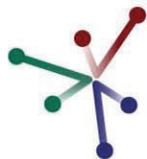


NDDA Pilot - South Australian Test Case: Education to Employment

Summary of NDDA pilot findings

December 2021



National
Disability
Data Asset

The problem

In the NDDA Pilot - South Australian test case, the focus is on analysing pathways from education to employment of young adults with disability. First, we test the ability of the linked administrative data to underpin such an analysis, identify gaps and issues with the data, and suggest areas of improvement. Second, we define appropriate indicators of disability and undertake a preliminary multivariate analysis. Our primary interest is the role that disability plays in impacting on outcomes as an individual goes through schooling and tertiary education into subsequent employment.

Key findings from the NDDA Pilot for South Australian (SA) students

- This test case brought together more data than ever before for the analysis of students' outcomes along the educational-work pathway.
- The test case allowed the computation of a range of disability indicators that are relevant to addressing the South Australian NDDA test case research questions.
- The large sample sizes allow a granular analysis of the impact of disability on students' outcomes.
- Students with disability experience markedly worse outcomes than students without disability.
 - Students in South Australia with disability are 26 percentage points less likely to participate in the Year 9 NAPLAN test.
 - Accounting for this lower participation, students in South Australia with disability score, on average, 92 points less than students without disability (equivalent to more than 1 standard deviation of the population scores).
 - Students with disability in South Australia are, on average, 14 percentage points less likely to complete the South Australian Certificate of Education (SACE).
 - Yet, if their NAPLAN scores could be improved to the level of students without disability, there would be no gap left with regards to completing SACE.
 - Students with disability in South Australia are 26 percentage points less likely to enrol at university than students without disability. They are more likely to enrol in a low level Vocational Education and Training (VET) course (Certificate I-II).
 - Students with disability in South Australia are 23 percentage points less likely to enrol in post-school education. After controlling for past achievements, they remain 5 percentage points less likely to enrol in post-school education compared to students without disability.
 - Students with disability in South Australia are 20 to 26 percentage points less likely to find employment at around 25 years. Those who do are 18 percentage points less likely to secure a full-time job.
 - Young adults with disability in South Australia earn, on average, 49% less yearly on the labour market. This is partly due to shorter worked hours and less permanent jobs. Nevertheless, those who are employed full time still earn, on average, 18% less than similar young adults without disability.

Implications and actions

Our assessment of the NDDA Pilot is that it is fit-for-purpose for the analysis of the impact of disability on a range of individual outcomes and is a cost-effective means to carry out policy relevant research on behalf of Government Departments on a wide range of topics. We believe that the limitations and gaps we encountered with the data can easily be addressed for an enduring NDDA.

With regards to the NDDA Pilot's South Australian test case analysis of students' outcomes, our results support the view that early intervention is key in reducing gaps between students with disability and other students along the education pathway. However, early interventions are not necessarily sufficient.

The variability of the results with respect to type of disability suggests that policy intervention should be tailored in timing and intensity to the type and severity of the disability. For some students with disability (notably Intellectual disability, autism/Asperger), early interventions need to be complemented with further interventions, notably at crucial stages such as upon completion of SACE when students decide to enrol in post-school qualifications.

1. Background

In the NDDA Pilot's South Australian test case, the focus is on analysing pathways from education to employment of young adults with disability. More specifically, the population of interest is the South Australian cohort of students enrolled in year 10 at Government schools from 2005 to 2019 whose pathways through education and work can be followed through various administrative data sources. Our primary interest is the role that disability plays in impacting on outcomes as an individual goes through schooling and tertiary education into subsequent employment. Our analysis relies on descriptive and multivariate analysis, providing comparisons between individuals with disability and other young adults on a range of important milestones:

- Attendance at the NAPLAN tests of various years
- NAPLAN scores
- South Australian Certificate of Education (SACE) completion
- Highest level of enrolment and completion of post-secondary qualification
- Labour market outcomes at age around 25 years: employment, full-time employment, earnings (Pay As You Go, PAYG) and weekly income.

The impact of disability on the above outcomes was analysed through the use of eight indicators of disability. These indicators are based on either the Department of Education or Disability Services National Minimum dataset (DSNMDS) definitions and include a basic disability identifier, the type of disability, the number of disabilities, and the severity of disability.

