Methods to Address Requirements for Changes in Funding Disability Services Brought About by External Change

SPRC

Social Policy Research Centre

METHODS TO ADDRESS REQUIREMENTS FOR CHANGES IN FUNDING DISABILITY SERVICES BROUGHT ABOUT BY EXTERNAL CHANGE

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Summary

The objective of this project is to provide advice on appropriate indexation and demand factors for Commonwealth funding to the States via the Commonwealth State Disability Agreement (CSDA). This funding is used to provide accommodation and support services for people with a disability.

This report examines the adjustment of funding over time. This adjustment is intended to take account of both changes in the cost of services (price adjustment or indexation) and external factors influencing the demand for services (demand adjustment). The report does not address the issue of the appropriate distribution of funding between jurisdictions, and focuses upon demand adjustment and indexation for the overall CSDA program rather than its sub-components.

The objective of *price adjustment* is to show how budgets would need to change in order to take account of the increase in price of the inputs that provide the disability services. Price adjustment shows the funding that would be required in order for the program to still provide the same volume (and quality) of services as in the base year. This adjustment takes into account the price of the different inputs (of which labour costs are the most important) together with any changes in productivity – the volume of output per given unit of input.

The objective of *demand adjustment*, on the other hand, is to ensure that funding is adjusted so that the relationship between the supply of services and the demand for those services remains constant. If the population increases then, other things constant, we would expect that demand for services to increase. Similarly, if the prevalence of disability in the community were to increase, increased funding would be required so as to maintain the existing level of services per disabled person.

Demand Adjustment: Population Change

Over the five years from 2001 to 2006, substantial growth is anticipated in the population aged 45 to 70 (Figure 1).

The rate of severe or profound core activity restriction in the workforce age population increases steadily with age. However, the percentage of the population receiving CSDA services peaks at 25-34, with only a very small proportion of the apparently eligible population receiving CSDA services (Figure 2).

Forecasts of future demand could be based either on the age distribution of disability, or on the current age distribution of CSDA service clients (as shown in the minimum data set, or MDS). The former might be more appropriate when considering the broader context of the population in need, whereas the latter is more appropriate when considering the continuance of funding for current programs.

In using the ABS estimates of disability to forecast demand it is necessary to make decisions about the appropriate age range to be considered. A number of options are shown here.

To use the MDS data successfully to forecast demand, it is necessary to know why the usage rate of services declines for older age groups. One hypothesis is that this reflects a cohort effect, with the younger cohort more likely to use services. If this is the case, this implies that demand will grow in future years as this cohort ages.

There is some evidence for the existence of a cohort effect in accommodation services. Though the data may not be entirely compatible, a comparison of 1996 with 2000 data suggests that the peak of service use is extending to older age groups.

We therefore calculate a variety of indices estimating the growth in demand for disability services over the next five years. The estimated per annum rates of demand growth for these indices are shown below.

Demographic Indices

Index	Key Assumptions (in conjunction with ABS population estimates)	Forecast Growth Rate (% per annum)
Base service use	Service use prevalence remains at 2000 level within each age group.	1.0
Service use with cohort effect	As for the base service use, but with accommodation service use estimated to increase in line with a cohort effect.	2.3
Severe or profound	Prevalence of severe or profound core activity restriction remains at 1998 level within each age group.	
	For people aged 0-64	1.5
	For people aged 15-64	2.0
	For people of all ages	1.7
Profound	As above but for profound restriction.	
	For people aged 15-64	1.9

Though all of the indices presented above could be defended as a valid approach to indexation, our view is that the available evidence on service use is strong enough to suggest that some expectation of greater service use demand should be built into the indexation framework. The S*ervice Use Index with Cohort Effect* seems to be a balanced way to introduce such as component. Hence this is our recommended demographic growth index. Note that this does assume that growth over the next five years will follow the same pattern as for the previous four years.

Demand Adjustment: Changes in other environmental factors

Other factors that may influence future demand include,

- Improvements in medical technology, new support technologies and changes in the social environment. These may either increase or reduce future service demand, but it is very difficult to forecast these changes in advance.

- Increasing labour supply of informal carers. Anticipated growth in labour supply is likely to reduce the supply of informal carers (particularly women in the 45 to 59 age range). Our best guess is that this could increase demand for accommodation services by around 1.5 per cent per annum.

- Social attitudes to disability. There is evidence that attitudes to disability are changing, with more people prepared to recognise disability and (possibly) to request support services.

In general, however, we believe it will be difficult to incorporate any of the above factors into a fixed adjustment formula for future funding. Nonetheless, these sources of demand pressure need to be considered when fixing future funding levels. It is possible that these explanations are already incorporated via the cohort effect in the use of accommodation services described above.

Price Adjustment (Indexation): Wages

The current indexation methodology uses the Commonwealth Department of Finance Wage Cost Index 2 (DoF_WCI2) to adjust funding to take account of changes in the cost of providing services. This is based primarily on the Industrial Relations Commission Safety Net Increase, together with a small component based on general price inflation.

The rationale for this approach is that the index should not include any component of wage growth that is intended to be offset by efficiency gains. However, this implies assumptions about productivity growth that are not in accord with generally accepted economic principles. Economic theory suggests that wage growth in service industries, and human services in particular, will run well ahead of productivity growth in that sector.

Hence it is recommended here that indexation should be based on the actual movement in wages, together with an explicit deflator for assumed productivity growth. The latter deflator should be set at a level well below the 1 per cent per annum estimated for the market sector of the economy (eg at 0.2% per annum).

At present, the best indicator of wage growth is the ABS Wage Cost Index (ABS_WCI), which is published separately for the Health and Community Services Sector. Over recent years this index has grown at twice the rate of the DoF_WCI2 (3.1% p.a. vs 1.6% p.a.).

We propose that a wage cost index be used based upon the ABS_WCI data from the December quarter prior to each financial year. This will be combined with a general CPI inflator to cover the (nominal) 10 per cent of costs not related to wages.

Price Adjustment (Indexation): On-Costs

This wage cost index does not include important on-costs such as superannuation and workers' compensation insurance that have both grown at a faster rate than wage growth – though Commonwealth programs do incorporate separate adjustments for changes in the superannuation guarantee charge.

We propose that the funding index be further adjusted (where necessary) to take account of these factors. Some of these adjustments may be one-off (eg just for the base year of the new CSDA) or may be revised when external policies (such as superannuation) change.

Workers' compensation premium rates in NSW grew by around 1.1 to 2.1 percentage points between 1997-98 and 2001-2. Other insurance prices have also grown at a rate faster than inflation.

We estimate that a one-off adjustment of approximately 1.5 per cent of the CSDA budget would be required to compensate for these workers' compensation cost increases.

A one-off adjustment may also be appropriate for the compliance costs associated with the GST. Available evidence suggests an amount of approximately 0.4 per cent.

Summary Formula

The combined effect of these different funding adjustments is summarised in formulae presented in Section 8. In order to maintain the same balance between supply and demand as in 2001-2, it is estimated that total funding in 2002-3 will need to be 8.35 per cent higher. This includes a demographic demand growth of 2.3 per cent, a general indexation growth of 3.0 per cent and a one-off indexation adjustment of 2.8 per cent. The last factor will not apply in future years unless there are additional one-off changes in costs.

These calculations do not include some non-demographic demand influences for which it has not been possible to obtain quantitative estimates.

1. Project Objectives

The objective of this project is to provide advice on appropriate indexation and demand factors for Commonwealth funding to the States via the Commonwealth State Disability Agreement (CSDA). This funding is used to provide accommodation and support services for people with a disability.

This report presents the draft results of one of three related projects commissioned by the National Disability Administrators to feed into the 2002 review of the CSDA. The other two projects are

- Project 1. The Effectiveness of Existing Funding to Reduce Unmet Need for Disability Services and Identification of Any Remaining Shortfalls.
  Contractor: AIHW.

- Project 3. Review Current Responses to Meeting Service Needs of People with a Disability and the Effectiveness of Strategies to Support Families.
  Contractor: The Nucleus Group.

In this report, we consider mechanisms that might be used to adjust funding over time to ensure that the relationship between the demand and supply of services remains constant. Given a level of funding in a base year, this project considers how to set funding in other years to take account of changes in the cost of providing a given quantity of services and external factors influencing the demand for these services.

The main focus of this report is on indexation and demand adjustments with respect to the overall expenditure of the CSDA program (though some evidence is presented on demand growth for separate components). Allocation of this expenditure to particular programs should be based upon factors such as the relative effectiveness of programs – an issue that is beyond the scope of this project.

