



FINAL REPORT

Economic Effects of a 1:4 Staff-Child Ratio for Under Two Year Olds in Child Care

Department of Community Services, NSW

Sydney

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Table Of Contents

Executive Summary	i
1. Introduction.....	1
1.1 Background.....	1
1.2 Approach.....	1
1.3 Data Sources	2
1.4 Current Market Overview	2
1.5 Report Structure.....	4
2. Methodology	5
2.1 Overview	5
2.2 Survey Methodology	6
2.2.1 Sample Frame.....	6
2.2.2 Questionnaire Design.....	9
2.2.3 Survey Administration and Follow-up.....	9
2.3 Literature Review	10
2.4 Interviews	10
2.5 Modelling Cost and Price Impacts.....	11
2.5.1 Introduction	11
2.5.2 Cost Impacts	12
2.5.3 Price Impacts	14
3. Survey Results.....	16
3.1 Response Rates.....	16
3.2 Cost Structures	18
3.3 Fee Structures.....	20
3.4 Service Offerings and Utilisation Rates	22
3.4.1 Current Staff-to-Child Ratios	22
3.4.2 Under 2 Year Old Places Offered	23
3.4.3 Utilisation Rates	24
4. Cost Impacts	26
4.1 Least Cost Decision	26
4.2 Cost Impacts	28
4.2.1 Effect of Economies of Scale and Scope	29

4.3	Sensitivity Testing	30
4.3.1	Average Salary Assumption	30
4.3.2	Daily Fee Increases	30
4.3.3	Weeks per Year of Operations	31
4.3.4	Assumption Regarding Dropping All Under 2 Places	31
5.	Price Impacts	33
5.1	Cross-Subsidisation	38
6.	Indirect Effects of 1:4 Ratio	41
6.1	Usage Impacts	41
6.1.1	General Market Demand	41
6.1.2	Demand Elasticity Studies	42
6.2	Workforce Participation Impacts.....	43
6.3	Staff Availability	44
6.4	Household Expenditure	45
7.	Implementation Options.....	47
7.1	Phased Approach.....	47
7.2	Targeted Approach	47
7.3	Supported Approach	49
7.3.1	Training Option.....	49
7.3.2	Subsidy Option.....	49
7.4	Flexible Grouping Approach.....	50
7.5	Options Summary	53
	REFERENCES.....	54
	Appendix A – Cover Letter and Survey	A1
	Appendix B – Industry Reference Group	B1
	Appendix C - Market Size	C1
	Appendix D – Elasticity Studies.....	D1
	International Evidence	D1
	Australian Evidence	D3

List of Figures

Figure 1: Approach to Evaluating 1:4 Staff-to-Child Ratio Effects	6
Figure 2: Factors Influencing Response to a Change in Staff-to-Child Ratio	11
Figure 3: Initial Decision Tree for Child Care Centres	13
Figure 4: Fee Impact Decision Tree for Child Care Centres	15
Figure 5: Distribution of Survey Responses by Category of Centre	17
Figure 6: Average Distribution of Operating Costs	18
Figure 7: Survey Results for Average Fee Charged by Age Group and Location	21
Figure 8: Distribution of Time Offering Greater Than a 1:5 Ratio Across Centres.....	22
Figure 9: Occurrence of Least Cost Choice in Cost Impact Model	26
Figure 10: Range of Cost Impacts Per Under 2 Place Per Day for <i>Centres Changing</i>	29
Figure 11: Map of Child Care Centre Densities per Capita Offering Under 2 Places in NSW	36
Figure 12: Map of Household Weekly Income Distribution in NSW	37
Figure 13: Illustration of Possible Levels of Cross-Subsidy in Child Care Fees	39
Figure 14: Distribution of International Price Elasticities with regard to Labour Force Participation	44

List of Tables

Table 1: Overview of Long Day Care Centres Licensed in NSW	3
Table 2: Distribution of Under 2 Licensed Places in Individual Long Day Care Centres	4
Table 3: Matrix of Long Day Care Providers Licensed for Under 2 Year Olds in NSW	7
Table 4: Distribution of Licensed Places for Under 2 Year Olds in NSW.....	7
Table 5: Distribution of Stratified Sample.....	8
Table 6: Survey Response Rates by Category of Centre	16
Table 7: Survey Responses Received by Category of Centre.....	17
Table 8: Survey Results for Labour Costs as Per cent of Total Costs	19
Table 9: Survey Results for Total Operating Cost per Place Offered	19
Table 10: Survey Results for Proportion of Labour Costs to Primary Contact Staff	20
Table 11: Survey Results for Average Daily Fees per Age Group.....	20
Table 12: Survey Results for 1:4 or Greater Staff-to-Child Ratio for Under 2 Year Olds	23
Table 13: Distribution of Centres Already Offering 1:4 Ratio by Proportion of Operating Hours	23

Table 14: Distribution of Under 2 Places Offered in Survey Population	24
Table 15: Distribution of Under 2 Places Offered as a Percentage of Licensed Capacity in Survey Population.....	24
Table 16: Survey Results for Average Under 2 Utilisation Rates	25
Table 17: Distribution of Centres Impacted by Change in Ratio (by % required to change). 27	
Table 18: Average Annual Cost Impact Per Under 2 Place for <i>Centres Changing</i>	28
Table 19: Average Annual and Daily Cost Impact per Place with Different Salaries	30
Table 20: Least Cost Decision Results for Fee Increases	31
Table 21: Average Cost Impact Per Under 2 Place Per Day for <i>Centres Changing</i>	33
Table 22: Estimated Fee Impact for Centres Changing Based on Cross-Subsidy	40
Table 23: Distribution of Child Care Expenditures by Household Income Quintile	46
Table 24: Survey Results and Cost Impacts for Services Operating Beyond Core Hours....	48
Table 25: Queensland Regulation for Child Care Centre Groups.....	50
Table 26: Under 2 Year Old Age Groupings for Scenario A	51
Table 27: Cost Impacts for Scenario A Flexible Groupings	51
Table 28: Cost Impacts for Scenario B Flexible Groupings	52
Table 29: Summary of Policy Option Impacts on Criteria	53

Executive Summary

Booz & Company was appointed in November 2007 by the New South Wales (NSW) Department of Community Services (DoCS) to examine the economic impacts of a staff-to-child ratio of 1:4 for children under 2 years of age in child care centres. This study also details implementation options for DoCS in the event that the current regulated ratio of 1:5 is changed.

In addition to secondary research on the characteristics of the child care market in NSW, a survey of child care providers was conducted by DoCS in conjunction with Booz & Company to gain information on current costs and fees. The overall response rate for this survey was 40 per cent; with a greater proportion of community-based centres participating compared with privately-owned centres. The responses to the survey regarding costs and fees were used to model the impact of changing the staff-to-child ratio for under 2 year olds to 1:4.

Results from the cost impact model indicate that:

- 34 per cent of centres will have no increase in costs;
- For a majority of centres that would experience a cost increase, the least cost decision will be to increase staff and maintain the current number of under 2 places; and
- The daily cost impact per under 2 place is equal to \$7.59 for centres that will be required to change by a new regulation.¹

In centres that offer places for older children, the entire cost impact per place per day of \$7.59 is anticipated to spread across the older age groups to decrease the fee impact on the under 2 year old group. Based on current cross-subsidising in centres, the fee impact for under 2 year olds could range from \$1.19 per day, in the extreme, to a more likely \$4.39 per day with the older groups paying the remainder of the cost impact through higher fees. Survey data indicate that centres offer an average of 2.6 places for 3 to 6 year olds for each under 2 year old place. Hence, the fee impact listed in the table below is divided across more 3 to 6 year old places which decreases the impact per place for this older group. It is important to note that the total fee impact remains \$7.59 but is distributed across age groups in the form of higher fees for older children as well as under 2 year olds.

Degree of Cross-Subsidy	Estimated Fee Impact for Under 2 Year Olds	Estimated Fee Impact for 3 to 6 Year Olds*	Total Daily Fee Impact
None	\$7.59	\$0	\$7.59
Moderate (42.1%)	\$4.39	\$1.23	\$7.59
Medium (59.0%)	\$3.11	\$1.73	\$7.59
Staff Based (84.3%)	\$1.19	\$2.47	\$7.59

*Note: The remainder of the fee impact is divided by 2.6 places per every one under 2 year old place.
Source: Booz & Company analysis.

¹ This is a weighted average for community-based and privately-owned centres in the survey.

The cost impacts for centres required to change by a new regulation will vary based on size, location and ownership of centre, as seen in the table below.

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	\$9.19	\$5.01	\$7.54	\$7.12	\$7.86	\$8.85	\$7.56
Community Based	\$5.71	\$0	\$7.60	\$7.94	\$8.98	\$0	\$7.65
Total	\$6.78		\$7.56		\$8.32		\$7.59*

*Note: Weighted average to reflect industry profile of 33% community-based and 67% privately-owned.

Note: Values were derived from annual figures reported in Table 18 by dividing out 250 days of operations per year. A result of \$0 indicates that no centres in this category will change.

Source: Booz & Company analysis.

The scope of impact on centres may be subject to potential under-estimation as the unavoidable over-representation of community-based centres in the survey had the effect of increasing the proportion of centres already offering a 1:4 ratio. The results for small centres should also be interpreted with caution, as less than 30 centres responded in this category.

The results of the cost model were not sensitive to predicted increases in fees occurring since the survey was conducted at 5 and 10 per cent. However, the magnitude of cost impact is sensitive to current annual salaries for child care workers.

In most cases, centres will be able to pass on the full cost impact to parents by increasing daily fees by approximately 12 per cent if the fee increase is restricted to under 2 year olds only. If cross-subsidisation occurs, the fee increase for under 2 year olds could range from 2 to 7 per cent, with the older age groups increasing 2 to 4 per cent from current fees. The increase in fees is possible because the child care market in Australia is relatively inelastic and all current trends indicate steady demand for child care services. Increasing Commonwealth subsidies will also contribute to offsetting any increase in fees related to changing ratios.

If a change in regulation was introduced, and it was desirable to reduce the cost impacts, then the following policy options could be considered:

- A *phased approach* where certain centres are allowed an exemption period before complying with the new ratio;
- A *targeted approach* where the new ratio applies only to the core hours of operation, or a percentage of the day;
- A *supported approach* where DoCS offers either strategy or financial support; and
- A *flexible grouping approach* where the new regulation allows for multiple groupings with varied ratios for younger children.

1. Introduction

1.1 Background

Booz & Company was appointed by the New South Wales (NSW) Department of Community Services (DoCS) in November 2007 to examine the economic impacts of implementing a staff-to-child ratio of 1:4 for children under 2 years of age in NSW child care centres. This study also develops implementation options for DoCS in the event that the current staff-to-child ratio of 1:5 is changed. The aim is to provide a sound evidence base for the NSW Government's consideration of such a policy change.

We do not, however, review the evidence for the long term developmental benefits to children of changing the ratio from 1:5 to 1:4. The developmental and societal benefits of higher ratios are well represented in previous studies and are not disputed by stakeholders.

The current regulation regarding the ratio of staff to children for under 2 year olds, as stated in *Children's Services Regulation 2004*, mandates that:

53(1) The licensee of a centre based or mobile children's service must ensure that the ratio of primary contact staff to children being provided with the service is:

- (a) 1:5 in respect of all children who are under the age of 2 years, and,*
- (b) 1:8 in respect of all children who are 2 or more years of age but under 3 years of age, and*
- (c) 1:10 in respect of all children who are 3 or more years of age but under 6 years of age.*

Current research points to a 1:3 ratio as best for under 2 year olds with regard to developmental outcomes;² however, the economic costs of implementing a 1:3 ratio may be prohibitive. While, changing the regulation to a 1:4 ratio is in line with the DoCS objective of setting minimum standards that ensure health, safety and well-being of children and support the full range of a child's developmental needs, concerns about the impact of a ratio change on service providers and families must be weighed against the quality outcomes. Therefore, DoCS seeks to base practical policy decisions on research and analysis, which is the foundation of this report.

1.2 Approach

The methodology focuses on answering the following questions in order to identify the likely economic impacts of implementing a lower staff-to-child ratio:

- 1) What are the likely impacts of a ratio change on the cost of service provision?
- 2) What are the likely price impacts of any changes in costs?

² See PricewaterhouseCoopers (PwC), 2003, Chapter 3 for a summary of literature.

- 3) What are the likely usage impacts of any changes in prices?
- 4) What flow-on impacts are there likely to be for NSW childcare service providers (profit and non-profit) and workforce, families and government?
and
- 5) How could the 1:4 ratio be implemented in NSW?

At important stages, the Project Steering Committee at DoCS, an Industry Reference Group (IRG)³, and service providers were consulted as appropriate in undertaking the study and testing preliminary findings.

1.3 Data Sources

Data used in this study has come from a sample survey (found in Appendix A) of NSW providers conducted by DoCS in consultation with Booz & Company; the final design and content of which was 'signed off' by DoCS. Other data sources included:

- Australian Bureau of Statistics (ABS);
- Commonwealth Department of Family and Community Services;
- IBISWorld Industry Report;
- *National Children's Services Workforce Study*;
- NSW Office of Industrial Relations;
- *Children's Services Information System*;
- DoCS; and
- Other academic literature.

Consequent impacts on families and the workforce were analysed using existing academic research and the experience of other jurisdictions.

1.4 Current Market Overview

According to the most recent extraction from the *Children's Services Information System*, there are just over 2,000 licensed long day care (LDC) services in NSW. Of those centres, 62 per cent are licensed to offer places for under 2 year olds.⁴ As detailed in Table 1, those long day care services that offer under 2 places are licensed to offer a total of almost 20,000 places for under 2 year olds which represents about 19 per cent of the total long day care licensed places in NSW.

³ The IRG comprises individuals from a variety of 'peak' organisations representing profit and non-profit child care service providers.

⁴ Children's Services Information System, July 2008. These values exclude the 58 mobile services in NSW, 15 of which are licensed for under 2 year old places.

Table 1: Overview of Long Day Care Centres Licensed in NSW

Category	Number	Percentage of Total
<i>Services</i>		
Total Licensed Services	2,277	100%
Services Licensed for Under 2s	1,418	62.3%
<i>Places</i>		
Maximum Licensed Places – All Ages in NSW*	100,585	100%
Maximum Licensed Places – Under 2s	19,664	19.5%
Maximum Licensed Places – Ages 2 to 3 at Services Licensed for Under 2s	34,820	34.6%
Maximum Licensed Places – Ages 3 to 6 at Services Licensed for Under 2s	48,520	48.2%
*Maximum Licensed Places – All Ages at Services Licensed for Under 2s	72,181	71.7%

**Note: Maximum licensed places for all ages is smaller than the sum of all individual age groups due to flexible licensing policies. The percentages for individual age groups, therefore, add to more than 100% of the maximum places.*

Source: Children's Services Information System, extracted July 2008.

According to the most recent Census of Child Care Services, 113,695 children under the age of six attend long day care in NSW.⁵ Of these children, just over half use LDC services. Some families have more than one child in care, and from the Census it can be estimated that there were around 101,000 families with one or more children in LDC.⁶

Of the total number of children in long day care, 14,412 or 13 per cent, are less than 2 years of age. Some 54 per cent of children less than two years attend private LDC services, and 46 per cent attend community based services.⁷ Applying the same relationship of children to families as noted above, it can be estimated that around 12,700 NSW families have a child less than two years of age in LDC.⁸

Most long day care services are licensed for 6 to 10 under 2 year old places, as seen in Table 2. A majority of under 2 places are licensed in medium sized centres, which is detailed in Section 2.2.1, with only about 10 per cent of under 2 places licensed in small centres. According to November 2007 data, small centres are

⁵ Calculated from data reported in: Dept. of Family and Community Services, 2005.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

licensed for approximately 1,800 under 2 places in NSW, whereas medium centres are licensed for approximately 10,000.

Table 2: Distribution of Under 2 Licensed Places in Individual Long Day Care Centres

Number of Under 2 Places Licensed	Number of Centres	Percentage of Total Centres
1-2 places	6	0.4%
3-5 places	213	15.0%
6-10 places	532	37.5%
11-15 places	264	18.6%
16-20 places	187	13.2%
21-30 places	215	15.2%
Total	1418	100.0%

Note: One centre is listed as licensed for 59 places in the database, however this is not within the regulations and is considered unrepresentative.

Source: Children's Services Information System, extracted 2008.

Under 2 year old places are also distributed differently between regional and urban areas in NSW. Eighty-two per cent of under 2 places are licensed in centres located in urban areas (approximately 16,000 places), while only 18 per cent of under places (approximately 3,500 places) are licensed in regional or rural areas.

1.5 Report Structure

The balance of this report is structured as follows:

- Section 2 provides a detailed explanation of the methodologies used to collect and analyse data;
- Section 3 details the relevant survey results;
- Section 4 presents evidence regarding the cost effects of a change in ratio;
- Section 5 describes the likely price effects of a change in ratio;
- Section 6 details the possible flow-on effects of a change in ratio; and
- Section 7 describes various implementation options and their benefits for DoCS.

Detailed material regarding the IRG, the survey and secondary data sources follow these sections in Appendices A through to D (inclusive).