First, we test the ability of the linked administrative data to underpin such an analysis, identify gaps and issues with the data, and suggest areas of improvement. Second, we define appropriate indicators of disability and undertake a preliminary multivariate analysis. Our primary interest is the role that disability plays in impacting on outcomes as an individual goes through schooling and tertiary education into subsequent

2. Key findings from the NDDA Pilot for South Australian students

Below is a list of the key findings in respect of, first, our assessment of the linked administrative data and, second, the substantive outcomes along the education to work pathway.

Assessment of the linked administrative data

- The NDDA Pilot test case enabled the computation of a range of indicators of disability that allowed a rich analysis of students' outcomes along the educational/work pathway.
- Information on disability is recorded in each dataset according to 'business driven' definitions. This implies that the definition of disability, the type of disability or severity may change from one dataset to another. Some individuals may have a disability in one dataset but not in another. The recorded primary disability may differ from one dataset to another because of different definitions or because of the timing of the data (one dataset recording a disability years apart from another). This creates challenges to the analysis but also provides opportunities to investigate a wider range of individual situations.
- By allowing access to a large number of observations, the NDDA Pilot test case allows researchers to improve on the granularity of the analysis compared to working with survey data. For our South Australian student cohorts, we were able to work with more than 18,000 students with disability (Department of Education definition) which means that we could use most of the information on type and severity of a disability. The large number of observations is one great feature of the NDDA.
- Overall, the NDDA Pilot allowed one to undertake state-of-the-art multivariate analyses. This enabled us to provide comparisons of educational and work outcomes between South Australian students with disability and other students while controlling for socioeconomic differences between the various groups of students (gender, indigenous status, language spoken at home, SES, remoteness, regional area, cohort effects, etc.).
- We identified limitations and gaps in the data:
 - One important limitation in using linked administrative data is the lack of information which is usually elicited through dedicated surveys. For instance, we lack information on barriers to participation or achievement as experienced by the students with disability. Likewise, we do not have information on individuals' satisfaction with aspects of everyday life or with disability services. We may have objective information about a primary disability for the purpose of allocating support but, from the point of view of the person, it may very well be another disability which impacts his/her everyday life the most.
 - There are several areas where the data on students could be improved:
- The data linked for this test case includes all South Australian public school students enrolled in year 10 from 2005 to 2019. The results would be more comprehensive if

students enrolled in independent and catholic schools were included.

- The literature on schooling outcomes identifies important (and systematic) variations at school level, i.e. over and above variations that are due to students' individual characteristics. There are statistical techniques that allow one to control for these 'school effects'. It would be useful if the student data was complemented with additional data on the schools they are enrolled in, with a unique identifier of schools so we can tell which students attend the same school (see the OECD PISA data for an example).
- There are a number of students' outcomes that are missing from the data and which are important milestones in their educational pathway. The analysis could be improved if we could include the information on whether students requested an ATAR (which indicates an intention to enrol at University prior to completing SACE) and the actual ATAR score.
 - **Time span of the data:** A key challenge we have confronted in this project is that data from some sources do not cover the whole period of our interest (cohorts 2005-2019). For example, the Total VET Activity (TVA) data are only available from 2015 to 2019. To solve this problem, data from the National VET Provider Collection should be included for the years before the TVA data collection commenced. Another example is the DS-NMDS data which is available only from 2011. Students who received disability support services before 2011 are not captured by the data, only information on support accessed post 2011 are available for these students. To our knowledge, the DS-NMDS data has been collected since 1991, so it should be possible to include the years 2005-2011.
 - **Crucial information that is not captured in the NDDA Pilot:** several aspects of disability are currently missing in the data. The relevant literature has identified them as particularly important in any analysis of outcomes of persons with disability. Key gaps for this analysis included the age of onset and the duration of disability. The span of the data does not allow one to track changes in disability over time for the whole life of our students.

Participation in South Australia's year 9 NAPLAN test

- Participation in the Year 9 NAPLAN test for South Australian students with disability is significantly lower than for students without disability. We estimate the gap to be around 26 percentage points depending on the indicator of disability used.
- We observe a large variation in the probability of participating in the Year 9 NAPLAN test according to type of disability and severity. For instance, the probability of participation for students with intellectual disability (as identified by the Department of Education) is 63 percentage point lower than students without disability. By contrast, the probability is only 14 percentage points lower for students with a speech/language disability.
- Participation is 52 percentage points lower for South Australian students with severe disability (17 percentage points for students with a mild disability), as classified by the Department of Education.
- South Australian students who participated in Year 7 NAPLAN tests are more likely to participate in the Year 9 NAPLAN test (by 38 percentage points).

