Deloitte.

Final report – Temporary Transformation Payment Benchmarking Survey

National Disability Insurance Agency

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Deloitte Access Economics

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Glossary

Acronym	Full name
DSW	disability support worker
FLS	front-line supervisor
IQR	interquartile range
LHS	left hand side
NDIA	National Disability Insurance Agency
NDIS	National Disability Insurance Scheme
PDF	probability density function
RHS	right hand side
SCHADS	Social, Community, Home Care and Disability Services
TTP	Temporary Transformation Payment

1 Introduction

The National Disability Insurance Scheme (NDIS), as administered by the National Disability Insurance Agency (NDIA), provides disability support for over 300,000 people with disabilities, and is expected to increase to 500,000 by 2025.[1]

Designed to work as a deregulated market of service providers, the cost of services under the NDIS is one of the most important factors in ensuring value for participants, the correct provision of care, and the long-term viability of the Scheme in supporting Australians with a disability. The NDIA acts as a steward of the NDIS through imposing regulations and subsidies as the market continues to adapt, until efficient prices can be fully realised and the correct mix of disability services has been established.[2] These regulations include the imposition of price caps on different support types and use of quotable supports in which the NDIA verify the price of a service as appropriate before funding it. Collectively, the NDIA stewardship regarding pricing and regulation is set out in the NDIS Pricing Strategy.[3]

To underpin the price controls of services, the NDIA employs a Cost Model[4] which estimates the cost of service provision by Disability Support Workers (DSWs) who deliver NDIS services. The model considers multiple factors including wage awards, leave and non-billable time, supervision and corporate overheads. The output of this model is used to guide price controls for attendant care and community participation support provided by DSWs. As such, the Cost Model is a key component in monitoring and regulating the cost of services under the NDIS, with the aim to maintain and grow supply of services for projected future demand.

NDIS providers have access to a Temporary Transformation Payment (TTP) from July 2019, providing a 7.5% loading on top of the current price control limit. This payment is provided to assist providers as they transition to a competitive, market-based price for their services.

Provision of the TTP is contingent on service providers meeting three requirements:

- Publication of service prices, to reduce information asymmetries between providers, competitors, and clients
- List and keep up-to-date business contact details on the NDIS website, to encourage greater access for clients
- To participate in an annual Agency approved market Benchmarking, either through a benchmarking service provider (e.g. the Ability Roundtable[5]) or through participation in the TTP Benchmarking Survey.

The TTP Benchmarking survey is designed to collect information on staffing numbers, costs and profits of support providers in the NDIS. The NDIA uses the data collected to inform its Cost Model by gathering supply data from providers, and to monitor the broader market for possible market failures or opportunities for future deregulation.

The NDIA engaged Deloitte Access Economics to design and field the TTP Benchmarking Survey. This report provides detailed data, statistical and econometric analysis of the results from the survey and a review of the survey process against the project objectives.

The NDIA was provided with the de-identified data set (as a separate file), and a declaration of adherence to data security, storage and management requirements (see Appendix A).

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[1] NDIA (2020), *The NDIS Rollout*, retrieved from <https://www.ndis.gov.au/understanding/ndis-rollout>.
[2] Walsh, J., & Johnson, S. (2013). Development and Principles of the National Disability Insurance Scheme. *Australian Economic Review*, 46(3), 327-337.
[3] NDIA (2020), *Price guides and pricing*, retrieved from <https://www.ndis.gov.au/providers/price-guides-and-pricing>.
[4] NDIA (2019), *National Disability Insurance Scheme: Cost model for Disability Support Workers*, retrieved from <https://www.ndis.gov.au/media/1821/download>.

2 Methodology

The survey was developed by Deloitte Access Economics, in consultation with the NDIA and an expert reference group. The survey was developed in the Qualtrics survey platform and contained 30 questions which covered a range of financial and staffing data: staff numbers, base rates of pay, the number of hours worked, utilisation, revenue, and expenses. A copy of the survey is provided at Appendix B. The survey fielding period took place from 21 February 2020 to 15 March 2020, with Deloitte Access Economics providing an email and phone help desk service during this time to assist providers that had questions or difficulties.

The NDIA provided Deloitte Access Economics with a list of almost 3,000 providers, who were sent individual links to access the survey in an initial invitation email issued on Friday 21 February 2020. The invitation email provided a short description as to the purpose and timeline of the survey, as well as a unique link for each provider and help desk contact details. The initial timeline indicated the survey would be open until 8 March 2020.

A reminder email was also issued to all providers on Friday 6 March. As well as providing the same details as the initial invitation, the reminder email contained a link to the survey notice on the NDIA website, additional information on saving the survey in Qualtrics and a notice that the survey would be extended to Sunday 15 March 2020 to facilitate additional responses.

From these providers, 590 responses were received in Qualtrics. In addition to this, there were also 25 respondents who participated in the Ability Roundtable. This yielded a total count of 615 complete responses. All survey questions were compulsory, and so all responses that were received were complete responses.

Once the survey had closed, the data was downloaded and cleaned, prior to data analysis commencing. There were two primary methods of data cleaning that were employed:

- Removing inappropriate 'zero' responses
- Removing responses which were considered implausible, with further detail below.

Data cleaning was conducted to remove responses where respondents had entered a response of 'zero' where this was considered unreasonable (for example, for questions which asked about total hours worked). As all questions were compulsory, a response of 'zero' for these questions was interpreted to indicate that respondents did not have the information readily available, and/or did not understand the question.

This impacted 11 questions, which are set out in Table 2.1. For questions 28 and 29, the response was removed from analysis if the sum across all question components equalled zero (for example, if the sum of all reported direct costs was reported by the respondent to equal zero). The two questions with the highest rate of 'zero' responses related to the number of hours worked by front-line staff and supervisors (Q11, 42.8% of respondents) and the breakdown of overheads (Q29, 21.6%).

Table 2.1 Questions where 'zero' responses were removed

Question number	Question	Rate of 'zero' responses (%)
9	What are the standard working hours per day for full time staff?	3.7%
11	For your organisation's financial year which ended in 2019, what were the total hours worked across the following roles?	42.8%
12	Please describe your organisation's ratio of casual work to permanent work on weekdays and weekends on average over financial year which ended in 2019 (headcount).	17.2%
22	What is the average dollar amount per worker (direct support and frontline supervisor) per year, for travel allowances?	1.3%
23	What is the average dollar amount per worker (direct support and frontline supervisor) per year, for other allowances?	1.8%
25	On average over the financial year which ended in 2019, what proportion of time did an average disability support worker spend on the following activities?	18.2%
26	For your organisation's financial year which ended in 2019, what was your organisation's total ongoing revenue?	5.5%
27	For your organisation's financial year which ended in 2019, what was your organisation's total current assets and total current liabilities as at the beginning of period and end of period?	12.3%
28	For your organisation's financial year which ended in 2019, what were the total direct costs incurred by your organisation?	11.1%
29	For your organisation's financial year which ended in 2019, what were the total overhead or indirect costs incurred by your organisation for each of the following categories?	21.6%
30	How long did this survey take you to complete?	3.3%

For some questions, thresholds were applied as to what constituted a plausible response. These thresholds were developed based on current industry practices and standards. The questions where cleaning was applied, alongside a description of the adjustment applied and the proportion of responses impacted, are outlined in Table 2.2.

Table 2.2 Questions where implausible responses were removed

Question number	Question	Description of cleaning	Rate of responses (%)
12	Please describe your organisation's ratio of casual work to permanent work on weekdays and weekends on average over financial year which ended in 2019 (headcount)	Upper and lower bounds were set for validating the Q12 responses. The bounds were established by using Q8's data on permanent and casual staff by headcount.	14.6%
15	For permanent staff, how many hours of annual leave are entitled per year?	Responses were excluded if they exceeded 300 hours, as this would be approximately double the hours provided by SCHADS[5].	1.4%
16	For permanent staff, how many hours of long service leave are entitled per year?	Responses were excluded if they exceeded 100 hours, as this would be approximately triple the hours provided by SCHADS.	5.8%
19	What percentage of superannuation does your organisation pay?	Responses above 20% were removed as this is more than double the standard rate of 9.5%.	0.8%
20	Does your organisation pay its workers an allowance? Yes – the proportion of workers in our organisation who are paid an allowance is:	Some responses were decimal points rather than whole percentages. As such, any values between 0 and 1 were multiplied by 100 to represent a percentage point.	0.2%
24	For the jurisdiction where your organisation generates the largest source of its NDIS revenue, what was the workers compensation premium that your organisation paid, as a proportion of wages and salaries?	Desktop research suggested that values exceeding 7% are implausible. A lower threshold than 7% would have resulted in a much higher proportion of responses being excluded.	28.8%
25	On average over the financial year which ended in 2019, what proportion of time did an average disability support worker spend on the following activities?	Responses below 50% were excluded, since below this level direct support work would not be the primary activity.	15.9%

In some cases, multiple survey questions were used to calculate results and were subject to additional cleaning. This included questions 26 and 27 to calculate implied margins, and 28 and 29 to calculate overheads as a share of direct costs[6].

In the case of implied margins, values considered sub-economic were filtered out, including revenue entries of less than $10 and balance sheet entries of less than $100. Any results that led to working capital days in excess of 365 were also removed.

In the case of overheads as a share of direct costs, any direct cost values of less than $100 were filtered out. Additionally, final results which indicated that overheads as a share of direct costs were above 50% were also removed.

[5] Social, Community, Home Care and Disability Services (SCHADS).
[6] Questions shown in Appendix B.

3 Results

This chapter and Appendix C present the results of the survey analysis that was described in Section 2. This includes:

- The mean, Weighted Mean (WM)[7] and median results for each response.
- The minimum and maximum values, as well as the 5th, 10th, 25th, 50th (median), 75th, 90th and 95th percentiles.
- Box plots, Probability Density Functions (PDFs) [8], pie charts and frequency histogram distributions of survey results where applicable, with commentary describing key considerations of the results. For visual clarity, the box plots exclude responses which were considered to be outliers (defined as 1.5 times outside the upper and lower quartiles. As such, the charts in the box plots may not match exactly with the results in the corresponding tables.
- The standard deviation, skew and kurtosis.

3.1 Base pay

The Deloitte survey sought information from each organisation on the distribution of the pay rates for its DSWs and supervisors across ten categories. From the responses, an average salary was calculated for each response. The relevant tables (Table 3.1 and Table 3.2) provide results at the 25th, 50th and 75th percentiles.[9,10]

Table 3.1 Base pay

	Mean	Med	25th PC	50th PC	75th PC
Base salary	$30.47	$28.75	$27.55	$28.17	$32.66

As per the box plot[11] in Chart 3.1, wage rates were predominantly observed within a narrow band of $27.55 to $32.66; a range of $5.11 per hour. Net of outliers, the box plot indicates a full range of between $26.25 and $38.75.

The PDF indicates a positive skew, with observations above $45 per hour. The positive tail's departure from a normal distribution above $50 per hour could be indicative of inconsistent or incorrect responses by survey respondents.

[7] Provider headcount is used as the weight for Weighted Means, where providers with greater staff have a proportionally higher weight.
[8] PDFs indicate the relative likelihood that the value of a continuous random variable equals any given point in the sample space. PDFs are provided in the report for survey responses that approximate a normal distribution.
[9] Due to salaries being captured as a proportion of pay bands, with the highest band being open ended, Weighted Means are not accurately calculatable for base salaries and are excluded.
[10] Given the pay data inputs were categorised into ranges, there is a small difference between the median price and the 50th percentile price, since a range midpoint calculation was required to arrive at a discrete 50th percentile value.
[11] In each of the box plots, the "x" denotes the mean score, while the horizontal line in the box denotes the median score.

Chart 3.1 Box plot[12] (LHS[13]) and PDF (RHS) of DSW base pay responses

3.2 Supervision costs

As shown in Table 3.2, the mean span of control (ratio of workers per supervisor) was estimated to be 11.84 to 1, with the mean base salary estimated to be $40.40.

Table 3.2 Supervision costs and span of control[14]

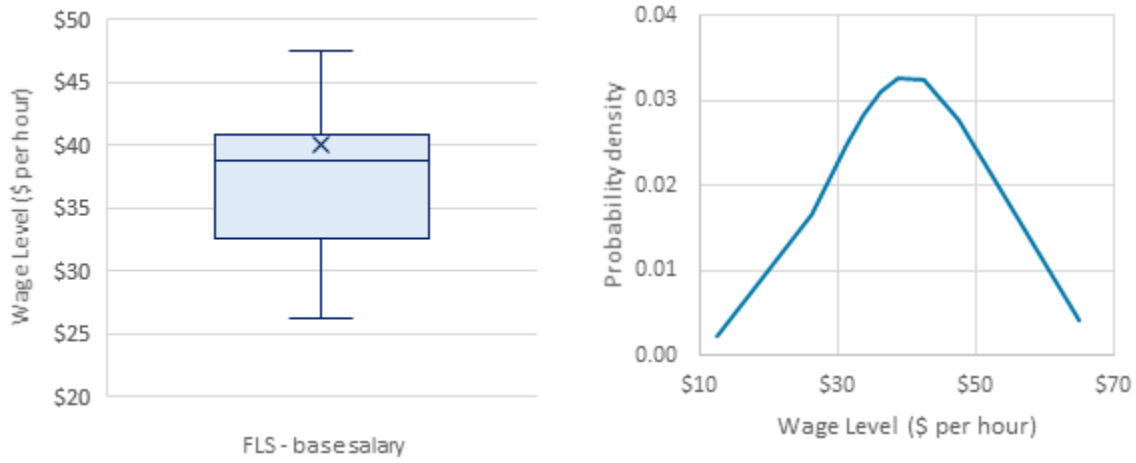
	Mean	Med.	25th PC	50th PC	75th PC
Base salary	$40.40	$38.75	$32.52	$37.55	$40.81
Span of control	11.8x	9.0x	5.0x	9.0x	15.0x

The wage distributions for front-line supervisors (FLS) exhibit a wider range of values when compared with DSW wages. As per the box plot in Chart 3.2, responses net of outliers were observed between $26.25 per hour and $47.50; a range of $21.25 per hour or almost double the DSW range of $12.5 per hour. Similarly, the interquartile range (IQR) was broader at $8.29 per hour, indicating a wider response spread around the mode[15]. Consistent with this, the FLS PDF exhibits lower kurtosis than the DSW PDF indicating wider dispersion.

The greater dispersion of FLS salaries may be due to higher levels of bargaining power of supervisors, as well as a wider range of skill levels and responsibilities at this level.

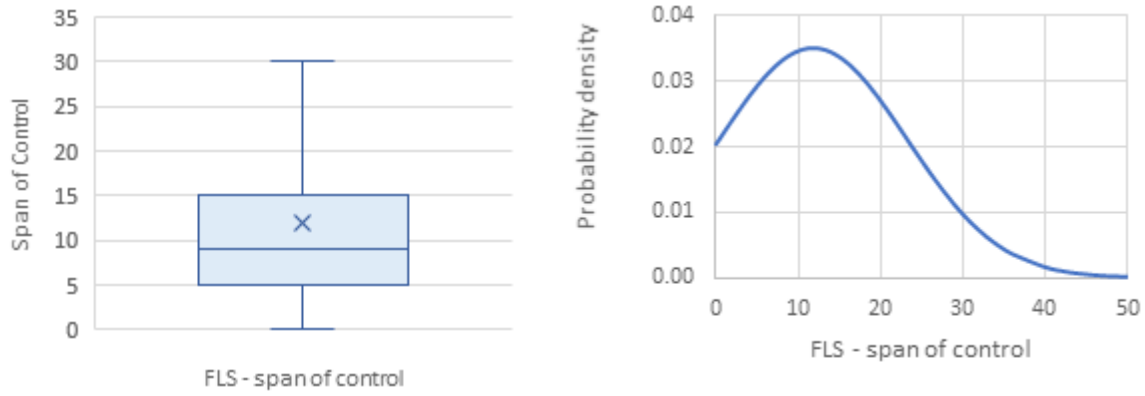
[12] The boxplot shows the unadjusted distribution of DSW salaries. Using this distribution, the 25th and 50th percentile scores both fell in the same pay bracket. As such, on the chart there is a single line for the 25th and 50th percentiles.
[13] LHS = left hand side; RHS = right hand side.
[14] As with base pay, given the pay data were categorised into ranges, there is a small difference between the median price and the 50th percentile supervisor price, since a range midpoint calculation was required to arrive at a discrete 50th percentile value.
[15] The mode is represented by the top of the peak of a normal distribution. In the case of a standard normal distribution the mode also equals the mean and the median. When skew is introduced the mean and median will move in the direction of skew such that mode<median<mean when skew is positive, and vice versa.

Chart 3.2 Box plot (LHS) and PDF (RHS) of FLS base pay responses



As per the span of control distribution (see Chart 3.3), the majority of responses fall within the range of 5x to 15x, however there were a number of observations well above the median of 11.84x as exhibited by the tall whisker in the box plot and long tail of the PDF. These responses may be indicative of providers with a smaller supervisor workforce, greater casualisation and financially leaner business models, or all three. Furthermore, several responses indicated a 0x span of control, which, may be indicative of smaller providers with no formal FLS staff as DSWs may be self-managing in some environments[16].

Chart 3.3 Box plot (LHS) and PDF (RHS) of span of control responses



As shown in Table 3.3, span of control increases significantly with headcount - from a mean of 5.6x for small organisations to a mean of 17.7x for large organisations. This may be indicative of greater workforce cost efficiencies and operational management practices in larger firms.[17]

Table 3.3 Span of control by size of organisation

	Mean	WM	Median	25th PC	75th PC
Small	5.6x	6.6x	4.5x	2.2x	7.3x
Medium	11.4x	12.3x	9.4x	6.0x	13.6x
Large	17.7x	19.9x	14.4x	9.6x	21.0x

[16] Net of incorrect responses.
[17] Organisation headcounts were divided into three categories, with small having 21 or less staff, medium having between 22 and 89 staff and large having 91 or more staff. The categorisations were informed by the survey data sample set.

3.3 Shift loadings

The survey asked providers to nominate whether the majority of their front-line staff and supervisors were paid according to the Social, Community, Home Care and Disability Services (SCHADS) Award. Providers who paid the majority of their staff in line with the SCHADS Award were not required to provide information on leave provisions, and weekend loading rates, as these aspects are specified in the Award, and it was assumed they comply with Award conditions. The tables relating to these aspects provide results across all respondents, which has incorporated the Award specifications into the calculation.

The following tables set out the survey results with respect to shift loadings. For organisations operating under the SCHADS Award, the loadings were assumed to be in line with the Award and applied to all DSWs and supervisors operating for such organisations.

The SCHADS responses accounted for 77.6% of those measured. As such, the non-SCHADS values above are weighted by a factor of 22.4%, with the balance (77.6%) being the SCHADS Award parameters. Table 3.4 illustrates the results for SCHADS and non-SCHADS respondents, and Table 3.5 provides the results at the 25th and 75th percentiles.