Changes in the cost of services depend primarily on changes in the wages of the staff providing services, as well as on the costs of other non-staff costs. The project considers a number of options for assessing these.

The demand factors considered in this report include

1. Changes in the demographic structure of the population (since the prevalence of disability is different in each age/sex group).

2. The presence of 'cohort effects' in the demand for disability services.

3. Changes in the prevalence of disability due to the identification of new forms of disability and the implications of increasing life expectancy for some categories of disabled people.

4. Changes in disability support technologies and new developments in the methods of support and care for people with disabilities.

Of necessity, the conclusions of the report are more speculative for the third and fourth of these sets of demand factors.

The key conclusion of this report is a set of options of how to best incorporate these factors in the estimation of future demand and cost growth for a third CSDA.

Because it is necessary to make numerous assumptions to derive estimates of these cost and demand factors, the report presents its results within a framework that permits the flexible adoption of different components of the adjustment framework proposed.

2. Background

There are two key issues to be addressed in determining the allocation of funds under schemes such as the CSDA. These are how to allocate funds to the different regions (States and Territories) at a point in time, and how to adjust these allocations for changes over time.

Under the present CSDA, the between-State allocation is largely on the basis of the historical expenditure levels in each State. There is also an additional allocation for 'unmet need', which is based upon the national age/sex pattern of disability prevalence and the age/sex composition of each State (together with additional weighting for the number of indigenous Australians in each area).

The historical funding basis means that per-capita expenditure levels under the CSDA differ substantially between States.[1] This project does not address these issues of intra-state allocation. Rather, the focus here is on the appropriate means for the adjustment of the total funding level over time. These adjustments are designed to be neutral with respect to the particular service delivery models chosen by each State.

3. The Adjustment Framework

This report considers the appropriate way for adjusting the funding of the CSDA funding program. In doing so, two separate concepts are considered. These are price adjustment and demand adjustment.

The objective of *price adjustment* (in this context sometimes termed simply *indexation*) is to show how budgets would need to change in order to take account of the increase in price of the inputs that provide the disability services. Price adjustment shows the funding that would be required in order for the program to still provide the same volume (and quality) of services as in the base year. This adjustment needs to take into account the price of the different inputs (of which labour costs are the most important) together with any changes in productivity – the volume of output per given unit of input.

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[1] For an early example, see Table 4.4 in *The Cost Study*, Commonwealth/State Disability Agreement Evaluation, Supporting Paper No. 4, January 1996.

The objective of *demand adjustment*, on the other hand, is to ensure that funding is adjusted so that the relationship between the supply of services and the demand for those services remains constant. If the population increases then, other things constant, we would expect that demand for services to increase. If funding were not increased then the availability of services for each person with a disability would decrease. Similarly, if the prevalence of disability in the community were to increase, increased funding would be required so as to maintain the existing level of services per disabled person. Some other demand issues to do with the technology of care are less straightforward and are considered further below.

In the subsequent sections of this report, we present a range of alternative adjustments that can be used to address each of these issues. To facilitate independent consideration of these different categories, we structure the adjustment formula in a multiplicative fashion.

$$F(y) = F(b) \times P(y,b) \times D(y,b)$$

That is, funding in year y is based on funding in the base year (F(b)), times the price index for year y (relative to year b) times the demand index for year y (relative to year b).

The price index represents the cost (relative to the cost in the base year) of maintaining the same quantity (and quality) of services. Increases in wage costs, increases in other costs, and decreases in productivity will increase the cost of providing services. Hence, dropping the (y,b) subscripts, we write the price index as based upon a weighted average of the wage cost index and a cost index for non-wage costs divided by a measure of productivity (E).

$$P = (a\ W + [1\text{-}a]\ K) / E \quad \text{with } 0<a<1$$

In general, it is difficult to measure productivity in the human services area, though it is generally assumed that productivity growth for services that require one-to-one provision is very small. However, it is important to maintain productivity within the conceptual framework of the updating index as productivity-based arguments are sometimes used to justify the use of low-growth wage indexes.

4. Demand Adjustment: Population Change

The demand for disability services in Australia will depend upon both the overall population and the distribution of the population across different age groups.[2] Figure 1 shows the recent and anticipated growth in the Australian population across the 'workforce age' population. Over the five years 2001 to 2006, substantial growth is anticipated in the population aged 45 to 70.

The prevalence of disability varies significantly across these age groups, as does the receipt of disability services. However, the two distributions are not the same. Figure 2

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2 The adjustments described in this section also take account of the changing age distribution of carers, to the extent to which their changes follow those of the recipients of care.

shows the proportion of each age group who have a severe or profound core activity restriction (using the scale on the left-hand axis), together with the proportion receiving CSDA services (right-hand axis).

**Figure 1   Population by Age, 1996, 2001 and 2006**
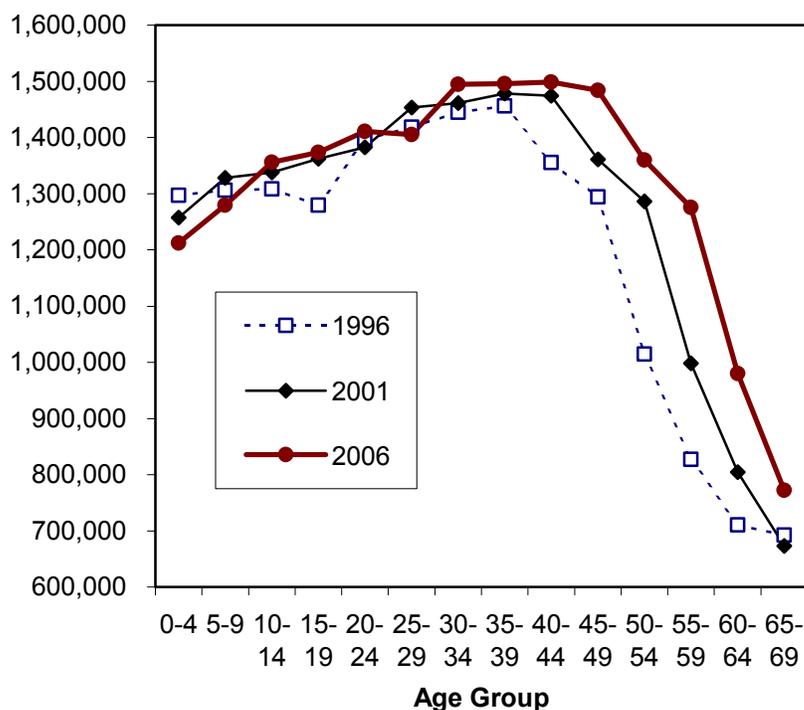
The two axes are required because only a very small fraction of people with severe or profound core activity restrictions are using CSDA services. The number of people classified by the ABS as having severe or profound restrictions is always much greater than the number of people receiving services (around 5 to 80 times as large depending upon the age group). In part this reflects the fact that the services are only measured on a 'snapshot day', which may exclude many disabled people who regularly receive services (but not every day).[3] Nonetheless, many disabled people (particularly in the 'severe' category) either do not receive services at all, or receive them from other institutions (including health care, SAAP and HACC services), friends or family members.[4]

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[3] Though this is unlikely to be important for accommodation services, which comprise over half the CSDA budget.

[4] AIHW (2000, p.24) cite analysis of the 1993 Disability Survey showing that of people with a severe or profound handicap, 82 per cent had an informal carer as the main provider of assistance.

Figure 2   Percentage of Population with Severe or Profound Core Activity Restrictions and Percentage of Population Receiving CSDA Services
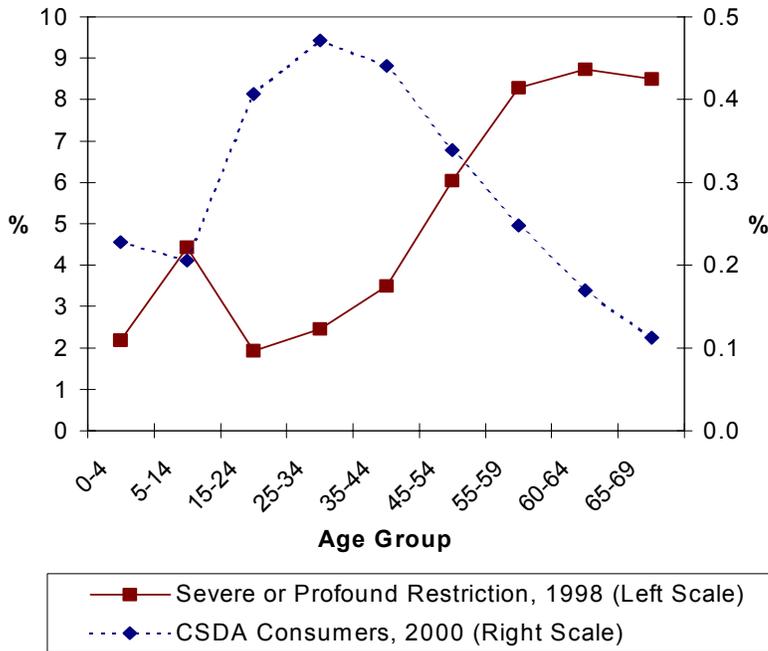
Source: Severe or profound core activity restriction: ABS Cat No 4430.0, 1998, p14,
CSDA Consumers: AIHW DIS 23, Table A2.2
Population: ABS 3201.0.

