http://www.smh.com.au/national/disabled-say-equipment-providers-profiteering-20120608-201db.html> [verified 20 November 2014].
- 3 Wordsworth M. Parents angry over disability product price gouging. *ABC News*, 16 July 2011. Available at: <http://www.abc.net.au/news/2011-07-16/companies-disabled-price-rises/2797208> [verified 20 November 2014].
- 4 National Disability Insurance Agency (NDIA). Towards solutions for assistive technology. Canberra: NDIA; 2014.
- 5 Australian Bureau of Statistics (ABS). Disability, ageing and carers: summary of findings. Catalogue no. 4430.0. Canberra: ABS; 2004.
- 6 IBISWorld. Mobility equipment stores in Australia. IBISWorld Industry Report OD4159. Melbourne: IBISWorld; 2012.

- 7 Assistive Technology Suppliers Australasia (ATSA). Assistive technology pricing: is it fair and reasonable? Background paper. Sydney: ATSA; 2014.
- 8 Sprigle S, De l'aune W. Factors contributing to extended activity times during the provision of wheeled mobility devices. *Disabil Rehabil Assist Technol* 2013; 8: 225–31. doi:[10.3109/17483107.2012.713436](https://doi.org/10.3109/17483107.2012.713436)
- 9 Sprigle S, Lenker J, Searcy K. Activities of suppliers and technicians during the provision of complex and standard wheeled mobility devices. *Disabil Rehabil Assist Technol* 2012; 7: 219–25. doi:[10.3109/17483107.2011.624251](https://doi.org/10.3109/17483107.2011.624251)
- 10 Summers M, Walker L. National credentialing and accreditation for assistive technology practitioners and suppliers: an options paper. Sydney: Assistive Technology Suppliers Australasia; 2013.
- 11 Productivity Commission. Economic structure and performance of the Australian retail industry. Report Number 56. Canberra: Productivity Commission; 2011.
- 12 Queensland Competition Authority (QCA). Price disparities for disability aids and equipment: final report. Brisbane: QCA; 2014.
- 13 Jenny Pearson & Associates. Research for the National Disability Agreement: aids and equipment reform, final report. Semaphore, South Australia: Jenny Pearson & Associates; 2013.
- 14 Baumol WJ. Social wants and dismal science: the curious case of the climbing costs of health and teaching. Economic Research Report no. 93–20. New York: C.V. Starr Center for Applied Economics, New York University; 1993.
- 15 Assistive Technology Suppliers Australasia (ATSA). Submission to the Queensland Competition Authority's medical and disability aids and equipment pricing investigation. Sydney: ATSA; 2013.