Table 3.4 Shift loadings – SCHADS and non-SCHADS

	Permanent			Casual			Difference		
	Mean	*WM*	*Med*	*Mean*	*WM*	*Med*	*Mean*	*WM*	*Med*
Weekday	0%	0%	0%	24%	26%	25%	24%	26%	25%
Saturday	48%	50%	50%	50%	51%	50%	2%	1%	0%
Sunday	92%	95%	91%	93%	95%	94%	1%	0%	3%

Table 3.5 Shift loadings, percentiles – SCHADS and non-SCHADS

	Permanent		Casual		Difference	
	25th PC	*75th PC*	*25th PC*	*75th PC*	*25th PC*	*75th PC*
Weekday	0%	0%	23%	25%	23%	25%
Saturday	39%	50%	40%	56%	1%	6%
Sunday	78%	100%	78%	100%	0%	0%

The results in Table 3.6 illustrate non-SCHADS responses only. As shown, inclusion of the non SCHADS results lowers the mean loadings for both permanent and casual staff on Saturdays and Sundays.

Table 3.6 Shift loadings – non-SCHADS only

	Permanent			Casual			Difference		
	Mean	*WM*	*Med*	*Mean*	*WM*	*Med.*	*Mean*	*WM*	*Med.*
Weekday	0%	0%	0%	22%	28%	25%	22%	28%	25%
Saturday	42%	51%	50%	48%	53%	50%	6%	2%	0%
Sunday	63%	76%	60%	69%	78%	75%	6%	2%	15%

Table 3.7 illustrates the non-SCHADS survey results at the 25th and 75th percentiles. Two key themes emerge from these results – first, differences between permanent and casual rates are most pronounced during weekdays, and second, the range of results increases when moving from weekdays to weekends.

Table 3.7 Shift loadings, percentiles - non-SCHADS only

	Permanent		Casual		Difference	
	25th PC	*75th PC*	*25th PC*	*75th PC*	*25th PC*	*75th PC*
Weekday	0%	0%	16%	25%	16%	25%
Saturday	0%	50%	6%	75%	6%	25%
Sunday	0%	100%	2%	100%	2%	0%

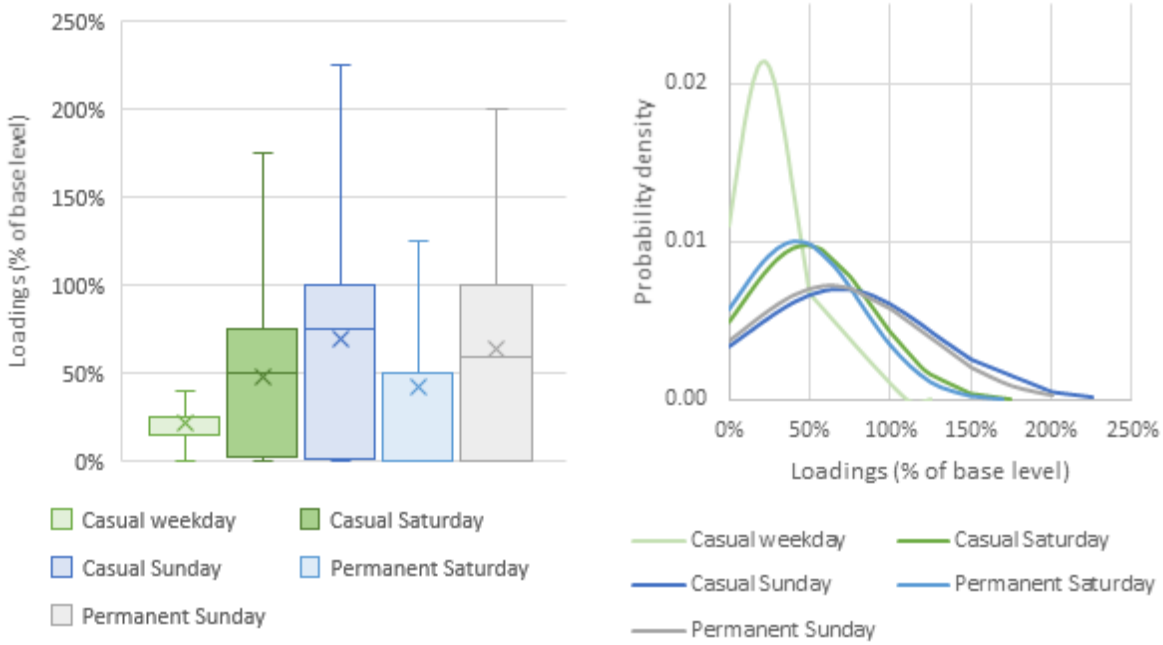
The variations in rates between weekdays and weekends are further illustrated in the box plots and PDFs in Chart 3.4.

As shown, the casual weekday loadings are leptokurtic, indicating a low standard deviation and close dispersion around the mean of 22%. This is consistent with a strong standardisation of casual loading weekday penalty rates among providers. A small number of samples at over 100% loading were observed (n=3) resulting in a disjointed long tail in the PDF beyond 50% loading, however these observations were outliers with a low probability of occurrence in the wider provider population.

Permanent and casual Saturday loadings exhibited similar distribution qualities including points of centrality (~45% loading) and levels of dispersion around their respective modes. This indicates that Saturday loadings are likely to be similar rates for permanent and casual staff alike.

As with the Saturday loadings, permanent and casual Sunday loadings follow similar distributions and points of centrality, however with a higher level of dispersion and corresponding lower kurtosis. This indicates that while both permanent and casual Sunday rates may be on average similar at ~65%, there is a lower probability that providers pay a standardised Sunday loading. This may be due to greater variance in workforce and operational models utilised by providers in order to financially manage the highest per hour wage cost day of the week.

Chart 3.4 Box plot (LHS) and PDFs (RHS) of shift loadings responses



3.4 Days worked versus days paid

Across SCHADS and non-SCHADS employees, the survey results indicated the following average allowances:

- 149.8 hours of annual leave
- Up to 75.8 hours of personal leave
- 33.4 hours of long service leave.

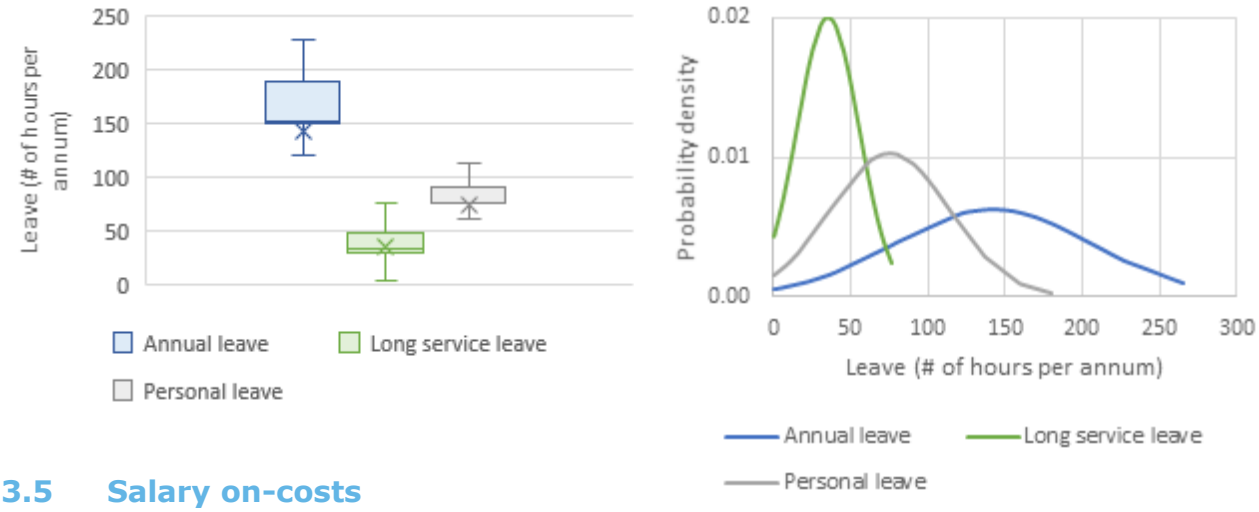
The results in Table 3.8 incorporate both SCHADS and non-SCHADS responses.

Table 3.8 Leave allowances

	Mean	WM	Med.	25th PC	75th PC
Allowance for annual leave (hours per year)	149.8	154.1	152.0	151.9	159.7
Allowance for personal leave (hours per year)	75.8	78.3	76.0	76.0	79.4
Allowance for long service leave (hours per year)	33.4	34.9	32.9	32.3	36.6

As shown in the PDF of Chart 3.5, annual leave exhibited the greatest average number of hours. The distribution has a negative skew, which may be consistent with casualisation of the workforce and payment rates in which annual leave is a priced-in component of the hourly wage. Both personal leave and long service leave exhibit similar properties, albeit at lower average annual entitlement values for each (75.8 for personal leave and 33.4 for long service leave).

Chart 3.5 Box plot (LHS) and PDFs (RHS) of annual leave entitlements (hours per year) responses[18]



3.5 Salary on-costs

The survey results estimated salary on-costs to be:

- Superannuation at 9.4% of base salary, including leave
- Workers compensation insurance at 2.6% of base salary, including leave.

The estimated superannuation (9.4%) is lower than the mandated minimum rate of 9.5%. One potential reason for this difference is that some casual employees or those earning less than $450 per calendar month are not entitled to superannuation.

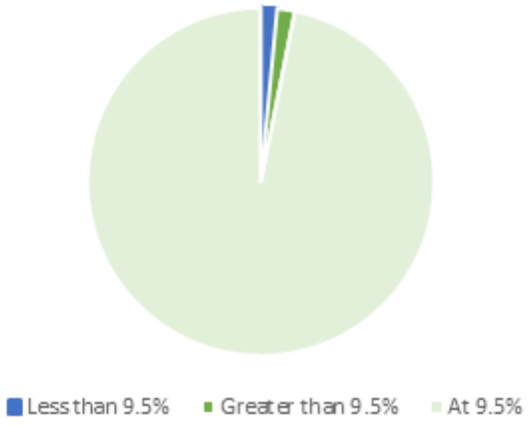
[18] No observations of long service leave were found to be above 76 hours per year thus ending the distribution tail beyond this sample point.

Table 3.9 Salary on-costs

	Mean	WM	Median	25th PC	75th PC
Superannuation rate	9.4%	9.5%	9.5%	9.5%	9.5%
Workers compensation premium	2.6%	2.8%	2.3%	1.7%	3.5%

The data indicates that with few exceptions, the superannuation rate paid by providers will equal 9.5%. Chart 3.6 provides a graphical representation of the observed provider responses with 96.9% of responses at 9.5%. Nine outliers were below this (mean = 8.64%) and ten were above (mean = 10.49%). The responses indicate most providers pay as per standard Superannuation Guarantee rates. Values below 9.5% potentially indicate either erroneous entry or examples of a weighted response from some staff members working less than the legal minimum monthly superannuation earnings threshold of $450. The observations above 9.5% indicate that a small proportion of providers (1.7%) offer increased superannuation allowances as part of staff Total Remuneration Packages.

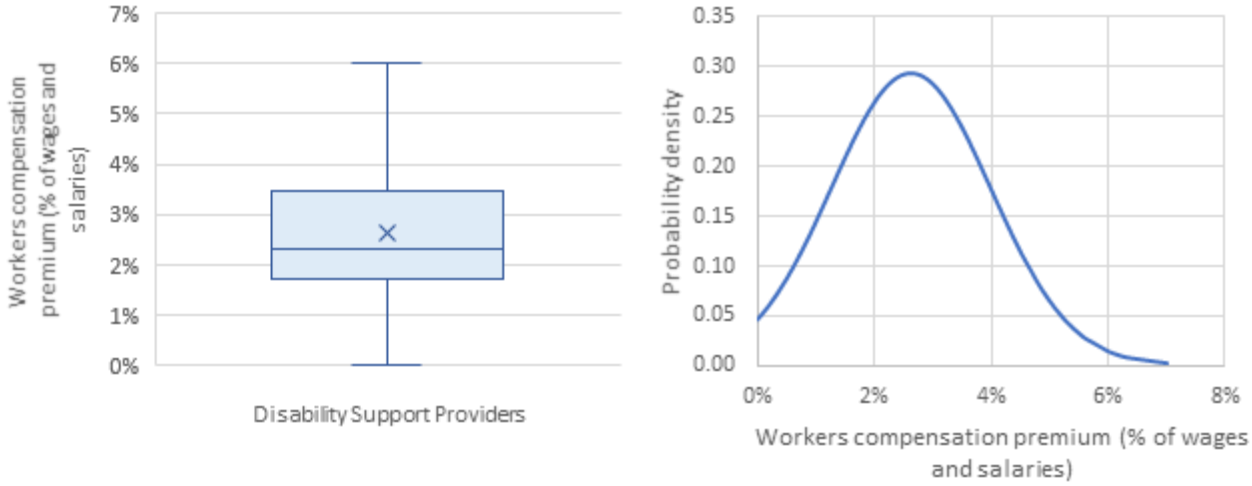
Chart 3.6 Pie chart of superannuation rate responses



As shown in the box plot in Chart 3.7, the IQR of workers' compensation premium observations were within the range 1.7% to 3.5%. It was clear by the quantum and nature of questions received by the survey help desk during the fielding period that many participants found this question difficult to answer, and as such a number of results may be considered errors. These included responses of 0% that indicate no workers premiums are paid and responses above 7%, which are above industry standards[19].

[19] Based on iCare NSW and WorkCover Victoria pooled rates.

Chart 3.7 Box plot (LHS) and PDF (RHS) of workers compensation premium (%) responses



3.6 Permanent and casual workers

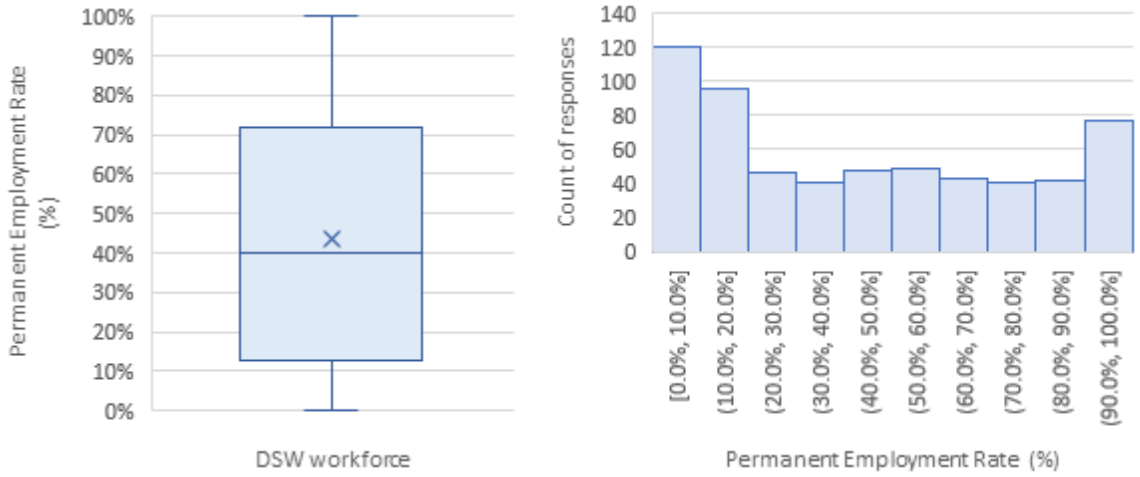
The survey results found that 43.8% of the DSW workforce is permanently employed. There was a high standard deviation in responses for this question in the survey (32.9%) and the proportion of permanent staff increased to 52.5% when calculating across the sector as a whole, rather than the average of each provider. As Table 3.10 illustrates, casual employees receive a casual loading of 4.5% above a permanent DSW base salary.

Table 3.10 Permanent employment rate and casual loading

	Mean	WM	Median	25th PC	75th PC
Permanent employment rate	43.8%	52.6%	40.0%	12.5%	71.7%
Casual loading	4.5%	3.8%	4.8%	7.0%	2.2%

Chart 3.8 shows that the permanent employment rate is consistent with a uniform distribution net of the tails, which exhibited significantly higher counts than average. All possible response values were observed from 0 to 100%, with no clear indication of a bell curve centrality. Furthermore, the higher frequencies of responses at the maxima and minima of possible values (0% and 100%) suggests there may be a higher proportion of incorrect responses to this question.

Chart 3.8 Box plot (LHS) and frequency histogram of permanent employment rate (%) responses (RHS)



As per Table 3.11, the permanent employment rate is lowest among medium size organisations and highest in large organisations, with means of 36% and 48% respectively.

Table 3.11 Permanent employment rate by size of organisation

	Mean	WM	Median	25th PC	75th PC
Small headcount	47%	45%	38%	13%	87%
Medium headcount	36%	37%	23%	12%	59%
Large headcount	48%	55%	53%	19%	71%

3.7 Utilisation

Not all working hours are billable. For example, the SCHADS Award provides that a DSW should have a ten-minute paid break from work every four hours. DSWs also need to undertake training and attend to other issues.

As Table 3.12[20] illustrates, the mean and median utilisation estimated based on survey responses was 79.8% and 87.0%, respectively. The WM shows higher than average utilisation rates at 83.2%, indicating that larger providers are more efficient in their utilisation, resulting in higher utilisation rates and corresponding billable time.

[20] The results in Table 3.12 to Table 3.15 should be interpreted carefully. For the non-billable components, the 75th percentile reflects the "better" results, while for total utilisation the 75th percentile reflects the "worse" results. The opposite case applies for the 25th percentile.

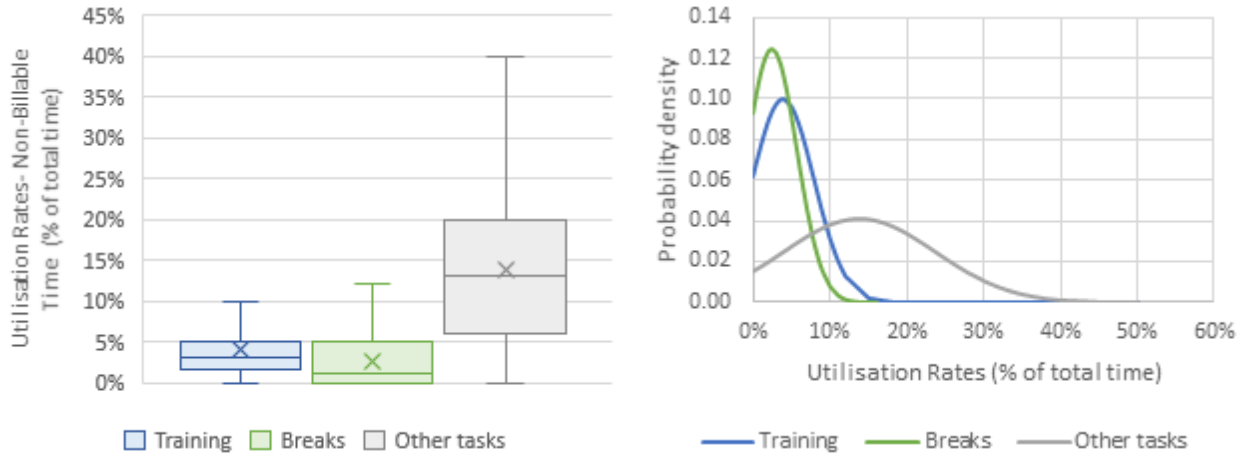
Table 3.12 Utilisation

	Mean	WM	Med.	25th PC	75th PC
Non-billable travel time	4.2%	3.0%	2.0%	0.0%	6.0%
Breaks	2.5%	2.6%	1.0%	0.0%	5.0%
Training	3.9%	3.1%	3.0%	1.5%	5.0%
Client related admin	6.0%	5.0%	5.0%	2.0%	10.0%
General admin and other tasks	3.6%	3.1%	2.0%	0.0%	5.0%
Total utilisation	79.8%	83.2%	80.0%	90.0%	71.0%

As shown in the box plot of Chart 3.9, the training and break utilisation rates observed were tightly concentrated with IQRs of 3.5% and 5% respectively.