Among adults, the prevalence of disability increases steadily with age. However, the prevalence of CSDA service use peaks in the 25-34 years age range and declines thereafter.

In allocating funds for the 'unmet' needs programs, the National Disability Administrators based State funding levels on the numbers of people estimated to have severe or profound core activity restrictions. If the objective of demographic indexation were to take account of the population broadly eligible for services, then it would be appropriate to adjust funding on the basis of the prevalence of severe or profound activity restrictions in different age groups.

On the other hand, it could also be argued that for short-term funding adjustment purposes, it is most appropriate to start from the current demographic distribution of clients. In this case, demand adjustment should be based upon the distribution of service use as shown in the CSDA Minimum Data Set (MDS). We present both types of estimate here.

In short, because population growth is highest for older groups, and the incidence of severe or profound core activity restriction is highest at these ages, an adjustment based upon severe or profound core activity restriction leads to a higher forecast of demand growth.

However, in using the MDS we need to consider the reasons for the fall in service use with age. Different interpretations of this also lead to different forecasts of demand growth. A number of explanations for the fall in service use with age are possible

- Older disabled people do not need or desire services, or simply do not receive the services they need.

- A greater proportion of the older disabled people are being provided services under other programs such as HACC or aged care programs.

- Service users are probably more disabled than the population with severe or profound core activity restrictions. As they age they may thus have higher mortality rates[5] or have greater morbidity with moves them into the public health system rather than CSDA services.

- Many people enter service programs in their early adulthood and the age distribution reflects changing attitudes to service use over time, with younger cohorts more likely to apply for CSDA funded support.

The last hypothesis has important implications for the future demand for CSDA services. If this 'cohort' hypothesis is correct, then the demand for CSDA services for people aged over 35 will steadily grow over the next decade.

There is some support for this cohort hypothesis to be found in the analysis of service use over time. AIHW (2000, section 3.2) examine trends in the use of services between 1996 and 2000. They find a clear tendency for the age distribution for the recipients of accommodation support to move to the right. This is consistent with the existence of a new cohort of people who are more likely to take up opportunities to receive accommodation services. This tendency is less clear for other services, but since accommodation services account for more than half of the expenditure under the CSDA, this will have a major impact on future expenditure.

The AIHW data for accommodation services are reproduced in Figure 3. In Figure 4 we show this data in numerical terms (ie the number of services provided), and Figure 5 shows this relative to the population size of each age group. The latter two figures suggest that there has been a small drop in accommodation service use among the young, but a very large increase in older age groups, with the usage peak shifting to the right.

These apparently large changes in service use patterns provide major challenges for the forecasting of future demand. Unfortunately, changes in data collection methodology mean that we cannot be fully confident that the number of services received is consistently measured in the two years (AIHW staff are more confident that the *distribution* of service use is more consistent).

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[5]   See AIHW (2000, p40) for a review of the evidence on mortality rates.

Figure 3   The Age Distribution of the Use of Accommodation Services
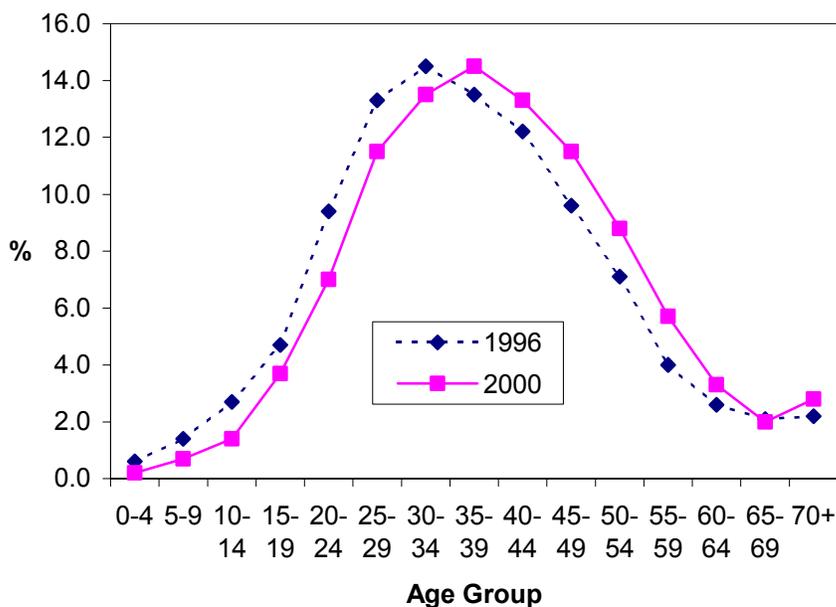
Source: AIHW (2001), Figure 3.1 (original data supplied by AIHW).

If we were confident that the data in Figure 5 were correct, and that this trend would continue over the next five years, it would have major implications for service demand. The growth in service use shown in Figure 5 may, for example, be due to an increase in the quality of care services encouraging more people to enter accommodation services as their parental carers age. This may be acting in combination with a cohort effect, as the high usage cohort grows older.

Forecasting future trends of this sort is very difficult. Below, we calculate an estimate that assumes a cohort effect of this type, but does not otherwise increase service use in the older age groups.

Given these considerations, we calculate four different index types.

4.1   Base Service Use Index

1. This index assumes that the ratio of service use to population for each service type in each age group remains constant over time (at the level observed in 2000). This ratio is estimated from AIHW (2001), and ABS population data.[6]

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[6]   This is calculated as the number of services of each type received on the 'snapshot day', divided by the population (in each age category). More detail is provided in the accompanying spreadsheet.

Figure 4   Estimated Number of Accommodation Service Provided, 1996 and 2000
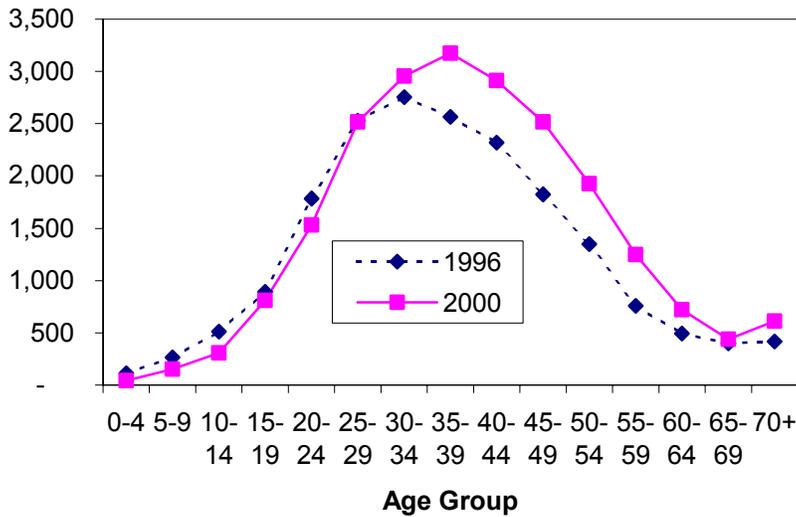
Notes: Derived from the data in Figure 3, together with estimates of the number of services provided in
Black et al (1998) and AIHW (2001). Because of incompatible collection methodologies, the 1996
data do not include the ACT or WA. The proportion of services in these regions in the 2000 data
has been used to adjust the 1996 data. Because of changes in survey methodology and response
rates, numbers might not be fully compatible in the two years.