South Australian Year 9 NAPLAN scores

- The observed score gap of 74 points between students with disability (with an average score of 488) and other students (average score of 562) under-estimates the ‘true’ gap between the two groups of students. This is due to a ‘selection bias’ arising from the pattern of participation in the NAPLAN test. In other words, the observed Year 9 NAPLAN test scores of students with disability is not representative of the whole population of students with disability.
- Our estimates show that if we account for this bias, the score gap between students with disability and other students is, on average, 92 points, that is 17 points more than originally observed through descriptive statistics.
- The magnitude of the score gap between students with disability and other student varies significantly across disability type and severity. Students with intellectual disability score, on average, 205 points less. Students with autism or Asperger score 57 points less. Students with language/communication disability score 90 points less, and students with speech/language disability score 95 points less.
- Controlling for Year 7 NAPLAN test, we find that earlier achievements are strong predictors of later achievements, all the more so for students with a disability. Similar observations can be made of all educational outcomes along one’s pathway. This supports the notion (well documented in the relevant literature) that substantial gains can be achieved from applying policy early on in students’ pathways.

South Australian SACE completion

- Overall, we find that students with disability have a 14 percentage point lower probability of completing SACE, compared to students without disability.
- We find significant differences across disability type and severity of disability. The smallest gap between students with disability and students without disability is observed for students with autism/Asperger. Their probability of completing SACE is, on average, 4 percentage points lower than that of students without disability. Comparatively, the probability is 18 percentage points lower for students with language and communication disability.
- For students with severe disability, the estimated probability to complete SACE is 18 percentage points lower than students without disability. The difference is 15 percentage points for students with a less severe disability.
- When accounting for the sequential nature of educational outcomes and apportioning the impact of disability between a direct and indirect component, our results are sensitive to the definition of disability used. Using the indicators of disability constructed from the Department of Education data, we find that much of the difference (14 percentage points) between students with disability and students without disability is related to the indirect impact disability has on previous achievements (notably Year 9 NAPLAN scores). For instance, after controlling for past achievements, the probability of SACE completion is not significantly different between students with autism/Asperger and students without disability, suggesting that the original 4 percentage point difference comes from lower NAPLAN scores obtained by students with autism/Asperger. In other words, taking two students with the same NAPLAN score, we would expect students with autism/Asperger to perform as well as students without disability in terms of SACE completion. This is not the case for students with intellectual disability where we find a direct impact of disability on SACE completion of 8 percentage points (that is over and above the impact of this type of disability mediated through

lower NAPLAN scores). In other words, students with intellectual disability still have a lower probability of SACE completion compared to students with the same NAPLAN scores and without disability. This implies that these students need additional supports to achieve similar outcomes to students without disability.

- Our results differ slightly when we use disability indicators built from the DSNMDS data. Using this definition, we find an overall direct effect of 8 percentage points. This implies that a number of supports are required to enable students with disability to have the same probability of SACE completion as students without disability.

South Australian Post-secondary school outcomes

- Students in South Australia with disability have a 23 percentage point lower probability of enrolling in any post-school education, compared to students without disability.
 - South Australian students with disability have a 6 percentage point greater probability of enrolling in lower level VET courses (Cert I-II)
 - South Australian students with disability have a 26 percentage point lower probability of enrolling in a Bachelor or above qualification.
- Much of the difference between students with disability and those without is moderated if we take into account previous educational achievements. Nevertheless, even after we make students equivalent in terms of socio-economics and past achievements, significant gaps remain for the higher level qualification enrolments (Bachelor and above, Cert III/IV) and the probability to not enrol in any tertiary education remains 5 percentage points higher for students with disability compared to students without disability. We note that this general result hides significant disparities across disability types, especially for students with autism/Asperger. By contrast students with speech/language disability whose past achievements are controlled for have an enrolment profile that is very similar to that of students without disability.
- With regards to completion of a qualification (once enrolled) there are gaps between students with disability and 'similar' students without disability for those who enrolled in Bachelor or above (overall a 26 percentage points lower probability of completion) and for those who enrolled in cert III-IV (7 percentage points lower probability). We do not observe significant gaps for other levels of qualification (cert I-II, Diploma).
- However, once we control for past achievements (NAPLAN scores, SACE completion), the gaps disappear even for Bachelor (and above) and Cert III-IV levels of qualification. An exception to these results is for students with intellectual disability and language and communication disability who are less likely to complete Certificate III-IV.
- We note that the results exhibit some variation depending on the source of information used to define disability. Using the DSNMDS data, which has a more restrictive definition of disability (only 5.9% of the students are identified as having disability, compared to 10% in the Department of Education data), significant gaps remain between students with disability and students without disability with regards to completion of post-school education, even after controlling for past educational achievements.