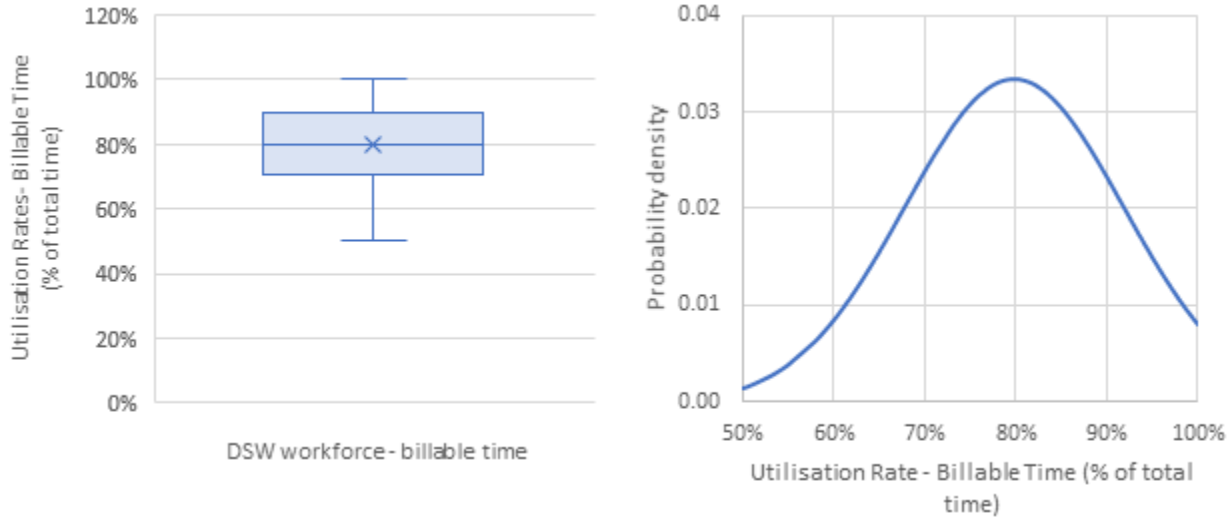
The range of non-billable 'other task' observations was far greater (with an IQR of 14%) and a lower level of kurtosis indicating that in some instances, significant time was undertaken by DSWs which did not relate to direct, billable support provision.

Chart 3.9 Box plot (LHS) and PDFs (RHS) of non-billable time (%) responses



Consistent with the levels of non-billable time shown above, the box plot in Chart 3.10 illustrates the IQR of billable time, being time spent delivering direct and chargeable disability support services, to occur between 70.6% to 90.0% of working time.[21]

Chart 3.10 Box plot (LHS) and PDF (RHS) of billable time (%) responses



Per Table 3.13, mean utilisation increases in line with organisation size, from 72.6% to 80.7% for small to large organisations respectively. This may be due to staff in smaller organisations being required to undertake a number of additional responsibilities outside of their core roles in the absense of other staff members in the firms. With their bigger size, large organisations are more able to hire staff with specifc responsibilities and have greater efficiency for allocating staff time.

Table 3.13 Utilisation in small organisations

	Mean	WM	Median	25th PC	75th PC
Non-billable travel time	4.4%	4.1%	2.0%	0.0%	7.8%
Breaks	2.8%	3.0%	1.2%	0.0%	5.0%
Training	5.1%	5.2%	5.0%	2.0%	5.4%
Client related admin	7.5%	7.0%	5.0%	3.0%	10.0%
General admin and other tasks	4.8%	4.7%	5.0%	1.0%	5.8%
Total utilisation	75.3%	76.0%	75.0%	85.0%	67.3%

[21] Observations that resulted in billable time of less than 50% were filtered as they were indicative of staff not spending the majority of their work time on direct disability support responsibilities.

Table 3.14 Utilisation in medium organisations

	Mean	WM	Median	25th PC	75th PC
Non-billable travel time	4.7%	4.5%	2.0%	0.0%	8.5%
Breaks	2.4%	2.2%	0.5%	0.0%	4.6%
Training	3.8%	3.5%	3.0%	2.0%	5.0%
Client related admin	5.7%	5.5%	5.0%	2.0%	8.0%
General admin and other tasks	3.5%	3.2%	2.0%	0.0%	5.0%
Total utilisation	79.9%	81.1%	80.0%	88.5%	70.8%

Table 3.15 Utilisation in large organisations

	Mean	WM	Median	25th PC	75th PC
Non-billable travel time	3.4%	2.8%	1.5%	0.0%	5.0%
Breaks	2.3%	2.6%	1.0%	0.0%	4.4%
Training	3.1%	2.9%	2.4%	1.0%	5.0%
Client related admin	5.3%	4.9%	4.9%	1.0%	7.8%
General admin and other tasks	2.9%	3.0%	2.0%	0.0%	5.0%
Total utilisation	83.0%	83.7%	84.0%	91.0%	76.0%

3.8 Overheads and implied margins

The survey captured several overhead categories, listed in Table 3.16. The survey responses indicated that overheads represented 28.5% of direct costs when including all overhead categories. However, when excluding depreciation and interest, which are typically considered capitalisation and finance expenses, the ratio lowered to 27.7%. Implied margin as a share of other costs was on average 1.7%, when assuming an 8% per annum required rate of return against working capital.[22]

Table 3.16 Overheads and implied margins

	Mean	WM	Med.	25th PC	75th PC
Overheads (excluding interest and depreciation) as a share of direct costs	27.7%	28.7%	28.1%	19.8%	36.4%
Implied margin as a share of other costs	1.7%	1.6%	1.2%	0.5%	2.3%

[22] The margin was implied and calculated in three steps. First working capital days were calculated, being net current assets divided by revenue, next this was divided by 365 to determine the working capital days proportion of a year, finally this was multiplied by the assumed required rate of return of capital being 8% (as per the NDIA Cost Model). Given the probability of incorrect survey responses, working capital days that resulted in less than zero or greater than a year were filtered.

Per Chart 3.11, survey responses of direct costs and overheads items resulted in a wide range of results. It is likely that some organisations were not isolating financial responses related to TTP eligible disability service provision. As such in some cases direct costs (the denominator in the ratio) may not have correctly related to the corresponding overheads items (the numerator), thus increasing the variance of results. Outliers notwithstanding, the IQR indicates likely observations between 20% to 36%, a range of 16%.

Chart 3.11 Box plot (LHS) and frequency histogram of overheads (%) responses (RHS)

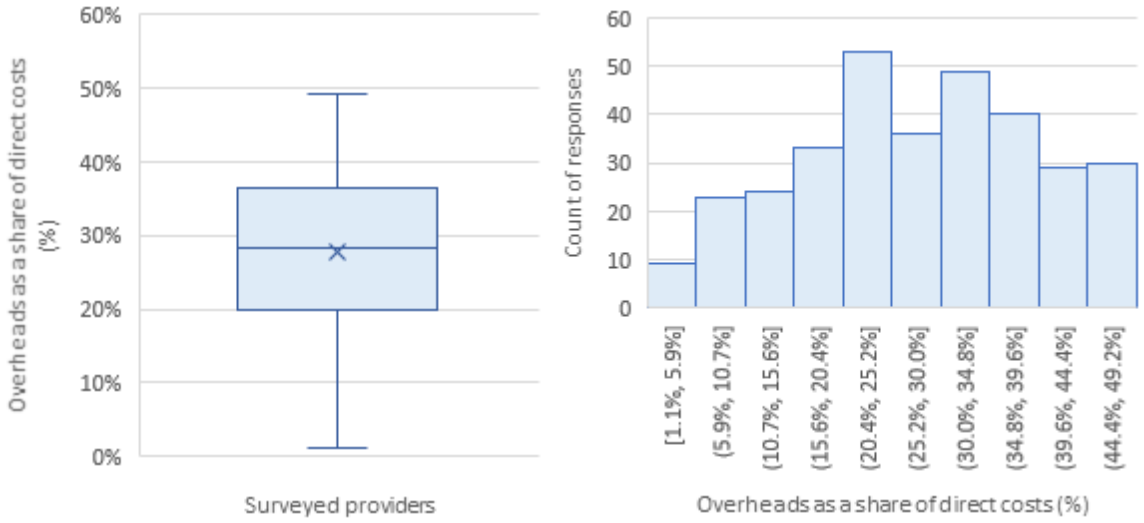


Chart 3.12 shows that while the distribution of implied margins exhibited a long tail, the majority of observations were between 0.5% and 2.3%. Beyond this, observations rapidly reduce with results above 5% being unlikely.

Chart 3.12 Box plot (LHS) and frequency histogram of implied margins (%) responses (RHS)

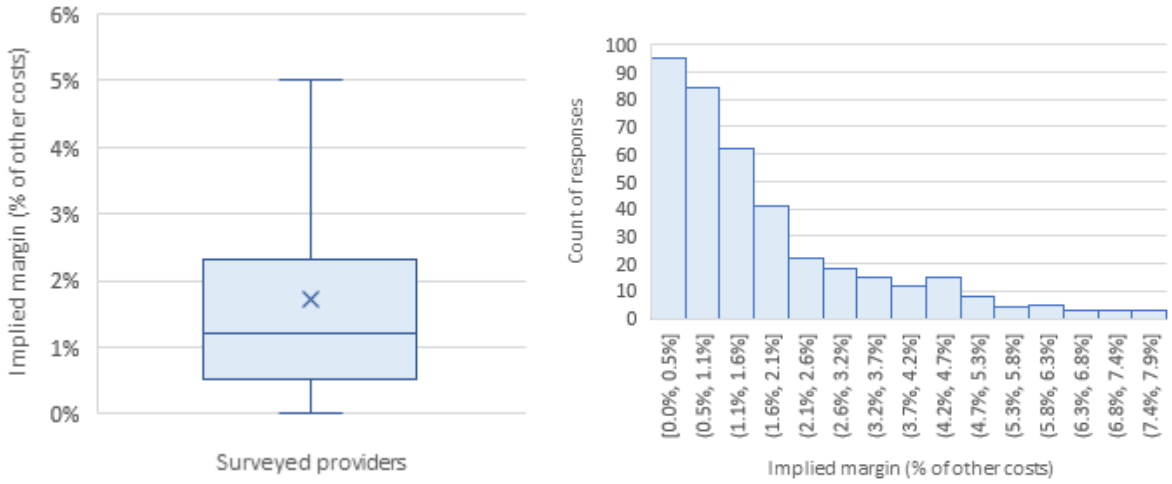


Table 3.17 provides a breakdown of overheads as captured by the survey. Non-service level staff salaries formed the majority of overhead costs at 46.9%. The 'Other' category formed the second highest at 24.5%. This could be indicative of insufficient overheads categories being presented in the survey, or limited understanding by participants as to costs that may have been appropriately placed in a specific category. Other significant categories that captured over 5% of costs were IT costs (5.1%), rent and fittings (7.4%) and depreciation (7.4%).

Table 3.17 Share of overheads categories

Category	Share of total
Non-service level staff	46.9%
Insurance premiums	1.7%
Rent and fittings	7.4%
Fleet	4.2%
Marketing	1.9%
Accounting and audit	0.7%
IT and other costs	5.1%
Depreciation	7.3%
Interest	0.3%
Other (excludes cost of goods sold)	24.5%
Total	**100.0%**

Table 3.18, Table 3.19 and Table 3.20 illustrate the impacts of overheads and implied margins by size of organisation. Large organisations had overhead shares which were on average greater than small organisations (29.1% versus 26.5% respectively). This is potentially due to a greater number of non-core or administrative staff being employed by larger firms for their finance, legal and human resource departments.

By contrast, implied margin results are smaller for large organisations than small, at an average of 1.6% and 2.1% respectively. This may be due to large organisations have lower working capital days in an effort to ensure capital is being more efficiently employed and invested. Smaller firms have higher working capital days, which may be due to being more restricted in their ability to manage capital structures and revenue streams.

Table 3.18 Overheads and implied margins in small organisations

	Mean	WM	Median	25th PC	75th PC
Overheads (excluding interest and depreciation) as a share of direct costs	26.5%	26.9%	23.3%	19.0%	36.5%
Implied margin as a share of other costs	2.1%	2.2%	1.5%	0.7%	3.1%

Table 3.19 Overheads and implied margins in medium organisations

	Mean	WM	Median	25th PC	75th PC
Overheads (excluding interest and depreciation) as a share of direct costs	26.9%	27.9%	28.1%	17.4%	35.9%
Implied margin as a share of other costs	1.7%	1.7%	1.2%	0.4%	2.4%

Table 3.20 Overheads and implied margins in large organisations

	Mean	WM	Median	25th PC	75th PC
Overheads (excluding interest and depreciation) as a share of direct costs	29.1%	28.9%	30.2%	21.8%	36.5%
Implied margin as a share of other costs	1.6%	1.5%	1.1%	0.5%	2.0%

4 Further analysis

Further analysis of the survey results was conducted to establish whether there were statistically significant relationships between key variables, that were consistent across providers. The analysis tested whether providers who perform "well" in one area (for example, high utilisation) also perform "well" in other areas (for example, low spending on overheads), or whether performance in one area was unrelated to performance in other areas.

The analysis was conducted on the following key variables: implied margins, overheads, utilisation, permanent employment rate, staff remuneration, and span of control. The analysis included:

- Correlation analysis of variable pairs, to identify whether any variables were linearly related.
- Cross-tabulation and chi-squared analysis. The survey responses for each provider were ranked and assigned to a quartile, and then analysis was conducted on whether there were any relationships based on quartiles.
- Regression analysis using the quartile rankings, which identified whether any variable had a statistically significant impact on any other variable, and the direction of the impact.

This chapter sets out the approach taken to conduct this analysis, and summarises the key findings. Appendix D provides the detailed output that underpins the results in this chapter.

4.1 Correlation analysis

Correlation analysis was conducted to establish the strength of the linear association between each of the variables. A correlation coefficient was calculated for each of the pairs of variables, which are a standardised measure of the correlation between variables ranging from -1 (perfect negative correlation) to 1 (perfect positive correlation).

A threshold of +/- 0.3 is typically used to assess whether there is a positive/negative relationship between two variables. Using this threshold, the analysis showed that no two variables demonstrated a relationship. The correlation coefficients are provided in Table 4.1, and the corresponding scatter plots are provided in Appendix D.1.

Table 4.1 Correlation coefficient results

X variable	Y variable	Correlation coefficient
Utilisation	Permanent employment rate	-0.039
Utilisation	Span of control	0.189
Utilisation	Implied margin as a share of other costs	-0.030
Utilisation	Overheads as a share of direct costs exc. interest and depreciation	0.089
Overheads as a share of direct costs exc. interest depreciation	Implied margin as a share of other costs	-0.001
Overheads as a share of direct costs exc. interest & depreciation	Span of control	0.078
Overheads as a share of direct costs exc. interest & depreciation	Permanent employment rate	0.080
Permanent employment rate	Span of control	-0.093
Permanent employment rate	Implied margin as a share of other costs	0.225
Implied margins as a share of other costs	Span of control	-0.150
Staff remuneration	Overheads as a share of direct costs exc. interest and depreciation	-0.222
Staff remuneration	Utilisation	-0.042
Staff remuneration	Span of control	-0.249
Staff remuneration	Implied margin as a share of other costs	0.075
Staff remuneration	Permanent employment rate	-0.021

Source: Deloitte Access Economics analysis.

While no pairs satisfied the threshold for demonstrating a relationship, the largest coefficients were observed for:

- *Permanent employment rate* with *implied margin* (0.225).
- *Utilisation* with *span of control* (0.189).
- *Staff remuneration* with *overheads* (-0.222).
- *Staff remuneration* with *span of control* (-0.249).

4.2 Cross-tabulation and chi squared analysis

To further investigate relationships between the variables, the data for the key variables was transformed to categorical values ranging from 1-4. Where a data point was within the lowest quartile of responses for that variable, it was given a numerical value of 1, a value of 2 if the value fell within the second quartile, and so on[23].

This transformed data were then used to conduct cross-tabulation analysis which recorded the frequency of responses for each combination and level of variables. These tables were used as a basis for chi-squared analysis, to test whether there was a statistical relationship between variables or whether variables were independent.

The p-values summarised in Table 4.2 provide a standardised measure of statistical significance. Using a 5% level of significant, where the p-value reported is less than 0.05 it was concluded that there was an overall statistically significant relationship between variables. It was found that

[23] The staff remuneration variable was created as the weighted sum across the average front line supervisor pay and DSW pay in each organisation. Note that a mid-point in each salary range was used, with the > $50 category assigned a cut-off value of $50 (in the absence of any mid-point in this category).

statistically significant relationships existed between *staff remuneration* and *span of control*, *staff remuneration* and *utilisation*, *staff remuneration* and *permanent employment rate*, *staff remuneration* and *overheads*, *overheads* and *utilisation, utilisation* and *span of control*, *permanent employment rate* and *implied margins*, and *permanent employment rate* and *span of control*.

Table 4.2 Results of chi square analysis

Variable pairing	p-value
Staff remuneration and implied margins	0.084634
Staff remuneration and span of control	**0.000000**
Staff remuneration and utilisation	**0.035057**
Staff remuneration and permanent employment rate	**0.028133**
Staff remuneration and overheads	**0.001950**
Overheads and permanent employment rate	0.107493
Overheads and span of control	0.638572
Overheads and implied margins	0.473923
Overheads and utilisation	**0.032702**
Utilisation and permanent employment rate	0.859356
Utilisation and span of control	**0.000047**
Utilisation and implied margins	0.274334
Permanent employment rate and implied margins	**0.002341**
Permanent employment rate and span of control	**0.000007**
Implied margins and span of control	0.067148

Source: Deloitte Access Economics analysis.

The cross-tabulations also provide an estimated expected frequency distribution, which was calculated based on the assumption that cell distributions within row and column levels were independently distributed. The difference between these observed and expected frequencies was then used as a basis for conducting **post-hoc chi squared analysis**, which examined whether cells are independently distributed or whether there are significant statistical relationships between pairs of variables (for example, whether a provider who has *utilisation* in the lowest quartile is also more likely to record *span of control* within the lowest quartile).

Where p-values were lower than 0.003125[24], it was concluded that cell distributions were statistically related in a systematic manner. The results of these tests are provided in Appendix D. Based on this analysis, it was found that:

- Providers who reported *utilisation* in the third quartile (above the median) were also statistically less likely to report *overheads* in the second quartile (below the median). This suggests that providers with *utilisation* above the median are also more likely to report *overheads* above the median.
- Providers who reported *utilisation* in the first quartile (lowest) were also statistically more likely to report a *span of control* in the first quartile (lowest), suggesting that utilisation decreases as the relative number of supervisors increases.
- There was a statistically significant relationship found between *span of control* and *permanent employment rate*, however the overall direction of this relationship was unclear. Providers who reported a *permanent employment rate* in the first quartile were less likely to report a *span of control* in the second quartile and more likely to report a *span of control* in the fourth quartile.