Figure 5   Estimated Prevalence of Accommodation Services, 1996, 2000 and 2005
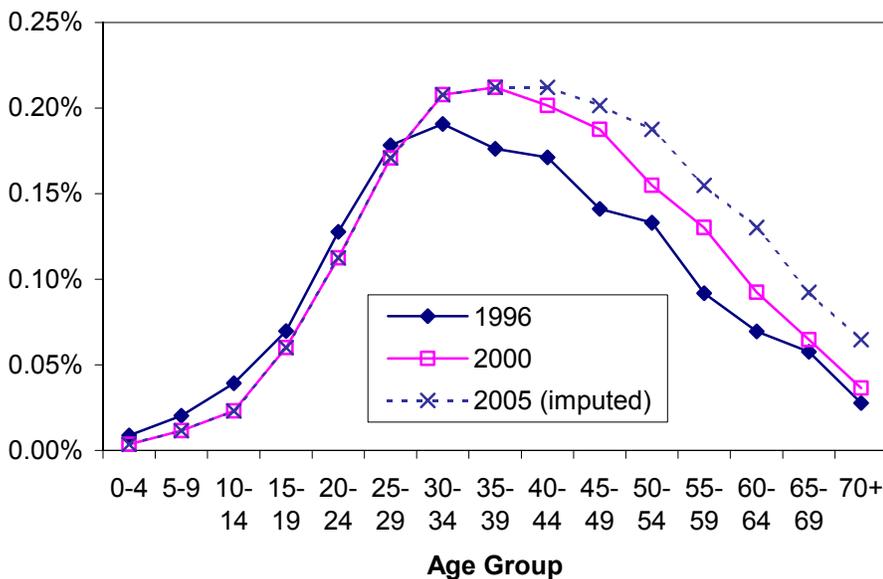
Notes: 1996 and 2000 estimates calculated as the number of services shown in Figure 4, divided by the
population in each age group (in each year). The 2005 estimate assumes that the prevalence rate
for those under 35 is the same as in 2000, and that the prevalence rate for older age groups follows
the prevalence rate of their cohort in 2000. That is, the curve is the 2000 curve shifted to the right.

2. Forecast changes to the demographic structure of the population are used to then estimate the number of services that will be required in each year. This is calculated separately for accommodation support services, community support, community access, respite care and employment services.

3. The shares of the overall CSDA budget spent on each service type (in 1999-2000) are then used as weights to create a weighted average of the number of services required. This is then expressed as an index (with 2001=1). The demand for administrative support and miscellaneous services are thus assumed to increase at the same rate as the specific service types identified above.

4.2   Service Use Index with Cohort Effect

For the calculation of this index, steps 2 and 3 are identical to those for the Base Service Use Index described above. The calculation of the ratio of service use to population for services other than accommodation services is also identical.

The need for accommodation services, however, is assumed to increase over time, in line with a 'cohort effect' of higher numbers of people flowing through the system.

*   For people aged under 35 in 2000, the ratio of accommodation service use to population is assumed to be the same in every year (ie the same assumption as for the base case).

*   For people aged 35 or older, the service use ratio is assumed to follow the patterns of the cohort in 2000. Thus, in 2005, the service use ratio for people aged 40-44 is set equal to the service use ratio of people aged 35-39 in 2000. The implied accommodation service use prevalence in 2005 is shown in Figure 5.

*   For the years between 2000 and 2005, linear interpolation is used to estimate the service use of 40-44 year olds as a weighted average of the 35-39 and 40-44 year old service use ratio in 2000. For years prior to 2000, the cohort age is projected backwards in a similar fashion.

This approach is one way of estimating what the prevalence rates will look like in future years. It assumes that the prevalence rate for young people will stay the same as in 2000, but that the curve will shift to the right in later years (see Figure 5). It is conservative in that it does not assume that the peak service use rate will rise (as it apparently did between 1996 and 2000).

4.3   Severe or Profound Index

*   This index assumes that the proportion of each age group who have severe or profound core activity restrictions remains constant over time at the level shown in Figure 2.

*   Forecast changes to the demographic structure of the population are used to then estimate the number of people with severe or profound core activity restrictions in each year.

- These are then expressed as an index (with 2001=1).

- This index has been calculated for several different age ranges (0-64, 15-64 and all ages).

4.4   Profound Index

- This is calculated in the same fashion, but based upon the proportion of the population with profound core activity restrictions. These people are more likely to require expensive services, and hence more likely to have an impact upon the CSDA budget.

- This has been calculated for the 15-64 age range.

Figure 6   Estimated Changes in Service Volumes Due to Demographic Changes
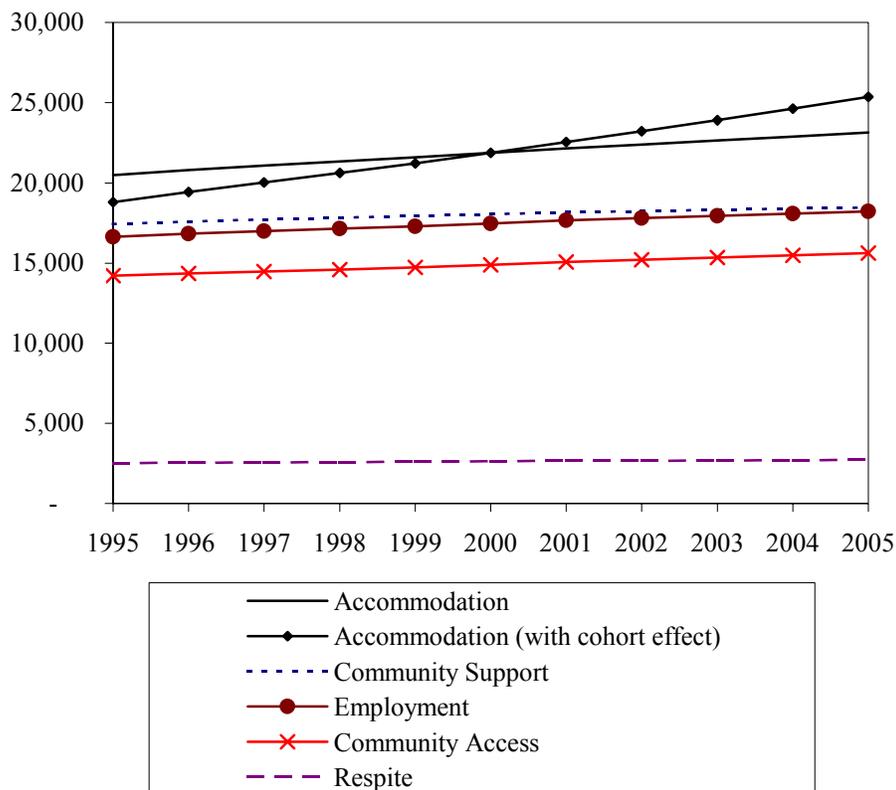
Notes: SPRC calculations. The figure shows the estimated number of (snapshot day) services that would be provided if patterns of use followed those in 2000, but with the different population distribution that applies in each year. The 2000 estimates are actual values (AIHW, 2001). See text for details.

4.5   Results

Figure 6 shows the estimated growth in the number of (snapshot day) services in each of the years from 1995 to 2005 that can be ascribed to demographic changes if we use the

base service use or the cohort indices. The estimates for 2000 are the actual MDS estimates for that year (AIHW, 2001). Two estimates are provided for accommodation services, depending upon whether a cohort effect is assumed. Assuming a cohort effect leads to an estimate of 25,350 services being provided in 2005, some 2,200, or 9.5 per cent, higher than if no cohort effect is assumed.

Figure 7 shows the overall implications of population change on service expenditures using the various indices. The average growth rates are summarised in Table 1. Between 2000 and 2005 the Base Service Use Index is expected to grow by 1.01 per cent per annum (compound). If we assume that demand for accommodation services will grow in line with a cohort effect, then the growth rate is substantially higher, at 2.28 per cent per annum. Both these calculations are based upon the patterns of usage as shown in the MDS data.

Table 1 Growth Rates of Demographic Indices, 2000 to 2005

Index	Growth Rate (% per annum compound)
Base Service Use Index	1.01
Service Use Index with Cohort Effect	2.28
Severe or Profound (aged 0-64)	1.53
Severe or Profound (aged 15-64)	1.97
Profound (aged 15-64)	1.90
Severe or Profound (all ages)	1.72

The figure also shows the estimated growth in the numbers of people who have a profound core activity restriction or who have either a profound or a severe core activity restrictions. The Severe or Profound Index is calculated for the 0-64, 15-64 and all ages groups.[7]

The choice of reference age group influences the growth rate significantly. Because of low population growth among 0-14 year olds, the population growth rate among 0-64 year olds is much less than among 15-64 year olds (all ages is intermediate).

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[7] These estimates differ slightly from those in *Australia's Welfare, 2001* (p266) because the estimates here are based upon a more recent population estimate, the AIHW estimates are disaggregated by sex, and the estimates here use a slightly more detailed age breakdown.