South Australian labour market outcomes

- South Australian students with disability have a lower probability of being employed of 20 percentage points (ATO data), compared to students without disability. Using Census data, the estimated gap is larger with a 26 percentage point difference. Using the more

restrictive definition of disability from the DSNMDS data, we find the gap to be even larger (34 percentage points).

- The gap remains (though reduced) if one accounts for past educational achievement.
- PAYG amounts paid to individuals with disability are, on average, 49% lower than payments to individuals without disability. Because of the limitations of the ATO data, we cannot tell whether this large gap is driven by hours worked, type of job or wage rates.
- Using the Census data, we find that individuals with disability are not only 26 percentage points less likely to be employed but also, they are 18 percentage points less likely to be employed full time. Accounting for past educational achievements, the gap is reduced but remains large. This result suggests that between two similar individuals in terms of socio-economic characteristics and educational achievement, individuals with disability remain 18 percentage points less likely to be employed and 15 percentage points less likely to be employed full time.
- In terms of weekly income (Census data), we find that individuals with disability who are employed full-time make between 16 and 22% lower weekly income than full-time employees without disability.

3. Implications

The NDDA Pilot's South Australian test case shows that the linked administrative data provides rich data which allow analyses of crucial policy-oriented research questions. Some of the identified gaps in the data can be easily addressed through the inclusion of additional years of data for existing datasets. Others could be addressed through the inclusion of additional data. For instance, the National Student Outcomes Survey, which is an annual survey of students who completed their vocational education and training in Australia and the Australian Graduate Survey would be a useful addition to the available data for the SA NDDA test case.

The analysis of students' outcomes along the educational-work pathway revealed that students with disability experience poorer outcomes compared to students without disability at all steps or milestones of a pathway. The analysis also reveals that earlier gaps have a cumulative impact on later outcomes. These earlier gaps are often the main source of variation in those later outcomes. As a result, our analysis strongly supports a view that early intervention is key to the significant reduction of gaps between students with disability and students without disability. The strong correlation between outcomes along the education pathways implies that early improvements would pay off at later educational stages.

The variability of the results with respect to type of disability suggests that policy intervention should be tailored in timing and intensity to the type and severity of one's disability. For example, some students with disability (notably Intellectual disability, autism/Asperger), will benefit from early interventions and continued supports throughout their education pathways, notably at crucial stages such as upon completion of SACE when students decide to enrol in post-school qualifications.

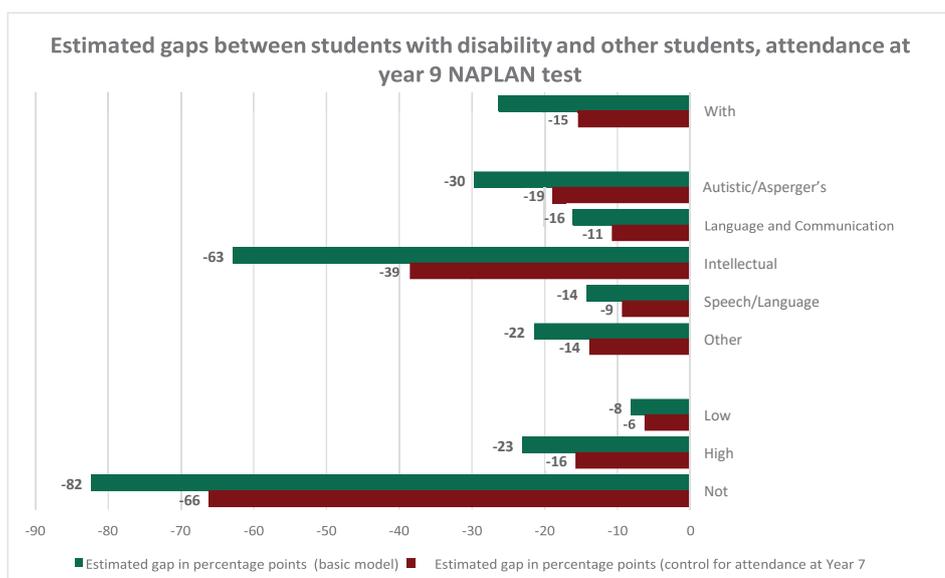
Further analysis would improve the granularity of the results, notably those regarding students' post school (and work) outcomes.