[24] Note: the p-value is obtained using the standard 5% cut-off value, divided by 16 (the number of cells in each table).

However, providers who reported a *permanent employment rate* in the second quartile demonstrated the opposite association – more likely to *report a span of control* in the second quartile, and less likely to report a *span of control* in the fourth quartile.

- Providers who reported *staff remuneration* in the fourth quartile (highest) were statistically more likely to report *overheads* in the first quartile (lowest). This suggests that providers with the highest paid staff are also more likely to have the lowest overheads. This may be because higher staff remuneration costs increase direct costs, and so overheads as a share of direct costs are therefore smaller.
- Providers who reported *staff remuneration* in the second quartile (below the median) were statistically less likely to report *utilisation* in the second quartile (also below the median). This may be due to the lower utilisation rates among supervisors (who are paid relatively more compared to front-line staff), when compared to front-line staff.
- Providers who reported *staff remuneration* in the fourth quartile (highest) were statistically more likely to report a *span of control* in the first quartile (lowest) and less likely to report a *span of control* in the fourth quartile (highest). Further, providers who reported *staff remuneration* in the second quartile (below the median) were statistically less likely to report a *span of control* in the first quartile (lowest); and providers who reported *staff remuneration* in the first quartile (lowest) were statistically more likely to report a *span of control* in the fourth quartile (highest). These results are all consistent, and simply reflect as the number of supervisors increase, staff costs increase as well.
- Providers who reported *overheads* in the first quartile (lowest) were also statistically less likely (at the 10% significance level, although not at the 5% significance level) to report a *permanent employment rate* in the third quartile (above the median). This finding suggests that the lowest *overheads* are more likely to be reported for providers with a *permanent employment rate* below the median.

4.3 Regression analysis

Regression analysis was conducted to estimate how and whether variation in one variable can be explained as a function of other variables. The explanatory variables were transformed into quartiles using the approach set out in section 4.2. To conduct the regression analysis, dummy dependent variables were used for the following two specifications:

- In the first specification, a value of 1 was assigned to survey results in the lowest (first) quartile and a value of 0 was assigned if the survey results were not in the lowest quartile (quartiles 2, 3 and 4).
- In the second specification, a value of 1 was assigned to survey results in the highest (fourth) quartile and a value of 0 was assigned if the survey results were not in the highest quartile (quartiles 1, 2 and 3).

Additional explanatory variables were incorporated to this analysis, including the award type (given a value of 1 if the provider reported using SCHADS, or 2 otherwise), direct costs (specified as quartiles), and the number of staff (the sum of both permanent and casual employees, specified as quartiles)[25].

An example of the baseline regression specification utilised is provided below, for the example of *overheads*:

$$Overheads_{Q1} = c + \beta_1 Utilisation + \beta_2 Staff\ Remuneration + \beta_3 Implied\ margins + \beta_4 Award\ type + \beta_5 Permanent\ employment\ rate + \beta_6 Direct\ costs + \beta_7 Staff\ numbers + \epsilon$$

$$Overheads_{Q4} = c + \beta_1 Utilisation + \beta_2 Staff\ Remuneration + \beta_3 Implied\ margins + \beta_4 Award\ type + \beta_5 Permanent\ employment\ rate + \beta_6 Direct\ costs + \beta_7 Staff\ numbers + \epsilon$$

[25] Note that span of control was dropped from the list of explanatory variables, as it was found to be highly colinear with the permanent employment rates. Inclusion of two correlated variables would bias regression results,.

A logit model was used, which estimates a coefficient for each level of the explanatory variables[26]. These coefficients can be interpreted as the log-odds ratio, or more generally as indicating whether there is increased (or reduced) probability of the dependent variable equalling one (for example, is a provider who reports utilisation in the highest quartile also more likely to report a span of control in the highest quartile). The regression results are interpreted relative to explanatory variables in the first quartile, and provide evidence of both the statistical strength and direction of relationships between variables.

The results of this analysis are provided in Appendix D.3. Based on this analysis, at the 5% level of significance it was found that:

- Providers with *overheads* in the lowest quartile were more likely to have *implied margins* in the lowest quartile, suggesting that higher overheads are experienced by providers with higher implied margins. For providers with *overheads* in the highest quartile, it was less likely that *staff remuneration* would be in the lowest quartile.
- Providers with *utilisation* in the lowest quartile were more likely to experience higher *direct costs* (i.e. less likely to experience *direct costs* in the lowest quartile). For providers with *utilisation* in the highest quartile, *direct costs* were also likely to be higher. While it is clear that a statistically significant relationship exists between *utilisation* and *direct costs*, the overall direction of this relationship is unclear.
- Providers with *utilisation* in the lowest quartile were less likely to have *staff numbers* above the median. This is consistent with providers who experience higher *utilisation* requiring greater numbers of *staff*, suggesting that the demand for staff is derived from the demand for disability services.
- Providers with *implied margins* in the lowest quartile were less likely to have a *permanent employee ratio* above the median. For providers with *implied margins* in the highest quartile, *staff remuneration,* the *permanent employee ratio, direct costs* and *utilisation* were more likely to be higher.
- Providers with a *span of control* in the lowest quartile were less likely to report *utilisation* above the median and more likely to have *staff numbers* in the lowest quartile, suggesting that a low span of control is associated with low utilisation and staff numbers. Consistent with this finding, providers with a *span of control* in the highest quartile were more likely to have *staff numbers* in the highest quartile. Providers with a *span of control* in the highest quartile were also more likely to report *staff remuneration* and *implied margins* in the lowest quartile.
- Providers with a *permanent employment rate* in the lowest quartile were more likely to have *staff remuneration*, *implied margins*, and *direct costs* in the lowest quartile. The *permanent employment rate* was negatively correlated with *staff numbers* however, with providers who reported a low permanent employment rate more likely to employ higher numbers of staff. This suggests a strong casualisation of the labour force for disability workers.
- Providers with a *permanent employment rate* in the highest quartile were more likely to report *overheads*, *staff remuneration,* and *staff numbers* in the lowest quartile. *Implied margins* and *direct costs* were more likely to be higher for providers with the highest *permanent employment rates*.
- Providers with *staff remuneration* in the lowest quartile were also more likely to report a *permanent employment rate* lower than the median and staff numbers in the *lowest quartile*.

[26] Note: for the matrix to invert, there is no coefficient estimate for observations where the explanatory variable is in the first quartile. The coefficient results are interpreted relative to the explanatory variable being in the first quartile.

5 Review of survey process

The NDIA engaged Deloitte Access Economics to design and field the TTP Benchmarking Survey to collect information on staffing numbers, costs and profits of NDIS support providers. This chapter provides a review of the survey process, including any opportunities for improvements to future iterations of the survey.

The **primary objective** of the survey was to inform the parameters of the NDIS Cost Model, which underpins the price controls relating to the provision of supports delivered by DSWs. In addition to this, and in conjunction with future iterations of the survey, the data collected can be used to monitor the disability services market over time. This can allow the NDIA to identify changes in provider financial benchmarks and emerging market failures, and assist with navigating the path to a market-driven price for services. As evidenced by the analysis in the preceding chapters, the survey achieved its primary objective. Further, the survey provided a solid foundation for developing future iterations.

From an initial list of 3,000 providers the NDIA provided Deloitte Access Economics, the survey returned 590 responses with a further 25 responses received from the Ability Roundtable. This yielded a total count of 615 complete responses, or a response rate of around 20%. While it was expected that a higher number of responses would be received, the number of responses was sufficient for a wide range of statistical and econometrical analyses to be conducted.

The survey did not collect any information which would allow for the representativeness of the respondents to be assessed. This may be possible through analysis of linked data held by the NDIA.

As with any survey, a number of opportunities for improvement were identified. These can be broadly grouped into accessibility issues and data quality issues.

There were a range of **accessibility issues** reported by providers to the help desk during the survey period. Many providers reported they did not receive the original survey link or had deleted or misplaced the original email. This was consistent with the help desk receiving automatic replies from provider contacts who had left their organisation or were on annual leave. Additionally, some of the email contacts had since moved roles and were no longer the appropriate contact representatives within the organisations. In some, but not all cases, they onforwarded the survey email to the appropriate contacts.

Furthermore, among providers who did receive the initial survey distribution, there was a degree of scepticism as to the authenticity and legitimacy of the survey. This was later solved via an official announcement posted on the NDIA website and in the NDIA newsletter, however it is likely some providers did not return to the survey following the initial scepticism.

Another issue commonly encountered by providers completing the survey was the embedded skip logic, which meant that providers were unable to view all questions at the outset and instead could only see questions progressively as they completed their responses. Since many of the questions were found to be relatively complex and requiring a coordinated response across multiple areas of the provider's organisation (for example, finance, HR), there was a large volume of requests for a PDF document with all survey questions listed.

The lengthy survey completion time (mean of 3.8 hours) was noted as a challenge for some providers and a significant burden on their time, particularly among smaller organisations.

Future iterations of the survey could address these issues by:

1) Ensuring that the survey release is timed with an official announcement by the NDIA on the NDIA website and/or in the newsletter.
2) Providing a PDF copy of the survey questions as part of the initial email to enable providers to collect the necessary data prior to entering results.

3) Improving communication around the 'save status' of results entered into the survey platform.
4) Increasing the survey field time to allow providers more time to provide responses – this may be particularly beneficial in cases where staff members are on leave or in the middle of a particularly busy business period. An increased survey fielding time could potentially also facilitate a survey with additional questions of use to the NDIA.

Provider communications with the survey help desk indicated potential **data quality issues,** as evidenced by a number of financial and operational literacy challenges encountered by respondents. Many respondents encountered challenges with questions involving the use of ratios or proportions. It was also commonly noted among providers that there was difficulty in separating out TTP-eligible activities from other business activities, and in understanding which questions were specifically addressed to the TTP-eligible activities.

Many providers contacted the helpline because they considered that their business was too small or not well-structured enough to properly answer the questions asked. This may be indicative of additional support requirements in future surveys, and a longer fielding period.

The skip logic embedded to the survey design also meant that providers had to submit a response to questions prior to progressing in the survey. This led to a high proportion of responses where providers did not know the correct answer, and so submitted a 'zero' response. In future surveys, this may be better addressed through incorporating an 'N/A' optional response, however this may lower the response rate for some questions. For example, an 'N/A' option could be used to address instances where questions did not relate to the provider's organisation (such as for sole traders) or where the organisation was still in the process of formation but not yet operational.

Future iterations of the survey could address these issues by:

1) Continuing to weigh the complexity of requested data with the ability of providers to provide accurate information when forming questions, particularly in the case of smaller organisations.
2) Increasing the scope of help tips and instructions on the survey to assist providers with limited financial knowledge or capacity.
3) Mandating responses to core questions, but incorporating an 'N/A' option for non-core questions that would enable participants that are having difficulty entering data to pass through to the next question.

Future iterations of the survey could also consider capturing data regarding:

- The length of time that providers have operated in the sector. This would enable analysis to be undertaken as to whether organisations that have operated for longer become more efficient (i.e. whether there is a learning curve effect). However, capturing this information may be difficult in the situation of a corporate restructure or merger, or if a provider has gone bankrupt and re-started their business with a different ABN.
- How utilisation differs at each pay point, to identify whether increasing pay corresponds with increasing seniority, and thus a commensurate reduction in utilisation. However, it is likely that only larger providers with sophisticated systems could provide this information.
- How survey responses are influenced by the complexity of a provider's clients. For example, providers who service more complex clients would be expected to have higher costs, however may not receive additional funding to offset these costs. This information could be captured by asking providers to provide the average client package value.

Additional analysis could be undertaken by linking the survey dataset with existing data held by the NDIA. For example, disaggregating responses by which state or territory the majority of NDIA revenue is generated in, or which remoteness level best describes the majority of the provider's operations (for example, using the Modified Monash Model as a geographic basis). This would enable analysis to determine whether there are significant differences across jurisdictions, and also whether there are significant differences across urban and regional providers. Analysis could also identify whether responses differed between for-profit and not-for-profit providers.

Appendix A Declaration of adherence to data security, storage and management requirements

I, Lynne Pezzullo as Partner of Deloitte Access Economics Pty Ltd (ABN 19 954 628 041) (hereinafter referred to as 'Deloitte Access Economics'), declare that Deloitte Access Economics has complied with the terms of the Contract for the for the Provision of Independent Benchmarking Survey Management Services dated 15 January 2020.

The declaration is made for the Survey conducted from February to March 2020, in respect of data relating to disability services rendered over their last financial year. Specifically, we declare that we have complied with the terms outlined in the section 5 of the Contract "Survey Data collection and use"; and Section 6 of the Contract "Data Protection and Security".

Lynne Pezzullo

Partner, Deloitte Access Economics

Appendix B Survey questions

Screening questions

These questions assess your organisation's eligibility for receiving the TTP.

1. Please confirm whether your organisation has published its service prices.

    a Yes
    b No

2. Please confirm whether your organisation lists and keeps up-to-date business contact details in the Provider Finder.

    a Yes
    b No

3. Please confirm that the answers provided in this benchmarking survey are true and honest statements consistent with your organisation’s financial accounts.

    a I confirm

4. Please provide the following details for the appropriate contact person in your organisation, should a follow up question be required by Deloitte.

    a What is the contact person’s First Name?
    b What is the contact person’s Last Name?
    c What is the contact person’s role in your organisation?
    d What is the contact person’s email address?

Introductory questions

5. What is your organisation's NDIS registered provider number? Please enter a numerical value only (no symbols or texts) in the free-text box.

6. What percentage of your revenue comes from the NDIS?

7. For your organisation's financial year which ended in 2019, how many NDIS participants did your organisation supply services to?

    a NDIS participants

Workforce profile

8. As of 31 January 2020 (or if this date is not representative, a recent representative date), how many of your organisation's disability support and front-line supervisor staff are permanent and casual in terms of headcount? *Please do not include relief hires in your staff count.*

    a Headcount - Direct Service Staff
    b Headcount - Supervisors

9. What are the standard working hours per day for full time staff?

    a Number of hours
    b Number of minutes

10. As of 31 January 2020 (or if this date is not representative, a recent representative date), how many of your organisation’s staff (headcount) are direct client workers and supervisors?

    a Headcount - Direct Service Staff
    b Headcount – Supervisors

11. For your organisation's financial year which ended in 2019, what were the total hours worked across the following roles?

    a Direct Service Staff
    b Supervisors

12. Please describe your organisation's ratio of casual work to permanent work on weekdays and weekends on average over financial year which ended in 2019 (headcount).

    a Weekdays
    b Weekends

Wage and salary questions

This section asks questions about your payment arrangements for your disability support staff and front-line supervisors only.

13. Does your organisation pay the majority of its disability support staff and frontline supervisors delivering NDIS services in line with a recognised Award?

    a Social, Community, Home Care and Disability Services Industry Award 2010 (SCHADS Award [MA000100])
    b Other Award (please specify) – Text
    c Not Award (e.g. Enterprise Bargaining Agreement, please specify) – Text

14. Please enter the percentage distribution of front-line disability support staff and front-line supervisors (based on headcount) against the following pay levels as at 31 January 2020. *Distribution - Disability Support Staff*

    a ≤$25.00
    b $25.01-$27.49
    c $27.50-$29.99
    d $30.00-$32.49
    e $32.50-$34.99
    f $35.00-$37.49
    g $37.50-$39.99
    h $40.00-$44.99
    i $45.00-$49.99
    j ≥$50.00

14. Please enter the percentage distribution of front-line disability support staff and front-line supervisors (based on headcount) against the following pay levels as at 31 January 2020. *Distribution - Front Line Supervisors*

    a ≤$25.00
    b $25.01-$27.49
    c $27.50-$29.99
    d $30.00-$32.49
    e $32.50-$34.99
    f $35.00-$37.49
    g $37.50-$39.99
    h $40.00-$44.99
    i $45.00-$49.99
    j ≥$50.00

Note following questions only apply to organisations that do not pay a SCHADS Award:

15. For permanent staff, how many hours of annual leave are entitled per year?

16. For permanent staff, how many hours of long service leave are entitled per year?

17. For permanent staff, how many hours of personal/sick leave are entitled per year?

18. What permanent and casual percentage loadings above the standard hourly base rate does your organisation apply on weekdays and weekends?

    a Saturdays - Permanent loading
    b Sundays - Permanent loading
    c Weekdays - Casual loading
    d Saturdays - Casual loading
    e Sundays - Casual loading

Note following questions apply to all organisations

19. What percentage of superannuation does your organisation pay?

20. Does your organisation pay its workers an allowance? *Examples of allowances include costs for travel, meals, phone bills or parking.*

    a Yes - The proportion of workers in our organisation who are paid an allowance is:
    b No - our organisation does not pay any of its workers an allowance.

21. You have indicated that some or all workers in your organisation are paid an allowance. Please tick all types of allowances that your organisation pays its workers:

    a Using their own vehicles
    b Other allowances

22. What is the average dollar amount per worker (direct support and frontline supervisor) per year, for travel allowances? *This is calculated as total allowances divided by total workers – not just workers who get an allowance.*

23. What is the average dollar amount per worker (direct support and frontline supervisor) per year, for other allowances? *This is calculated as total allowances divided by total workers – not just workers who get an allowance. 'Other allowances' could include, but are not limited to examples such as meals, phone bills and parking.*

24. For the jurisdiction where your organisation generates the largest source of its NDIS revenue, what was the workers compensation premium that your organisation paid, as a proportion of wages and salaries? *This will be shown on your latest workers compensation premium notice.*

Utilisation and business costs

This section will ask you questions about how your organisation's business costs and staff utilisation.

25. On average over the financial year which ended in 2019, what proportion of time did an average disability support worker spend on the following activities? *'General administration' for the purposes of this question refers to all administration activities which are not directly related to a particular client*.

    a Billable Time (including billable travel)
    b Non-Billable Travel
    c Training
    d Breaks
    e Client-Related Admin
    f Gen admin and other tasks
    g Total

26. For your organisation's financial year which ended in 2019, what was your organisation's total ongoing revenue? *Total ongoing revenue includes all revenue from ongoing operations, but excludes any large one-off items (such as proceeds from sales of fixed assets such as land and buildings)*.

    a Total revenue

27. For your organisation's financial year which ended in 2019, what was your organisation's total current assets and total current liabilities as at the beginning of period and end of period?

    a Total current assets - Beginning of financial year value ($)
    b Total current assets - End of financial year value ($)
    c Total current liabilities - Beginning of financial year value ($)
    d Total current liabilities - End of financial year value ($)

28. For your organisation's financial year which ended in 2019, what were the total direct costs incurred by your organisation? *Direct costs include labour costs for front-line staff and supervisors, as well as for consumables (these are costs such as travel mileage, fuel, cleaning and showering products, continence products/and/or bin bags).*

    a Front-line staff costs
    b Supervisor staff costs
    c Direct consumables

29. For your organisation's financial year which ended in 2019, what were the total Overhead or indirect costs incurred by your organisation for each of the following categories? *The sum of the numbers included in the boxes should be equal to your organisation's total expenses for financial year 2019, less the costs provided in Q28. Please exclude Cost of Goods Sold from your overheads. If unsure of your organisation's depreciation, please enter '0' into the depreciation box.*

    a Nonservice level staff (i.e. admin staff and all staff that are not disability support workers or frontline supervisors)
    b Insurance premiums
    c Rent and fittings
    d Fleet
    e Marketing
    f Accounting and audit
    g IT and other costs
    h Depreciation
    i Interest
    j Other (excludes cost of goods sold)
    k Total

30. How long did this survey take you to complete?

    a Number of hours
    b Number of minutes

Appendix C Additional data output

Table C.1 aggregates key data points for selected variables.