Figure 7   The Demand Impacts of Demographic Change
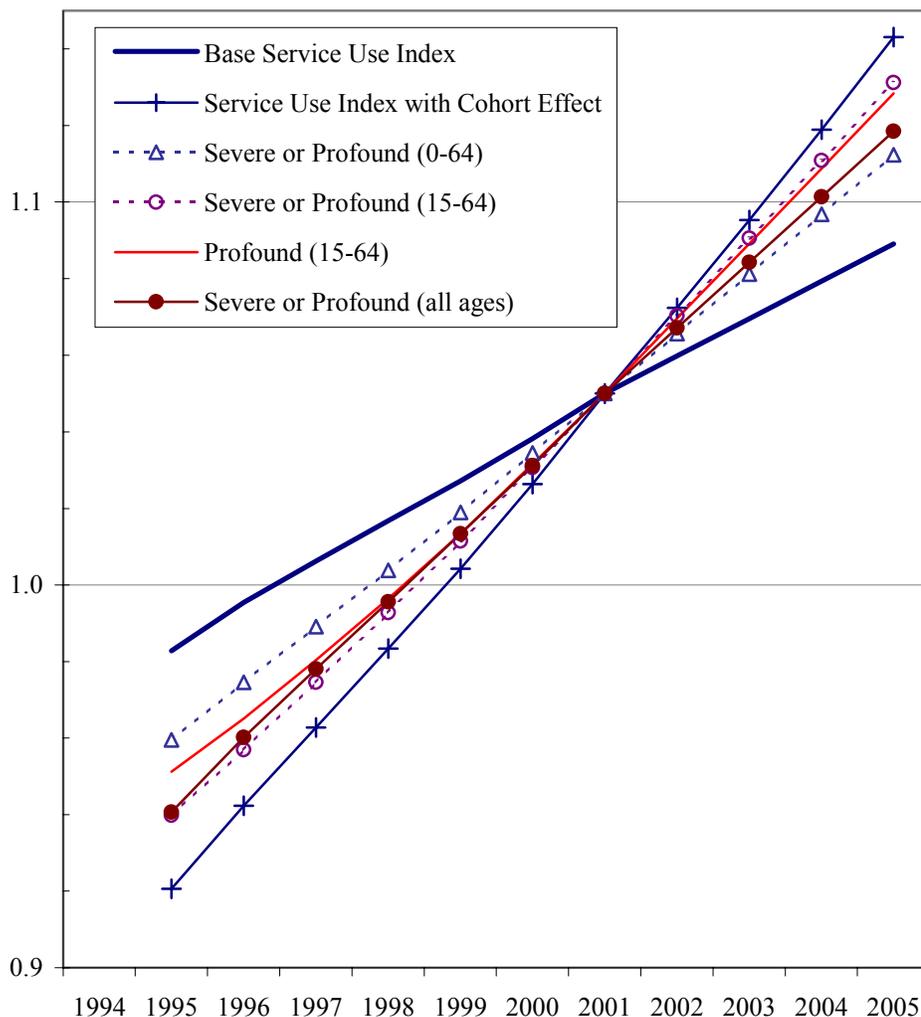
Notes: The two service use indices are calculated as a weighted average of the service use estimates
shown in Figure 6 (with expenditure shares as weights). The Severe or Profound Index is
calculated by applying population growth (as shown in Figure 1) to the prevalence of severe or
profound core activity restriction as shown in Figure 2. The 'Profound Index' is calculated in a
similar fashion. See text and accompanying spreadsheet for details.

Which of these estimates is the best estimate of the impact of population growth on the
demand for CSDA services? The 'Base Service Use Index' estimate of 1.0 per cent per
annum growth should be considered a lower bound, because of the strong evidence that
accommodation service use is growing among older age groups.

There are reasons to think that the Service Use Index with Cohort Effect may be either an
under- or an over-estimate of future growth.

- On the one hand, the observed change in the accommodation service use distribution
  between 1996 and 2000 may have been a transitory effect, which will not continue in
  future years. This could be case either because it is an artefact of the MDS collection

process, or because it reflected a once-off increase in demand for accommodation services. If the latter is the case, then it may be appropriate to adjust the base level of funding for the next CSDA upwards, but an ongoing indexation adjustment would not be appropriate.[8]

- On the other hand, the Service Use Index with Cohort Effect adjusts for the presence of a cohort effect, but not for the additional growth in demand for accommodation services that is apparent in Figure 5. In other words, the peak prevalence of accommodation service use is held constant at the level found in 2000, whereas there appears to have been an increase between 1996 and 2000.

All the ABS disability survey estimates of disability prevalence imply a growth in demand intermediate between these two MDS-based estimates. It is not obvious which age range is most appropriate. Disability services are received by people of all ages though the over-65s are not normally seen as a target group for services provided under the CSDA. Similarly, children are covered under the CSDA, but are not a major client group for the most expensive (accommodation) services (see Figure 3).

Note that these indices assume that the prevalence of disability within each age group remains constant. We consider this question further in the next section. One issue considered is the role of changing patterns of female labour force participation. As will be seen, this analysis also provides support for the use of the cohort effect model.

Though all of the indices presented above could be defended as a valid approach to indexation, our view is that the available evidence on service use is strong enough to suggest that some expectation of greater service use demand should be built into the indexation framework. The Service Use Index with Cohort Effect described above seems to be a balanced way to introduce such as component. Hence this is our recommended demographic growth index.

5. Demand Adjustment: Changes in Other Environmental Factors

There are many economic, social and technological changes that are likely to affect the demand for disability services. Apart from the demographic changes described in the previous section, these are generally difficult to estimate or forecast quantitatively. Moreover, for many of them it is not conceptually obvious how to define an adjustment process that would ensure that the relationship between the supply of services and the demand for those services remains constant. In particular, changes in the very nature of disability services make it hard to consistently define such a relationship.

In this section we describe some of the most important factors affecting disability services, and speculate on the likely impact upon the CSDA budget.

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[8] Another reason for expecting a (small) over-estimate of growth is that the 2005 imputed prevalence rate holds the prevalence rate for the under 35s constant, despite the evidence of some fall between 1996 and 2000. See Figure 5.

5.1   Improvements in Medical Technology

Developments in medical technology have two offsetting impacts on demand for disability services.

- On the one hand, more people with disabilities may survive (childbirth or later injury) who otherwise might have died. In summarising evidence on trends in morbidity and mortality, the AIHW note that the incidence of congenital malformations was higher in the 1990s than the 1980s.[9] However, infant deaths due to congenital malformations have halved since 1980. More generally, improvements in health care may mean that people with disabilities have lower on-going mortality rates.

- On the other hand, technology may improve health outcomes for survivors reducing their need for support services.

5.2   New Support Technologies

Similarly, new support technologies can have offsetting impacts on service demand.

- New technologies may permit the same outcomes to be attained with less cost. For example new transport and information technologies may reduce the need for personal assistance among people with mobility restrictions.

- Where new technologies permit new outcomes to be achieved they may lead to increased demand (and hence cost).

5.3   Other Support Services

The need for special services for people with disabilities depends very much on the extent to which 'normal' institutions accommodate their needs. If employers provide access and equipment to people with special needs, this can enable people to stay in unassisted employment. Similarly, the degree of flexibility of mainstream education and health services is important. Trends in this will be substantially influence by legislative actions.

5.4   Labour Market Changes and the Supply of Informal Carers

More than half of the population with severe or profound activity restrictions receive their primary care from relatives rather than from CSDA funded services (see eg AIHW, 2000, p24). This care is mainly provided by women who are not in the labour force. The ABS estimates that of workforce age people in 1998, only 1.9 per cent of people who were in the labour force were primary carers, whereas 5.7 per cent of people not in the labour force were.[10]

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[9]   AIHW (2001), Australia's Welfare, p 269.

10 ABS Cat No 4436.0, p21. A disaggregation by both gender and labour force status was not published.

However, labour force participation rates of women are steadily growing. Among women aged 55 to 59, for example, the proportion in the labour force is expected to grow from 43.8 per cent in 2001 to 47.8 per cent in 2006.[11] This increase is largely due to the aging of cohorts of women who have had greater labour force participation throughout their lives. These patterns suggest that the demand for CSDA funded services is likely to grow as parents of people with a disability (in particular) face increasing time pressures.