2. Methodology

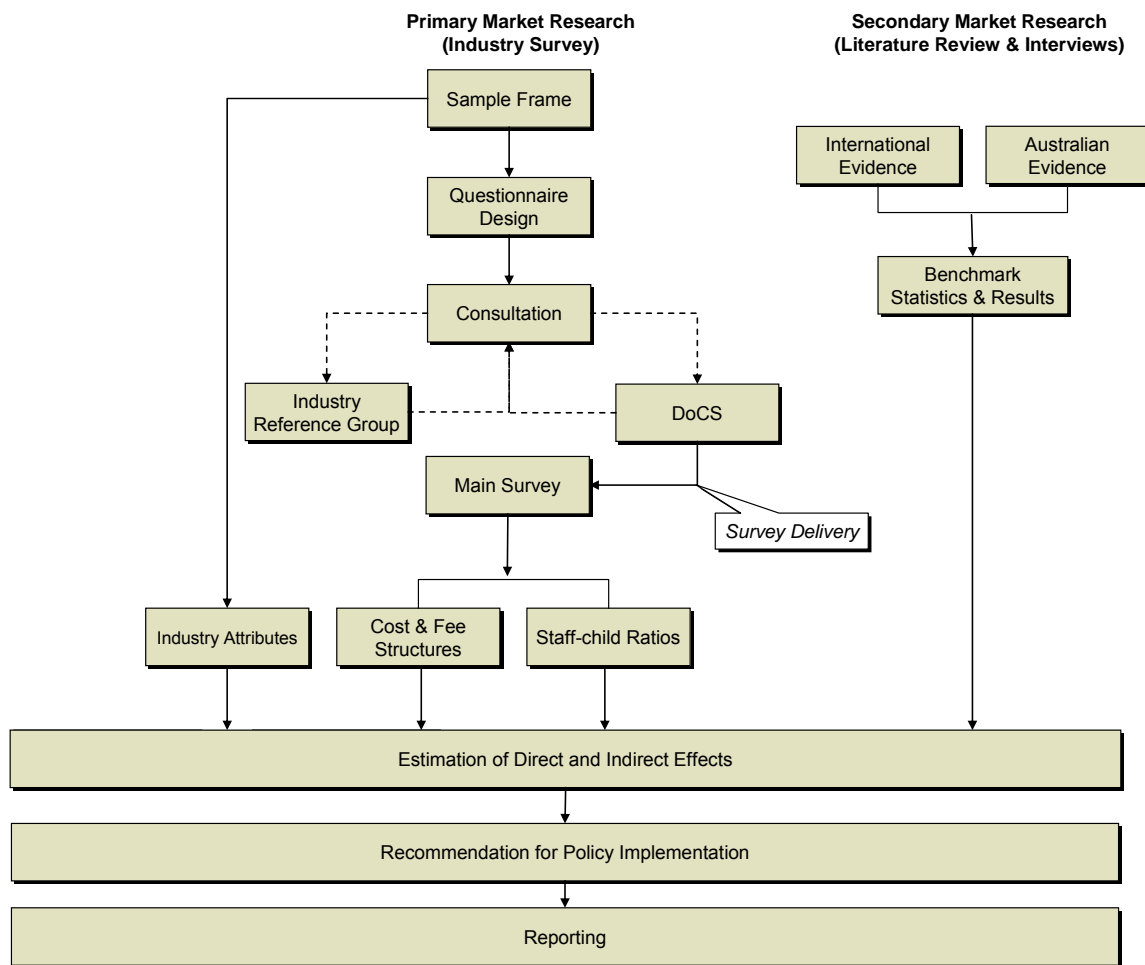
2.1 Overview

The approach adopted to evaluate the effects of a regulatory change to a 1:4 staff-child ratio for under 2 year olds is illustrated in Figure 1. The approach includes the following elements:

- Firstly, a significant secondary research program (i.e. literature review) was completed to provide a baseline for understanding the child care market in NSW. The results of this research were then used to ‘anchor’ the study and provide insights into:
 - the costs of various staff-child ratios;
 - the elasticities of demand related to child care and the labour market for various groups of users;
 - the current status of child care in NSW with regards to utilisation and staffing characteristics (through Census data); and
 - existing attitudes and concerns related to child care.
- Secondly, other jurisdictions in Australia with a 1:4 ratio were consulted regarding their experiences. Child care professionals in Queensland (QLD) and Western Australia (WA) were interviewed to gain an understanding of the effects of the policy shift in their region.
- Thirdly, primary market research (i.e. a survey) was completed with child care centres in NSW to understand the current cost and fee structures, as well as the current staff-to-child ratios in place for under 2 year olds. This information was used to determine possible staffing arrangements, service capacity, and cost and price impacts of a shift in policy to a 1:4 ratio.
- Fourthly, these estimates of the cost and price impacts were compared to, and combined with, the secondary market research to determine the likely direct and indirect effects of the policy shift. This allowed for flow-on effects of the 1:4 ratio to be assessed based on the estimated fee impacts and the secondary research on price elasticities and labour market participation.
- Finally, various options for the implementation of a 1:4 ratio were developed for consideration by DoCS.

The survey methods used are explained in Section 2.2.

Figure 1: Approach to Evaluating 1:4 Staff-to-Child Ratio Effects



Source: Booz & Company

2.2 Survey Methodology

2.2.1 Sample Frame

The regulatory change to a 1:4 ratio is intended for centre-based and mobile services. Based on the most recent Census of Child Care Services,⁹ 55 per cent of the children in child care in NSW attended an LDC. In addition, a majority of staff (57 per cent) in NSW worked in an LDC. Given that a vast majority of under 2 year olds in child care also attend LDCs, the survey was targeted specifically towards LDC providers as this is the key market of interest.

When the sample frame was determined in December 2007 there were 1,391 LDCs licensed for under 2 year olds in NSW.¹⁰ The size of each centre was categorised by its maximum licensed capacity where:

- up to 30 total licensed places was considered “Small Provider”;
- 31 to 60 total licensed places was considered “Medium Provider”; and

⁹ Department of Family and Community Services, 2004.

¹⁰ Children’s Services Information System, November 2007.

- over 60 total licensed places was considered “Large Provider”.¹¹

Ownership of services was determined by whether or not the centre received public funding from DoCS. All services receiving funding were categorised as a community-based centre because of the non-profit status required to receive funding. Of the non-funded services, a ‘common sense test’ was applied to each licensee to determine if they were a non-profit group, and hence community-based. DoCS staff reviewed the list of licensees and found approximately 85 centres were determined to be non-profit groups in the non-funded category. Defined as such, there were 463 community-based centres and 928 privately-owned centres in NSW.

The 2003 PwC report identified the largest group of providers as medium sized and privately-owned, which was still the case in 2007.¹² Significantly fewer providers fall into the small and large community-based categories. The proportion of providers in each category (ownership and size) in November 2007 is shown in Table 3.

Table 3: Matrix of Long Day Care Providers Licensed for Under 2 Year Olds in NSW

Ownership \ Size	Small Provider	Medium Provider	Large Provider	Total
Privately-owned	12%	35%	21%	67%
Community-based	3%	26%	4%	33%
Total	15%	61%	25%	100%

Note: May not add to 100% due to rounding.

Source: Booz & Company analysis of Children Services Information System, extracted November 2007.

While the distributions in Table 3 were used to determine the sampling for the survey, the distribution of licensed places for under 2 year olds differs slightly. However, licensed places do not equate to places offered by centres which was determined through the survey and reported in Section 3.4.2. As such, licensed places reported in Table 4 were *not* used to determine the sampling design.

Table 4: Distribution of Licensed Places for Under 2 Year Olds in NSW

Ownership \ Size	Small Provider	Medium Provider	Large Provider	Total
Privately-owned	7%	31%	33%	72%
Community-based	2%	20%	6%	28%
Total	10%	51%	39%	100%

Note: May not add to 100% due to rounding.

Source: Booz & Company analysis of Children Services Information System, extracted November 2008.

¹¹ Clause 58 of the Children’s Services Regulation 2004 provides, in effect, that a child care centre may not be licensed for more than 90 children, and that, of those, not more than 30 may be children under 2 years of age.

¹² PwC, 2003. According to PwC, small providers offer 0-30 places, medium providers offer 31-60 places, and large offer more than 60 places which is consistent with the current definition.

In order to have a representative sample of providers, the proportion of providers to be surveyed was matched to the industry profile. Thus, a stratified random sampling approach was employed where the number of surveys in each category was defined by the current industry profile and providers were randomly chosen within those categories. In order to obtain at least 30 responses across each category of provider (which allows the data to be generalised to the wider group), 510 providers were sampled across all geographic regions in NSW. This number assumed a 50 per cent response rate.

In addition to representing the population in terms of size and ownership, the sampling method also reflects the geographical distribution of providers. This was done as geographical differences in the availability of child care for under 2 year olds may have a bearing on the economic impacts of any change in the staffing ratio.

To define urban as opposed to regional centres, 2006 ABS Census data was employed. Based on Local Government Area (LGA), urban areas were defined as having a population density over 250 persons/square kilometre or a city population threshold of 60,000 people. Using this definition, 19 per cent of centres fall into the regional category, with 81 per cent urban. This is an increase from the finding of PwC of 30 per cent rural and 70 per cent urban, though these proportions are not directly comparable because different criteria may have been used in defining areas.

Given these definitions in the market, the surveys were distributed randomly across providers to arrive at a total of 510 surveys based on the breakdown listed in Table 5.

Table 5: Distribution of Stratified Sample

Size \ Ownership	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	52	9	140	37	80	25	343
Community Based	12	5	114	16	16	4	167
Total	78		307		125		510

Source: Booz & Company analysis of Children Services Information System, extracted November 2007.

To randomly determine the services selected for the survey, each centre was sorted into a category based on the above definitions and then random numbers were applied to each centre. The random numbers were then sorted in descending fashion with the first centres listed chosen to receive the survey.

2.2.2 Questionnaire Design

In designing the questionnaire for primary market research, both DoCS and the IRG were consulted. The IRG is comprised of child care industry representatives from NSW, including both private and public interests (for a complete list of IRG members and Terms of Reference refer to Appendix B). Both DoCS and the IRG provided feedback on the wording of questions to reflect the most current industry language and the suitability of each question. For example, questions regarding costs used language similar to the existing DoCS cost model for child care centres.¹³

To minimise bias in the answers received, responses were kept confidential from DoCS and anonymity was ensured for respondents. In addition, the survey included brief directions with reference to the DoCS cost model and the number of questions was limited to six. All questions were also based on the most recent year and “typical operating days” to allow for ease in answering.

Questions included in the survey elicited the following information:

- Annual expenditure on labour and non-labour costs;
- Proportion of Primary and Non-Primary Contact staff costs;
- Current fee schedules and operating hours and days;
- Typical utilisation of places; and
- Current ratio of staff to under 2 year old children provided.

At the direction of the client, individual service providers were not asked how they would respond to a change in ratio in order to avoid biasing the survey results and to minimise the opportunity for strategic responses. A copy of the survey form and cover letter can be found in Appendix A.

2.2.3 Survey Administration and Follow-up

The survey questionnaire was distributed by post by DoCS on 14 February 2008. In the accompanying cover letter, providers were also given the opportunity to request an electronic version of the survey (in MS Excel) via email. Contact information for Booz Allen Hamilton¹⁴ staff was included with the questionnaire to provide any assistance in answering the questions. To decrease the non-response rate, DoCS staff followed up on any surveys not received by 7 March 2008 by calling and emailing service providers. Members of the IRG also sent out notices to encourage survey participation by email and in newsletters.

To minimise concerns regarding anonymity and improve response rates, providers returned both the written and electronic surveys directly to Booz Allen Hamilton. In addition, only aggregate data was reported and used in the cost model to protect the

¹³ This model is provided online as a tool for centres to determine their cost structure. It can be found at: http://www.community.nsw.gov.au/DOCS/STANDARD/PC_100944.html

¹⁴ Booz Allen Hamilton changed name to Booz & Company in June 2008.

identity of individual services. DoCS did not have access to data regarding individual providers.

2.3 Literature Review

To determine the full scope of impacts a higher ratio might have, desktop research into child care in NSW and internationally was undertaken. This research included previous studies done in NSW and elsewhere regarding child care ratios and their economic impacts. To assess potential flow-on effects from any change in fees, previous economic studies on the responsiveness of parents to changes in the market and concerns regarding child care based on Australian and international surveys were considered.

Secondary data was also gathered on specific aspects of the child care market in NSW to both augment and corroborate the primary data collected from the survey. The *Child Care Census*, conducted by ABS, provided information on trends in fees, staffing and usage. The *Household Income and Labour Dynamics of Australia* (HILDA) survey and the *National Children's Services Workforce Study* also provided insight into historic and projected usage and staffing trends.¹⁵ The IBISWorld Industry Report on *Child Care Services in Australia* was released in January 2008 and provided insight into the general market for child care.¹⁶

2.4 Interviews

Two jurisdictions in Australia currently mandate a 1:4 ratio for under 2 year olds in child care centres. Both QLD and WA have had a 1:4 ratio in place for almost 20 years. In the case of WA, the regulation changed from 1:3 to 1:4 in 1988 due to economic concerns. In QLD, the ratio changed from 1:5 to 1:4 in 1991 based on quality concerns. Due to the timing of these changes, no data or reports on their effects could be provided by the relevant governments. Hence, policy officials and child care professionals in each jurisdiction were interviewed for anecdotal (or other) evidence concerning the impact of the change in each jurisdiction.

Policy staff from the QLD Office of Children and the WA Department of Communities were interviewed to determine the effects of the shift in policy in their region. The interviews also considered the current policy environments in both jurisdictions and any feedback from providers concerning the staff-to-child ratios.¹⁷

¹⁵ NATSEM, 2005 and 2006; Community Services Ministers' Advisory Council, 2006.

¹⁶ IBISWorld, 2008.

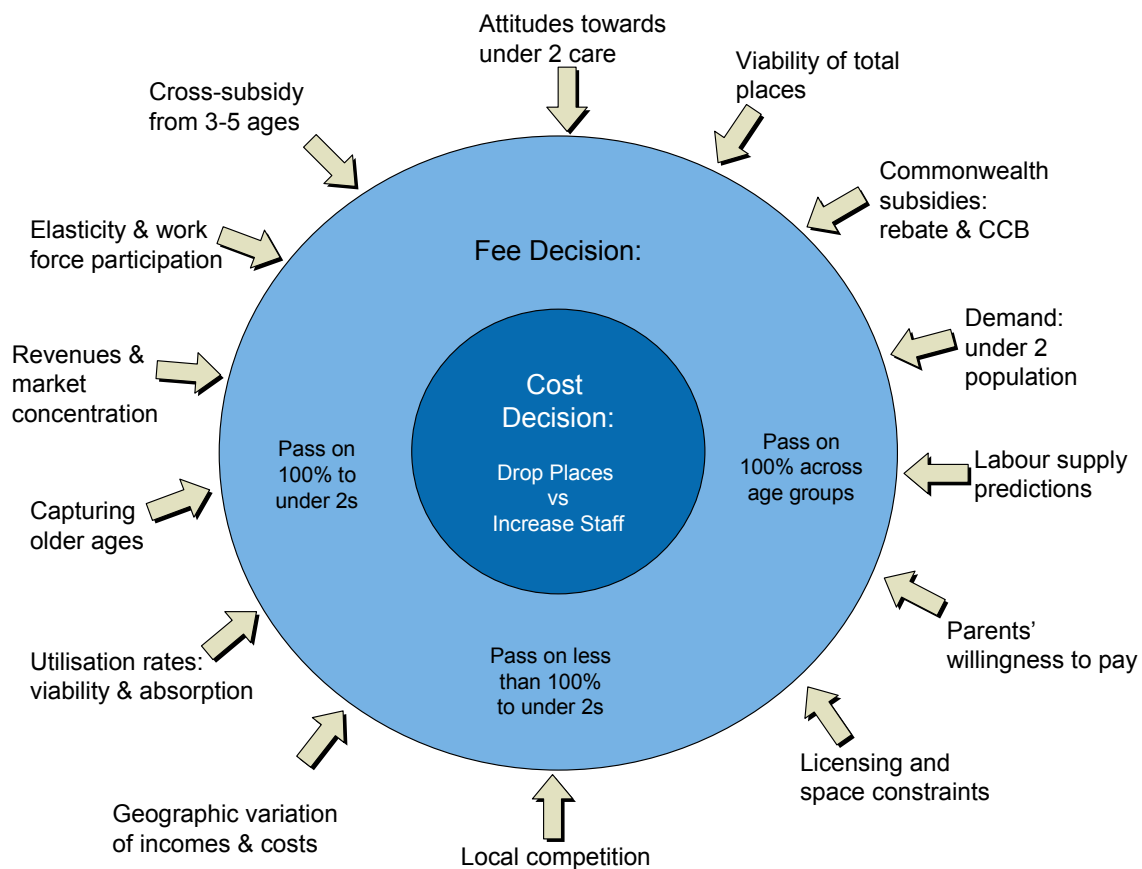
¹⁷ QLD Office of Children Meeting *face-to-face* on 1 February 2008. WA Dept. of Communities teleconference on 5 February 2008.

2.5 Modelling Cost and Price Impacts

2.5.1 Introduction

Based on our literature review and evidence from the survey, child care centres will be influenced by broader market trends and concerns about viability and profitability when responding to a 1:4 ratio. The multiple factors that will influence each centre's individual response to a change in staff-to-child ratio are illustrated in Figure 2.

Figure 2: Factors Influencing Response to a Change in Staff-to-Child Ratio



Source: Booz & Company.

With a change in ratio, each centre will face both a choice of how to minimize the resulting costs and how to change fees in response. These decisions are not entirely isolated and the ability to pass on fees to parents may influence how centres respond in terms of costs. However, these choices are treated separately in this analysis based on the assumption that all centres will minimise the cost impact of the change. Results from previous studies indicate that both non-profit and private providers behave this way due to the fact that all centres must cover their operating costs in order to remain viable.¹⁸

¹⁸ Blau and Moccan, 2002.

For the purposes of modelling, all costs and fees reported in the survey were converted to December 2007 dollars using the CPI reported by ABS.

2.5.2 *Cost Impacts*

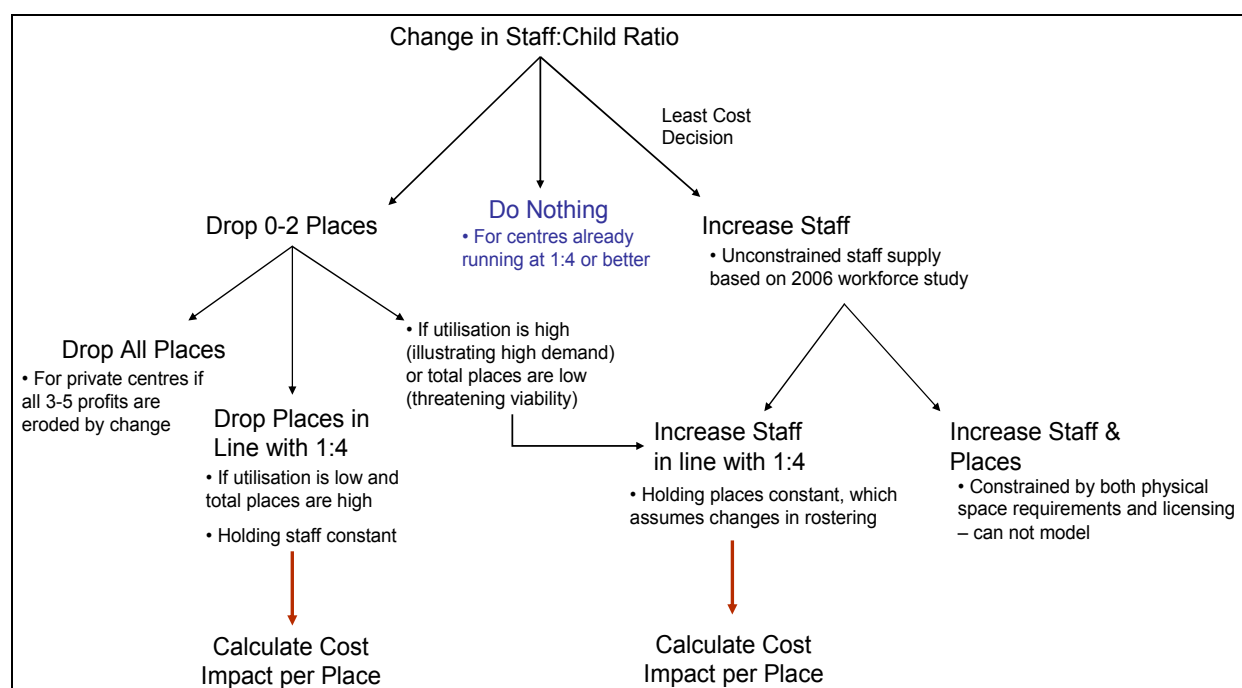
From discussions with providers and the IRG, two possible responses to a change in ratio were identified:

- 1) Service providers could hire more staff to meet the higher ratio with the current number of places offered; or
- 2) Service providers could decrease the number of under 2 year old places they offer and hold staffing levels constant.