Table C.1 Percentiles (PC), standard deviation, skew and kurtosis

	Min	5th PC	10th PC	25th PC	50th PC	75th PC	90th PC	95th PC	Max	STD	Skew	Kurtosis
Permanent employment rate	0.0%	0.0%	5.2%	12.5%	40.0%	71.7%	94.8%	100.0%	100.0%	32.9%	0.3	-1.3
Utilisation rates – Breaks	0.0%	0.0%	0.0%	0.0%	1.0%	5.0%	7.0%	10.0%	16.0%	3.2%	1.3	0.9
Utilisation rates - Training	0.0%	0.0%	0.5%	1.5%	3.0%	5.0%	10.0%	10.0%	50.0%	4.0%	4.1	35.9
Utilisation rates -Other	0.0%	0.0%	2.0%	6.0%	13.0%	20.0%	26.8%	33.0%	50.0%	9.8%	0.8	0.6
Total utilisation*	100.0%	97.9%	95.0%	90.0%	80.0%	71.0%	64.4%	59.0%	50.0%	12.0%	-0.5	-0.2
Overheads as a share of direct costs	1.1%	7.7%	10.7%	19.8%	28.1%	36.4%	44.2%	46.5%	49.2%	11.8%	-0.1	-0.8
Implied margin as a share of other costs	0.0%	0.1%	0.2%	0.5%	1.2%	2.3%	4.4%	5.1%	7.9%	1.6%	1.5	1.7
Span of control	0.0	1.0	2.1	5.0	9.0	15.0	22.7	30.7	116.0	11.3	3.4	19.8

Note: * the data for the total utilisation row are presented consistently with the ranking used in Table 3.12, with the "minimum" value representing the highest value in the survey.

Appendix D Further analysis

This appendix presents the output which underpins the analysis in Chapter 4

D.1. Correlation analysis – scatter plots

Chart D.1 Scatter plot between utilisation (x), and permanent employment rate (y)

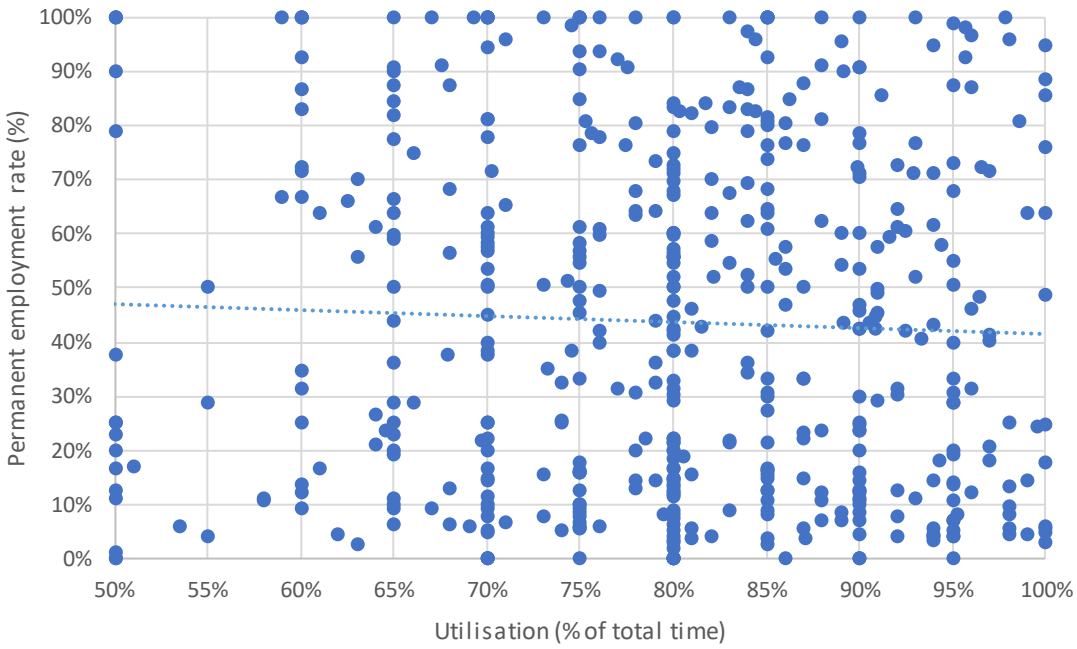


Chart D.2 Scatter plot between utilisation (x), and span of control (y)

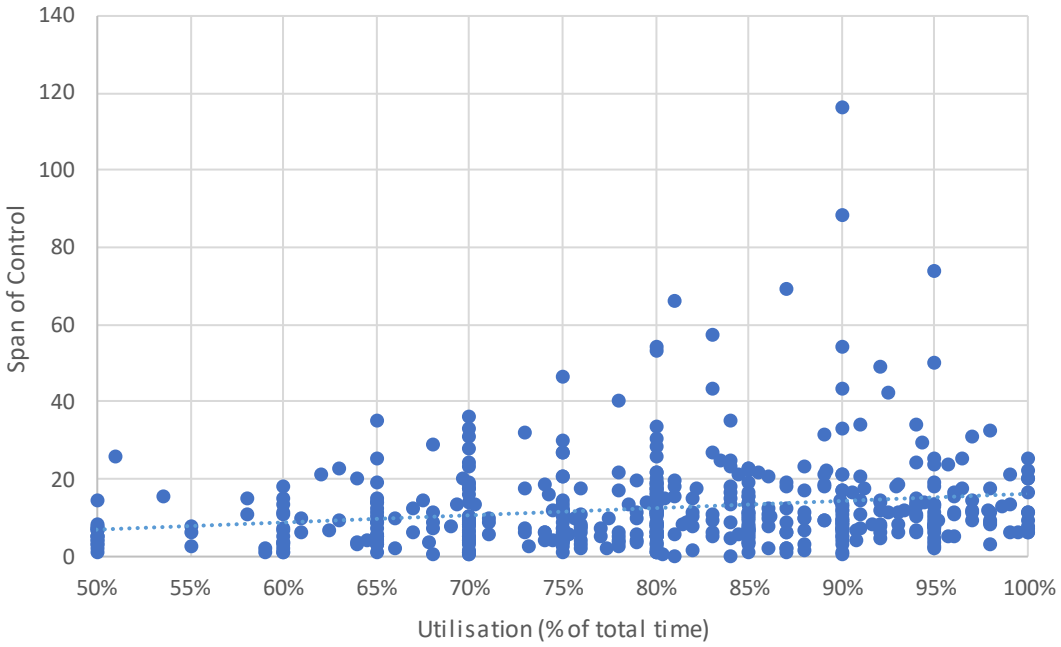


Chart D.3 Scatter plot between utilisation (x), and implied margin as a share of other costs (y)

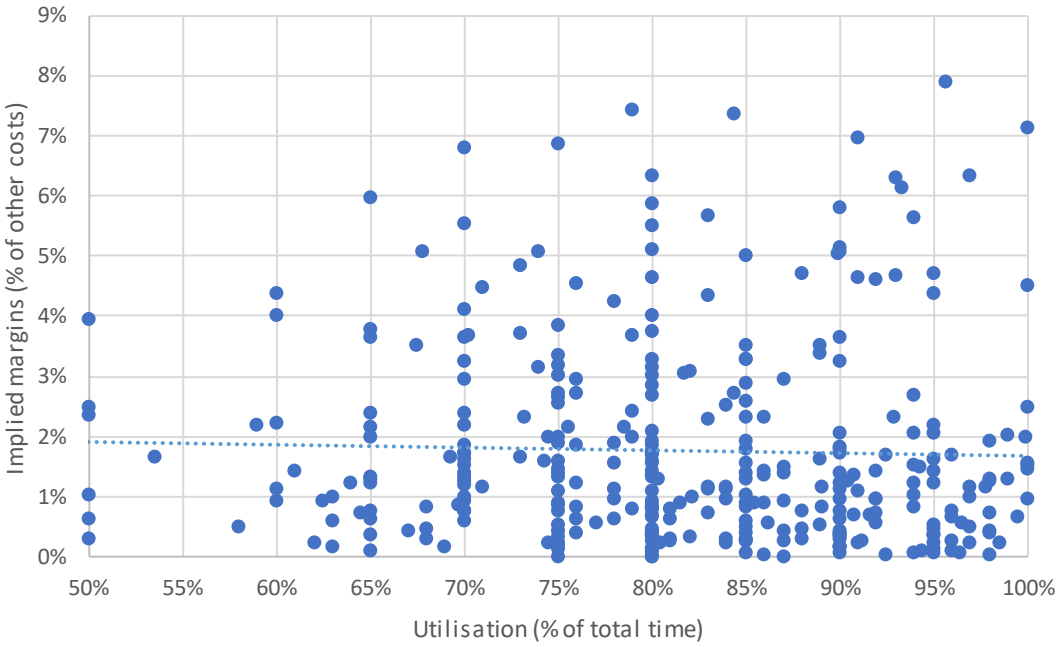


Chart D.4 Scatter plot between utilisation (x), and overheads as a share of direct costs exc. interest and depreciation (y)

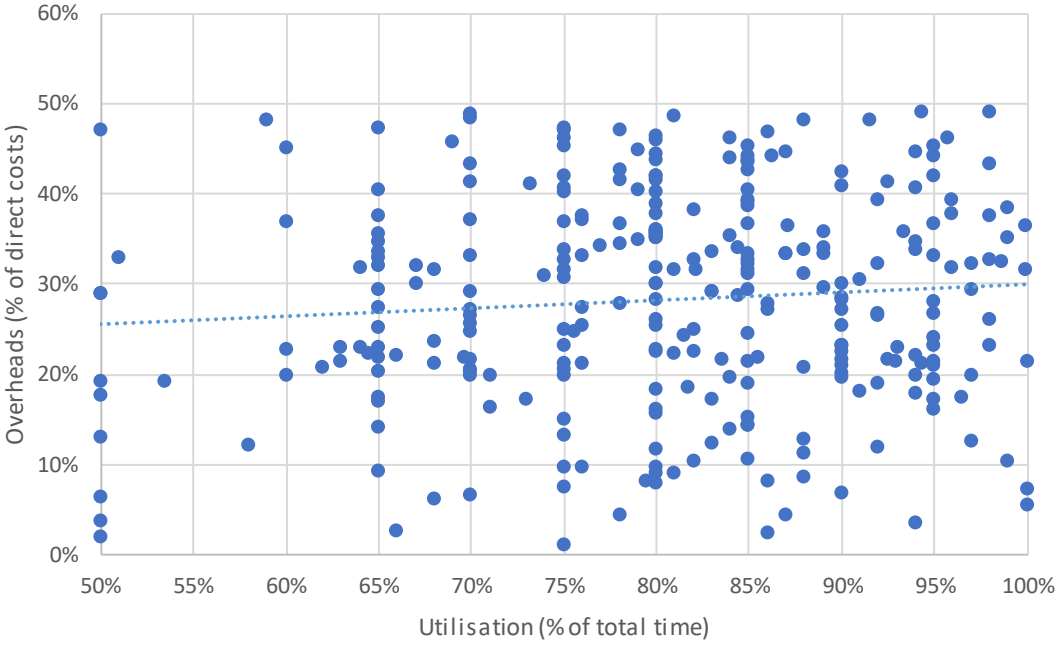


Chart D.5 Scatter plot between overheads (exc. interest depreciation) as a share of direct costs (x), and implied margin as a share of other costs (y)

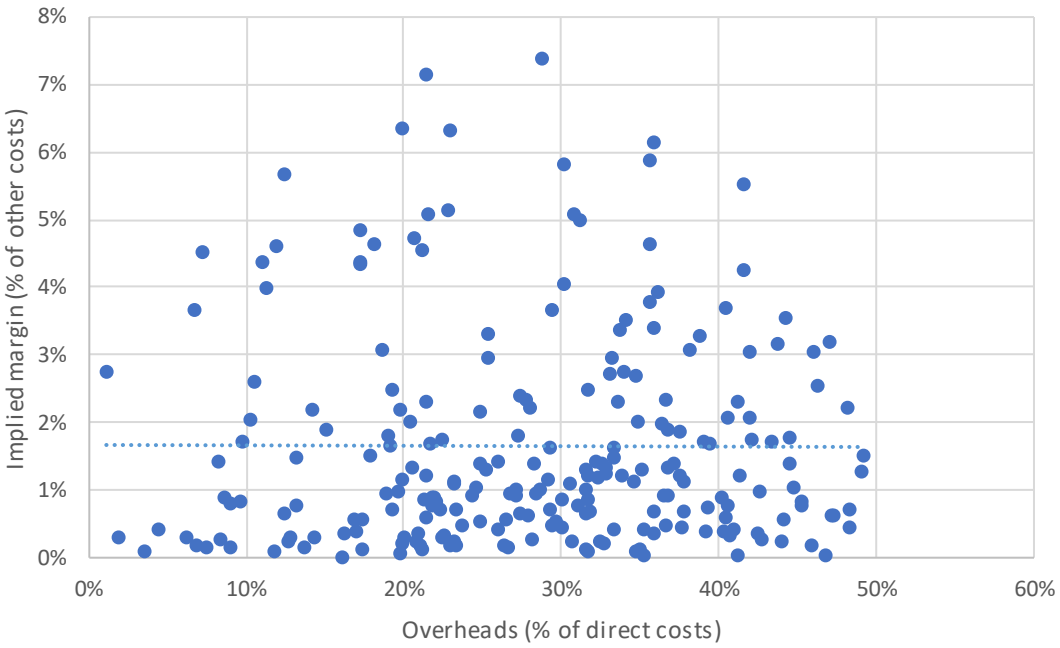


Chart D.6 Scatter plot between overheads (exc. interest depreciation) as a share of direct costs (x), and span of control (y)

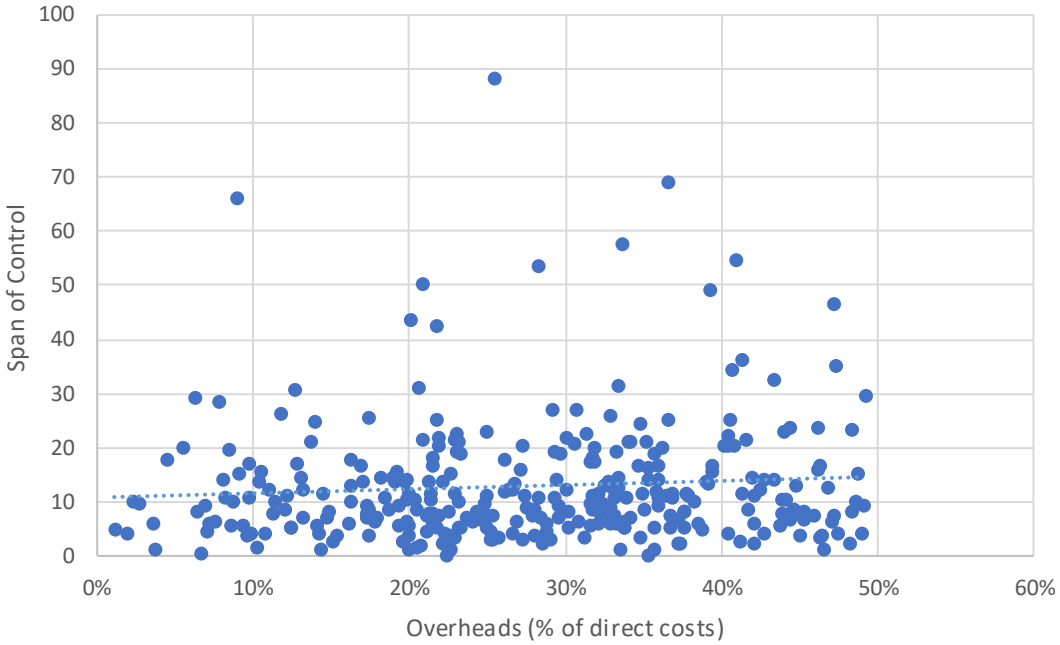


Chart D.7 Scatter plot between overheads (exc. interest depreciation) as a share of direct costs (x), and permanent employment rate (y)

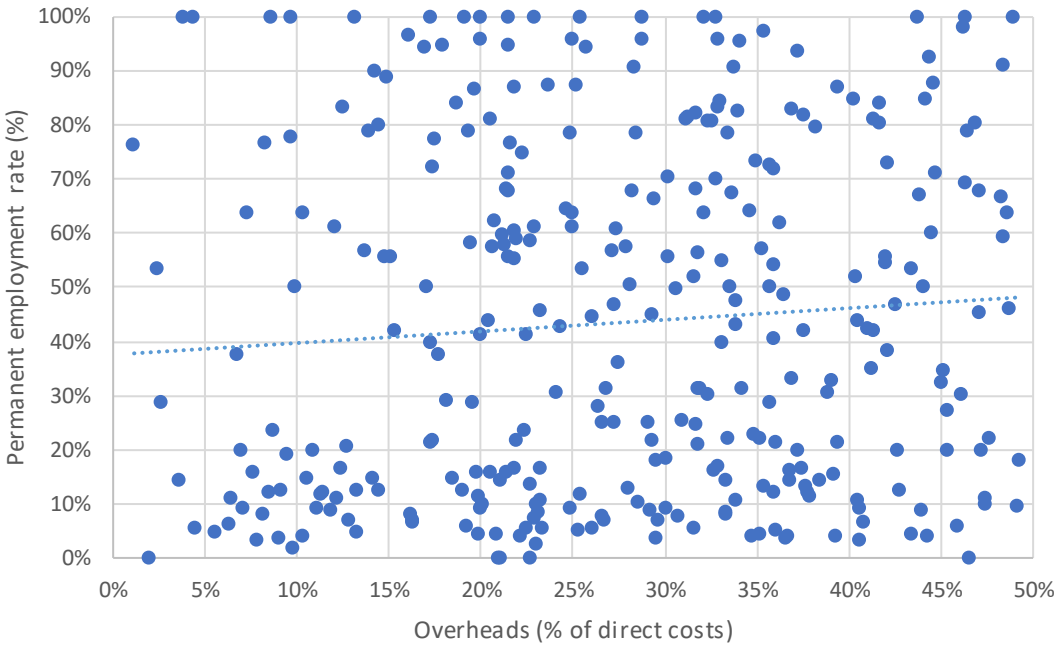


Chart D.8 Permanent employment rate (x), and span of control (y)