4. Key tables / figures

Below we summarise a selected number of results obtained through the multivariate analysis of students' outcomes along the educational-work pathway. We simplified the results into figures representing the estimated gaps between students with disability (according to each indicator of disability built using the Department of Education data¹) and students without disability. These estimates account for individual differences in terms of socio-economic characteristics.

The following figure (Figure 1) displays the estimated gap, expressed in percentage points between South Australian students with disability defined through 3 indicators and students without disability. For instance, the simplest indicator of disability suggests that the gap (everything else held constant) is 26 percentage points. The estimates associated with the second indicator of disability recording students' type of primary disability illustrates the large variation of the attendance rates across disabilities. Students with intellectual disability are 63 percentage point less likely to attend Year 9 NAPLAN test while students with language and communication disability are 22 percentage point less likely to attend. Not surprisingly, the more severe the disability (third group of estimates) the less likely students' attendance (23 percentage points gap for student categorised as 'high level'). Even after controlling for students' attendance to Year 7 NAPLAN test (red histograms), students with disability are significantly less likely to attend year 9 NAPLAN test.

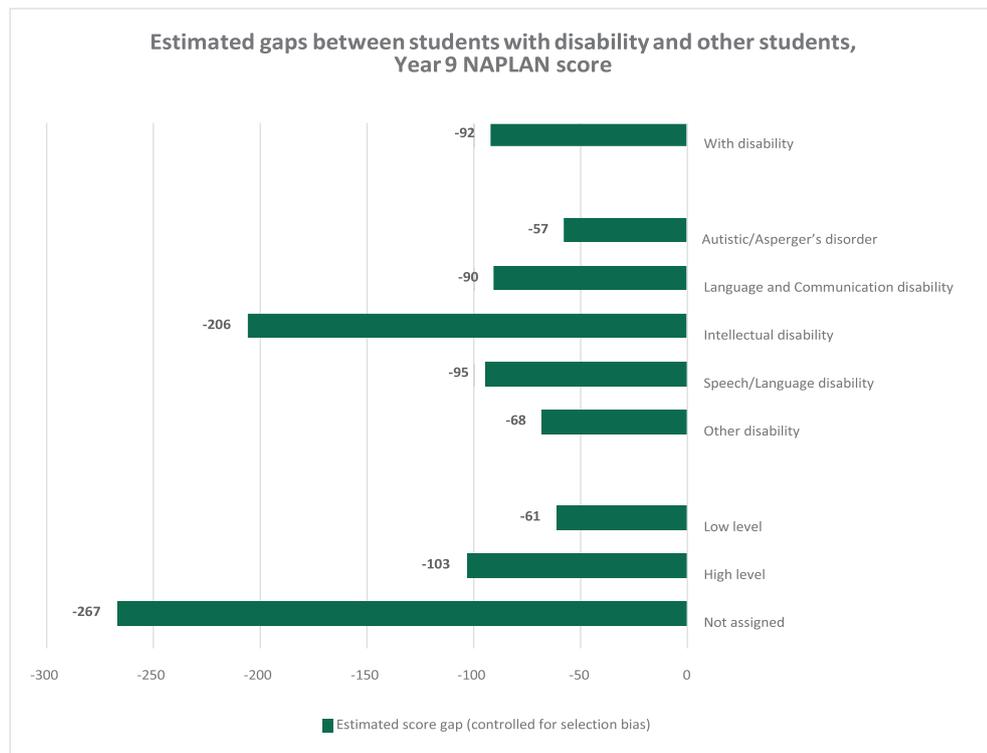
Figure 1: Estimates of the gaps between South Australia students with disability and other students, attendance at Year 9 NAPLAN test



¹A full set of results, including estimations using the indicators of disability computed with the DSNMDS data, will be available through the report for the SA Department of Premier and Cabinet.