In modelling this choice, we either hold constant the amount of staff or the number of places offered respectively. Given that there are physical space constraints and licensing constraints, we can not model the choice to increase both staff and places with any certainty. Therefore, when modelling the choice to increase staff and hold places constant we are assuming that rostering is used to distribute staff accordingly and that there may be an increase in places at one time and a decrease at other times to accommodate the change in staffing. This assumption was made for modelling purposes only in order to reflect the variety of scenarios possible, but does not imply that centres can increase or decrease places at will during the day.

We recognise from previous research that not every centre will face a choice, as some are already running at a 1:4 ratio for under 2 year olds for a vast majority of their day. We therefore, report on the number of centres with no cost impact along with the number that fall under each choice illustrated in Figure 3. Since there is great variation in how centres are run, a “typical” centre is impossible to define across NSW. Therefore, we modelled the cost impact using the survey data for individual centres with constraints applied as identified in previous research. The model results are then aggregated based on the categories in the survey sample frame to allow for variable impacts by size, location and ownership.

Figure 3: Initial Decision Tree for Child Care Centres



Source: Booz & Company.

As Figure 3 illustrates, we assumed that all services will make the least cost decision, however the motivation for offering under 2 year old places may vary by centre ownership. While community-based centres also behave in ways so as to cover costs, they offer places in response to community needs for child care and not capturing profits. They are also able to extract income from sources other than fees, through fundraising and government subsidies. For this reason, we assumed that dropping all under 2 year old places will only occur in the private centres as they may negatively impact the profits earned for 3 to 5 year olds. We also allowed for centres to make a higher cost decision in circumstances which would dictate the ability to cover the higher cost decision. Very high utilisation of places illustrates high local demand and therefore willingness to pay may be higher in these circumstances. There is also a low threshold, according to a new IBISWorld report, for economic viability of centres at 35 places. If dropping under 2 year old places will make a centre unviable, then they will be forced to make the higher cost decision. If the cost impact of a change in either places or staff eroded all of the profits calculated, then we assumed that the centre would no longer offer under 2 year old places.

The baseline operating structure for a typical centre, including costs, fees and places offered, was calculated from the survey data collected. The Costing Model developed by/for DoCS to determine costs for children's services was used as a starting point for modelling the cost structures of centres from the survey data provided.¹⁹

Costs and fees were determined per place for each age group, with fees annualised assuming a 50 week operating year based on both the *2004 Census of*

¹⁹ DoCS, 2007.

*Child Care Services and the DoCS Cost Manual.*²⁰ The current annual profit was determined by calculating the annual fee income and subtracting the annual costs.

The staff-to-child ratio was then increased to 1:4 for the under 2 year olds. In the case of hiring more staff, the revenues remain constant based on constant fee income while the primary labour costs increase so that the staff FTEs for under 2 year olds meet the new ratio. Based on the assumption that firms will cover operating costs, we assumed that centres would hire staff at the lowest possible salary to meet the regulation.

We assumed an average annual salary per FTE to be \$40,136 for the purposes of the model.²¹ An additional 16.9 per cent of the base salary was added to the costs based on average on-costs for child care workers in NSW.²² However, due to current competition to hire and retain child care staff, we conducted sensitivity testing on the annual salary to determine what impact different levels of salary have on the least cost choice. The awards structure in NSW indicates that the annual salary for an unqualified junior staff member is \$30,482,²³ which was treated as the minimum possible salary in the sensitivity tests.

In the case of the 'decreasing places' response, the new ratio was met by decreasing place FTEs while holding staff FTEs constant. However, there are two constraints applied to the choice to drop places. If utilization of places is currently very high, or the size of the centre will drop below 35 places, as explained above, then the choice reverts to hiring staff.

If the decrease in annual fee income was less than the increase in cost from hiring additional staff, then a centre would make the 'decreasing places' decision (unless one of the constraints applied). The lowest cost choice for each centre, the most likely annual cost impact per centre and daily cost impact per place provided were then calculated.

2.5.3 Price Impacts

The cost per place impact calculated by modelling the initial decision for each centre flows through to the price impact decision. The worst case scenario for price impacts assumes that the cost impact per place would be fully passed on to parents with no resulting drop in demand. However, there is evidence from the previous literature that nearly 50 per cent of providers are already offering a 1:4 ratio.²⁴ Thus, we allowed for competition from other centres to keep fees down, as many may face no cost increase. As seen in Figure 4, there are multiple outcomes to the price impact decision.

²⁰ DoCS, 2007, and ABS, 2005.

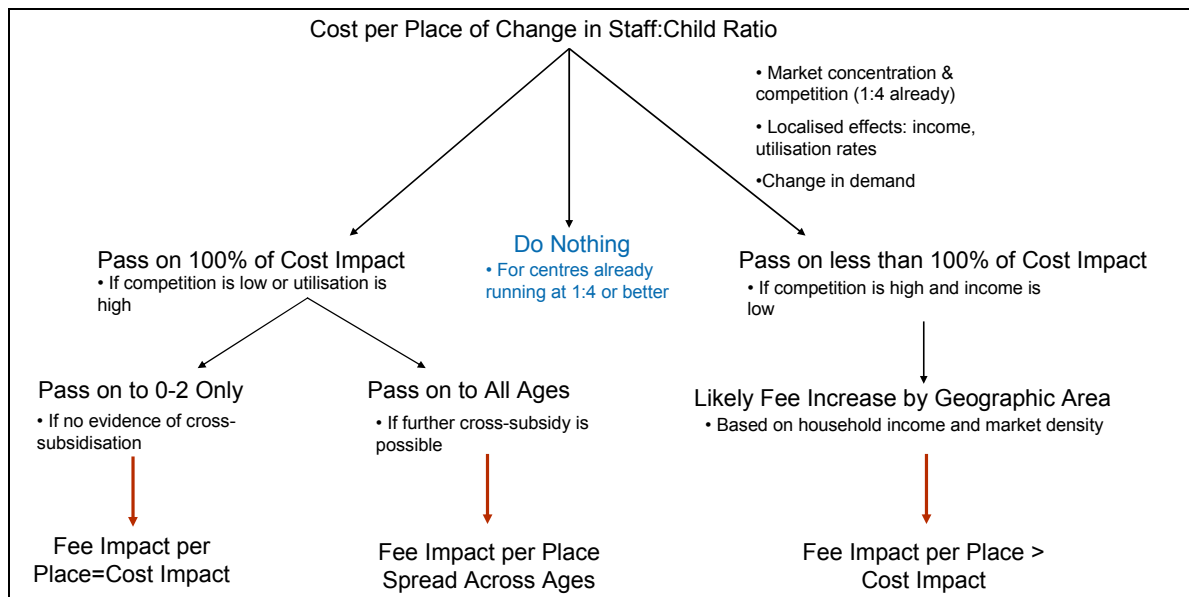
²¹ Based on a weighted average of \$38,500 in 2006 dollars, inflated to current dollars using CPI. DoCS, 2007 & ABS, 2008 for CPI.

²² Ibid

²³ Based on \$586.20 weekly rate for 18 year old child care workers from NSW Industrial Relations, 2008.

²⁴ PwC, 2003.

Figure 4: Fee Impact Decision Tree for Child Care Centres



Source: Booz & Company.

The choice of passing costs on in the form of higher fees involves many factors, including local characteristics and more global market realities. The primary driver for choosing to pass on fees is the impact it will have on demand. Besides cost effects, demand for formal child care is also driven by the population of 0 to 4 year olds, the child care subsidies available to parents, access to alternative forms of care (i.e. informal and nanny) and the workforce participation of mothers.

To determine the fee impact it was assumed that a centre is able to pass on 100 per cent of the cost in the form of higher fees, unless that centre meets the exception listed above where local competition is high and household incomes are low. Whether or not a centre can spread the fee increase across higher age groups will be determined by their current level of cross-subsidy. This method will yield a worse case scenario fee increase for under 2 year olds and a most likely fee increase based on assumptions regarding the level of cross-subsidisation and local characteristics.

Given that competition will moderate fee increases, the worst case scenario may not be possible in all locations. To determine the likelihood of passing on 100 per cent of the costs, locations were rated by the density of centres offering under 2 year old places in a given LGA. The density of centres for each LGA was mapped using geographic information system (GIS) software and the database of registered 0 to 2 year old licensees provided by DoCS. Household income distribution within a post code was also considered as elasticity studies show that lower income households are more price sensitive in the child care market.

3. Survey Results

As already noted, surveys were distributed to 510 LDCs in NSW in mid-February 2008. In order to improve response rates, DoCS followed up the distribution of surveys in March with reminder phone calls and emails. In early April, the deadline for submission was extended to April 21st and members of the IRG encouraged responses through email and newsletters. Approximately half of the survey responses did not include as requested a fee schedule. Booz and Company pursued this information through direct phone calls and emails with child care centres.

3.1 Response Rates

Two hundred and four surveys were received; both through the mail and electronically before the extended April 21st deadline. The overall response rate for the survey was 40 per cent. This response rate was slightly lower than expected due to the lack of response from ABC Learning Centres. Given their large role in the market²⁵, ABC Learning received surveys for approximately 70 separate centres. ABC Learning's position in the Australian market is unique compared to most international child care markets, where the existence of single operator with a substantial proportion of market share is not common.

Response rates varied significantly across privately-owned and community-based centres, as seen in Table 6. The highest response rates came from medium and large community-based centres, with substantially fewer responses from their privately-owned counterparts. Five of the returned surveys did not include responses to a majority of the questions and were therefore not used in further analysis.

Table 6: Survey Response Rates by Category of Centre

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	19%	33%	28%	35%	18%	12%	24%
Community-based	42%	20%	78%	69%	75%	75%	73%
Total	24%		50%		26%		40%

Note: Total response rate includes one survey with no category.

Source: Booz & Company analysis.

²⁵ ABC Learning are licensed to provide 19.6 per cent of all under 2 places in NSW – source: Children Services Information System, extracted July 2008.

The actual number of surveys received in each category of LDC is detailed in Table 7. These values illustrate that the sample proportions between the different sizes of LDC are in line with market profile defined in Section 2. However, small centres have fewer than 30 responses which means that broader generalizations can not be made about small centres from the data received and may be biased by the characteristics of single centres. For this reason all results for small centres should be interpreted with caution.

Table 7: Survey Responses Received by Category of Centre

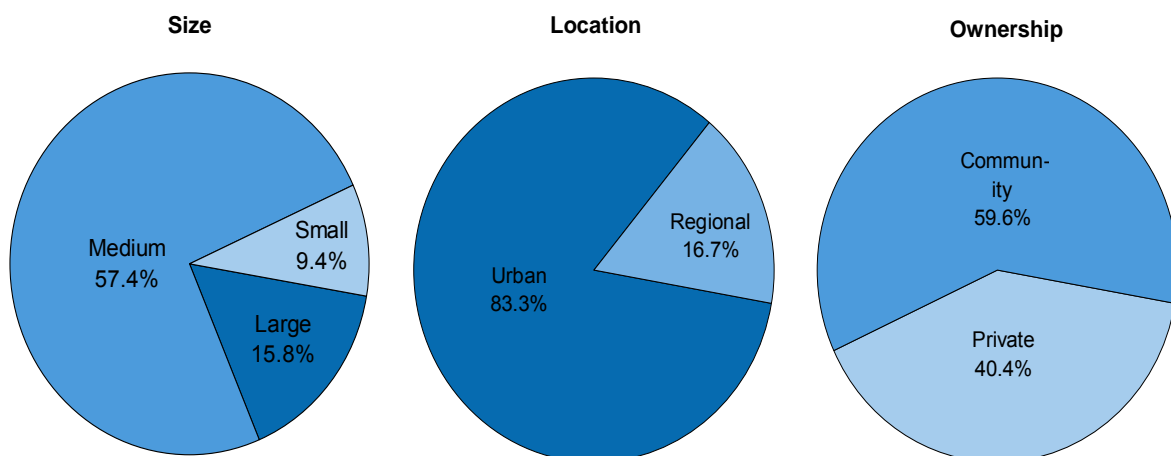
Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	10	1	39	13	14	3	82
Community-based	5	3	89	11	12	3	121
Total	19		152		32		204

Note: Total response rate includes one survey with no category.

Source: Booz & Company analysis.

Given that we conducted a stratified random sample, we expected to receive surveys that reflected the industry profile. As illustrated in Figure 5, the distribution of responses in size and location roughly align with the proportions of the stratified sample. However, the proportion of responses in the ownership category, due mostly to the lack of ABC Learning’s participation, is not representative of the broader market. This indicates that responses are biased towards community-based characteristics. The effects of this bias in the survey responses are discussed in Sections 4 and 5 as it influences the cost and price impact results, and where possible weighted averages have been used to reflect the industry profile and eliminate the bias of under-represented private centres.

Figure 5: Distribution of Survey Responses by Category of Centre

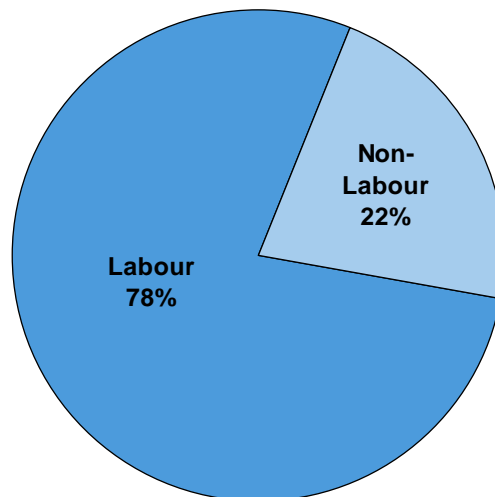


Source: Booz & Company analysis.

3.2 Cost Structures

Labour makes up the majority of operating costs for all categories of child care centre in the survey. On average, labour costs comprised 78 per cent of reported costs with only 22 per cent going to non-labour expenses (illustrated in Figure 6).

Figure 6: Average Distribution of Operating Costs



Source: Booz & Company analysis.

Community-based centres spend proportionally more on labour compared with their privately-owned counterparts, as seen in Table 8, which may be due to lower non-labour costs related to using publicly owned buildings. The IBISWorld report also finds that community-based centres pay a higher proportion of wages and cites caring for more young children (which requires higher staff-to-child ratios) and hiring more qualified/experienced staff as the cause.²⁶ Private centres may also have more flexibility in staffing and rostering, which could lower staff related costs.

Looking at the difference in size, there was little difference in the proportion of costs spent on labour from small to large centres. In most cases, however, regional centres spent proportionately less on labour than urban centres.

²⁶ IBISWorld, 2008.

Table 8: Survey Results for Labour Costs as Per cent of Total Costs

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	73%	53%	70%	68%	68%	N/A	69%
Community-based	85%	77%	81%	77%	77%	85%	80%
Total	76%		78%		75%		78%

Note: N/A indicates no responses to this question.

Source: Booz & Company analysis.

The survey data revealed a wide range of costs for both labour and non-labour in the last year. For example, reported total labour costs for centres ranged from about \$17,000 per year to over \$1 million per year, with non-labour ranging between \$9,000 to approximately \$500,000. The broad range of costs reflects the various sizes of the centres and also the local market for labour and building space. However, the total cost per place offered illustrates a fairly narrow range with an average of approximately \$14,000 per place per year (refer Table 9).

Table 9: Survey Results for Total Operating Cost per Place Offered

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	\$21,471*	\$7,831*	\$10,848	\$8,057	\$13,358	N/A	\$11,467
Community-based	\$14,903	\$15,534	\$14,992	\$14,184	\$15,670	\$16,147	\$15,015
Total	\$14,863		\$13,497		\$15,617		\$13,846

Note: N/A indicates no responses to this question.

*Note: Based on small sample sizes of 10 small privately-owned urban and only 1 small privately-owned regional.

Source: Booz & Company analysis.

Table 9 also shows how the cost per place varies depending on the size and ownership of the centre. While economies of scale apply to child care they are limited with an optimum size between 40 and 45 places.²⁷ This is apparent in the survey data as medium sized centres have the lowest average total cost per place. What is also apparent is that community-based centres spend significantly more per place than privately-owned centres.

²⁷ IBISWorld, 2008.

Labour costs in child care centres are divided between staff directly responsible for the care of children, known as Primary Contact Staff, and staff responsible for management and support functions. The regulation for staff-to-child ratio deals with the number of Primary Contact Staff. According to the survey results, Primary Contact Staff make up a vast majority, or around 85 per cent, of total labour costs for an LDC. This result varied little by category of centre, with the exception of small centres which reported proportions closer to 90 per cent as detailed in Table 10. The higher proportion at small centres may be due to a larger number of non-employing centres where the owner/manager is also the primary care giver.

Table 10: Survey Results for Proportion of Labour Costs to Primary Contact Staff

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	95%	85%	81%	87%	82%	N/A	84%
Community-based	90%	85%	87%	79%	83%	88%	86%
Total	90%		85%		83%		85%

Note: N/A indicates no responses to this question.

Source: Booz & Company analysis.