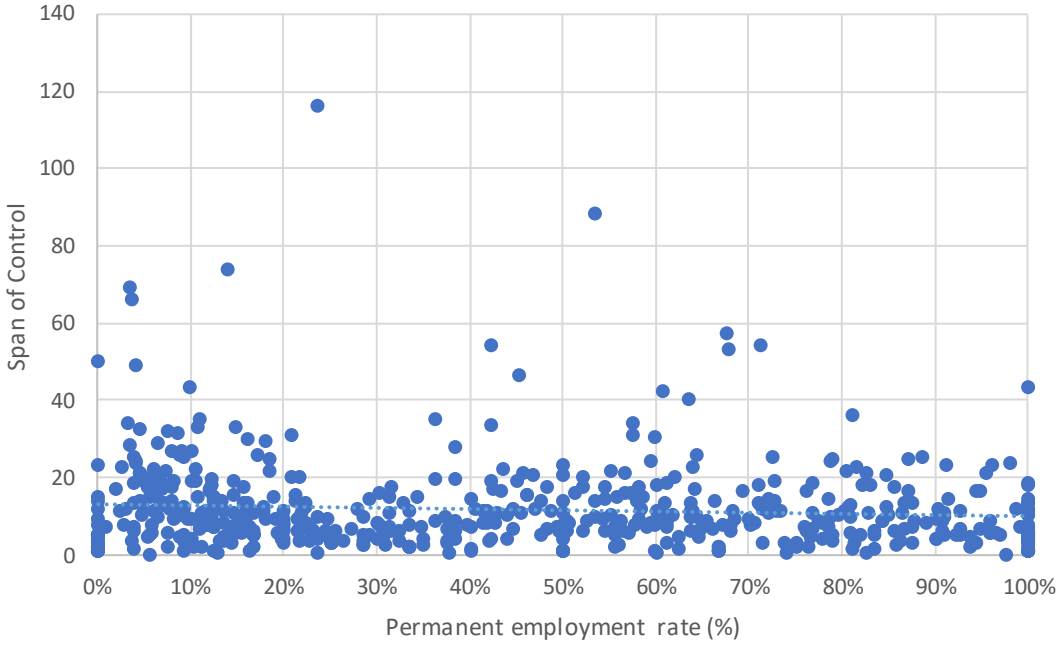


Chart D.9 Permanent employment rate (x), and implied margin as a share of other costs (y)

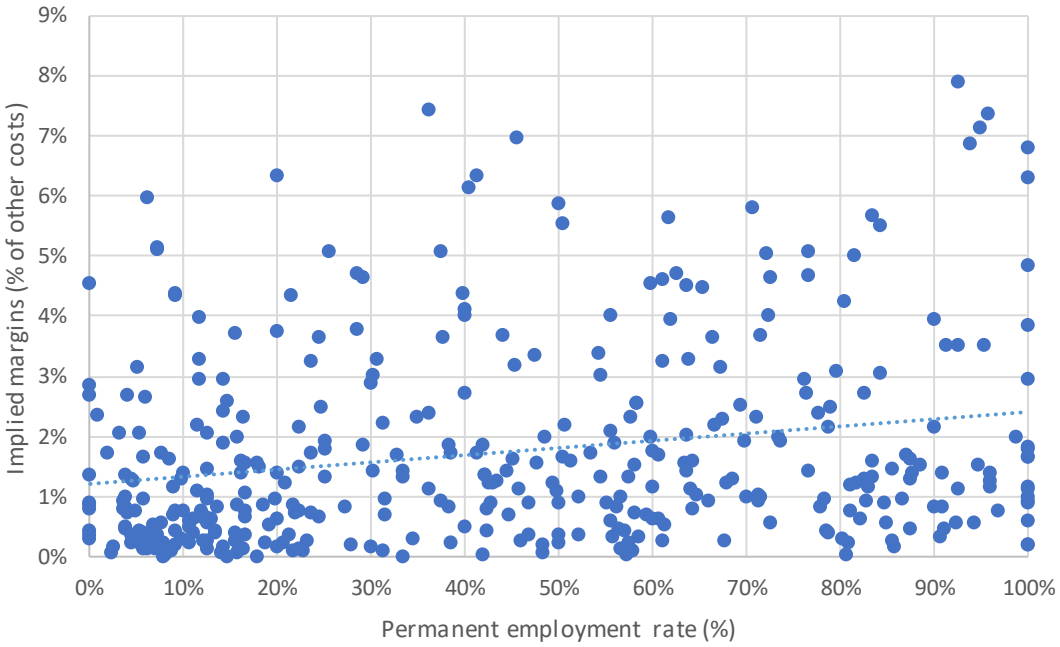


Chart D.10 Scatter plot between implied margins as a share of other costs (x), and span of control (y)

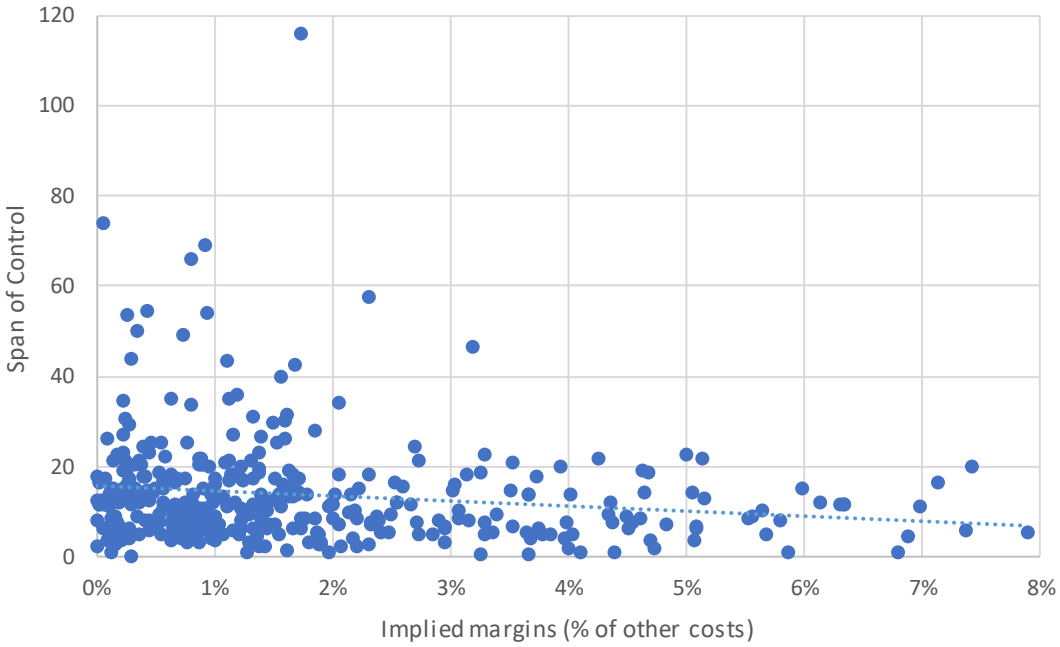


Chart D.11 Scatter plot between staff remuneration (x), and overheads as a share of direct costs (y)

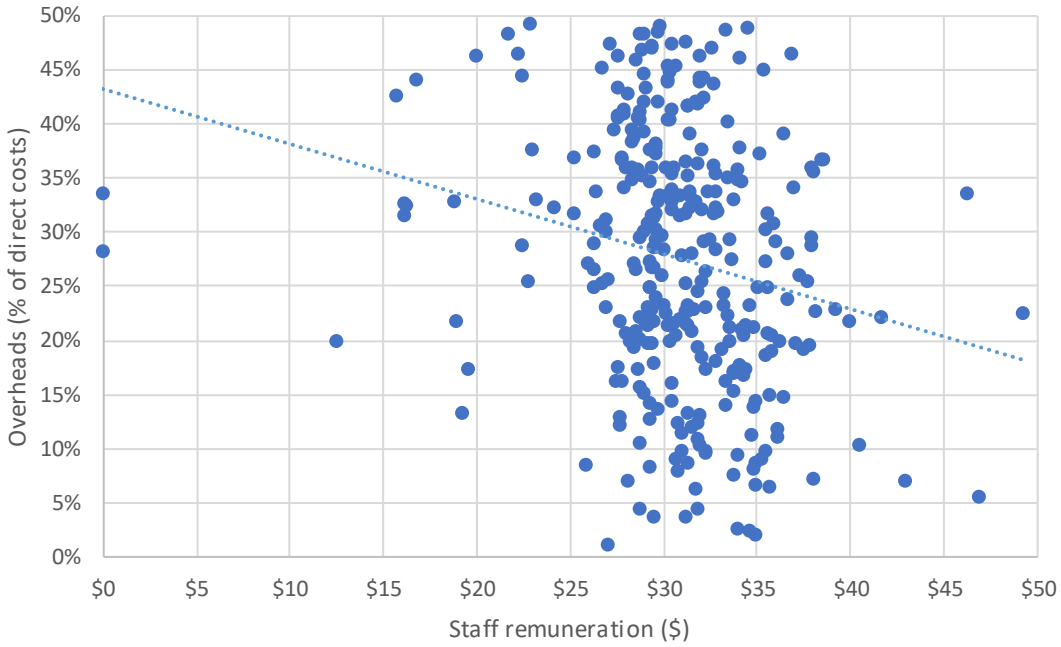


Chart D.12 Scatter plot between staff remuneration (x), and utilisation costs (y)

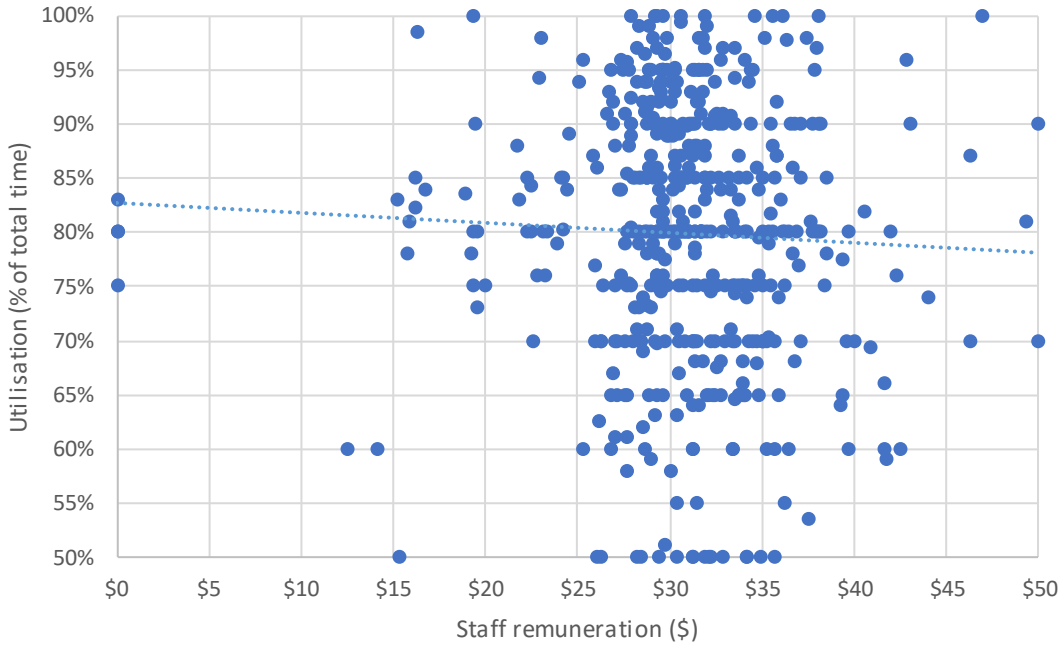


Chart D.13 Scatter plot between staff remuneration (x), and span of control (y)

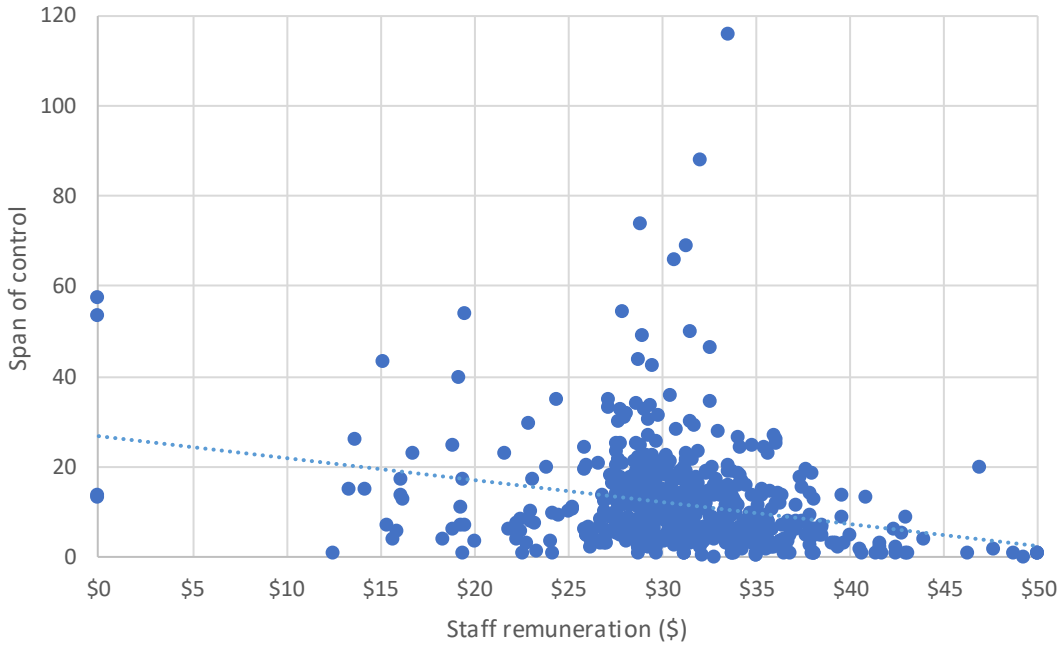


Chart D.14 Scatter plot between staff remuneration (x), and implied margins as a share of other costs (y)

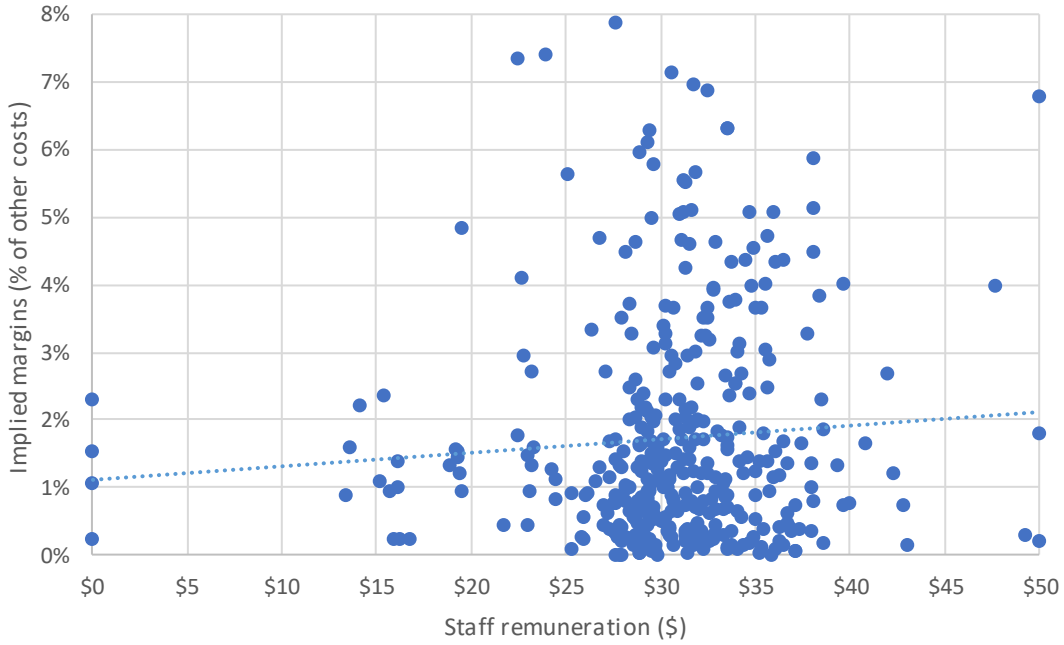
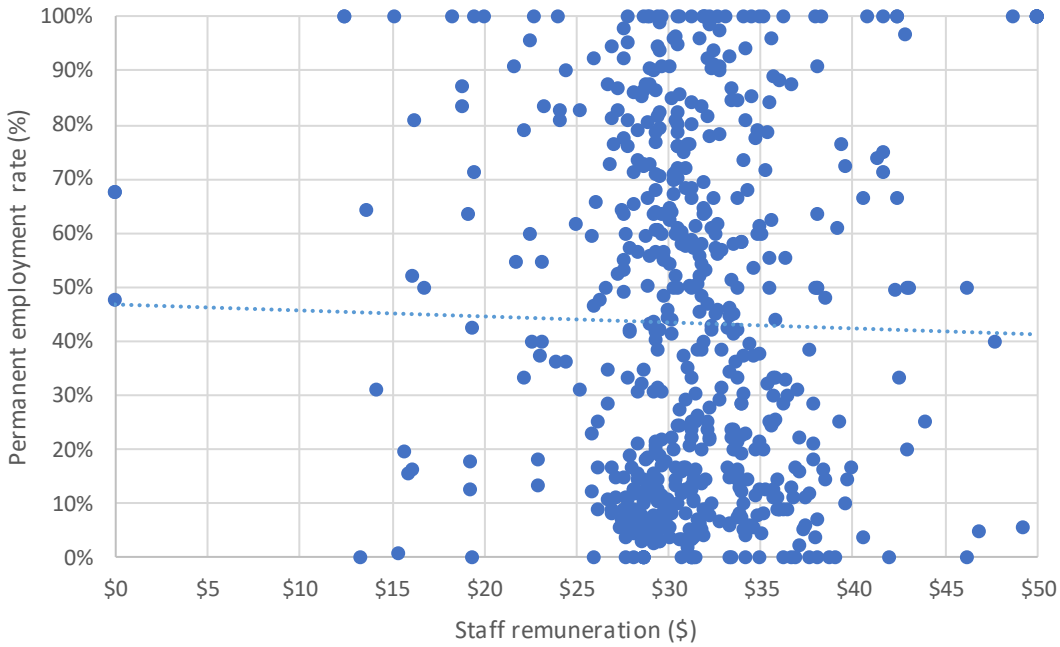


Chart D.15 Scatter plot between staff remuneration (x), and permanent employment rate (y)



D.2. Cross-tabulations and chi squared results

Note: Statistically significant relationships have been highlighted in each table where they occur.