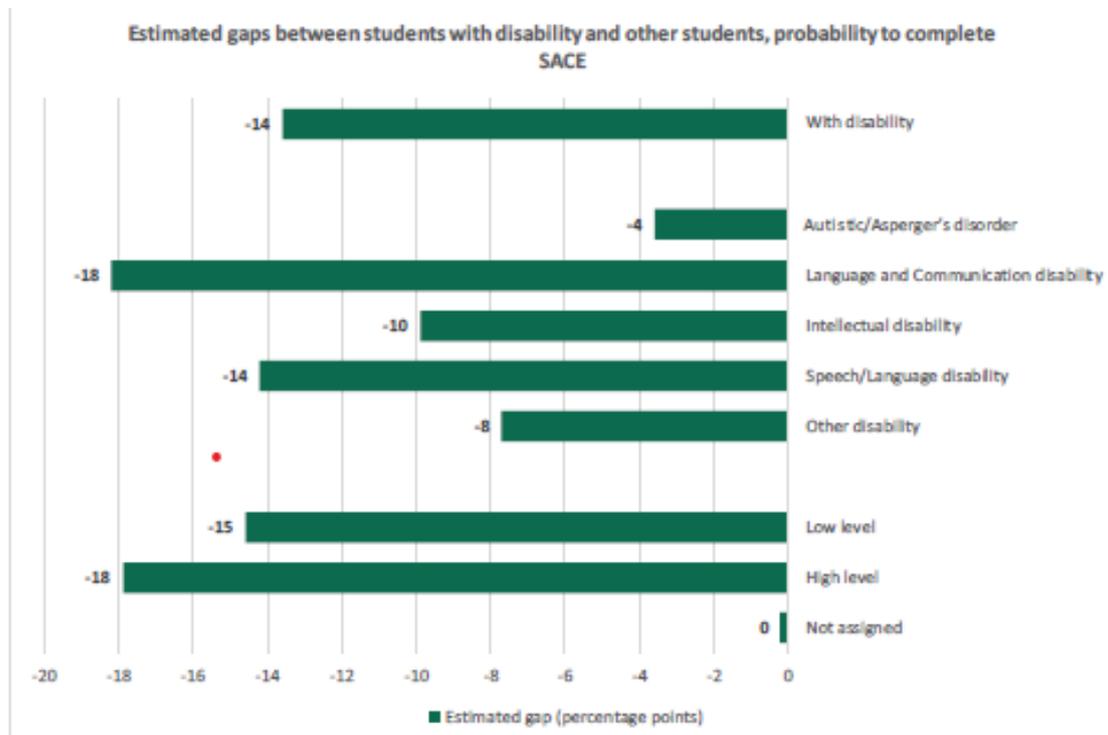
The following figure (Figure 2) illustrates the estimated gap in terms of scores between students with disability and students without disability, everything else held constant. These estimates also account for the selection bias arising from attendance at Year 9 NAPLAN test where we found that students with disability attending the test were not representative of the broader population of students with disability. The estimates show that, on average, students with disability score 92 points lower than students without disability (this represents a gap of about 1.2 standard deviation of the score obtained by students without disability, which is very large). The estimates for the second set of disability indicators exhibit large variations across disability type with students with intellectual disability scoring an estimated 206 points less than students without disability. Students identified as having severe disability (“high level”) score 103 points less.

Figure 2: Estimates of the gaps between South Australian students with disability and other students, Year 9 NAPLAN test scores