3.3 Fee Structures

As expected, survey results indicate that daily fees charged decrease with the age of the child as detailed in Table 11. With higher staff-to-child ratios for under 2 year olds and the need for nappies and other specialised equipment for this age group, costs and fees are also expected to be higher.

Table 11: Survey Results for Average Daily Fees per Age Group

Size	Ownership	Location	0 to 2 Avg. Fee	2 to 3 Avg. Fee	3 to 6 Avg. Fee
Large	Community	Regional	\$ 65.03	\$ 62.69	\$ 59.68
		Urban	\$ 68.63	\$ 65.74	\$ 62.25
	Private	Regional	\$ 69.88	\$ 69.21	\$ 69.21
		Urban	\$ 65.49	\$ 60.83	\$ 59.45
Medium	Community	Regional	\$ 52.07	\$ 51.89	\$ 51.28
		Urban	\$ 61.29	\$ 59.41	\$ 58.10
	Private	Regional	\$ 52.94	\$ 51.29	\$ 49.47
		Urban	\$ 65.25	\$ 61.52	\$ 60.18
Small	Community	Regional	\$ 59.68	\$ 59.68	N/A
		Urban	\$ 60.39	\$ 56.37	\$ 41.53
	Private	Regional	\$ 52.83	\$ 50.49	\$ 47.81
		Urban	\$ 72.01	\$ 60.38	\$ 59.72
Grand Total			\$ 62.22	\$ 59.43	\$ 57.32

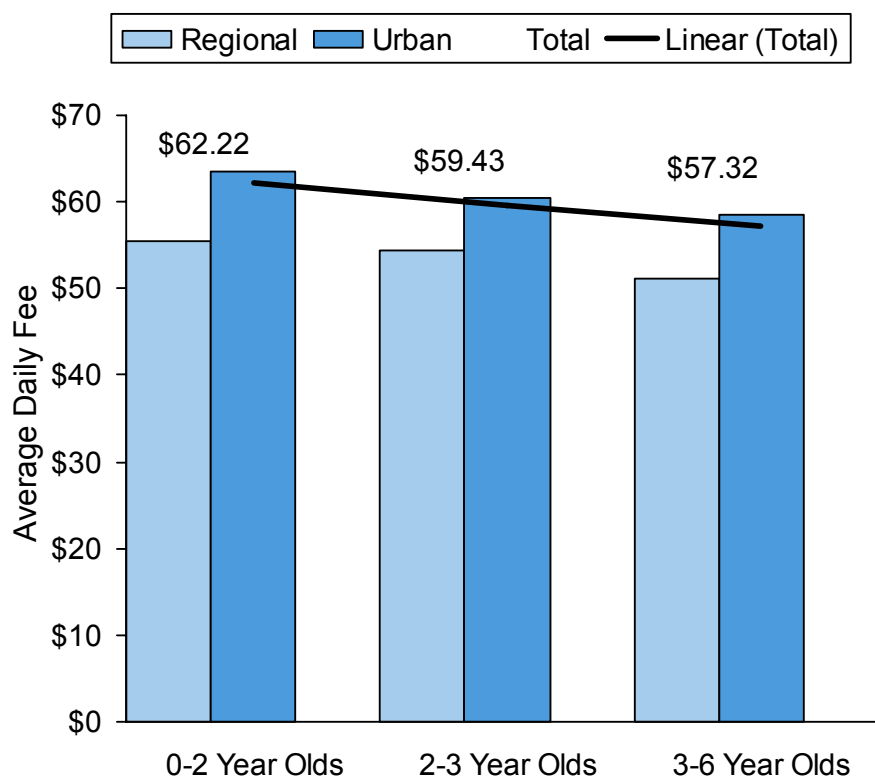
Note: N/A indicates no responses in that category.

Source: Booz & Company analysis.

The main difference in fees by category of centre existed between regional and urban centres, with urban centres charging higher average fees across all age groups as seen in Figure 7.

Figure 7 also illustrates that, while fees decrease by age, they do not decrease as sharply as expected. Given that Primary Contact Staff are the major driver of costs for all centres (based on the high proportion of both labour costs and Primary Contact Staff costs reported) and the ratio of staff to children decreases from 1:5 to 1:8 to 1:10 with each age group,²⁸ we would expect the fees for 3 to 6 year olds to be approximately half the fees for under 2 year olds, *ceteris paribus*. This result would seem to confirm a widely held view that in practice child care centres cross-subsidise the costlier younger age groups with higher fees for the older children.

Figure 7: Survey Results for Average Fee Charged by Age Group and Location



Source: Booz & Company analysis.

According to survey responses, very few centres offer discounts on fees. Over 93 per cent of centres indicated that there were no discounts available for under 2 places. There was also negligible variation in this response across centre categories.

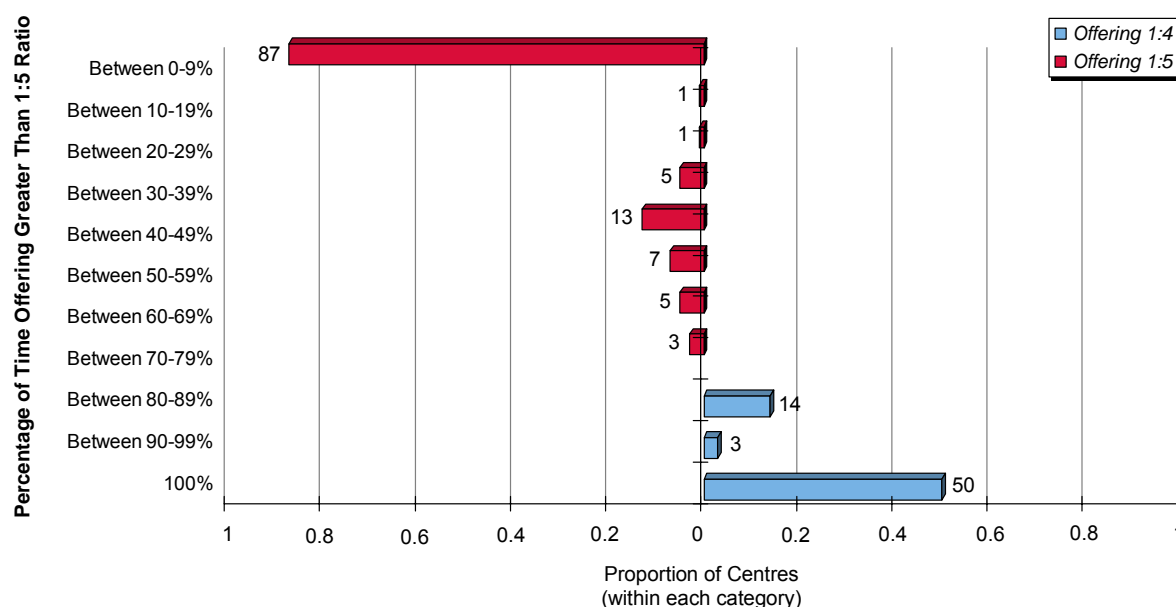
²⁸ Children's Services Regulation 2004.

3.4 Service Offerings and Utilisation Rates

3.4.1 Current Staff-to-Child Ratios

All services included in this analysis offer under 2 year old places. All services also offer these services 5 days per week. In order to determine what staff-to-child ratio each centre currently offers, we calculated the number of hours they reported operating at each ratio for under 2 year olds in Question 6 (see Appendix A). A centre operating at 1:4 or better for 80 per cent or more of the day was considered to already operate at a 1:4 ratio. If a centre operated at 1:5 for at least 20 per cent of the day, then they were considered to meet the current regulation.²⁹ In practice, most centres offer 1:5 for the entire day or greater than 1:5 for the entire day, as seen in Figure 8. Very few centres fall between these categories, with the smallest possible margin (one centre) falling into the 10-19 per cent and 20-29 per cent bands.

Figure 8: Distribution of Time Offering Greater Than a 1:5 Ratio Across Centres



Note: The total number of centres listed does not sum to 199 as some centres did not complete the question.
Source: Booz & Company analysis.

The results of the survey indicate that 34 per cent of LDCs are already running at a 1:4 ratio in NSW, as detailed in Table 12. There is a considerable difference in response to the current staff-to-child ratio question between privately-owned and community-based centres, with a larger number of community-based centres already operating at a 1:4 ratio for a great majority of the day. The percentage of community-based centres operating at 1:4 or greater agrees with previous survey data from child care staff, where 40 per cent indicated that community-based centres operated above the legal minimum.³⁰ Given that running a centre with more staff is more costly, it is interesting to note that about a quarter of privately-owned centres

²⁹ Centres that did not fully answer Question 6 were assumed to run at a 1:5 for purposes of modelling.

³⁰ Rush & Downie, 2006.

are operating at the 1:4 ratio. This indicates that a higher ratio can be used as a differentiator in the market.

Table 12: Survey Results for 1:4 or Greater Staff-to-Child Ratio for Under 2 Year Olds (Based on Majority of Operating Day)

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	43%	0%	22%	18%	21%	33%	23%
Community-based	20%	100%	40%	36%	50%	100%	42%
Total	31%		33%		41%		34%

Note: Centres with incomplete answers to Question 6 were assumed to run at 1:5.

Source: Booz & Company analysis.

Those services already providing a 1:4 ratio for under 2 year olds will have no cost impact in the case of a change in regulation, as they already staff that ratio for a vast majority of their operating time. It is important to note, that most centres in the category of 'already offering a 1:4 ratio' reported offering that ratio for 100 per cent of the day as seen previously in Figure 8 and detailed in Table 13.

Table 13: Distribution of Centres Already Offering 1:4 Ratio by Proportion of Operating Hours

Proportion of Operating Hours Offering 1:4	Per cent of Services Offering a Majority 1:4
Between 80-89%	20.9%
Between 90-99%	4.5%
100%	74.6%

Source: Booz & Company analysis.

3.4.2 Under 2 Year Old Places Offered

The 204 centres that responded to the survey offered a combined total of 2,233 under 2 year old places. Medium providers in the survey offered the most places total for under 2 year olds, reflecting the high number of responses in that group and the fact that most places are offered by medium-sized providers in NSW (refer Table 14). According to the *2004 Census of Child Care Services*, privately-owned centres supply a slight majority of under 2 places, with 54 per cent of children under 2 reported to attend privately-owned centres.³¹ However the results of the survey are weighted towards places offered by community-based centres. Privately-owned centres in the survey also offer more places per centre (12.4 on average) than community-based centres (10.6 on average).

³¹ Dept. of Family and Community Services, 2005.

Table 14: Distribution of Under 2 Places Offered in Survey Population

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	79	22	411	145	225	75	956
Community-based	43	19	834	101	209	70	1277
Total	163		1490		579		2233

Source: Booz & Company analysis.

As expected, the number of under 2 year old places offered per centre was greatest for large centres with an average of 18 places per centre. However, the number of places offered per centre for small and medium providers was equivalent at 10 places per centre. The overall average was 11.3 places per centre for the entire survey population.

The number of places offered for under 2 year olds compared to the licensed capacity for places, based on survey results, is around 88 per cent (refer Table 15). This result does not vary for privately-owned compared to community-based centres. However, it appears that larger providers offer more places compared to licensed capacity than smaller providers. On average, centres are offering a high proportion of places for under 2 year olds within their capacity.

Table 15: Distribution of Under 2 Places Offered as a Percentage of Licensed Capacity in Survey Population

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	73%	100%	86%	94%	92%	94%	88%
Community-based	87%	100%	88%	90%	91%	88%	88%
Total	84%		88%		92%		88%

Source: Booz & Company analysis.

3.4.3 Utilisation Rates

Utilisation rates were calculated from the survey based on the number of enrolled FTEs compared to the number of FTEs offered in each age group. The results are slightly higher than the previous *Census of Child Care Services* indicated (85 per cent) with an average total utilisation for all ages of 88 per cent.

For under 2 year olds, the utilisation rates fell roughly in line with the overall utilisation rates, again with an average of 88 per cent. As Table 16 illustrates, the utilisation rate for under 2 places was uniformly high in the survey and did not vary materially much from the overall average.

Table 16: Survey Results for Average Under 2 Utilisation Rates

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	99%	60%	90%	77%	85%	94%	87%
Community-based	83%	100%	89%	86%	98%	99%	90%
Total	87%		88%		92%		88%

Source: Booz & Company analysis.

4. Cost Impacts

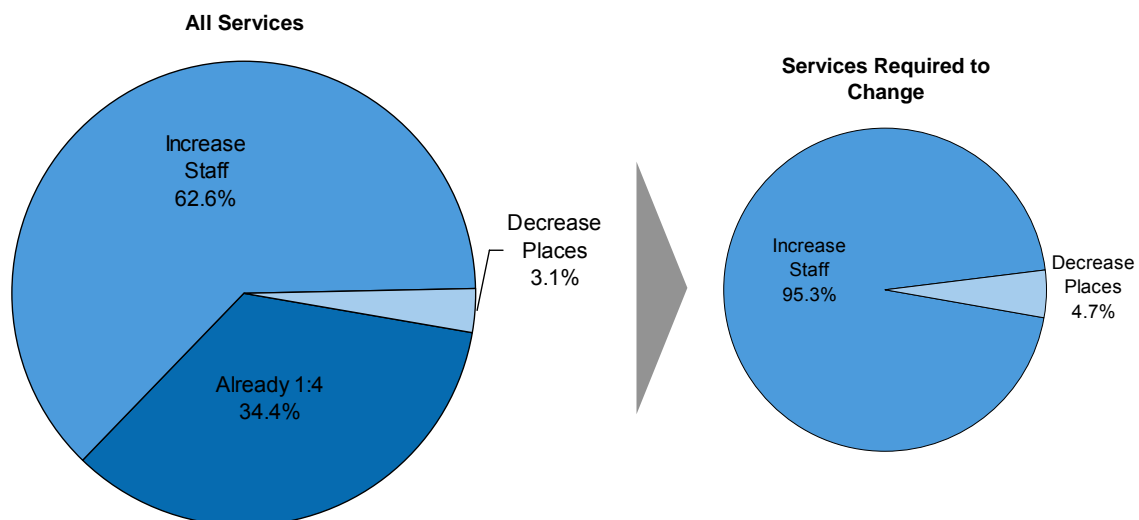
4.1 Least Cost Decision

Of the 197 survey responses that could be analysed for cost impacts, approximately 34 per cent of the centres would have no increase in costs related to a change in regulation because they are already operating at a 1:4 ratio. This includes about 23 per cent of privately-owned centres and 42 per cent of community-based centres. As privately-owned centres are under-represented in the sample, the proportion of centres not required to change may be over-estimated.

Sixty-seven centres in the survey have \$0 cost impact related to a change in regulation. This indicates that some centres are already absorbing the additional cost of staff. For centres impacted by the change in regulation, a vast majority would increase staff FTEs and maintain their number of under 2 places as seen in Figure 9. For those increasing staff, the range of increase was from 0.05 to 1.55 staff FTEs.

The total increase in staff FTEs required by survey respondents was 55.36, or an average increase of 0.45 staff FTEs per centre that would hire staff as the least cost decision. Applying the average increase in staff FTEs to the total market of 1,418 centres³² results in the hiring of approximately 400 staff FTEs. If the average increase in FTEs is rounded to half an FTE per centre, then the total figure is closer to 450 FTEs. Therefore, we estimate an increase of 400 to 450 staff FTEs would be required to meet the new ratio across NSW.

Figure 9: Occurrence of Least Cost Choice in Cost Impact Model



Source: Booz & Company analysis.

In four cases the loss in fees from dropping places was less than the cost of additional staff, which resulted in the total loss of 6.28 enrolled places. In two

³² Assuming that 66 per cent of centres will be impacted by a change in regulation and 95 per cent of those centres will hire staff.

instances, the increased cost of hiring additional staff FTEs eroded profits to the point that offering under 2 places changed the viability of a private centre. In these centres, we assumed all under 2 places would be dropped which resulted in the loss of a total of 34 places. The total loss of places in the cost impact model (approximately 40 places) amounts to only 1.8 per cent of all under 2 places offered by services in the survey. All of these places are dropped in privately-owned urban centres. Care should be taken in extrapolating this figure due to the under-representation of privately-owned centres in the sample.

It is also possible that centres will make the higher cost decision because the current market structure will allow it. Based on the market report from IBISWorld³³:

- The child care sector is in a growth cycle;
- Revenues are growing at about 3 times the CPI;
- Market concentration is low;
- Market competition is low; and
- Markets are localised.

The IBISWorld report also noted that provision of services for babies and under 3 year olds is a competitive advantage for services due to the high demand for these places compared to supply. Given these market characteristics, it is possible that the higher cost decision can be justified by passing on the corresponding costs to consumers. As these are general or aggregate market trends and may vary for each individual centre, we can not model the exact impact of these issues on the decision to drop places versus increase staff though they will influence centres towards hiring more staff.

The number of centres required to change if a 1:4 ratio is implemented, ie operating at the currently regulated ratio, is not evenly distributed across categories as detailed in Table 17. On average, two-thirds of centres will face increased costs by changing to meet the new ratio. However, there are fewer community-based centres that will change compared to their privately-owned counterparts. Given that community-based centres are over-represented in the sample, the scope of change required may be underestimated.

Table 17: Distribution of Centres Impacted by Change in Ratio (by % required to change)

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional*	Urban	Regional	Urban	Regional	
Privately-owned	57%	100%	78%	82%	79%	67%	77%
Community-based	80%	0%	60%	64%	50%	0%	58%
Total	69%		67%		59%		66%

*Note: Community-based results based on only one centre and privately-owned based on 3 centres.

Source: Booz & Company analysis.

³³ IbisWorld, 2008.

4.2 Cost Impacts

Considering only those centres required to change under a 1:4 regulation, the average annual cost impact is \$1,898 per place. This was calculated by weighting community-based and privately-owned averages by the industry profile calculated earlier in order to adjust for the under-representation of privately-owned centres in the sample. Due to the fact that most centres will choose to increase staff and staff salary was assumed to have the same average across centres, this cost impact did not vary much across different centres required to change (refer Table 18). The primary driver of different cost impacts is the different number of staff FTEs needed to meet the higher staff-to-child ratio. As Table 18 illustrates, cost impacts are almost equivalent between community-based and privately-owned centres.

Table 18: Average Annual Cost Impact Per Under 2 Place for Centres Changing

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	\$2,297	\$1,253	\$1,885	\$1,779	\$1,966	\$2,212	\$1,891
Community-based	\$1,427	\$0	\$1,901	\$1,984	\$2,244	\$0	\$1,912
Total	\$1,696		\$1,891		\$2,080		\$1,898*

Notes: * Weighted average to reflect industry profile of 33% community-based and 67% privately-owned. A result of \$0 indicates that no centres in this category will change.