Table D.1 Overheads and utilisation, cross-tabulated distribution

			Overheads			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Utilisation	**1st quartile**	**observed proportion**	5.07%	8.11%	5.07%	4.39%
		expected proportion	4.97%	5.81%	5.81%	6.04%
		p-value	0.9232	0.0307	0.4837	0.1253
	2nd quartile	**observed proportion**	3.38%	3.72%	3.04%	5.74%
		expected proportion	3.49%	4.08%	4.08%	4.24%
		p-value	0.9019	0.6975	0.2641	0.1091
	3rd quartile	**observed proportion**	8.45%	5.07%	12.16%	9.80%
		expected proportion	7.79%	9.11%	9.11%	9.47%
		p-value	0.5686	0.0009	0.0119	0.7886
	4th quartile	**observed proportion**	5.07%	8.78%	5.41%	6.76%
		expected proportion	5.71%	6.68%	6.68%	6.94%
		p-value	0.5413	0.0588	0.2528	0.8690

Table D.2 Utilisation and permanent employment rate, cross-tabulated distribution

			Permanent employment rate			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Utilisation	**1st quartile**	**observed proportion**	5.51%	7.09%	5.91%	6.50%
		expected proportion	5.51%	6.79%	6.74%	5.95%
		p-value	1.0000	0.7297	0.3265	0.5083
	2nd quartile	**observed proportion**	2.95%	4.33%	4.13%	4.13%
		expected proportion	3.43%	4.22%	4.19%	3.70%
		p-value	0.4753	0.8820	0.9329	0.5304
	3rd quartile	**observed proportion**	6.69%	9.06%	9.45%	8.27%
		expected proportion	7.38%	9.09%	9.02%	7.97%
		p-value	0.4299	0.9695	0.6482	0.7393
	4th quartile	**observed proportion**	6.89%	6.69%	7.48%	4.92%
		expected proportion	5.73%	7.06%	7.01%	6.19%
		p-value	0.1501	0.6725	0.5841	0.1261

Table D.3 Utilisation and span of control, cross-tabulated distribution

			Span of control			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Utilisation	**1st quartile**	**observed proportion**	7.46%	7.06%	4.64%	5.04%
		expected proportion	4.54%	6.63%	6.15%	6.88%
		p-value	0.0001	0.6222	0.0715	0.0342
	2nd quartile	**observed proportion**	4.23%	4.84%	3.63%	3.02%
		expected proportion	2.95%	4.31%	3.99%	4.47%
		p-value	0.0440	0.4700	0.6072	0.0498
	3rd quartile	**observed proportion**	4.84%	8.27%	8.47%	12.10%
		expected proportion	6.31%	9.23%	8.55%	9.57%
		p-value	0.0751	0.3076	0.9264	0.0083
	4th quartile	**observed proportion**	2.22%	7.26%	8.67%	8.27%
		expected proportion	4.95%	7.24%	6.71%	7.51%
		p-value	0.0004	0.9853	0.0229	0.3959

Table D.4 Utilisation and implied margins, cross-tabulated distribution

			Implied margins			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Utilisation	**1st quartile**	**observed proportion**	2.82%	5.37%	5.65%	5.37%
		expected proportion	4.72%	4.50%	5.05%	4.94%
		p-value	0.0354	0.3304	0.5127	0.6389
	2nd quartile	**observed proportion**	3.39%	3.39%	4.80%	5.65%
		expected proportion	4.23%	4.04%	4.53%	4.43%
		p-value	0.3281	0.4444	0.7553	0.1642
	3rd quartile	**observed proportion**	9.60%	8.47%	7.34%	9.04%
		expected proportion	8.47%	8.08%	9.05%	8.86%
		p-value	0.2968	0.7126	0.1242	0.8702
	4th quartile	**observed proportion**	8.76%	6.21%	8.47%	5.65%
		expected proportion	7.15%	6.82%	7.64%	7.48%
		p-value	0.1222	0.5527	0.4343	0.0828

Table D.5 Overheads and implied margins, cross-tabulated distribution

			Implied margins			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Overheads	**1st quartile**	**observed proportion**	7.76%	4.31%	3.88%	6.03%
		expected proportion	5.87%	5.69%	5.12%	5.31%
		p-value	0.1174	0.2482	0.2815	0.5313
	2nd quartile	**observed proportion**	6.90%	8.19%	5.60%	4.74%
		expected proportion	6.80%	6.58%	5.92%	6.14%
		p-value	0.9368	0.1977	0.7938	0.2535
	3rd quartile	**observed proportion**	6.47%	6.03%	6.03%	8.19%
		expected proportion	7.14%	6.91%	6.22%	6.45%
		p-value	0.5989	0.4906	0.8797	0.1619
	4th quartile	**observed proportion**	5.60%	7.33%	7.76%	5.17%
		expected proportion	6.91%	6.69%	6.02%	6.24%
		p-value	0.3039	0.6117	0.1523	0.3843

Table D.6 Overheads and span of control, cross-tabulated distribution

			Span of control			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Overheads	**1st quartile**	**observed proportion**	4.75%	7.28%	7.59%	5.70%
		expected proportion	4.41%	7.05%	6.73%	7.13%
		p-value	0.7135	0.8350	0.4233	0.1924
	2nd quartile	**observed proportion**	5.70%	7.28%	5.38%	6.65%
		expected proportion	4.35%	6.96%	6.65%	7.04%
		p-value	0.1453	0.7720	0.2395	0.7181
	3rd quartile	**observed proportion**	2.53%	6.65%	7.28%	7.91%
		expected proportion	4.24%	6.79%	6.48%	6.86%
		p-value	0.0619	0.8970	0.4527	0.3344
	4th quartile	**observed proportion**	4.43%	6.65%	6.33%	7.91%
		expected proportion	4.41%	7.05%	6.73%	7.13%
		p-value	0.9793	0.7121	0.7109	0.4777

Table D.7 Overheads and permanent employment rate, cross-tabulated distribution

			Permanent employment rate			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Overheads	**1st quartile**	**observed proportion**	7.17%	7.48%	3.43%	7.17%
		expected proportion	5.97%	6.45%	6.52%	6.29%
		p-value	0.2479	0.3297	0.0035	0.4033
	2nd quartile	**observed proportion**	6.85%	4.67%	8.72%	4.67%
		expected proportion	5.90%	6.37%	6.44%	6.21%
		p-value	0.3531	0.1078	0.0311	0.1408
	3rd quartile	**observed proportion**	4.36%	6.23%	7.17%	6.85%
		expected proportion	5.83%	6.29%	6.36%	6.13%
		p-value	0.1516	0.9572	0.4463	0.4887
	4th quartile	**observed proportion**	5.30%	7.17%	6.54%	6.23%
		expected proportion	5.97%	6.45%	6.52%	6.29%
		p-value	0.5104	0.4964	0.9869	0.9557

Table D.8 Permanent employment rate and span of control, cross-tabulated distribution

			Span of control			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Permanent employment rate	**1st quartile**	**observed proportion**	4.17%	3.83%	5.57%	9.91%
		expected proportion	5.31%	6.29%	5.63%	6.25%
		p-value	0.1250	0.0017	0.9266	0.0000
	2nd quartile	**observed proportion**	7.48%	9.74%	5.22%	4.52%
		expected proportion	6.09%	7.22%	6.47%	7.17%
		p-value	0.0738	0.0021	0.1131	0.0012
	3rd quartile	**observed proportion**	4.70%	6.43%	7.13%	7.65%
		expected proportion	5.86%	6.94%	6.22%	6.90%
		p-value	0.1281	0.5322	0.2429	0.3485
	4th quartile	**observed proportion**	6.26%	6.78%	6.09%	4.52%
		expected proportion	5.35%	6.33%	5.68%	6.29%
		p-value	0.2179	0.5681	0.5876	0.0237

Table D.9 Permanent employment rate and implied margins, cross-tabulated distribution

			Implied margins			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Permanent employment rate	**1st quartile**	**observed proportion**	9.07%	5.44%	3.37%	3.89%
		expected proportion	5.52%	5.24%	5.47%	5.52%
		p-value	0.9737	0.9985	0.9842	0.9878
	2nd quartile	**observed proportion**	7.77%	5.96%	6.74%	5.96%
		expected proportion	6.71%	6.37%	6.64%	6.71%
		p-value	0.9935	0.9974	0.9994	0.9954
	3rd quartile	**observed proportion**	5.44%	6.48%	8.81%	8.03%
		expected proportion	7.30%	6.93%	7.23%	7.30%
		p-value	0.9896	0.9973	0.9910	0.9959
	4th quartile	**observed proportion**	3.11%	6.22%	6.22%	7.51%
		expected proportion	5.85%	5.56%	5.79%	5.85%
		p-value	0.9808	0.9951	0.9970	0.9884

Table D.10 Span of control and implied margins, cross-tabulated distribution

			Implied margins			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Span of control	**1st quartile**	**observed proportion**	2.66%	2.39%	4.26%	4.52%
		expected proportion	3.53%	3.35%	3.46%	3.49%
		p-value	0.2616	0.2111	0.3007	0.1843
	2nd quartile	**observed proportion**	5.59%	6.12%	5.85%	9.57%
		expected proportion	6.93%	6.57%	6.78%	6.85%
		p-value	0.1798	0.6479	0.3485	0.0063
	3rd quartile	**observed proportion**	6.91%	6.91%	6.65%	5.85%
		expected proportion	6.72%	6.37%	6.58%	6.65%
		p-value	0.8460	0.5771	0.9461	0.4168
	4th quartile	**observed proportion**	10.37%	8.78%	8.24%	5.32%
		expected proportion	8.35%	7.92%	8.18%	8.27%
		p-value	0.0555	0.4069	0.9494	0.0051

Table D.11 Staff remuneration and implied margins, cross-tabulated distribution

			Implied margins			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Staff remuneration	**1st quartile**	**observed proportion**	6.37%	7.43%	6.10%	5.04%
		expected proportion	6.35%	6.02%	6.22%	6.35%
		p-value	0.9861	0.1396	0.9041	0.1774
	2nd quartile	**observed proportion**	6.37%	8.22%	7.96%	4.77%
		expected proportion	6.96%	6.59%	6.81%	6.96%
		p-value	0.5544	0.0974	0.2486	0.0290
	3rd quartile	**observed proportion**	6.37%	5.04%	6.10%	8.22%
		expected proportion	6.55%	6.21%	6.42%	6.55%
		p-value	0.8498	0.2243	0.7468	0.0884
	4th quartile	**observed proportion**	6.37%	3.45%	4.77%	7.43%
		expected proportion	5.61%	5.31%	5.49%	5.61%
		p-value	0.4137	0.0410	0.4388	0.0502

Table D.12 Staff remuneration and permanent employment rate, cross-tabulated distribution

			Permanent employment rate			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Staff remuneration	**1st quartile**	**observed proportion**	6.80%	5.61%	5.10%	7.14%
		expected proportion	5.96%	6.54%	6.12%	6.04%
		p-value	0.2653	0.2359	0.1837	0.1488
	2nd quartile	**observed proportion**	5.27%	5.61%	7.99%	6.29%
		expected proportion	6.08%	6.68%	6.25%	6.16%
		p-value	0.2925	0.1775	0.0241	0.8675
	3rd quartile	**observed proportion**	5.10%	7.48%	7.48%	4.76%
		expected proportion	6.00%	6.59%	6.17%	6.08%
		p-value	0.2409	0.2550	0.0869	0.0852
	4th quartile	**observed proportion**	6.97%	7.82%	4.25%	6.29%
		expected proportion	6.12%	6.72%	6.29%	6.21%
		p-value	0.2664	0.1647	0.0085	0.9104

Table D.13 Staff remuneration and overheads, cross-tabulated distribution

			Overheads			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Staff remuneration	**1st quartile**	**observed proportion**	4.69%	5.31%	5.63%	9.06%
		expected proportion	6.33%	6.09%	6.02%	6.25%
		p-value	0.1194	0.4517	0.7044	0.0073
	2nd quartile	**observed proportion**	4.06%	6.88%	8.44%	7.81%
		expected proportion	6.97%	6.71%	6.63%	6.88%
		p-value	0.0075	0.8791	0.0900	0.3895
	3rd quartile	**observed proportion**	7.81%	5.94%	6.56%	5.63%
		expected proportion	6.65%	6.40%	6.32%	6.57%
		p-value	0.2757	0.6593	0.8194	0.3774
	4th quartile	**observed proportion**	9.06%	6.56%	3.75%	2.81%
		expected proportion	5.69%	5.48%	5.41%	5.62%
		p-value	**0.0009**	0.2787	0.0964	0.0055

Table D.14 Staff remuneration and utilisation, cross-tabulated distribution

			Utilisation			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Staff remuneration	**1st quartile**	**observed proportion**	6.16%	4.77%	8.75%	6.16%
		expected proportion	6.37%	4.06%	8.58%	6.83%
		p-value	0.8044	0.3160	0.8560	0.4359
	2nd quartile	**observed proportion**	3.58%	3.98%	10.74%	8.35%
		expected proportion	6.57%	4.18%	8.84%	7.04%
		p-value	**0.0004**	0.7719	0.0417	0.1330
	3rd quartile	**observed proportion**	7.36%	3.58%	7.16%	6.76%
		expected proportion	6.13%	3.90%	8.25%	6.57%
		p-value	0.1387	0.6435	0.2281	0.8244
	4th quartile	**observed proportion**	7.55%	3.38%	6.56%	5.17%
		expected proportion	5.59%	3.56%	7.52%	5.99%
		p-value	0.0145	0.7912	0.2728	0.3171

Table D.15 Staff remuneration and span of control, cross-tabulated distribution

			Span of control			
			1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
Staff remuneration	**1st quartile**	**observed proportion**	4.37%	6.47%	4.72%	9.09%
		expected proportion	5.60%	6.64%	5.90%	6.51%
		p-value	0.1029	0.8334	0.1238	**0.0011**
	2nd quartile	**observed proportion**	2.97%	6.99%	8.04%	7.87%
		expected proportion	5.88%	6.97%	6.20%	6.83%
		p-value	**0.0002**	0.9736	0.0182	0.1990
	3rd quartile	**observed proportion**	5.42%	6.12%	7.34%	6.12%
		expected proportion	5.68%	6.73%	5.99%	6.60%
		p-value	0.7296	0.4461	0.0795	0.5469
	4th quartile	**observed proportion**	9.97%	7.34%	3.85%	3.32%
		expected proportion	5.56%	6.59%	5.86%	6.46%
		p-value	**0.0000**	0.3449	0.0086	**0.0001**

D.3. Regression analysis – results

D.3.1. Overheads (lowest quartile)

```
> logit1 <- glm(OHS_bq ~ ndia$Util_q + ndia$staffrem_q + ndia$margin_q + n
dia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q, data = ndia, fami
ly = binomial)
> summary(logit1)

Call:
glm(formula = OHS_bq ~ ndia$Util_q + ndia$staffrem_q + ndia$margin_q +
    ndia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.9660  -0.5942  -0.4421  -0.2643   2.7540

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)     -1.65618    0.85515  -1.937   0.0528 .
ndia$Util_q2    -0.02047    0.63210  -0.032   0.9742
ndia$Util_q3     0.14330    0.54847   0.261   0.7939
ndia$Util_q4     0.31734    0.56017   0.567   0.5711
ndia$staffrem_q2 0.05370    0.52919   0.101   0.9192
ndia$staffrem_q3 0.40217    0.50616   0.795   0.4269
ndia$staffrem_q4 0.45879    0.53632   0.855   0.3923
ndia$margin_q2  -1.27681    0.59470  -2.147   0.0318 *
ndia$margin_q3  -0.89668    0.51542  -1.740   0.0819 .
ndia$margin_q4  -0.66507    0.49447  -1.345   0.1786
ndia$Award2     -0.29112    0.45492  -0.640   0.5222
ndia$Permc_q2    0.18974    0.50847   0.373   0.7090
```

```
ndia$Permc_q3    -0.79447    0.64843  -1.225   0.2205
ndia$Permc_q4     0.83438    0.58346   1.430   0.1527
ndia$Direct_q2   -0.27742    0.62453  -0.444   0.6569
ndia$Direct_q3    0.45228    0.72495   0.624   0.5327
ndia$Direct_q4   -0.21987    0.82637  -0.266   0.7902
ndia$staff_q2     0.40059    0.67897   0.590   0.5552
ndia$staff_q3    -0.05131    0.78833  -0.065   0.9481
ndia$staff_q4    -0.23553    0.88442  -0.266   0.7900
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 238.43  on 296  degrees of freedom
Residual deviance: 217.48  on 277  degrees of freedom
  (318 observations deleted due to missingness)
AIC: 257.48

Number of Fisher Scoring iterations: 5
```

D.3.2. Overheads (highest quartile)

```
> logit2 <- glm(OHS_uq ~ ndia$Util_q + ndia$staffrem_q + ndia$margin_q + n
dia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q, data = ndia, fami
ly = binomial)
> summary(logit2)

Call:
glm(formula = OHS_uq ~ ndia$Util_q + ndia$staffrem_q + ndia$margin_q +
    ndia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.4536  -0.8126  -0.6487   1.1396   2.0472

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)      -0.621769   0.907506  -0.685   0.4933
ndia$Util_q2      0.179255   0.573705   0.312   0.7547
ndia$Util_q3      0.283223   0.512138   0.553   0.5802
ndia$Util_q4     -0.286669   0.548543  -0.523   0.6013
ndia$staffrem_q2 -0.809393   0.421024  -1.922   0.0546 .
ndia$staffrem_q3 -0.812559   0.457379  -1.777   0.0756 .
ndia$staffrem_q4 -1.337042   0.570912  -2.342   0.0192 *
ndia$margin_q2    0.207519   0.479575   0.433   0.6652
ndia$margin_q3    0.471341   0.486884   0.968   0.3330
ndia$margin_q4   -0.204377   0.529016  -0.386   0.6992
ndia$Award2      -0.512657   0.439151  -1.167   0.2431
ndia$Permc_q2     0.344825   0.510020   0.676   0.4990
ndia$Permc_q3     0.203835   0.527349   0.387   0.6991
ndia$Permc_q4    -0.006701   0.578951  -0.012   0.9908
ndia$Direct_q2    0.291636   0.735449   0.397   0.6917
ndia$Direct_q3    0.870361   0.816993   1.065   0.2867
ndia$Direct_q4    0.427107   0.902111   0.473   0.6359
ndia$staff_q2    -0.529477   0.719146  -0.736   0.4616
ndia$staff_q3    -0.313970   0.774034  -0.406   0.6850
ndia$staff_q4    -0.519607   0.860594  -0.604   0.5460
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 248.09  on 207  degrees of freedom
Residual deviance: 231.16  on 188  degrees of freedom
  (407 observations deleted due to missingness)
AIC: 271.16

Number of Fisher Scoring iterations: 4
```

D.3.3. Utilisation (lowest quartile)

```
> logit3 <- glm(Util_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$margin_q + n
dia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q, data = ndia, fami
ly = binomial)
> summary(logit3)

Call:
glm(formula = Util_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$margin_q +
    ndia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.5190  -0.5577  -0.3636  -0.1951   2.8709

Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)      -1.20752    1.03120  -1.171  0.24160
ndia$OHS_q2       0.30728    0.61157   0.502  0.61535
ndia$OHS_q3      -0.16112    0.64988  -0.248  0.80419
ndia$OHS_q4       0.08479    0.64164   0.132  0.89487
ndia$staffrem_q2 -0.97071    0.61381  -1.581  0.11377
ndia$staffrem_q3  0.27672    0.58555   0.473  0.63650
ndia$staffrem_q4 -0.30770    0.64076  -0.480  0.63108
ndia$margin_q2    0.43255    0.59147   0.731  0.46459
ndia$margin_q3    1.02821    0.62483   1.646  0.09985 .
ndia$margin_q4   -0.56613    0.69057  -0.820  0.41233
ndia$Award2      -1.20197    0.63611  -1.890  0.05882 .
ndia$Permc_q2    -0.33698    0.62405  -0.540  0.58920
ndia$Permc_q3    -1.10233    0.67515  -1.633  0.10253
ndia$Permc_q4    -0.94308    0.69108  -1.365  0.17236
ndia$Direct_q2    2.51042    0.86314   2.908  0.00363 **
ndia$Direct_q3    1.29841    1.02864   1.262  0.20686
ndia$Direct_q4    2.74448    1.09863   2.498  0.01249 *
ndia$staff_q2    -1.26814    0.73069  -1.736  0.08264 .
ndia$staff_q3    -2.04006    0.78724  -2.591  0.00956 **
ndia$staff_q4    -2.88692    0.97774  -2.953  0.00315 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 197.85  on 224  degrees of freedom
Residual deviance: 159.33  on 205  degrees of freedom
  (390 observations deleted due to missingness)
AIC: 199.33

Number of Fisher Scoring iterations: 6
```