Calculating the impact of this phenomenon on service demand is difficult, as it requires information about the relationship between parental labour force attachment (for example) and the service use patterns of individuals with disabilities. While we do not have direct data on this, it is possible to calculate "order of magnitude" estimates using published ABS data. This calculation has several steps.[12]

1. The ABS publication *Labour Force, Projections, 1999 to 2016* (Cat No. 6260.0) has estimates of the number of women in the labour force and not in the labour force in different age groups in 2006. We then calculate what these numbers would have been if the female labour force participation rates of 2001 were to apply in this year (separately for each age group).

2. We estimate the percentage of women in the labour force who are primary carers as 2.7 per cent, and the percentage of women outside the labour force who are carers as 8.0 per cent. These estimates are derived by inflating the estimates for both sexes combined given in the text above, by the ratio of female to overall caring rates.

3. Applying these primary carer rates to the predicted labour force participation rate for 2006 yields an estimate of 420,026 female primary carers. If 2001 participation rates were to apply in 2006, the numbers of female primary carers would be greater, at 426,190.

4. The difference between these two estimates (6,164) is an estimate of the extent to which rising female labour force participation will reduce the supply of carers below that which might otherwise apply. The key assumption required for this interpretation is that rates of caring within each age/labour force group remain constant.

5. Of all female primary carers aged 15-64, some 58 per cent care for their partner or children. The remainder care for parents or other people (including parents-in-law) who are likely to be outside the age range for most CSDA services (ABS, 4436.0, 1998, Table 10). Hence we estimate a potential loss of 3,557 primary carers from the key target group for the CSDA.

This potential loss of primary carers amounts to 1.2 per cent of all primary carers of partners or children or 0.5 per cent of all people aged under 65 who have a severe or profound core activity restriction.[13] However, only about 4 per cent of people with severe

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11 ABS Cat No 6260.0, p16.

12 See the accompanying spreadsheet file Carers.xls for more details of these calculations.

13 Based on our estimate for 2006 of 740,000 (defined as for Figure 7)

or profound activity restrictions live in cared accommodation.[14] The ABS estimates this number (in 1998) at 19,400. Our estimate for the number of accommodation services received (in 2001) is similar, at 22,500 (see Figure 6).

If the potential loss of primary carers was to flow through directly to an increased demand for accommodation services, this would amount to a growth of 15.8 per cent over five years (using 22,500 as the base), or 3.0 per cent per annum (compound). This is likely to be an over-estimate of the impact of labour force changes on demand for accommodation services. In particular, the link between (lack of) primary carers and demand for accommodation services is unlikely to be so direct as assumed in this calculation. The ABS 1998 Disability Survey, for example, estimates that there are a total of 301,000 primary carers of partners or children. However, the same survey estimates that there are a total of 625,000 people aged under 65 with severe or profound core activity restrictions and living in a private dwelling. Many of the latter apparently do not have a primary carer (within the meaning of the ABS survey). It is possible therefore that around half the loss of primary carers might be made up by other packages of care that do not necessitate the use of residential care.

Even if this is the case, however, a growth of around 1.5 per cent per annum in demand for accommodation support services is large. Moreover, though the estimates described above are for the 2001 to 2006 period, the labour market trends for the preceding five years are very similar, and so they should have been observed in the data described in Section 4. And indeed it is possible that they were, as part of the cohort effect in accommodation services demand. In Section 4.5 we noted that the modelled cohort effect led to an increase in the number of services of around 2,200, or 9.5 per cent over a five-year period. This translates into a growth of 1.8 per cent per annum.

The main reason proposed for the increased labour force participation of women is that due to the ageing of a new cohort of women with higher labour force participation rates. This is entirely consistent with the cohort pattern in service use described earlier in this report.

We conclude therefore, that there are good reasons to believe that increased female labour force participation will lead to increased demand for services, probably accommodation services in particular (but possibly also respite services). The estimate of the size of this effect is of the same order of magnitude as the 'cohort effect' discussed in Section 4. Though the estimates in this section can only be considered very approximate, they provide strong support for the use of the cohort effect in estimating future demand for accommodation services (at least).

5.5   Social Attitudes to Disability

The ABS disability surveys suggest that the prevalence of disability has increased significantly in Australia over the last two decades. AIHW (2000, p69) estimate that the age-standardised prevalence rate (for 5-64 year olds) of 'severe or profound core activity

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[14]   See ABS, Year Book Australia, 2000, Special Article, 'There's no place like home', available at http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/NT00017DBA.

restriction' increased at an average rate of 2.9 per cent per annum over the period 1981 to 1998. Most of this increase was in the 1993 to 1998 period where the annual increase was 8.1 per cent.[15]

It is conceivable that this reflects factors such as the changes in health outcomes described above. However, the most common interpretations are that it reflects better data collection methods together with an increase in the propensity to report disabling conditions (eg hearing loss and musculoskeletal disorders, see Davis et al, 2001). To the extent to which changing attitudes are important, they are likely to have implications for the demand for services. If people are more willing to identify conditions that restrict their core activities, they may also be more likely to demand services.

5.6   Summary

It is difficult to provide estimates of the magnitude of these changes on the demand for disability services.

In this section we have provide estimates of the likely impact of increasing female labour force participation on demand for CSDA services. Our best (albeit very approximate) estimate is that this could lead to a trend increase in demand for accommodation services, in particular, of around 1.5 per cent per annum. This is of the same order of magnitude as the 'cohort effect' described in Section 4, and may well be the main explanation for that observed pattern of service demand.

Other factors that may increase demand include changing community attitudes towards disability and the role of support services. The disability survey data imply that this could amount to an increase of up to 8 per cent per annum – though this should not be considered a precise estimate.

In general, however, we believe it will be difficult to incorporate any of the above factors into a fixed adjustment formulae for future funding. Indeed, it is possible that these explanations are already incorporated via cohort effect in the use of accommodation services described in Section 4.

Nonetheless they need to be born in mind when fixing future funding levels. In the political context it needs to be recognised that demand for services is likely to continue to grow, and there are likely to be positive feedback loops whereby successful services lead to realisations of previously unmet demand. It may also be appropriate to make special one-off funding adjustments for new technological developments.

6.   Price Adjustment (Indexation): Wage Growth

The objective of price adjustment (or indexation) is to adjust the total budget of a program so as to permit a constant quantity (and quality) of services to be delivered. It

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[15]   Note these are (compound) per cent, not percentage point increases. They can be interpreted as the annual percentage increase in the number of people with restrictions, holding the population and age distribution constant.

needs to take account of changes in the price of service delivery inputs (of which the most important is labour) and changes in the efficiency of producing output from these inputs (ie productivity).

6.1　The Current Methodology

The 1998 CSDA incorporates the use of the Commonwealth Department of Finance *Wage Cost Index 2* (denoted here as DoF_WCI2) to adjust funding to take account of changes in the cost of providing services. This index provides an estimate of the ratio in the price of delivering services between two financial years. The value of this index for 2002-3 (using 2001-2 as the reference year) will be calculated in the following manner.

CPI component:

A = CPI(Dec 2001) / CPI(Dec 2000)

Wage component:

B = 1 + (SNA(April 2002) / AWOTE)

Wage Cost Index 2:

$DoF\_WCI2 = 0.1 \times A + 0.9 \times B$

Where CPI is the Consumer Price Index (a measure of non-wage costs), SNA is the safety net adjustment decided by the Industrial Relations Commission (IRC), and AWOTE is the most recent (at Budget preparation time) value of seasonally adjusted average weekly ordinary time earnings.[16] The safety net adjustment is the minimum wage increase awarded by the IRC, usually specified as a fixed amount of dollars per week.

The rationale for this wage cost measurement is derived from the principle that cost indexes should include only those wage increases that are not offset or expected to be offset by productivity improvements. This method assumes that all wage rises above the safety net level will be associated with productivity increases, and will thus have no impact upon the price of each unit of services delivered.[17]

There are a number of problems with this approach as applied to the delivery of services in the human services area. First, the earnings of workers in the community services sector are likely to be somewhat lower than average. This means that the safety net increase will form a higher percentage of their total wage than given in the above

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[16]　Finance also produce WCI1 to 9 which are defined similarly, but with different weightings of A and B in the above formula. It appears that there have been some minor variations in the calculation method used over the past few years. This discussion is based upon communication from the Department of Finance in January 2002 (contact person, David Turvey, david.turvey@finance.gov.au)

[17]　This assumption is separate from the 'efficiency dividend' process implemented by the Commonwealth Government.

calculation and hence the impact of the safety net increase on the total wage bill will be underestimated.[18]

Secondly, it has been argued that some on-costs, such as superannuation and insurance, have been increasing in recent years at a rate faster than both wages and the CPI. We consider this further below.