Source: Booz & Company analysis.

The average annual cost impact per under 2 place of changing the staff-to-child ratio is approximately \$1,249 averaged across all of the centres in the survey. For centres already operating at 1:4 there is no cost impact. The significantly lower average cost for community-based centres is mostly due to the higher proportion of centres with no cost impact at all.

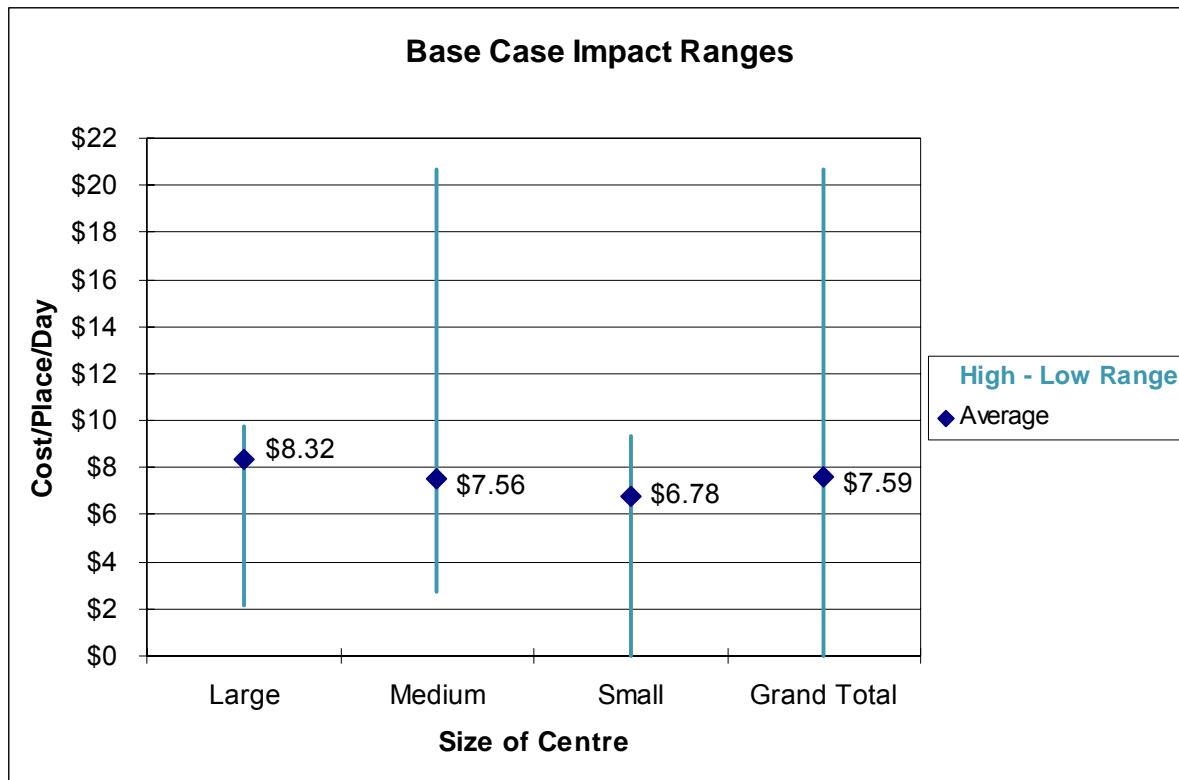
For services impacted by a change in regulation, the average cost impact per under 2 place per day was \$7.59, or just over 12 per cent of daily fees. Daily figures were derived from the annual values in the table above by applying a 5 day operating week and 50 weeks of operations per year (dividing by a factor of 250).

The greatest daily cost impact is generally seen in the urban providers, with small privately-owned providers having the highest per place per day cost impact. Even though the community-based centres have slightly higher costs on average, this difference is not significant.

One of the lowest cost impacts was found in the centre that would decrease places by dropping one FTE at \$2.75 per place per day. The averages and ranges of cost impact for each category in the survey are illustrated in Figure 10. This figure illustrates the impacts on centres required to change. In the case of small centres offering less than 4 places for under 2 year olds, a cost impact of \$0 was assumed if they did not report already operating at a 1:4 ratio. This may bias the cost impact downwards for small centres, given that they may be spreading their staff across

multiple age groups. However, with fewer than 4 under 2 year olds it was impossible to calculate a change in staff FTEs without more information regarding the staff ratios provided for older age groups.

Figure 10: Range of Cost Impacts Per Under 2 Place Per Day for Centres Changing



Note: Grand Total reflects weighted average of community-based and privately-owned centres.
Source: Booz & Company analysis.

4.2.1 Effect of Economies of Scale and Scope

In addition to the ability to cross-subsidise (discussed in Section 5.1), centres that offer places for older children benefit from economies of scope. As such, centres offering services to multiple age groups will have more flexibility in rostering staff throughout the day. Licensees that own multiple services have a similar advantage. Input substitution is also possible, where LDCs can decrease costs on other inputs while increasing staff costs. The IBISWorld report notes both economies of scale and economies of scope in the child care market, where large LDCs can defray costs by adjusting their mix of inputs.³⁴

In the case of offering many places across multiple age groups, economies of scale and economies of scope will act to ameliorate the cost impact, and therefore, decrease the fee impact. Hence, larger centres in the market in some ways benefit from stricter regulations due to their ability to minimize the impacts compared to

³⁴ IBISWorld, 2008.

small or medium centres.³⁵ For this reason, the impacts calculated are maximum values and could be lower for centres able to capitalise on the economies described.

4.3 Sensitivity Testing

4.3.1 Average Salary Assumption

Salaries for child care staff vary based on the local employment market and supply of child care professionals. For this reason we tested the results of the model with different salary assumptions. Varying the salary assumption changed both the profile of choices for the least cost option and the actual cost impacts. Assuming the minimum salary for unqualified staff, none of the centres in the model would drop places as the lowest cost choice. However, erosion of profits would still cause two centres to drop all under 2 places even with the lower salary. The highest salary assumption of \$44,827 did not change any of the least cost decisions, but did increase the overall cost impacts by about 10 per cent as seen in Table 19.

Table 19: Average Annual and Daily Cost Impact per Place with Different Salaries

Average Salary Assumption	For All Centres		For Centres Changing	
	Annual Cost Impact/Place	Daily Cost Impact/Place	Annual Cost Impact/Place	Daily Cost Impact/Place
Minimum \$30,482	\$949	\$3.80	\$1,411	\$5.64
Base \$40,136	\$1,249	\$4.99	\$1,898	\$7.59
High \$44,827	\$1,383	\$5.53	\$2,100	\$8.40

Note: 16.9% on costs were added to each salary in calculating costs.

Source: Booz & Company analysis. Salaries from NSW Industrial Relations 2007, and DoCS 2007.

4.3.2 Daily Fee Increases

Historically fees for child care centres have been increasing faster than the CPI in Australia.³⁶ Future increases in fees, particularly related to the end of the financial year, may impact the least cost decision and increase the cost impact of changing the staff-to-child ratio for under 2 year olds.

The CPI is currently about 4.5 per cent in Australia with wages rising slightly faster. Given that staff costs are the primary driver of costs and related fees, we assumed a 5 per cent increase in fees to test the sensitivity of the model results. We also assumed a 10 per cent increase in fees due to the recent announcement by ABC Learning that they will be increasing fees by that amount in July 2008.³⁷

³⁵ Ibid.

³⁶ Kalb & Lee, 2007.

³⁷ Ahmed, 2008.

Anecdotally, some centres have already increased their fees since the survey period in November 2007.

Increasing the fees by both 5 and 10 per cent effectively changes the least cost decision for some of the centres originally dropping places. With higher fees it becomes comparatively less costly to hire additional staff FTEs, so centres originally dropping places will change to adding staff as fees increase (refer Table 20). Given that the cost impact of the ratio change is then driven entirely by staff salary costs, the change in fees does not change the magnitude of cost impacts from the original case.

Table 20: Least Cost Decision Results for Fee Increases

Increase from Fees Reported in Survey	Centres Dropping Places to Meet 1:4		Total Place FTEs Dropped
	Dropping Some Under 2s	Dropping All Under 2s	
0%	4	2	40.28
5%	1	1	8.98
10%	1	0	0.98

Source: Booz & Company analysis.

4.3.3 Weeks per Year of Operations

Based on evidence collected in the DoCS *Costing Manual*, most centres operate 50 weeks per year. However, some centres operate 49 weeks per year which decreases the number of days of operation.³⁸ This can affect the outcome of the cost model as annual fee income is calculated for dropped places and compared to annual salary costs.

Changing the assumption in the model from 50 weeks to 49 weeks per year does not change the average annual cost impact results. However, it does increase the cost impact per place per day by 5 per cent, from \$7.59 to \$7.74 as the cost impact is spread over fewer days of operation.

In addition to increasing the daily cost, and therefore fee impact, shortening the operating time for centres changes the decision to drop under 2 places. One centre originally dropping places changes to increasing staff with the change in operating time, while two more centres change to dropping all places.

4.3.4 Assumption Regarding Dropping All Under 2 Places

In the least cost decision model, privately-owned centres were allowed to drop all under 2 year old places in the case that the cost impact eroded all existing profits. This assumption was based on the perception that community-based centres offer under 2 places in response to community needs and may be able to cover the cost impact of the 1:4 regulation through increased community funding. However, this assumption may be incorrect, and community-based centres may also drop all under 2 places if they become unviable.

³⁸ DoCS, 2007.

Allowing community-based centres to make this decision in the model leads to two more centres dropping all under 2 year old places. Both of these centres are medium sized urban centres and they currently offer 23 under 2 year old places combined. This increases the total number of places dropped in the model to 63, which represents 2.8 per cent of all places offered in the survey population.

5. Price Impacts

The average maximum price impact related to a 1:4 ratio for under 2 year olds is \$7.59 per place per day. Given that 34 per cent of centres will not be impacted by a change in staff-to-child ratios for under 2 year olds, there will be no direct impact on fees for those centres. We therefore assumed that the fee impact for those centres already providing a 1:4 ratio is \$0, though the number of centres with zero fee impact may be over-estimated due to bias towards community-based characteristics. For the remaining centres the cost impact per under 2 place per day is assumed to be the maximum fee increase possible (refer Table 21).

Table 21: Average Cost Impact Per Under 2 Place Per Day for Centres Changing

Ownership \ Size	Small Provider		Medium Provider		Large Provider		Total
	Urban	Regional	Urban	Regional	Urban	Regional	
Privately-owned	\$9.19	\$5.01	\$7.54	\$7.12	\$7.86	\$8.85	\$7.56
Community Based	\$5.71	\$0	\$7.60	\$7.94	\$8.98	\$0	\$7.65
Total	\$6.78		\$7.56		\$8.32		\$7.59*

Notes: * Weighted average to reflect industry profile of 33% community-based and 67% privately-owned. Values were derived from annual figures reported in Table 18 by dividing out 250 days of operations per year. A result of \$0 indicates that no centres in this category will change.

Source: Booz & Company analysis.

Whether or not a centre can pass on the full cost impact in the form of higher fees will be determined by the predicted impact on demand. If a centre will lose customers in response to higher fee, they may decide to absorb the additional costs of providing a 1:4 ratio. The general characteristics of the child care market indicate that many centres will be able to pass on all of the cost impact to parents due to:

- Low market competition and concentration in Australia;³⁹
- The parents who are in the formal child care market exhibit low elasticities with regards to price (see discussion in Section 6);
- For parents already using child care, only 5.5 per cent list “cost” as the reason for picking a particular centre while “quality/reputation” is the most common response;⁴⁰
- Previous studies on price elasticity with regard to quality of care indicate that parents are ‘on average’ willing to pay more for higher quality child care, which can be tied to higher staff-to-child ratios;⁴¹

³⁹ IBISWorld, 2008.

⁴⁰ Ibid

⁴¹ Blau & Moccan, 2002.

- Attitudes towards child care in Australia indicate that formal care for under 2 year olds is not a popular decision,⁴² and that the choice to use formal care is driven by women's employment which is currently strong in Australia;⁴³
- Utilisation of services for under 2 year olds is high (88 per cent on average) despite recent increases in fees which indicates high willingness to pay, and anecdotal evidence suggests that supply of under 2 places does not meet demand;⁴⁴
- The market is in a growth cycle with the population of under 2 year olds expected to remain steady into the future (see Appendix C for further details), indicating steady market demand; and
- Commonwealth subsidies for child care have increased in the current budget starting July 2008, providing a 50 per cent out of pocket rebate to parents with a higher maximum value, which may offset increases in fees.⁴⁵ Increases in this subsidy have historically been linked to increases in using formal care and corresponding decreases in informal care.⁴⁶

All of these factors combine to indicate that the child care market for under 2 year olds will not be sensitive to changes in fees. However, the child care market is very localised so the impact will vary based on location. There will be cases where centres will face competitive pressure to keep fees low, particularly if they are operating in an area where many centres are already offering a 1:4 ratio and will not need to increase fees at all. Without a complete census of the child care industry in NSW it is problematic to predict how local competition based on which centres are already at a 1:4 ratio will affect fees.

However, there are broad exceptions to the general market characteristics which may force centres to absorb some of the cost impact. Centres in low income areas with high market density or competition will face greater pressure to keep fees low. Lower income households are more sensitive to changes in price for child care and, therefore, centres will face greater changes in demand in these areas.⁴⁷

⁴² Evans & Kelley, 2002.

⁴³ ABS, 2005.

⁴⁴ IBISWorld, 2008.

⁴⁵ Commonwealth budget papers, 2008.

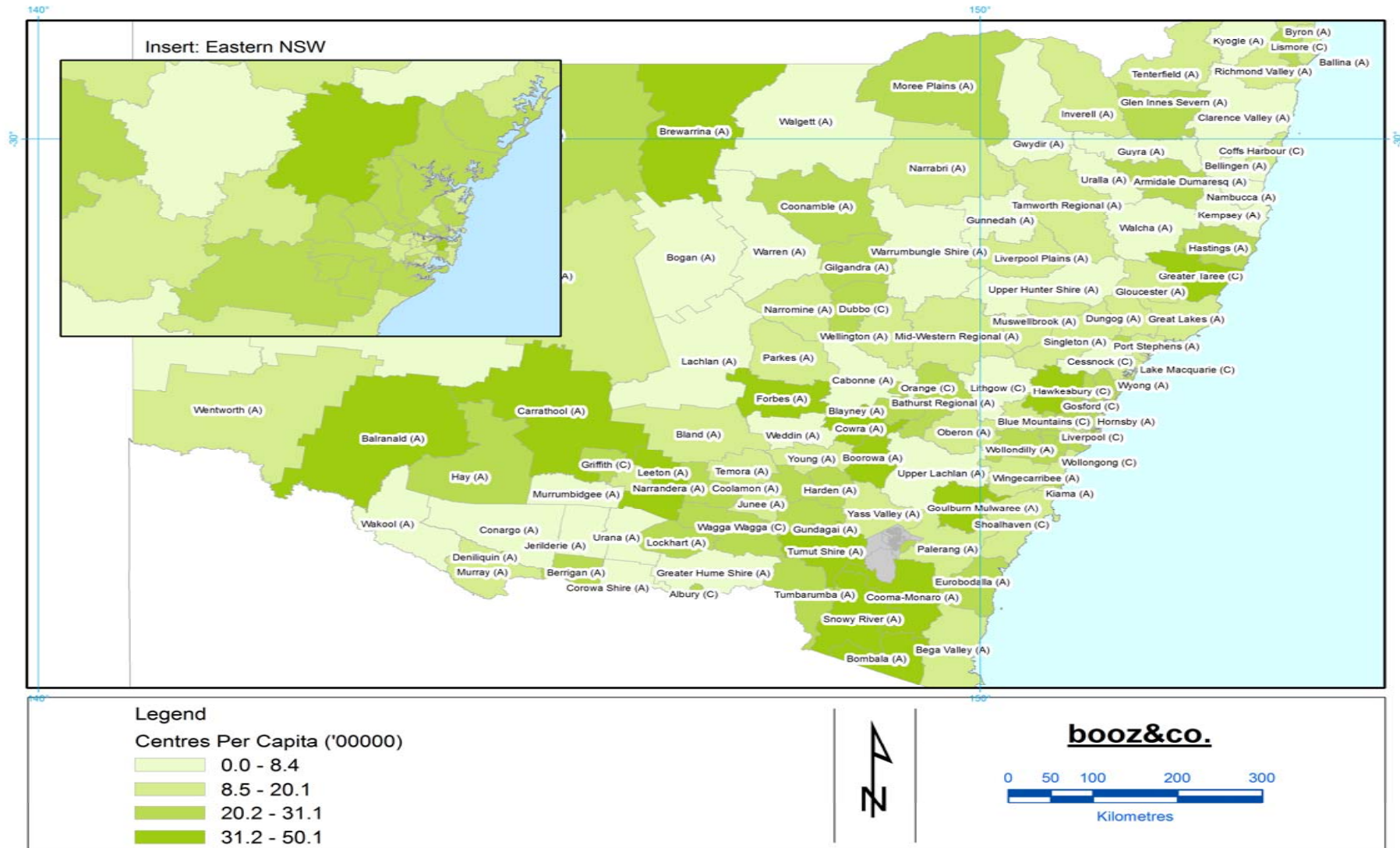
⁴⁶ McNamara and Cassells, 2006.

⁴⁷ Kalb & Lee, 2007.

The distribution of child care centres offering under 2 places per capita is used as a proxy for the amount of competition between centres in a local market and is illustrated in Figure 11. This proxy for competition could be further refined if information regarding market share for each centre was available. In this case, the Herfindahl-Hirschman Index (HHI)⁴⁸ could be calculated to reflect market power and competition. Without this information, a higher number of centres in an area indicates a lower concentration of market power (which would result in a lower HHI) and an indication of greater competition. Comparing the map in Figure 11 with Figure 12, which illustrates average weekly household income, indicates which areas will face greater pressure to absorb some of the cost impact.