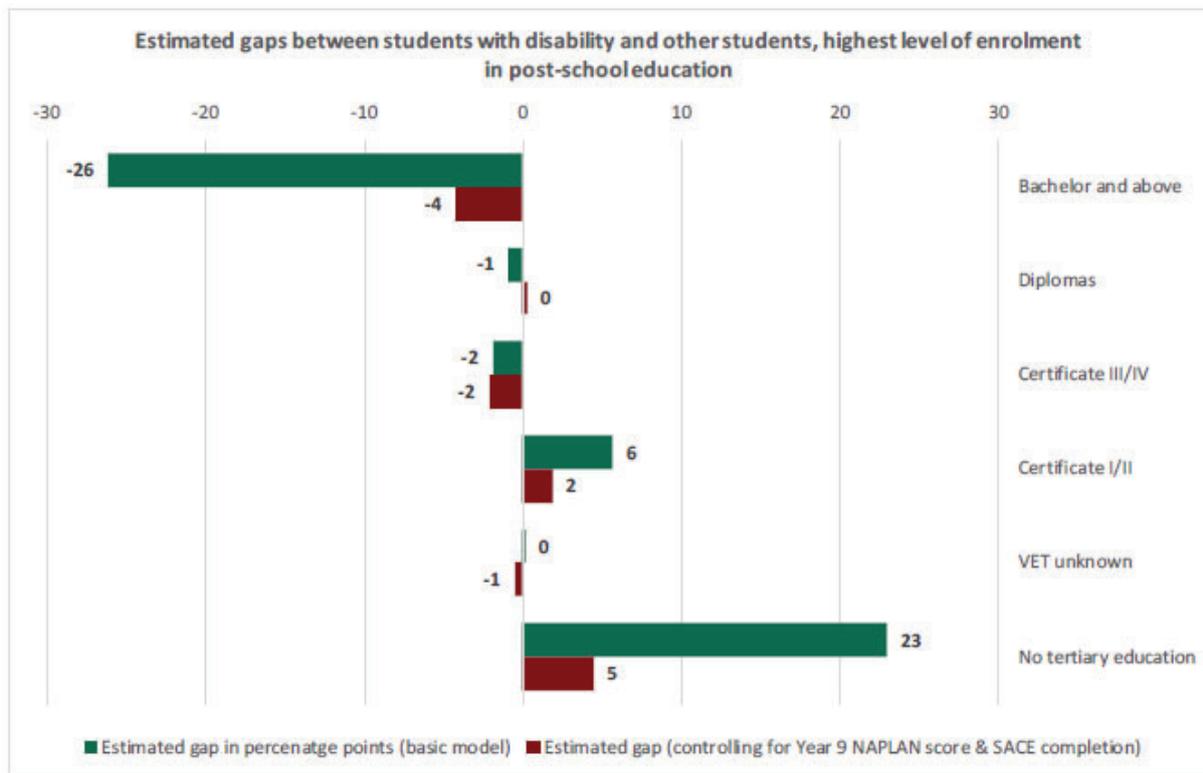
In the following figure (Figure 3), we displayed the estimated gaps, expressed in percentage points, with regards to SACE completion. Overall, the estimated probability that students with disability complete SACE is 14 percentage points lower than that of students without disability. The estimates by type of disability show the largest gap is experienced by students with language and communication disability (18 percentage points). Interestingly, students with intellectual disability who experience the largest gaps in terms of NAPLAN score do not have the lowest estimated probability to complete SACE. We observe the same relationship between severity of disability and magnitude of the gap as for the other outcomes. Students with more severe disability are 18 percentage points less likely to complete SACE

Figure 3: Estimates of the gaps between South Australian students with disability and other students, SACE completion



The following figure (Figure 4) illustrates the estimated gaps (percentage points) between students with disability and students without disability with regards to post-school choices of education. The green histograms show the estimated gaps using a simpler (multinomial Logit) model controlling for socio-economic characteristics. The red histograms show the estimated gaps under an alternative specification that accounts for the sequential nature of outcomes, controlling for past outcomes. We only display the relationship between the binary indicator of disability and the 6 choices of post-school education. The results show that students with disability are 23 percentage points more likely to not enrol in tertiary education. When controlling for previous outcomes (NAPLAN score and SACE), the gap reduces to 5.2 percentage points. In other words, between two students who are similar both in terms of socio-economic characteristics and past school performance, the student with disability remains 5 percentage points less likely to enrol in tertiary education. The results highlight the large gaps between students with disability and students without disability with respect to enrolling at university. Students with disability are 26 percentage points less likely to enrol in Bachelor or above. Even after controlling for past performance, the gap remains 4 percentage points. The results show a gap in the other direction with regards to lower-level VET courses. Students with disability are 6 percentage points more likely to enrol in certificate I/II.