Most important, however, are the assumptions about productivity growth implied by this procedure. It is generally accepted that productivity growth in human services is much lower than in many other sectors of the economy. The classic statement of this is in Baumol's 'cost disease' concept.[19] Baumol noted that the production of services often involved some inherently fixed input of human labour. A live music performance will always require a live musician, and a service requiring human interaction will always require a person to interact. Productivity growth in other sectors of the economy, however, will lead to a growth in living standards for all, which will lead to an inevitable increase in the real price of services.

In the disability services area, a large proportion of people are employed in activities that inherently require some fixed quantity of human input. This does not mean that there can be no productivity growth in service provision. For example, better transport and communication can reduce the time required to service clients in different locations, and improvements in care techniques may lead to improvements in outcomes for the same labour input. Nonetheless, the rate of productivity growth is likely to be much below that of those other sectors of the economy that are producing goods that do not have an inherently human component.

The Department of Finance wage cost indexation approach might be appropriate if the growth of productivity was constant across the economy. However to apply it to the situation where productivity growth is variable implies contradictions. *If* it were true that wage growth above the level of the safety net increase was always financed from productivity growth, then this would imply that wages in human services (and service industries more generally) would be steadily falling (since they do not have sufficient productivity growth). In fact, what has happened (and will continue to happen) is that the price of the output of those industries with greater productivity growth tends to fall. The other side of this is that the relative price of services has and will continue to rise.

In summary, economic theory suggests that wage growth in service industries, and human services in particular, will run well ahead of productivity growth in that sector. Certainly there is little evidence that the wage growth in the sectors with low productivity growth is any lower than the overall rate of wage growth. Over three years to August 2001, average

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[18]   Although the ABS does not publish direct information on the level of community sector wages, the average wage in the health and community services sector is close to the overall average (ABS, cat no. 6302.0 August 2001). We expect that wages in the health sector will be higher on average than in the community services sector, suggesting a lower average for community service wages.

[19]   For a summary of some of the key issues (in the health care context) see Baumol (1993).

earnings in the health and community services sector grew by 14.0 per cent, essentially the same as the overall wage rate of wage growth in the economy (13.9%).[20]

6.2 Alternative Measures of Wage Growth

An alternative approach is to base the estimate of cost growth on the actual movement in wages, together with an explicit deflator for assumed productivity growth. For the 'market sector' of the economy, the ABS estimates that over the long run, average growth in multifactor productivity has been around 1 per cent per annum.[21] Given the above discussion any such explicit productivity deflator for community services should be well below this level (eg a fixed figure of 0.2% per annum).

As for wage measurement, commonly used wage indices such as the Average Weekly Earnings series are not ideal for this purpose because they suffer from compositional effects. For example, as unemployment rises, job losses are concentrated among low-wage workers, leading to an increase in AWE, even though no individual's wage may have increased. Ideally, a measure of labour costs should include both wages and associated on-costs and not be sensitive to such compositional effects.

The ABS is currently developing a *Labour Price Index*, which will satisfy these criteria (though it does not control for productivity growth). However, the current schedule is for this to be not published until the end of 2004, with data going back to mid-2002.

In the absence of these data, the currently published *Wage Cost Index* is the best source of data on wage cost increases (ABS Cat. No. 6345.0). This publication has information for the health and community services industry (though community services is not separately identified in the published data).[22] We denote the ABS Wage Cost Index for the health and community services industry as ABS_WCI.

The ABS Wage Cost Index does not include paid leave, employer funded superannuation, payroll tax, worker's compensation, fringe benefits, etc. However, the price-index method of collection does control for some changes in these factors. For example, even though leave is not explicitly included, the collection process controls for such factors as the incorporation of leave loading into salary.

Over recent year, the ABS_WCI has increased at a much faster rate than the DoF_WCI2. Between 1997-98 and 2000-01, the DoF_WCI2 index grew by a total of 4.8 per cent, or an average rate of 1.6 per cent per annum (compound).[23] The ABS_WCI on the other

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[20] This is for full-time adult ordinary time earnings (ABS Cat No. 6302.0, August 1998 and 2001).

[21] ABS Cat 5206.0, September Quarter 2001

[22] Whilst the Wage Cost Index is available separately for each State, the published information is only at an aggregate level rather than for the health and community services sector on its own. Hence we recommend the use of a single national index rather than separate wage cost indices by State.

[23] Data supplied by FaCS.

hand, grew by 9.7 per cent, or 3.1 per cent per annum.[24] Whilst the DoF_WCI2 also includes a CPI component, this would explain a negligible proportion of this difference.

6.3 Proposed Measure

It is proposed that the price indexation adjustment for the CSDA be based upon the ABS_WCI together with adjustments to take account of productivity growth, superannuation increases, and other on-cost increases. We suggest following the DoF_WCI approach of using the CPI to represent the trends for the (approximately) 10 per cent of general costs that are not associated with wages.

One disadvantage of the ABS_WCI is that it is retrospective rather than forward looking. Nonetheless, accurate indexation for cost increases over the past year is preferable to the non-indexation of a substantial part of wage costs.[25] We suggest the following procedure for the use of the ABS_WCI.

The data for the December quarter is usually released at the end of February, and for the March quarter in mid-May. Given the need for indices to be prepared well in advance of budget preparation, and for concordance with the CPI adjustment, we recommend that the adjustment be based on the increase in the ABS_WCI (from one December quarter to the next).

In a similar fashion to the DoF_WCI2, the indexation increase between 2001-02 and 2002-03 will be calculated as follows.

CPI component:

A = CPI(Dec 2001) / CPI(Dec 2000)

Wage component:

B = ABS_WCI(Dec 2001) / ABS_WCI(Dec 2000)

Wage Cost Index:

WCI = (0.1 × A + 0.9 × B) / 1.002

Where the 1.002 is an assumption of general efficiency growth in the sector (ie 0.2 per cent per annum).

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[24] ABS Cat No. 6345.0, September Quarter, 2001. This is for total hourly rates of pay excluding bonuses, for people in the Health and Community Services industry.

[25] An alternative forward-looking approach would be to utilise the budget estimate of forecast growth in the National Accounts estimate of average non-farm earnings. The disadvantages with this are that it is not specific to the community services sector, it is only a forecast and it could potentially be affected by compositional effects.

7. Price Adjustment (Indexation): On-cost Growth

Concerns have been raised by some service providers that non-wage costs have been increasing at a faster rate than both wage and CPI growth. These additional costs fall into two categories, increases in costs that are (potentially) associated with outcomes, and increases in costs that do not necessarily lead to better outcomes for clients.

In the former category are such cost burdens of increased management and reporting requirements, the development of associated accounting and IT infrastructure, and data collection requirements such as for the MDS. At the level of the individual service agency, these administrative requirements are often seen as an un-asked for additional cost which does not improve service outcomes. For disability services as a whole however, these requirements are designed to lead to increases in the efficiency of meeting client outcomes. If this were not the case, then it would be hard to justify the need for such administrative requirements. Hence, it is not appropriate to consider these additional administrative costs on service providers within the framework of indexation formula for the CSDA as a whole.

However, many other cost increases are not associated (or associated only weakly) with client outcomes. In particular, legislative changes designed to protect employees from workplace injury or increases in superannuation or worker's compensation insurance are effectively increases in wages (but not recorded as such in the ABS_WCI). Similarly, the increase in administrative costs associated with the introduction of the GST is a cost increase that does not improve client outcomes. In principle, an indexation formula should take account of changes in these factors where they grow at a different rate than direct wage costs.

7.1 Superannuation

The compulsory employer contribution to superannuation rose to 8 per cent on July 1 2000, and will increase again to 9 per cent on July 1 2002. If the SGC were to apply to all staff employed under the CSDA, this one percentage point increase in employer contributions in 2002-3 will imply an increase in the total wage and on-costs bill of around 0.9 per cent.[26] This will be reduced if some employees are not covered by superannuation, or if some already have higher employer contribution rates.

The past practice has been to adjust the Commonwealth component of CSDA funding to take account of these compulsory superannuation changes, using a formula similar to the one described above. We do not have evidence on the past treatment of State-funded components.

Future CSDA funding (both Commonwealth and State) should incorporate adjustments of this nature to take account of changes to compulsory superannuation payments.

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[26] If on-costs (superannuation, worker's compensation insurance etc) are a total of 11 per cent of gross wage, then an increase of one per cent of gross wage translates to an increase of 0.9 per cent of the total (100 x (1 – 1.12/1.11)).