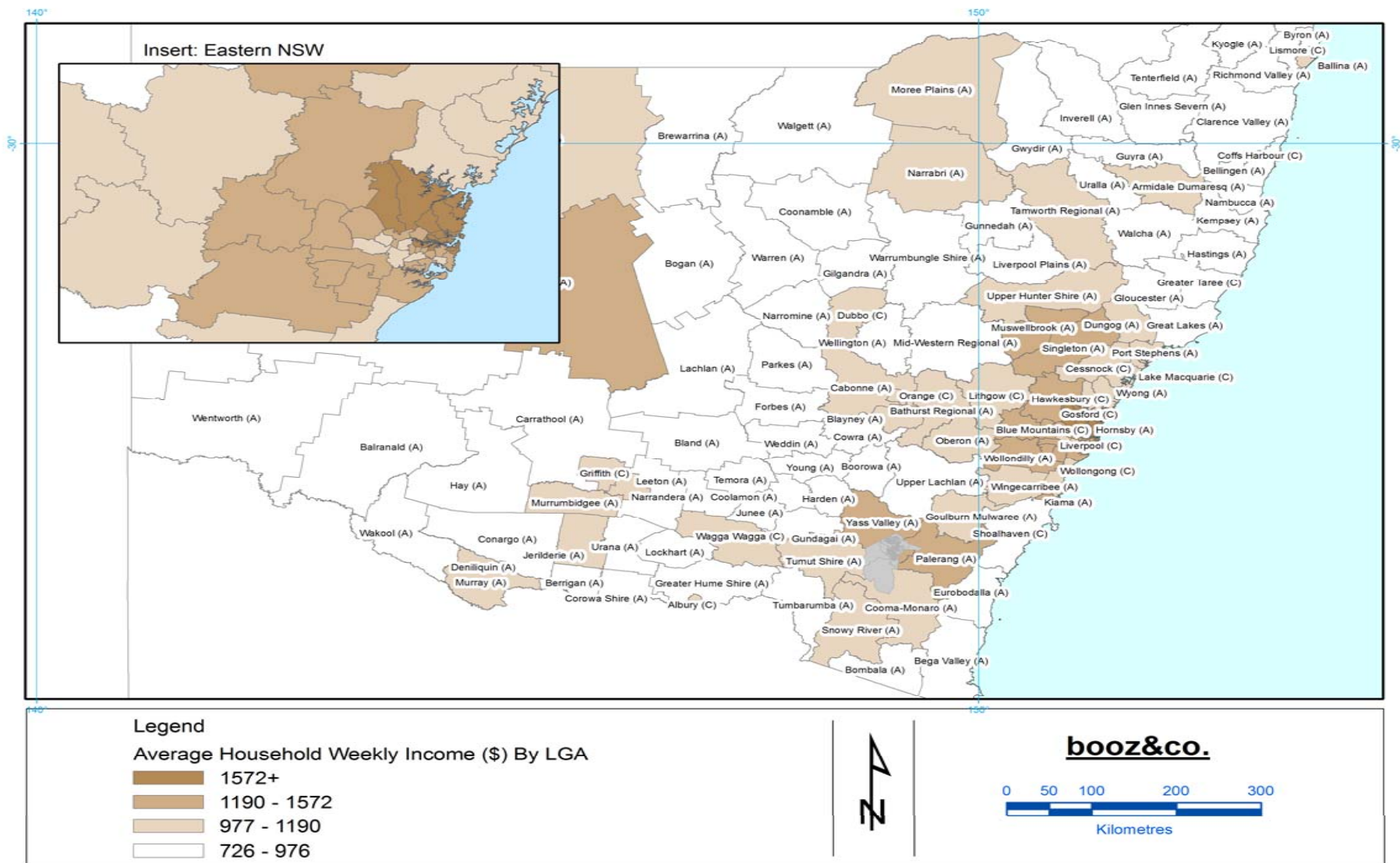
⁴⁸ A commonly accepted measure of market concentration that is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers. The HHI takes into account the relative size and distribution of the firms in a market and approaches zero when a market consists of a large number of firms of relatively equal size. The HHI increases both as the number of firms in the market decreases and as the disparity in size between those firms increases.

Figure 11: Map of Child Care Centre Densities per Capita Offering Under 2 Places in NSW



Source: Booz & Company analysis of Children Services Information System, extracted 2008.

Figure 12: Map of Household Weekly Income Distribution in NSW



Source: Booz & Company analysis of ABS 2006 Census data.

For example, both the Balranald and Carrathool LGAs are in the lowest household income bracket and have the highest density of centres per capita. This combination of factors indicates that centres in these areas will be unlikely to be able to pass on all of the cost impact without substantially affecting demand for their services. Centres in Greater Taree face similar circumstances.

5.1 Cross-Subsidisation

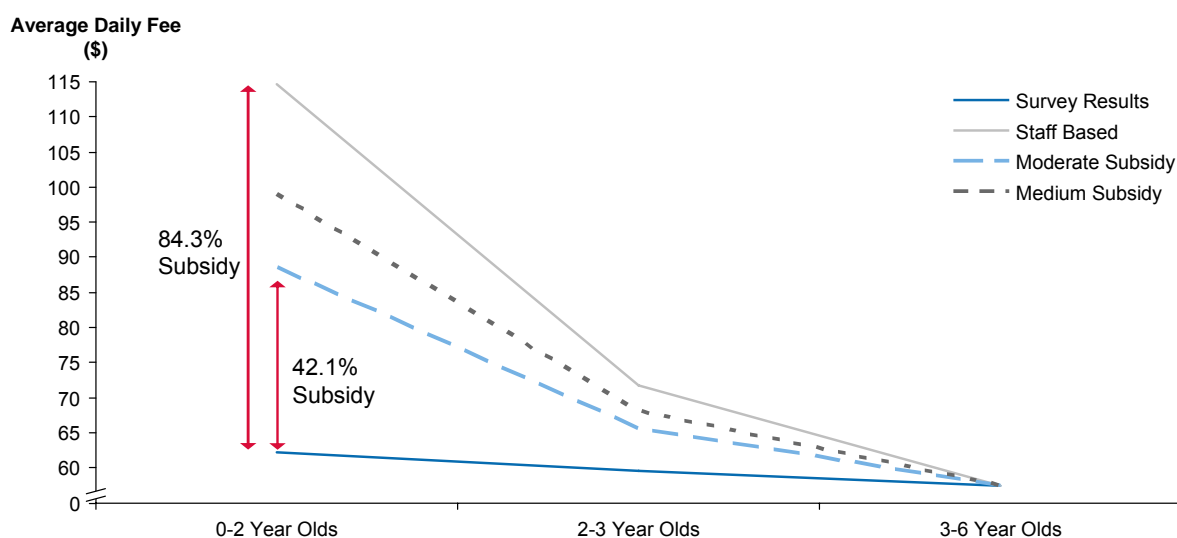
Both anecdotal evidence and survey responses regarding fees for different age groups indicate that centres cross-subsidise the cost of providing younger places with the fees from older children (see Section 3.3). Given this past behaviour, it is reasonable to assume that increased costs due to a change in staff-to-child ratio for under 2 year olds will be treated similarly.⁴⁹ With the survey data it is not possible to calculate the exact degree of cross-subsidisation that occurs, which would require details on all of the costs of providing a single place in each age group. However, Primary Contact Staff costs are the major driver of costs, making up over 80 per cent of labour costs on average (see Section 3.2). The proportion of these costs for each age group is determined, in part, by the regulations regarding the staff-to-child ratios for each age group. Using this information we can estimate the approximate amount of subsidy between age groups.

In order to understand the possible degree of cross-subsidy, we anchored the fees for 3 to 6 year olds to the average fees reported in the survey data.⁵⁰ We then assumed that this age group subsidises the lower age groups based on having the lowest labour costs, with a staff-to-child ratio of 1:10. The top line in Figure 13 denotes the fees that should be charged to cover costs if Primary Contact Staff are the only cost difference between age groups and the number of Primary Contact Staff is based entirely on regulated staff-to-child ratios (1:8 for 2 to 3 year olds and 1:5 for under 2 year olds). These assumptions lead to fees for under 2 year olds that would be twice that of the oldest age group.

⁴⁹ PwC noted the same possible outcome in 2003.

⁵⁰ This was done for theoretical purposes only. In reality a cross-subsidy indicates that this fee should be lower than the reported averages to cover costs alone, while the fees for the younger age groups should be higher.

Figure 13: Illustration of Possible Levels of Cross-Subsidy in Child Care Fees



Source: Booz & Company analysis.

As Figure 13 illustrates, the fees that would be charged to cover Primary Contact Staff costs are far above those average fees reported in the survey (the bottom line of the graph, also shown in Figure 7). The degree of difference between the lines indicates a subsidy of 84.3 per cent, where the older age group fees are covering that proportion of costs for the lower age groups. This degree of subsidy represents an extreme case based on the assumption that the only cost driver, and therefore fee driver, is Primary Contact Staff.

It is more likely that higher costs for older age groups, such as those related to space and learning materials, moderate this level of subsidy. If this moderation accounts for about half of the cost difference in reality, then the “Moderate Subsidy” level in Figure 13 is a more accurate depiction of the degree of cross-subsidy. The “Medium Subsidy” level reflects the fact that labour makes up about 70 per cent of the costs at a centre, so the extreme case of Primary Contact Staff being the only driver has been moderated by the remaining 30 per cent of costs.

With this understanding of current cross-subsidy practices, the average daily fee impact of \$7.59 per place would decrease for under 2 year olds as it is partially spread across the older age groups. The degree of spreading is based on the degree of cross-subsidisation occurring, as seen in Table 22.

The values in Table 22 reflect the fact that centres tend to offer more places for older children compared with under 2 year olds. If the relationship was one under 2 year old place to one 3 to 6 year old place, then the estimated fee impact for the older age group would simply be the total impact minus the estimated impact for under 2 year olds. However, the survey responses indicate that centres offer on average 2.6 places for 3 to 6 year olds for every under 2 year old place offered. Therefore, the remaining fee impact is divided across 2.6 places for the older age group. The survey data also shows a wide range of variance in this measure. Some centres offer no 3 to 6 places, which indicates no ability to cross-subsidise in the manner we have modelled. Whereas some centres offer between 5 and 10 times more 3 to 6 year old places than under 2 year old places. These centres will be able to further spread the cost impact per place compared to what is calculated below.

It is important to note that, no matter the number of 3 to 6 year old places, cross-subsidisation does not decrease the overall cost or fee impact of a 1:4 staff-to-child ratio. It simply spreads that impact across age groups.

Table 22: Estimated Fee Impact for Centres Changing Based on Cross-Subsidy

Degree of Cross-Subsidy	Estimated Fee Impact for Under 2 Year Olds	Estimated Fee Impact for 3 to 6 Year Olds*	Total Daily Fee Impact
None	\$7.59	\$0	\$7.59
Moderate (42.1%)	\$4.39	\$1.23	\$7.59
Medium (59.0%)	\$3.11	\$1.73	\$7.59
Staff Based (84.3%)	\$1.19	\$2.47	\$7.59

**Note: The remainder of the fee impact is divided by 2.6 places per every one under 2 year old place.*

Source: Booz & Company analysis

6. Indirect Effects of 1:4 Ratio

6.1 Usage Impacts

6.1.1 General Market Demand

There is generally a negative attitude towards using formal care for very young children in Australia.⁵¹ This would explain the *2004 Census of Child Care Services* results indicating that only 7 per cent of children under 1 year and 31 per cent of children between 1 and 2 years old are enrolled in formal child care.

In recent ABS Child Care Surveys, around 90 per cent of parents indicate that they do not want to use formal care for under 2 year olds. However, of those parents using formal care, the main reason for not seeking additional care was cost in 1999 and availability in 2002.⁵² This indicates that the main problem facing parents regarding child care has changed in recent history from the cost of care to the accessibility of care.

However, the proportion of children in formal care is steadily increasing from year to year.⁵³ This is partially due to government support for formal child care, through the Child Care Benefit and the Child Care Tax Rebate, and the improving employment market in Australia. This is occurring despite increases in child care fees above the CPI.⁵⁴

The primary drivers of demand for child care are the fees, the population of 0 to 4 year olds, the level of child care subsidies available to parents and the workforce participation of mothers. The labour force participation rate of women, who remain the primary caregivers for children, has increased from 44 per cent twenty years ago to 57 per cent in the 2004 Census.⁵⁵ As a result, demand in the child care market has grown rapidly. With a steady population of 0 to 4 year olds expected in NSW (see Appendix C), low unemployment figures, and rising child care subsidies the demand for child care services should remain steady if not continuing to increase.

Specific data on usage patterns in the two jurisdictions currently mandating a 1:4 ratio for under 2 year olds are not available from the time of their policy changes. However, both jurisdictions are currently going through a regulation review in the child care sector and neither jurisdiction has felt any pressure from parents or centres to change the ratio to 1:5. In fact, there has been recent lobbying in WA for a 1:3 ratio for 0 to 12 month olds based on higher quality outcomes for the children.⁵⁶

⁵¹ Evans & Kelley, 2002.

⁵² MacNamara and Cassells, 2006.

⁵³ ABS, 2005.

⁵⁴ Kalb & Lee, 2007.

⁵⁵ Cassells, et al, 2005.

⁵⁶ Personal Communication, 2008.

6.1.2 Demand Elasticity Studies

Previous elasticity studies, which estimate the response of consumers to changes in price, indicate that Australians are at the low end of price sensitivity compared to other international studies (see Appendix D).⁵⁷ A 2003 study estimated the specific response of parents to an increase in price related to stricter staff-to-child ratios in the United States. The results indicated a price elasticity of -0.064, which means that an increase in price of 10 per cent would cause a decrease in demand of 0.64 per cent.⁵⁸ This minor change in demand related to price increases due to staff-to-child improvements agrees with findings that parents are willing to pay higher prices for higher quality care.⁵⁹ Given that Australia tends to have lower elasticity results compared to the United States, it is reasonable to assume that demand may respond by less than 0.64 per cent to the estimated maximum fee increase of approximately 10 per cent.

However, price elasticity is not constant across all groups; with lower income and single parents showing greater sensitivity to fee changes.⁶⁰ However, based on the results of the HILDA survey, lone parents are more likely to use formal care in Australia.⁶¹ This is most likely due to less flexibility in accessing informal (or relative) care and the significantly higher degree of support sole parents receive from the Child Care Benefit. In fact, single parent households reported fewer problems with child care costs in the HILDA survey which may be directly related to the amount of Child Care Benefit received.⁶² As such, demand elasticities in Australia may be moderated for single parents.

Elasticities also vary based on the type of centre. Trends from Australia indicate that demand for places at privately-owned centres is more susceptible to fee increases than community-based centres. Between 1995 and 2002 fees increased at a lower rate than community-based centres, while demand for under 2 places shifted significantly towards community-based centres.⁶³ Survey evidence further suggests that parents are willing to pay more for public than private care due to the perception that public care is of higher quality.⁶⁴

⁵⁷ Kalb & Lee, 2007 and Dorion & Kalb, 2002.

⁵⁸ Blau, 2003.

⁵⁹ Blau & Moccan, 2002.

⁶⁰ Kalb & Lee, 2007 and Dorion & Kalb, 2002.

⁶¹ Cassells, et al, 2005.

⁶² Ibid.

⁶³ PwC, 2003.

⁶⁴ Teal, 1992.

6.2 Workforce Participation Impacts

The primary reason for using formal (i.e. centre based) child care in Australia is for “work related” purposes.⁶⁵ During the 2004 Census of Child Care Services, 90 per cent of paid hours in LDCs were for work related purposes, which is an increase from the previous census.⁶⁶ Despite this being the case, all previous studies have shown that changes in price have no significant impact on men’s labour force participation. For this reason, we focus on the impact of changing fees on women’s workforce choices.

Australian studies based on the ABS Child Care Survey have found that the price elasticity with respect to labour force participation is very low compared to international estimates, as illustrated in Figure 14.⁶⁷ The results of estimating price elasticities for both participation and hours worked for women show a range from -0.0 to -0.931 in the most recent study based on 2002 data.⁶⁸ The results of these studies reinforce the expectation that lower income and sole parents are more responsive to changes in price with the highest elasticity (-0.931) estimated for low income single mothers.

In the category of women with preschool aged children the estimate for married women was -0.02 and for sole parents -0.6.⁶⁹ This indicates the maximum fee increase estimated to be about 10 per cent will cause a 0.2 per cent and 6 per cent drop in demand respectively.

⁶⁵ ABS, 2005.

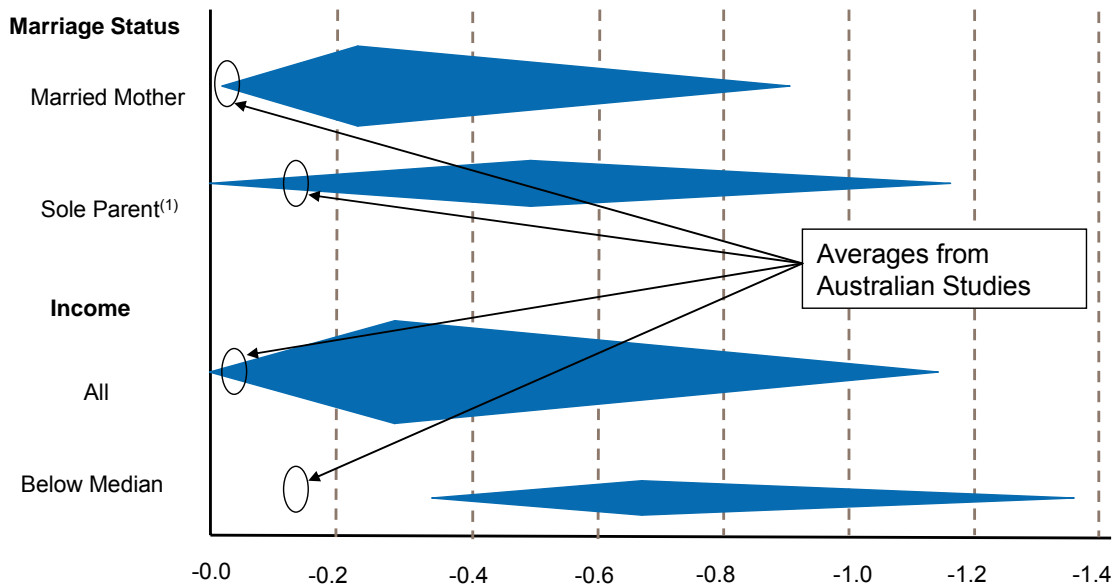
⁶⁶ Ibid.

⁶⁷ Kalb & Lee, 2007 and Dorion & Kalb, 2005.

⁶⁸ Kalb & Lee, 2007.

⁶⁹ Ibid.

Figure 14: Distribution of International Price Elasticities with regard to Labour Force Participation



(1) Includes mostly single mothers and some single fathers

Note: Width of band represents the number of sample studies with the widest point indicating the mean.