D.3.4. Utilisation (highest quartile)

```
> logit4 <- glm(Util_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$margin_q + n
dia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q, data = ndia, fami
ly = binomial)
> summary(logit4)

Call:
glm(formula = Util_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$margin_q +
    ndia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.4529  -0.8224  -0.5828   0.9310   2.2687

Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)      -1.04055    0.89827  -1.158   0.2467
```

```
ndia$OHS_q2       0.29138    0.50066   0.582   0.5606
ndia$OHS_q3      -0.37335    0.50771  -0.735   0.4621
ndia$OHS_q4      -0.52018    0.50552  -1.029   0.3035
ndia$staffrem_q2 -0.09945    0.45519  -0.218   0.8271
ndia$staffrem_q3  0.03351    0.48990   0.068   0.9455
ndia$staffrem_q4  0.20391    0.55394   0.368   0.7128
ndia$margin_q2   -0.67776    0.49194  -1.378   0.1683
ndia$margin_q3   -0.22428    0.47649  -0.471   0.6379
ndia$margin_q4   -0.77138    0.51732  -1.491   0.1359
ndia$Award2       0.65469    0.39901   1.641   0.1008
ndia$Permc_q2     0.05131    0.50673   0.101   0.9193
ndia$Permc_q3     0.07119    0.52637   0.135   0.8924
ndia$Permc_q4    -0.34605    0.59340  -0.583   0.5598
ndia$Direct_q2    0.23111    0.73310   0.315   0.7526
ndia$Direct_q3    1.91707    0.83297   2.301   0.0214 *
ndia$Direct_q4    1.17740    0.89549   1.315   0.1886
ndia$staff_q2    -0.75914    0.74851  -1.014   0.3105
ndia$staff_q3    -0.74827    0.79896  -0.937   0.3490
ndia$staff_q4    -0.43079    0.86383  -0.499   0.6180
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 249.92  on 207  degrees of freedom
Residual deviance: 223.01  on 188  degrees of freedom
  (407 observations deleted due to missingness)
AIC: 263.01

Number of Fisher Scoring iterations: 4
```

D.3.5. Implied margins (lowest quartile)

```
> logit5 <- glm(Margin_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q + n
dia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q, data = ndia, fami
ly = binomial)
> summary(logit5)

Call:
glm(formula = Margin_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q +
    ndia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.4887  -0.6701  -0.4688  -0.2850   2.6259

Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)       -1.2733     0.8378  -1.520 0.128531
ndia$OHS_q2       -0.2440     0.4706  -0.518 0.604131
ndia$OHS_q3       -0.3313     0.4848  -0.683 0.494428
ndia$OHS_q4       -0.3900     0.4852  -0.804 0.421500
ndia$staffrem_q2  -0.4848     0.4598  -1.055 0.291648
ndia$staffrem_q3  -0.3300     0.4671  -0.706 0.479887
ndia$staffrem_q4  -0.1430     0.4786  -0.299 0.765086
ndia$Util_q2       0.2909     0.5823   0.500 0.617357
ndia$Util_q3       0.5608     0.4854   1.156 0.247885
ndia$Util_q4       0.8160     0.5004   1.631 0.102973
ndia$Award2        0.3128     0.4025   0.777 0.436995
ndia$Permc_q2     -0.7792     0.4151  -1.877 0.060492 .
ndia$Permc_q3     -1.3725     0.4756  -2.886 0.003903 **
ndia$Permc_q4     -2.0926     0.5873  -3.563 0.000367 ***
ndia$Direct_q2     0.3376     0.5351   0.631 0.528020
ndia$Direct_q3    -0.2153     0.6462  -0.333 0.738954
ndia$Direct_q4     0.5118     0.7353   0.696 0.486399
ndia$staff_q2      0.5687     0.6813   0.835 0.403931
ndia$staff_q3      0.5122     0.7581   0.676 0.499269
ndia$staff_q4      0.5841     0.8581   0.681 0.496059
---
```

```
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 280.45  on 286  degrees of freedom
Residual deviance: 248.70  on 267  degrees of freedom
  (328 observations deleted due to missingness)
AIC: 288.7

Number of Fisher Scoring iterations: 5
```

D.3.6. Implied margins (highest quartile)

```
> logit6 <- glm(Margin_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q + n
dia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q, data = ndia, fami
ly = binomial)
> summary(logit6)

Call:
glm(formula = Margin_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q +
    ndia$Award + ndia$Permc_q + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.8343  -0.7292  -0.4248   0.4560   2.6754

Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)      -4.73871    1.22824  -3.858 0.000114 ***
ndia$OHS_q2      -0.35929    0.59654  -0.602 0.546984
ndia$OHS_q3       0.22461    0.53545   0.419 0.674871
ndia$OHS_q4      -0.55756    0.56264  -0.991 0.321694
ndia$staffrem_q2 -0.54210    0.53835  -1.007 0.313948
ndia$staffrem_q3  0.56363    0.53206   1.059 0.289447
ndia$staffrem_q4  1.37081    0.63362   2.163 0.030507 *
ndia$Util_q2      1.40685    0.70450   1.997 0.045831 *
ndia$Util_q3      1.31318    0.64052   2.050 0.040346 *
ndia$Util_q4      0.55720    0.68120   0.818 0.413375
ndia$Award2       0.05007    0.47690   0.105 0.916384
ndia$Permc_q2     1.51963    0.74157   2.049 0.040442 *
ndia$Permc_q3     2.31829    0.75436   3.073 0.002118 **
ndia$Permc_q4     2.82696    0.79098   3.574 0.000352 ***
ndia$Direct_q2    2.37688    0.95633   2.485 0.012940 *
ndia$Direct_q3    2.08252    1.09685   1.899 0.057613 .
ndia$Direct_q4    1.03793    1.15330   0.900 0.368135
ndia$staff_q2    -1.13669    0.83011  -1.369 0.170897
ndia$staff_q3    -1.20529    0.91957  -1.311 0.189954
ndia$staff_q4    -0.89969    0.99372  -0.905 0.365265
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 236.10  on 207  degrees of freedom
Residual deviance: 186.05  on 188  degrees of freedom
  (407 observations deleted due to missingness)
AIC: 226.05

Number of Fisher Scoring iterations: 5
```

D.3.7. Span of control (lowest quartile)

```
> logit7 <- glm(Span_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q + ndi
a$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q, data = ndia, famil
y = binomial)
> summary(logit7)

Call:
glm(formula = Span_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q +
```

```
    ndia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
     Min        1Q    Median        3Q       Max
-1.67479  -0.42574  -0.20312  -0.09378   2.35385

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)      -1.2788     1.3972  -0.915  0.36007
ndia$OHS_q2      -0.2235     0.7689  -0.291  0.77128
ndia$OHS_q3      -0.8136     0.8502  -0.957  0.33855
ndia$OHS_q4      -0.7600     0.7865  -0.966  0.33390
ndia$staffrem_q2 -0.6521     0.7928  -0.823  0.41075
ndia$staffrem_q3 -1.4186     0.9596  -1.478  0.13934
ndia$staffrem_q4  0.8231     0.7767   1.060  0.28924
ndia$Util_q2      0.9329     0.7537   1.238  0.21582
ndia$Util_q3     -0.2482     0.7500  -0.331  0.74070
ndia$Util_q4     -2.4935     1.2227  -2.039  0.04141 *
ndia$margin_q2    1.1364     0.9368   1.213  0.22509
ndia$margin_q3    1.4028     0.9375   1.496  0.13458
ndia$margin_q4    0.6797     0.8190   0.830  0.40659
ndia$Award2      -0.2687     0.8166  -0.329  0.74210
ndia$Direct_q2    1.1388     0.9447   1.206  0.22799
ndia$Direct_q3    2.2273     1.3189   1.689  0.09126 .
ndia$Direct_q4    2.0024     1.1945   1.676  0.09368 .
ndia$staff_q2    -1.4440     0.7980  -1.810  0.07035 .
ndia$staff_q3    -2.9171     1.1612  -2.512  0.01200 *
ndia$staff_q4    -4.2726     1.3102  -3.261  0.00111 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 144.89  on 208  degrees of freedom
Residual deviance: 100.28  on 189  degrees of freedom
  (406 observations deleted due to missingness)
AIC: 140.28

Number of Fisher Scoring iterations: 7
```

D.3.8. Span of control (highest quartile)

```
> logit8 <- glm(Span_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q + ndi
a$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q, data = ndia, famil
y = binomial)
> summary(logit8)

Call:
glm(formula = Span_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q +
    ndia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.8830  -0.7928  -0.4505   0.8752   2.6866

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)      -0.4947     1.2914  -0.383  0.70164
ndia$OHS_q2       0.2361     0.5669   0.416  0.67709
ndia$OHS_q3       0.1957     0.5410   0.362  0.71749
ndia$OHS_q4      -0.1616     0.5370  -0.301  0.76354
ndia$staffrem_q2 -1.1132     0.4649  -2.394  0.01664 *
ndia$staffrem_q3 -0.9008     0.4916  -1.832  0.06689 .
ndia$staffrem_q4 -1.2657     0.6137  -2.062  0.03918 *
ndia$Util_q2     -1.5220     0.6737  -2.259  0.02388 *
ndia$Util_q3     -0.3321     0.5699  -0.583  0.56010
ndia$Util_q4     -1.1258     0.6005  -1.875  0.06082 .
```

```
ndia$margin_q2    -0.1705     0.4805  -0.355  0.72266
ndia$margin_q3    -1.0625     0.5066  -2.097  0.03597 *
ndia$margin_q4    -1.0186     0.5221  -1.951  0.05107 .
ndia$Award2       -0.4700     0.4558  -1.031  0.30243
ndia$Direct_q2    -0.9440     0.8320  -1.135  0.25650
ndia$Direct_q3    -0.1535     0.8555  -0.179  0.85765
ndia$Direct_q4    -1.4265     0.9231  -1.545  0.12226
ndia$staff_q2      0.8787     1.2058   0.729  0.46617
ndia$staff_q3      2.3923     1.2349   1.937  0.05271 .
ndia$staff_q4      3.6549     1.3003   2.811  0.00494 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 264.33  on 207  degrees of freedom
Residual deviance: 204.01  on 188  degrees of freedom
  (407 observations deleted due to missingness)
AIC: 244.01

Number of Fisher Scoring iterations: 5
```

D.3.9. Permanent employment rate (lowest quartile)

```
> logit9 <- glm(Permc_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q + nd
ia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q, data = ndia, fami
ly = binomial)
> summary(logit9)

Call:
glm(formula = Permc_bq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q +
    ndia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
     Min        1Q    Median        3Q       Max
-1.65633  -0.58777  -0.35062  -0.07755   2.71501

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)      -0.581622   1.152574  -0.505 0.613819
ndia$OHS_q2       0.463327   0.645157   0.718 0.472657
ndia$OHS_q3      -0.624898   0.655139  -0.954 0.340164
ndia$OHS_q4      -0.443999   0.621462  -0.714 0.474953
ndia$staffrem_q2 -0.819669   0.567531  -1.444 0.148663
ndia$staffrem_q3 -1.504783   0.659649  -2.281 0.022537 *
ndia$staffrem_q4 -0.003034   0.623247  -0.005 0.996116
ndia$Util_q2     -0.718032   0.795686  -0.902 0.366841
ndia$Util_q3     -0.177233   0.685048  -0.259 0.795854
ndia$Util_q4     -0.293988   0.697138  -0.422 0.673239
ndia$margin_q2   -0.945310   0.530215  -1.783 0.074605 .
ndia$margin_q3   -1.544149   0.579332  -2.665 0.007690 **
ndia$margin_q4   -2.963456   0.748685  -3.958 7.55e-05 ***
ndia$Award2      -0.180010   0.530228  -0.339 0.734236
ndia$Direct_q2   -0.130479   0.783921  -0.166 0.867807
ndia$Direct_q3   -1.631387   0.910383  -1.792 0.073136 .
ndia$Direct_q4   -3.963990   1.091676  -3.631 0.000282 ***
ndia$staff_q2     0.888409   1.008793   0.881 0.378499
ndia$staff_q3     3.202456   1.127931   2.839 0.004522 **
ndia$staff_q4     4.405801   1.258156   3.502 0.000462 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 222.80  on 208  degrees of freedom
Residual deviance: 154.19  on 189  degrees of freedom
  (406 observations deleted due to missingness)
AIC: 194.19
```

```
Number of Fisher Scoring iterations: 6
```

D.3.10. Permanent employment rate (highest quartile)

```
> logit10 <- glm(Permc_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q + n
dia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q, data = ndia, fam
ily = binomial)
> summary(logit10)

Call:
glm(formula = Permc_uq ~ ndia$OHS_q + ndia$staffrem_q + ndia$Util_q +
    ndia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.6520  -0.6798  -0.3784  -0.1133   3.1789

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)      -2.21832    1.26638  -1.752  0.07983 .
ndia$OHS_q2      -1.54321    0.63720  -2.422  0.01544 *
ndia$OHS_q3      -1.00262    0.55511  -1.806  0.07089 .
ndia$OHS_q4      -1.11968    0.55639  -2.012  0.04418 *
ndia$staffrem_q2 -0.05803    0.49258  -0.118  0.90621
ndia$staffrem_q3 -0.44644    0.55312  -0.807  0.41959
ndia$staffrem_q4 -2.26364    0.89495  -2.529  0.01143 *
ndia$Util_q2      0.39563    0.73439   0.539  0.59008
ndia$Util_q3      0.75625    0.66711   1.134  0.25695
ndia$Util_q4      0.15873    0.69026   0.230  0.81813
ndia$margin_q2    1.02264    0.67842   1.507  0.13172
ndia$margin_q3    1.31185    0.67068   1.956  0.05046 .
ndia$margin_q4    1.97043    0.65984   2.986  0.00282 **
ndia$Award2      -0.05983    0.51605  -0.116  0.90771
ndia$Direct_q2    0.97897    1.03498   0.946  0.34421
ndia$Direct_q3    2.06861    1.16200   1.780  0.07504 .
ndia$Direct_q4    3.59879    1.21082   2.972  0.00296 **
ndia$staff_q2    -0.23340    0.87986  -0.265  0.79080
ndia$staff_q3    -1.47153    1.01660  -1.448  0.14776
ndia$staff_q4    -2.67215    1.09516  -2.440  0.01469 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 219.80  on 207  degrees of freedom
Residual deviance: 171.07  on 188  degrees of freedom
  (407 observations deleted due to missingness)
AIC: 211.07

Number of Fisher Scoring iterations: 6
```

D.3.11. Staff remuneration (lowest quartile)

```
> logit11 <- glm(Staffrem_uq ~ ndia$Permc_q + ndia$OHS_q + ndia$Util_q + n
dia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q, data = ndia, fam
ily = binomial)
> summary(logit11)

Call:
glm(formula = Staffrem_uq ~ ndia$Permc_q + ndia$OHS_q + ndia$Util_q +
    ndia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.6420  -0.5845  -0.3316  -0.1160   2.4386

Coefficients:
```

```
                Estimate Std. Error z value Pr(>|z|)
(Intercept)      0.66092    0.93804   0.705  0.48107
ndia$Permc_q2    0.11090    0.57238   0.194  0.84638
ndia$Permc_q3   -1.32366    0.71456  -1.852  0.06397 .
ndia$Permc_q4   -3.14177    1.09693  -2.864  0.00418 **
ndia$OHS_q2      0.41717    0.58141   0.718  0.47306
ndia$OHS_q3     -0.56712    0.62022  -0.914  0.36051
ndia$OHS_q4     -0.79361    0.65569  -1.210  0.22614
ndia$Util_q2     0.25169    0.72975   0.345  0.73017
ndia$Util_q3     0.23503    0.66116   0.355  0.72222
ndia$Util_q4     0.27556    0.67406   0.409  0.68268
ndia$margin_q2  -0.62798    0.68072  -0.923  0.35626
ndia$margin_q3  -0.49353    0.66861  -0.738  0.46042
ndia$margin_q4   1.15594    0.64305   1.798  0.07224 .
ndia$Award2     -0.20619    0.54291  -0.380  0.70410
ndia$Direct_q2  -0.68832    0.67949  -1.013  0.31106
ndia$Direct_q3  -0.34762    0.84423  -0.412  0.68052
ndia$Direct_q4  -0.03868    0.97381  -0.040  0.96832
ndia$staff_q2   -0.51134    0.71381  -0.716  0.47378
ndia$staff_q3   -1.45268    0.80971  -1.794  0.07280 .
ndia$staff_q4   -2.21235    0.99974  -2.213  0.02690 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 200.75  on 207  degrees of freedom
Residual deviance: 150.56  on 188  degrees of freedom
  (407 observations deleted due to missingness)
AIC: 190.56

Number of Fisher Scoring iterations: 6
```

D.3.12. Staff remuneration (highest quartile)

```
> logit12 <- glm(Staffrem_bq ~ ndia$Permc_q + ndia$OHS_q + ndia$Util_q + n
dia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q, data = ndia, fam
ily = binomial)
> summary(logit12)

Call:
glm(formula = Staffrem_bq ~ ndia$Permc_q + ndia$OHS_q + ndia$Util_q +
    ndia$margin_q + ndia$Award + ndia$Direct_q + ndia$staff_q,
    family = binomial, data = ndia)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.5257  -0.7938  -0.5662   0.9524   2.1355

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)     -1.54214    0.99441  -1.551   0.1209
ndia$Permc_q2   -0.80441    0.52174  -1.542   0.1231
ndia$Permc_q3   -0.84729    0.52561  -1.612   0.1070
ndia$Permc_q4   -0.25854    0.56431  -0.458   0.6468
ndia$OHS_q2     -0.45771    0.56216  -0.814   0.4155
ndia$OHS_q3      0.16821    0.53352   0.315   0.7525
ndia$OHS_q4      0.87342    0.50405   1.733   0.0831 .
ndia$Util_q2     0.10869    0.57369   0.189   0.8497
ndia$Util_q3    -0.56568    0.54376  -1.040   0.2982
ndia$Util_q4    -0.21958    0.55612  -0.395   0.6930
ndia$margin_q2   0.06527    0.47365   0.138   0.8904
ndia$margin_q3  -0.23313    0.49225  -0.474   0.6358
ndia$margin_q4  -0.28138    0.52347  -0.538   0.5909
ndia$Award2      0.80007    0.41227   1.941   0.0523 .
ndia$Direct_q2   0.34792    0.73382   0.474   0.6354
ndia$Direct_q3  -0.03080    0.83440  -0.037   0.9706
ndia$Direct_q4   0.81449    0.88063   0.925   0.3550
ndia$staff_q2    0.83697    0.78984   1.060   0.2893
ndia$staff_q3    0.58009    0.84611   0.686   0.4930
```

```
ndia$staff_q4   0.59588    0.92154   0.647   0.5179
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 242.72  on 211  degrees of freedom
Residual deviance: 218.89  on 192  degrees of freedom
  (403 observations deleted due to missingness)
AIC: 258.89

Number of Fisher Scoring iterations: 4
```

Limitation of our work

General use restriction

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