7.2 Worker's Compensation and Insurance

Anecdotal evidence suggests that many service providers have experienced substantial increases in the premium rates for worker's compensation and public liability insurance policies.

In NSW, there have been substantial increases in the rates for disability services related activities. Table 2 shows NSW WorkCover base insurance premium rates for the years 1997-98 and 2001-2. Over this period WorkCover insurance premiums have increased between 1.1 and 2.1 percentage points.

Table 2   NSW WorkCover Insurance Premium Rates, 1997-1998 and 2001-2

Industry	1997-98 (%)	2001-2 (%)	Difference
Nursing Homes	5.57	7.65	2.08
Home Care Services (paramedical, nursing and personal hygiene care)	5.57	6.74	1.17
Residential Care Services NEC	1.82	3.12	1.3
Non-residential Care Services	1.58	2.70	1.12

Source: NSW WorkCover Authority.

Table 3 shows example costs for a West Australian service provider. In this case the comparison is between 2001-2 and 2002-3, and the percentages are expressed as a percentage of the total budget of the provider (rather than just the wage bill as in Table 2).

In the forthcoming year, these costs are anticipated to grow by around 15 per cent, or 0.56 per cent of the total budget of the agency. The main component of this will be increases in Worker's Compensation insurance fees. In this case this increase is related to the collapse of HIH insurance, the September 11 2001 tragedy, and the associated general increases in insurance fees.

In the current indexation formula, price rises such as these are nominally covered by the CPI component. However, these price increases have been significantly above this rate. In general, it does appear that these price rises have been 'one-off' in effect, and there is no particular reason to believe that these types of charges will continue to grow at a rate higher than the CPI. The main caveat to this conclusion is if there are further flow-throughs of increases in insurance in years after 2002-3.

Table 3   Example 2001-2 and 2002-3 Non-Wage Cost Increases for a West Australian Agency

Costs as a Percentage of Agency Budget

	2001-2	2002-3 (Estimated)	Difference
Workers Compensation	2.63	3.02	0.39
Vehicles	0.60	0.69	0.09
Business Plan (includes Public Liability and Fire and Contents insurance)	0.15	0.20	0.05
Professional Indemnity, Directors & Officers	0.16	0.19	0.03
Total	3.54	4.10	0.56

Source: Correspondence from Charlie Rook, Manager, Strategic Planning & Evaluation, Disability Services Commission, Western Australia.

Given current evidence, the appropriate form of indexation adjustment to take account of these factors is a one off increase in the base level of funding for the next CSDA agreement (rather than an increase in every year thereafter).

The evidence above suggests an increase in the CSDA budget of the order of 1.5 per cent to take account of these costs increases. This (approximate) figure is arrived at by taking the increase between 1997-98 and 2001-2 for residential care services as the benchmark (1.3%), reducing this slightly to put it as a fraction of the total budget rather than a fraction of wages (see footnote 26), and adding a component to cover other insurance increases.

This issue should be revisited regularly and further adjustments made if there are additional large increases in factors such as insurance costs.

7.3   GST Compliance Costs

The same Western Australian agency described above has reported that GST compliance costs amount to approximately 0.45 per cent of their total agency budget. Over the longer run, these costs might diminish slightly, as the GST is incorporated into normal business practices. Nonetheless some additional costs are likely to remain. Again, a one-off GST compliance cost adjustment would be required if service delivery is to remain at the same level.[27] If it is desired to compensate agencies for the increase in compliance costs

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[27] It is assumed that the direct effect of the GST on service funding has been managed in a separate exercise to that considered here.

associated with the introduction of the GST, then this evidence suggests a one-off increase of approximately 0.4 per cent.

8. Summary Formula

Summarising the results presented above, we recommend that the following formulae be used for the calculation of funding in future years. It is important to note that *these formulae only cover those areas where it has been possible to quantify the effect of demand or price increases*. In particular, it does not include many of the non-demographic demand factors raised in Section 5. If these are judged to be important, additional funding may be required.

Because we have suggested both one-off and continuing funding formula elements, we present two formulae – one for the year 2002-3 and the other for subsequent years. In both cases, it is assumed that funding level in 2001-2 is used as the base.

8.1 Funding in 2002-3

Building upon the framework outlined in Section 3, we propose that funding in the year 2002-3, be calculated as follows.

$$F(2002\text{-}3) = F(2001\text{-}2) \times P(2002\text{-}3, 2001\text{-}2) \times D(2002\text{-}3, 2001\text{-}2)$$

Where F(2001-2) is the funding level in the base year 2001-2, P is the price index and D is the demand index (in both cases for 2002-3 relative to 2001-2).

The demand index is a demand inflation factor reflecting the impact of demographic change on demand. The estimates of this are summarised in Table 1 (in percentage growth rate form). If our preferred estimate of 2.28 is used, this implies that

$$D(2002\text{-}3, 2001\text{-}2) = 1.0228$$

The price index encompasses both an index for wage growth, an adjustment for assumed productivity growth in the sector, together with a number of one-off adjustments to cover increases in costs since the last agreement. That is

$$P(2002\text{-}3, 2001\text{-}2) = WCI(2002\text{-}3, 2001\text{-}2) \times O(2002\text{-}3)$$

Where WCI is the Wage Cost Index (defined in Section 6.3), calculated as

$$WCI(2002\text{-}3, 2001\text{-}2) = (0.1 \times A + 0.9 \times B) \div E$$

with

$$
\begin{aligned}
A \quad &= CPI(Dec\ 2001)\ /\ CPI(Dec\ 2000) \\
&= 135.4 / 131.3 \\
&= 1.0312
\end{aligned}
$$

$$B = \text{ABS\_WCI(Dec 2001) / ABS\_WCI(Dec 2000)}$$
$$= 114.2 / 110.6$$
$$= 1.0325$$

$$E = 1.002$$

And hence

$$\text{WCI}(2002\text{-}3, 2001\text{-}2) = 1.0303$$

Component A is based on movements in the Consumer Price Index, B is based on movements in the ABS Wage Cost Index (Cat No 6345.0, Total hourly rates of pay excluding bonuses for people in the health and community services sector) and E is an assumption of general efficiency growth in the sector (ie 0.2 per cent per annum). The combination of these factors leads to an estimated indexation factor (WCI) of 3.0 per cent.

An alternative approach would be to use the Department of Finance Wage Cost Index (replacing WCI in the above expression). As noted in Section 6.2, past evidence suggests that this would lead to much lower estimate of wage growth. For the reasons given in Section 6, we do not recommend the use of the Department of Finance Index.

The one-off adjustments that are recommended in this report are

$$O(2002\text{-}3) = S \times C \times G$$

Where

S = 1.009 (July 2002 Superannuation Guarantee Charge increase – see Section 7.1)

C = 1.015 (Insurance increases – see Section 7.2) and

G = 1.004 (GST compliance costs – Section 7.3).

and hence,

$$O(2002\text{-}3) = 1.0282$$

Combining all these factors, we arrive at a funding inflator of

$$1.0228 \times 1.0303 \times 1.0282 = 1.0835$$

That is (after rounding), a demographic demand growth of 2.3 per cent, a general indexation growth of 3.0 per cent and a one-off indexation adjustment of 2.8 per cent.

Overall, in order to maintain the same balance between supply and demand as in 2001-2, it is estimated that total funding will need to increase by 8.35 per cent.

8.2 Funding in Subsequent Years

Funding in subsequent years can be calculated in a similar fashion. Unless there are further increases (above the CPI) in Superannuation or insurance costs, the one-off adjustments would not apply. For example, in 2003-4, the funding would be calculated as

$$F(2003\text{-}4) = F(2002\text{-}3) \times P(2003\text{-}4,\ 2002\text{-}3) \times D(2003\text{-}4,\ 2002\text{-}3)$$

With

$$D(2003\text{-}4,\ 2002\text{-}3) = 1.0228$$

$$P(2003\text{-}4,\ 2002\text{-}3) = WCI(2003\text{-}4,\ 2002\text{-}3)$$

$$WCI(2003\text{-}4,\ 2002\text{-}3) = (0.1 \times A + 0.9 \times B) \div E$$

$$A = CPI(\text{Dec } 2002)\ /\ CPI(\text{Dec } 2001)$$

$$B = ABS\_WCI(\text{Dec } 2002)\ /\ ABS\_WCI(\text{Dec } 2001)$$

$$E = 1.002$$

Again, it should be noted that these calculation do not include any estimates for the non-demographic demand factors considered in Section 5 (except to the extent to which they might be already included in the cohort effect of the demographic index).

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