Source: Ranges are based on a sample of international empirical studies and literature reviews as presented in Appendix D.

The results of the 2002 study in Australia reflect higher price elasticities using the same methodology compared to the study conducted using 1996/97 data. The 2002 study also included data on the Child Care Benefit, which was not considered in the earlier study. While the estimates remain remarkably low, the difference does show that the magnitude of change in labour force participation will depend on current factors, such as wages and employment levels. In any case it is apparent that increasing child care fees will have a modest impact on overall labour force participation.

6.3 Staff Availability

A primary concern in implementing a higher staff-to-child ratio in NSW is the availability of staff to fill the increased FTE requirements. Child care staff supply shortages are considered a problem across Australia. Given that the model results indicate most services will attempt to hire more staff to meet the 1:4 ratio, it is essential to consider the effect of the ratio on the supply of child care staff.

A 2006 study reported that turnover rates for child care workers was just above one third for contact staff. The highest turn over rate was in unqualified contact staff at 37 per cent. Staff retention is obviously an issue in the field of child care with such high turnover rates. High levels of stress and a low degree of respect for their work is often cited as a problem for staff.⁷⁰

⁷⁰ Community Services Ministers' Advisory Council, 2006.

Increasing the staff-to-child ratio will actually help to address some of the issues related to high turnover rates. In a survey of child care workers in 2006, staff indicated that higher staff-to-child ratios would allow them time to complete burdensome paperwork and spend more quality time with the children in their care.⁷¹ Anecdotal evidence gained from interviews with both WA and QLD child care policy workers, with professional experience in child care centres, indicated a similar support for improving the quality of work and decreasing stress with higher staff-to-child ratios for under 2 year olds.⁷²

While increasing the staff-to-child ratio may decrease staff turnover by addressing workplace stress, there is still the question related to current staff supply. In 2006 centres in NSW reported 8 per cent of qualified and 4 per cent of unqualified positions remained vacant.⁷³ However, the same report indicated that the supply of child care staff in LDCs would grow at 1.9 per cent to 2013. The demand for child care staff was projected to be 1.3 per cent in the same period. Looking at the divide between rural and urban centres produced the same result of supply growing faster than demand in both locations.⁷⁴ These figures indicate that current staff supply problems should not be exacerbated by increasing the staff-to-child ratio given that supply will be growing faster than demand in the short term.

6.4 Household Expenditure

According to the *2003-04 Household Expenditure Survey*, households in NSW spend approximately 0.58 per cent of their total expenditures on child care.⁷⁵ This figure is in line with the rest of Australia which spends about the same proportion on child care. The proportion of total expenditures dedicated to child care is very low because many households utilise informal care at no cost or do not use child care.

Since the last survey of household expenditures in 1998-99, expenditures on child care increased 34 per cent. This is one of the largest increases in expenditure, roughly equivalent to increases in domestic fuel and power, during a period when total household expenditures increased by 26 per cent.⁷⁶ The increase in spending on child care is mostly likely linked to increased labour force participation, government policies supportive of formal care and increasing child care fees. Given that these factors have persisted since 2003-04, the proportion of expenditures on child care has likely risen since the survey.

As expected, household expenditure on child care varies by income with the highest income groups spending the most on child care (refer Table 23). This could reflect that fact that higher income households use more hours of care and/or lower rates of Child Care Benefit support. The higher expenditure levels for higher income

⁷¹ Rush & Downie, 2006.

⁷² Personal Communication, 2008.

⁷³ Community Services Ministers' Advisory Council, 2006.

⁷⁴ Ibid.

⁷⁵ ABS, 2006b.

⁷⁶ ABS, 2006b.

households supports the results of the HILDA survey wherein households with greater income were more likely to report multiple problems with child care and difficulties with the cost of child care.⁷⁷ This would seem to indicate that the increase in fees related to a change in staff-to-child ratio will have a greater impact on household expenditures for higher income households.

Table 23: Distribution of Child Care Expenditures by Household Income Quintile

Gross Household Income Quintile	Lowest	Second	Third	Fourth	Highest	All Households
Proportion of Household Expenditure on Child Care*	0.13%	0.24%	0.44%	0.69%	0.71%	0.54%
With 10% Increase in Child Care Costs	0.15%	0.27%	0.48%	0.75%	0.79%	0.59%

*Note: This figure includes preschool, informal, and formal care.

Source: ABS, 2003-04 Household Expenditure Survey, 2005.

Table 23 also illustrates the affect of a 10 per cent increase in child care costs, holding all other expenditures constant. This increase is averaged across the entire population, where in reality it will not impact some households and have a greater impact in other households. In any case, the impact of a 10 per cent increase in fees represents a very small proportion of household expenditures.

⁷⁷ Cassells et al, 2005.

7. Implementation Options

The following section describes possible approaches for implementing a 1:4 staff-to-child ratio for under 2 year olds.

7.1 Phased Approach

DoCS may consider a phased approach to implementation, where smaller providers are allowed to comply later than large providers. This approach assumes that smaller providers will find compliance more difficult or more costly than larger providers due to less flexibility. The economies of scale and economies of scope available to large providers will allow them to adjust to a change in regulation more easily than their small competitors.⁷⁸ Also, 69 per cent of small centres in the survey would be required to change under the new ratio, whereas only about half of large centres would be required to change.

The Children's Services Cross Sectoral Task Force, comprised of industry representatives, recommended a similar approach in 2006, allowing for a 12 month delay in implementation for smaller centres. This approach was also recommended by PwC in their 2003 report to allow for costs of compliance to be spread out over time.

While a phased approach may allow for costs to be delayed, it will not minimise or decrease costs for individual centres. In theory centres could minimise the cost of transition by planning ahead and strategically mixing costs. However, interviews with policy staff in QLD indicated that timed exemptions of 2 years for their change in staff-to-child ratio led to procrastination and many centres struggling to meet the deadline. A similar change in policy in QLD, where space requirements were changed and some buildings required upgrades was given a 10 year exemption period. This implementation plan again saw centres waiting till the last minute and struggling to meet the deadline for change.

For this reason no cost impact decrease was calculated for centres under this option. This approach is, however, a no cost option for the government as it does not require additional staff time or resources to implement.

7.2 Targeted Approach

A policy targeted at only a portion of operating hours, or percentage of the day, would require services to provide a 1:4 staff-to-child ratio during pre-defined 'core hours' and allow a 1:5 ratio outside that time period. The goal of this approach would be to minimise costs by only changing the regulated ratio during normal daytime operations. For the purposes of analysis, any centres offering services outside of 9am to 5pm would be allowed to operate at a lower ratio for hours beyond those 8 hours listed.

⁷⁸ IBISWorld, 2008.

Based on the survey data received, approximately 99 per cent of services offer hours before 9am and after 5pm. Only 2 services responding to the survey did not offer services outside of the core hours. As such, this policy would impact a vast majority of services and decrease the costs of compliance. On average centres operate 2.7 hours beyond the core hours, as seen in Table 24, with most services providing 2.5 to 3 hours more per day. The maximum and minimum hours beyond the core are also provided in Table 24 to give an idea of the range of cost impacts likely to happen under this policy.

Table 24: Survey Results and Cost Impacts for Services Operating Beyond Core Hours

	Targeted Absolute Minimum	Targeted Likely Minimum	Targeted Average	Targeted Maximum
Number of Hours Beyond Core	0	0.5	2.71	5
Percentage of Total Operating Hours Beyond Core	0%	6%	25%	39%
Average Cost/Place/Day with Targeted Policy	\$7.59	\$7.14	\$5.70	\$4.67

Note: The maximum and minimum represent only one centre each.

Source: Booz & Company analysis.

The average cost impact per place per day was calculated assuming a linear relationship between the amount of time spent at the 1:4 ratio and the cost of doing so. It was calculated for each centre in the model and aggregated to reflect the decrease in cost impact under a targeted policy. The average impact would be a decrease from \$7.59 to \$5.70 per place per day. On an annual basis the average decrease in cost would amount to a savings of \$474 per under 2 year old place affected, about 25 per cent savings. If the definition of core hours was narrowed to less than 8 hours, the cost impact for centres would decrease further.

This policy would decrease the cost impact for nearly all of the centres affected by a change in ratio, while at the same time, it would not cost the government additional resources to implement. However, it would be critical to clearly communicate with centres how to meet the new regulation as far as which hours are exempt from the new ratio. Centres may struggle to incorporate the rostering required to change their ratios at various times of day. Also, enforcement of this option would increase in complexity as compared to the single ratio option. In the early stages of implementation it would require DoCS staff to check the staff-to-child ratio of centres at different times of day to make sure that the ratio changes in accordance with core hours.

7.3 Supported Approach

7.3.1 Training Option

As recommended by the Children's Services Cross Sectoral Task Force, DoCS could provide business support during the implementation period for centres struggling to make the change. Anecdotal evidence suggests that staff rostering is not always efficient in smaller and medium sized centres. This suggests that improvements in management and staffing procedures might meet the 1:4 ratio with lower costs.

A supported approach could take two forms: 1) one-on-one support for centre managers who request help or 2) workshop training on costing and rostering under the new ratio. A combination of these approaches may be optimal, given that some centres will face unique problems in staffing while others may require general assistance. Combining this approach with the phased approach would allow DoCS to dedicate a window of time, such as 12 months, to offering business training for centres.

The government could either provide financial support for those managers seeking business training or DoCS could run workshops internally.

This policy option will cost significantly more for DoCS to implement than a phased, targeted or flexible approach, as it will require dedicated staff time and resources. It also requires further detailed development in order to implement, as training or financial support for training would require scheduling and some criteria for centres to qualify for assistance. Given that the evidence regarding inefficiencies in current staff rostering is anecdotal, there is no current data on how widespread the problems are or how they are distributed. As such, it is not possible to calculate the extent of impact this option would have on decreasing costs to centres.

7.3.2 Subsidy Option

Given the cost impact of changing the regulation, DoCS may consider offering financial support directly to affected centres. This support would be in the form of a transitional subsidy for the first year of implementation only. In order to estimate the cost to DoCS, a subsidy for a single place was assumed to be \$1,000 based on the likely cost impacts. According to data extracted from the *Children Services Information System* there are currently 19,664 under 2 year old places licensed in NSW. Based on our survey data, approximately 88 per cent of those licensed places will be offered (i.e. 17,304 places). If 66 per cent of those places are affected by a change in regulation, this implementation option would amount to \$11.4 million in subsidies if the government chooses to fully cover the cost increase in the first year. However, a more likely option would be for government to subsidise only part of the cost increase. If a 50 per cent subsidy was chosen, this would amount to \$5.7 million.

The subsidy option will have the greatest impact on costs for centres in the first year of implementation (from \$1,000 to \$500 annual savings per place). However, not all centres will have the same cost impact, as seen in Section 4.2 average cost impacts range from \$1,427 to \$2,297 for centres. As such, offering a single subsidy amount to all centres will defray only a portion of costs for some centres.

The cost to government of this option is obviously significant compared to all other options. In addition to possibly prohibitive costs, this option may not be feasible to implement due to industry and parent backlash. Centres not receiving the subsidy because they already offer a 1:4 ratio may consider DoCS support to other centres as discriminatory, given that the government did not provide financial support for their centres when they began offering a 1:4 ratio. Centres applying for the subsidy would also have to justify their need for it by documenting their previous staffing practices.

7.4 Flexible Grouping Approach

DoCS may also offer more than one grouping option for under 2 year olds in the new regulation. QLD's regulations include multiple groupings that include children under 2 years old, as illustrated in Table 25. Implementing flexible groupings for children under 2 years old will allow many centres greater flexibility in staffing and will decrease costs for some centres where they can capitalise on grouping under 2 year olds with older children.

Table 25: Queensland Regulation for Child Care Centre Groups

Ages of Children	Carer:Child Ratio	Max Group Size	Other Limits or Exceptions
Birth to 2 years	1:4	8	N/A
Birth to 3 years, including at least one child aged 3 years	1:5	10	May not include more than 2 children from birth to 1 year for each carer
15 months to 3 years	1:5	10	N/A

Source: Adapted from QLD Child Care Regulation 2003.

Offering flexible groupings for children allows centres to smooth the transition between a 1:5 and a 1:4 ratio, while costing the government nothing to implement. The cost of implementing this strategy would be the same for the government as implementing a 1:4 ratio for all groups containing under 2 year olds.

Two specific scenarios under this approach have been proposed by DoCS for analysis of the cost impacts for centres.

SCENARIO A:

Under the current Regulation (CI 53(3)) if children in a group are not in the same 'age bracket' (ie: 0-2, or 2-3, or 3-6), then the staff-to-child ratio that is required for the youngest child in the group is required for all children in the group.⁷⁹ Scenario A would mean that, for children in the 0 to 2 age bracket who are 18 months or older, a 1:4 ratio need not be applied to all the children in the group that the 18 month or older child is in. The groupings that would apply in Scenario A are illustrated in Table 26.

⁷⁹ NSW Children's Services Regulation 2004.

Table 26: Under 2 Year Old Age Groupings for Scenario A

Ages of Children in the Same Group	Carer:Child Ratio	Max Group Size
Birth to 2 years	1:4	8
18 months to 3 years	1:5	10

Source: DoCS.

According to information reported on NSW attendance in the *2004 Census of Child Care Services*, 79.3 per cent of under 2 year olds enrolled are aged 1 year.⁸⁰ Of those 1 year olds, we assumed that 50 per cent were aged 18 months or older. These proportions were then applied to reported enrolment from the survey responses in order to determine the number of under 1 year olds, 12 to 17 month olds and 18 months or older at each centre.

In the most extreme case, we assumed that all children 18 months or older could be 'grouped out' of the 1:4 ratio. The same methodology explained in Section 2.5.2 was then applied to the new number of children under a 1:4 staff-to-child ratio. The average cost impact with these assumptions was \$4.96 per place per day at centres forced to change by the new regulation, a savings of 35 per cent (refer Table 27). This amounts to an average annual savings of \$657 per place in cost impacts.

However, it is more likely that some children over 18 months are still grouped with younger children and are, therefore, subject to the 1:4 ratio. Assuming that half of these children can not be 'grouped out' and are subject to the new ratio, the average cost impact per place per day is illustrated in Table 27 and amounts to annual savings of \$257 per place. The range of cost impacts possible under this scenario is similar to the range of cost impacts under a targeted approach. However, the maximum and minimum costs are slightly higher under this approach.

Table 27: Cost Impacts for Scenario A Flexible Groupings

	Minimum	Assumed Average	Maximum
Proportion of >18 months 'grouped out'	0%	50%	100%
Average Cost/Place/Day with Flexible Policy	\$7.59	\$6.56	\$4.96
Percentage cost decrease from base	0%	14%	35%

Source: Booz & Company analysis.

⁸⁰ According to the Dept. of Family and Community Services, 2005: 2,987 under 1 year olds and 11,425 1 year olds were attending long day care services (private and community combined).

SCENARIO B:

Under this scenario a ratio of 1:4 is only required where a LDC or mobile service has more than two under 2 year old children in attendance. Where there are two or less under 2 year olds in attendance these children may be cared for in a group with older children, and a 1:5 ratio would apply. This scenario is designed to alleviate costs for smaller services, who it is recognised will have greatest difficulty adapting to the higher costs associated with the 1:4 ratio.

This scenario adds three more centres from the survey responses to the centres not required to change under a 1:4 ratio, increasing the proportion to 35 per cent of services. However, about 70 services are licensed for up to two under 2 year old places in NSW so this entire group of services would feel no impact from the 1:4 ratio in reality.⁸¹ The remainder of services would then have reduced costs for that part of the day when only a couple of under 2 year olds are in attendance.

While more services will be exempt from change under this policy, it is difficult to calculate the exact impact on costs for those centres still required to change without detailed records on attendance throughout the day. In order to estimate the cost reductions, we assumed that smaller centres (with fewer than 10 under 2 year olds) would be more likely to have a significant amount of time during a day where this exemption would apply. As such, we assumed that centres enrolling 3 to 5 under 2 year olds would experience about 50 per cent of the day where this option would apply. Centres enrolling 6 to 9 under 2 year olds would experience 25 per cent of the day where this option would apply. These estimates may be conservative, considering that most under 2 year olds do not spend an entire 8 hour day in child care,⁸² so enrolments may overlap less frequently than we are assuming in medium sized centres.

Again we assumed a linear relationship between staff time and costs to calculate the cost impact under this scenario. The results, seen in Table 28, indicate that 18 centres from the survey will decrease costs by 25 per cent while 31 centres will be able to decrease the cost impact by 50 per cent. On average, centres will save \$265 annually in cost impacts per place.

Table 28: Cost Impacts for Scenario B Flexible Groupings

	Average for Centres: 3-5 Enroled	Average for Centres: 6-9 Enroled	Average for All Centres
Number of Centres Exempt for All or Part of Day	18	31	52
Average Cost/Place/Day with Flexible Policy	\$3.73	\$5.88	\$6.53
Percentage cost decrease from base	51%	22%	14%

Source: Booz & Company analysis.

⁸¹ Children's Services Information System, 2008.

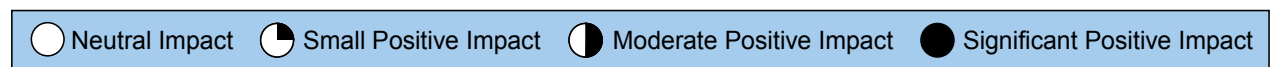
⁸² ABS, 2005.

7.5 Options Summary

Each of the options above will impact the transition to a 1:4 staff-to-child ratio in a different manner. To compare the likely results of each option, we have ranked them against three criteria. These criteria apply only to the effectiveness of the transition to a 1:4 ratio and assume that the final outcome of each policy option is the same quality of care for children. The criteria include:



















- Minimise cost impact for LDCs;
- Minimise cost to government; and
- Maximise ease of implementation.

Based on the option descriptions above, the following ranks were used to summarise the impact of each policy option:



Ranks were assigned to each option based on the *average* expected outcome, not on the entire range of possible outcomes, under the option. Table 28 compares each option utilising this ranking system.

Table 29: Summary of Policy Option Impacts on Criteria

Policy Option	Minimise cost impact for LDCs	Minimise cost to government	Maximise ease of implementation
Phased Approach			
Targeted Approach			
Supported Approach: Training			
Supported Approach: Subsidy			
Flexible Grouping Approach: Scenario A			
Flexible Grouping Approach: Scenario B			

Source: Booz & Company analysis.

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Appendix A – Cover Letter and Survey

Dear Service Provider

As a licensee of a children's service providing care to children under two years of age, I invite you to participate in the collection of information to inform an important child care study.

The Department of Community Services (DoCS) has commissioned Booz Allen Hamilton consultants to conduct an independent economic analysis of the impacts of implementing a staff-to-child ratio of 1:4 for children under two years of age in NSW. This study will contribute to our understanding of the sector ahead of the review of the Children's Services Regulation 2004.

As you will know, the Children's Services Regulation 2004 requires a ratio of 1 staff member to every 5 children for children aged under two years. Previously consideration had been given to moving to a 1:4 staff:child ratio for children under 2 years. However, uncertainty relating to the impact of such a move on the cost and provision of places resulted in a ratio of 1:5 being maintained.

No decision has been made by the NSW Government or DoCS to change ratios. This study, and the attached survey, is intended to ensure that good information is available before any change might be considered.

The research is being undertaken in consultation with an Industry Reference Group comprised of major industry stakeholders, including service providers, to gain industry input and expertise for the study.

The Department and Booz Allen Hamilton are aware that service providers will wish to preserve the confidentiality of the information provided related to their service and business operations. *I can assure you that material you provide will be treated confidentially.* The survey will be received by Booz Allen Hamilton directly from services. No information will be provided to DoCS identifying individual services' responses. Information provided via this survey will be used for the purposes of this research project only and will not be used by DoCS as part of licensing or regulatory activities.

I encourage you to complete the survey for the service/s named in the attached list. Information from this survey will give a 'real world' picture of how services operate, and assist the consultants to provide advice on the true costs and benefits that could result if the 1:5 ratio were changed.

Should you require further information or need to seek clarification on any aspects of the survey, please contact consultant XXXXX, Booz Allen Hamilton, by telephone on XXXXX or by email at XXXXX.

Completed surveys should be posted using the enclosed envelope to:

Booz Allen Hamilton
PO Box 7114
Brisbane QLD 4001

If you would prefer to provide your response electronically, please email Booz Allen Hamilton at XXXXX to request an electronic version of the survey. Emailed responses should also be returned to XXXXX.

I would appreciate it if the surveys could be sent to Booz Allen Hamilton by Friday 7 March 2008 at the latest.

Thank you for your time in contributing to this important project.

Dr Gül Izmir
Deputy Director-General
Service System Development

1:4 STAFF:CHILD RATIO ECONOMIC IMPACT PROJECT SERVICE SURVEY

This document contains: Section A – Service contact details (page 1), and Section B – Service survey (pages 2-4)

Section A – Service contact details

This contact information will be used only by Booz Allen Hamilton for the purposes of follow-up and clarification if required.

Person Completing the Survey: _____

Position of Person Completing the Survey: _____

Name of the Child Care Centre: _____

Address of the Child Care Centre: _____

Post Code: _____

Phone Number: _____

Fax Number: _____

Email Address: _____

Web Address: _____

PLEASE RETURN THIS SURVEY BY FRIDAY 7TH MARCH 2008 TO:

Booz Allen Hamilton
PO Box 7114
BRISBANE QLD 4001

Section B – Service Survey

Instructions for completion:

- **All questions that follow should be answered with regard to the centre listed above.**
- **For questions 1 and 2, please record ANNUAL COSTS for the last full calendar or financial year. The following DoCS website can be used as a reference for further details on how to calculate costs:**
http://www.community.nsw.gov.au/DOCS/STANDARD/PC_100944.html
- **For questions 3 through 6, the SURVEY PERIOD refers to the four week period from Monday, 5th of November to Friday, 30th of November 2007 (inclusive).**

1) Based on your most recent financial statements, what are the **total** costs for this child care centre for the most recent financial or calendar year in the following categories:

- ▶ **Labour**, which includes salaries and on-costs, such as superannuation, payroll tax, workers' compensation, etc, for all staff members (both Primary Contact and Non-Primary Contact).
- ▶ **Non-Labour**, which includes all other costs such as facilities, food, nappies, training, depreciation, etc....

Period Reported (eg. 2006-07 financial year)	Cost Category	Annual Costs
	Labour	
	Non-Labour	

Note: Include only actual financial costs, not assumed costs.

2) What proportion of the centre's **labour costs** listed above are for Primary Contact Staff only? Please circle the most accurate answer:

- a. 50 - 60% of labour costs
- b. 61 – 70% of labour costs
- c. 71 – 80% of labour costs
- d. 81 – 90% of labour costs
- e. 91 - 100% of labour costs

3) What were your hours per day and days per week of operation for each age group during the survey period? Please fill the answers in the table below.

Age Group	Daily Hours of Operation	Number of Operating Days per Week
0 – <2 year olds		
2 – <3 year olds		
3 – <6 year olds		

4a) Please attach a schedule of all fees for the services provided at this centre during the survey period (staple to the back of the survey).

4b) Does your schedule include a reduced fee, for example, where families supply their child's nappies or food, or have a sibling enrolled? If the answer is yes, please indicate in the table below your estimate of the percentage of children who were charged a reduced fee, and the average reduced fee charged during the survey period.

Age Group	% of children where a discount fee was charged	Average reduced fee charged (\$)
0 – <2 year olds		
2 – <3 year olds		
3 – <6 year olds		

Note: A 'reduced fee' is not referring to the amount the fee is reduced by entitlement to the Child Care Benefit.

5a) What was your maximum licensed capacity in each age group and maximum number of licensed places during the survey period? Please fill your answers in column 5a in the table below.

5b) What number of places did you actually offer in each age group during the survey period? Please fill in your answers in column 5b below.

5c) What was the average enrolment per day in each age group during the survey period in Full Time Equivalent (FTEs)? For this information you may be able to use the utilisation figures you reported to the Family Assistance Office for Child Care Benefit purposes. Please fill in your answers in column 5c in the table below.

Note: To calculate the average, add enrolment (FTE) on each day in the survey period and divide the total by 20 days (20 days is for a service that operated 5 days a week during the survey period)

Age Group	5a. Maximum Licensed Capacity	5b. Places Actually Offered for Enrolment	5c. Average Enrolment per Day (in FTEs)
0 – <2 year olds			
2 – <3 year olds			
3 – <6 year olds			
Maximum Licensed Places		*Should not exceed total maximum licensed places	

Note: The answers should be in full time equivalent terms, for example, two children both attending 0.5 day would equal 1day FTE.

6a) During the survey period, how many hours per week did you plan to operate (eg: via rosters and enrolments) at the staff:child ratios listed in the table below for 0 to <2 year olds? Please fill your answers in column 6a in the table below.

6b) During the survey period, how many hours per week did you actually operate (eg: given child or staff absences) at the staff:child ratios listed in the table below for 0 to <2 year olds? Please fill your answers in column 6b in the table below.

Staff to child ratio for children 0 - <2	6a) Hours per week you planned to operate at each staff:child ratio	6b) Hours per week you actually operated at each staff:child ratio
1:5		
1:4		
1:3		
1:2		
1:1		
Total hours per week		

Note: Total weekly operating hours in each column should equal hours per day multiplied by days per week. For example, a service operating 10 hours per day, 5 days a week will have a total of $10 \times 5 = 50$ hours of operation per week.

Thank you for taking the time to complete this survey.

Appendix B – Industry Reference Group

Economic Evaluation of the impacts of implementing a staff/child ratio of 1:4 for children under 2 years of age in NSW

Industry Reference Group: Terms of Reference

Membership:

- Dr Gul Izmir – Deputy Director-General, Service System Development - Chair
- John Tansey – Executive Director, Children’s Services
- Marilyn Chilvers – Executive Director, Economic Statistics and Research
- Community Child Care Cooperative Ltd
- Mobile Children’s Services Association of NSW
- Country Children’s Services Association
- Early Childhood Australia NSW
- National Association of Community Based Children’s Services
- Child Care NSW
- NSW Family Day Care Association Inc
- Occasional Child Care Association
- Association of Independent Schools
- Catholic Education Commission
- Local Government and Shires Association
- Ethnic Child Care Family and Community Co-op
- KU Children’s Services
- SDN Children’s Services
- Uniting Church Children’s Services
- A.B.C. Developmental Learning Centres
- CFK Childcare Centres Ltd
- Long Day Care Centre operator representatives: to be advised

Terms of Reference

The Industry Reference Group will provide advice to the 1:4 ratio project Steering Committee and government appointed consultants, in particular regarding:

1 Providing industry input including

Provide sectoral knowledge and information to the government Steering Committee

Provide expertise and data to the appointed consultants

2 Sources of information for the study including

Facilitate access to financial and other operational information, including service budgets and staffing plans to the steering committee/consultant as appropriate;

Provide additional relevant material from the sector

3 Engagement and targeted consultation with the sector

Appendix C - Market Size

A first step in understanding the potential size of the market for child care that might be affected by a change in staffing ratios is to establish the number of children in the 0-2 year age group. The following sources of data have been analysed to address this matter:

- Unpublished data from the 2006 Census showing the estimated resident population (ERP) for Statistical Local Areas (SLAs) in NSW⁸³; and
- The most recent age-specific population projections (released in 2007, though based on 2005 data) for SLAs in 2006, 2011 and 2016.⁸⁴

This approach has been used both to obtain an accurate estimate of the current distribution of children in the 0-2 year old age group, and an indication of areas where the number of young children is projected to grow or decline over the next decade.

The Census data shows the number of children by their usual place of residence on Census night in the following age groups: 0 - <1, 1 - <2, 2 - <3, 3 - <4, and 4- <5. However, the projections are only available for the <5 age group as a whole, i.e. projections are not available for each yearly group under five. Nevertheless, by comparing the ERP estimates for the total <5 age group with the projections for 2006, it is possible to assess the extent to which the projections depart from the Census numbers, and, therefore, the extent to which the projections for 2011 and 2016 may need to be factored up or down.

Staff at the NSW Department of Planning have commented that the Census data shows that fertility rates have been higher than was assumed when the projections were prepared, i.e. there were more young children in 2006 than had been projected.⁸⁵

The Census data and population projections for various areas are compared in Table C1. At a State-wide level, the number of <5 year old children at the Census (435,321) was 14,593 (or around 3.4%) higher than suggested by the projections for 2006. The number of <5 year olds living outside the three major urban Statistical Divisions at the Census (93,305) was around 7.5% more than had been projected. Within these broad patterns, there is greater variation between the ERP numbers and the projections at the Statistical Sub-Division level and SLA level, especially in rural NSW (where a small numerical difference often equates to a larger percentage difference).

The Census data shows that children under 2 (177,022 in NSW at 2006 Census) represented 40.7% of the <5 year old population in the State.

⁸³ Australian Bureau of Statistics, 2007.

⁸⁴ NSW Department of Planning, 2007.

⁸⁵ Personal Communication, 26 February 2008.

Table C1: Comparison of Census Data & Population Projections for 0-<2 and 0-<5 Year Old Children

	Estimated Resident Population at 2006 Census		Projected No. of Persons 0- <5 Years Old in Various Years		
	0 - <2	0 - <4	2006	2011	2016
Sydney Statistical Division	114,599	278,697	274,947	278,412	281,744
Hunter Statistical Division	15,373	38,212	35,308	35,411	34,209
Illawarra Statistical Division	9,970	25,107	24,188	24,030	24,184
Rest of State	37,080	93,305	86,285	81,564	81,253
Total NSW	177,022	435,321	420,728	419,417	421,390

Source: Booz Allen Hamilton analysis of ERP data from the 2006 Census and from NSW Department of Planning (2007)

The Census data and projections suggest that, at a State-wide level, and across the three predominantly urban Statistical Divisions, the number of <5 year olds is unlikely to change greatly over the period to 2016. Again, there are variations from this general observation below the Statistical Division level. Some SLAs in inner Sydney, east of Parramatta, and on the fringes of Sydney (especially Outer South-Western Sydney) are projected to have a substantial increase in the number of <5 year olds. Clearly, the projections are also suggestive of a material increase in the number of <2 year olds in those areas.

Appendix D – Elasticity Studies

International Evidence

International studies on the price elasticity of demand for child care mostly focus on the impact of changing prices on labour force participation for women.

Table D1: International Child Care Price Elasticity Studies

Description: Topic of Study/Location	Price Elasticity Estimates	Author(s)	Date
Single Mothers – Employment US	-0.42, -0.32, -1.18, -0.42, -1.07, mean -0.4	Connelly & Kimmel	2003
Unmarried mothers with children under 6 – Employment US	-0.6	Anderson & Levine	1999
Least skilled women’s labor force participation – US	-0.35	Anderson & Levine	1999
Most skilled women’s labor force participation - US	-0.05	Anderson & Levine	1999
Married women – LFP US	-0.92 to -0.0	Anderson & Levine	1999
Single women – LFP US	-0.5 to -0.0	Anderson & Levine	1999
Married women children under 15 wrt hours worked – Employment US	-0.74 or -0.64	Ribar	1992
Married women children under 13 – Employment/LFP US	-0.2	Connelly	1992
Low income single mothers – Employment US	-0.35	Kimmel	1995
Low income white single mothers – Employment US	-1.36	Kimmel	1995
Low income black single mothers – Employment US	-0.35	Kimmel	1995
Single mothers – Labor Force Participation US	-0.22	Kimmel	1998
Married mothers – Labor Force Participation US	-0.92, ‘true’ range -0.4 to -0.9	Kimmel	1998
Married mothers with preschool children – Employment US	-0.69	Ribar	1995
Married mothers – Employment/LFP US	-0.38	Blau & Robins	1988
Married mothers children under 14 – Choice of ‘purchased’ care US	-0.34	Blau & Robins	1988
Married women labor supply wrt cost of formal care – US	-0.78	Averett et al	1997

Description: Topic of Study/Location	Price Elasticity Estimates	Author(s)	Date
Married mothers cost wrt LFP - Canada	-0.38	Powell	1997
Married mothers children under 6 cost wrt hours worked - Canada	-0.32	Powell	1997
Choice of 'paying for care' wrt stricter staff/child ratio – US	-0.064	Blau	2003
Married mothers children under 7 cost wrt LFP – Canada	-0.16	Powell	2002
Married and single mothers children under 7 wrt hours worked – US	-0.2	Blau & Hagy	1998
Married women children under 15 wrt hours worked – US	-0.024 to -0.088	Ribar	1995
Married women – LFP Norway	-0.12	Kornstad & Thoresen	2002
Married women wrt hours worked – Norway	-0.14	Kornstad & Thoresen	2002
Married women children under 5 – US and Canada LFP	-0.156	Michalopoulos & Robins	2000
Married women children under 5 – US LFP	-0.142	Michalopoulos & Robins	2000
Married women children under 5 – Canada LFP	-0.203	Michalopoulos & Robins	2000
Single parents children under 5 – US and Canada	-0.26	Michalopoulos & Robins	2002
Married women children under 6 wrt LFP – Germany	-0.03 (east) and -0.07 (west)	Wrohlich	2004
Married women children under 6 wrt avg hours – Germany	-0.04 (east) and -0.09 (west)	Wrohlich	2004
Married women children under 3 wrt LFP – France	-0.01	Chone et al	2003
Married women children under 3 wrt avg hours – France	-0.02	Chone et al	2003
Married women children under 7 wrt LFP – France	-0.01	Chone et al	2003
Married women children under 7 wrt avg hours– France	-0.01	Chone et al	2003
Married women children under 7 wrt LFP – Japan	-0.60	Oishi	2002

Note: LFP = labour force participation

Australian Evidence

Australian studies on child care elasticities also focus on labour force participation, with recent studies illustrating the differences between income groups and household composition.

Table D2: Australian Child Care Price and Cost Elasticities

Description	Cost Elasticity Estimates	Price Elasticity Estimates	Author(s)	Date
Married women with children under 12 – Total LFP	-0.02	-0.02	Dorion & Kalb	2005 (1996/ 97 data)
Married women with children under 12 – Total AHW	-0.034	-0.021	Dorion & Kalb	2005 (1996/ 97 data)
Married women with children under 12 – Low Income LFP	-0.047	-0.023	Dorion & Kalb	2005 (1996/ 97 data)
Married women with children under 12 – Low Income AHW	-0.045	-0.027	Dorion & Kalb	2005 (1996/ 97 data)
Married women with children under 12 – Preschool child LFP	-0.050	-0.050	Dorion & Kalb	2005 (1996/ 97 data)
Married women with children under 12 – Preschool child AHW	-0.066	-0.048	Dorion & Kalb	2005 (1996/ 97 data)
Married women with children under 12 – Preschool child and low income LFP	-0.061	-0.031	Dorion & Kalb	2005 (1996/ 97 data)
Married women with children under 12 – Preschool child and low income AHW	-0.079	-0.053	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Total LFP	-0.1	-0.050	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Total AHW	-0.15	-0.053	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Low income LFP	-0.189	-0.038	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Low income AHW	-0.263	-0.062	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Preschool child LFP	-0.136	-0.136	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Preschool child AHW	-0.280	-0.175	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Preschool child and low income LFP	-0.00	-0.126	Dorion & Kalb	2005 (1996/ 97 data)
Lone parents with children under 12 – Preschool child and low	-0.054	-0.216	Dorion & Kalb	2005 (1996/ 97

Description	Cost Elasticity Estimates	Price Elasticity Estimates	Author(s)	Date
income AHW				data)
Married women with children under 12 – Total AHW	-0.028	-0.000	Kalb & Lee	2007 (2002 data)
Married women with children under 12 – (both) Low income AHW	-0.026	-0.013	Kalb & Lee	2007 (2002 data)
Married women with children under 12 – (partner high inc) Low income AHW	-0.036	-0.002	Kalb & Lee	2007 (2002 data)
Married women with children under 12 – Preschool child AHW	-0.078	-0.019	Kalb & Lee	2007 (2002 data)
Married women with children under 12 – Preschool child and low income AHW	-0.075	-0.030	Kalb & Lee	2007 (2002 data)
Lone parents with children under 12 – Total AHW	-0.137	-0.164	Kalb & Lee	2007 (2002 data)
Lone parents with children under 12 – Low income AHW	-0.286	-0.319	Kalb & Lee	2007 (2002 data)
Lone parents with children under 12 – Preschool child AHW	-0.510	-0.579	Kalb & Lee	2007 (2002 data)
Lone parents with children under 12 – Preschool child and low income AHW	-0.637	-0.931	Kalb & Lee	2007 (2002 data)

Note: LFP = labour force participation, AHW=average hours worked