Figure 4: Estimates of the gaps between South Australian students with disability and other students, enrolment in post-school education



APPENDIX: Overview of methodology

This appendix outlines key elements of the methodology implemented for the analysis of students' educational and work outcomes. We outline the population used for the NDDA Pilot's South Australian test case and provide comparisons between students with disability and students without disability with respect to socioeconomic characteristics. We define the indicators of disability used in the analysis. Finally, we outline the outcomes analysed and the corresponding estimation methodologies.

Cohort definition

The population of interest is the year 10 students enrolled in South Australian Government schools from 2005 to 2019. We define a range of disability indicators in order to identify students with disability, multiple disability and the type and the severity of disability, to the extent captured in the data. We use two sources of data on disability, (i) the Department of Education's which identifies students with disability according to education related criteria, and (ii) the DS-NMDS data which identifies students with disability according to records of supports they received from 2011 to 2019 under the National Disability Agreement. Altogether, two series of 4 indicators of disability were used in the analyses of student outcomes. While there are overlaps, the populations of students identified with disability, the type and severity of disability differ markedly between the two sources of information. Also, it is worth noting that the DS-NMDS is more restrictive in its definition of disability in the sense that only those who have accessed supports under the National Disability Agreement are recorded as having disability. The two tables below illustrate the differences between the two sources of information. According to the Department of Education data, students with disability represent 10 percent of the student population (Table 1). According to the DSNMDS data, students with disability represent 5.9 percent of the student population (Table 2).

Table 1: Disability status of the student population, SA School Enrolment data

	No. of individuals	Percent
With no disability	166,899	90.0
With single disability	16,335	8.8
With multiple disabilities	2,245	1.2
Total	185,479	100.0

Note: Some individuals are observed multiple times in the data. For those with disability, we use the first record where disability is indicated in the data.

Table 2: Disability status of the South Australian student population, DSNMDS data

	No. of individuals	Per cent
With no disability	174,551	94.1
With single disability	7,241	3.9
With multiple disabilities	3,687	2.0
Total	185,479	100.0

Note: Some individuals are observed in multiple years of the DSNMDS and we use the record where disability is first indicated in the data.

Indicators of disability

The first two indicators of disability used in the analyses are simply the indicators of whether a student is identified as having a disability according to the two sources of information used (see Table 1 and 2 above).

The second indicators of disability use the type of disability. We define one indicator for each source of information. Importantly, there are important differences between the two sources of information as the disability types do not perfectly map onto each other depending on the source of information. Moreover, in order to avoid issues of small number of observations in some categories defining one's type of disability, we had to collapse the original classifications.

From the information contained in the Department of Education data, we defined 5 broad types of disability as reported in the following table (Table 3). The 'other' category is more complex than the one for the DSNMDS data (see note below the table).

Table 3: Types of primary disability of the student population, SA School Enrolment data

	No. of individuals	Percent
With no disability	166,899	90.0
Autistic/Asperger's disorder	2,107	1.1
Language and Communication disability	8,762	4.7
Intellectual disability	3,687	2.0
Speech/Language disability	2,215	1.2
Other	1,809	1.0
Total	185,479	100.0

Notes: The other category includes: Cognitive delay (early intervention) in 2019 only; Global developmental delay; Sensory disability – hearing; Physical disability; Sensory disability – vision; Complex social/emotional (behaviour) needs in 2019 only; Complex/acute health care in 2019 only. Although 'Language and communication disability' is an old coding which was retired in 2007, we still observe individuals belonging to this category until 2018.

From the DSNMDS data, we defined 5 broad types of disability as illustrated by the following table (Table 4).

Table 4: Types of primary disability of the South Australian student population, DSNMDS data

	No. of individuals	Percent
With no disability	174,551	94.1
Intellectual	3,145	1.7
Psychosocial	2,277	1.2
Autism	1,704	0.9
Specific learning/ADD	1,684	0.9
Other	2,118	1.1
Total	185,479	100.0

Note: The other category includes: Physical; Acquired brain injury; Neurological; Deaf/blind; Vision; Hearing; Speech; Not stated.

The two definitions of disability types across the two sources of information do not match perfectly. For instance, of the 2,107 students identified in the *autism/Asperger* category in the Department of Education data, 903 (43%) are identified in the *autism* category in the DS-NMDS data; 809 (38%) with *no disability*, 306 (15%) with *intellectual disability*. This has bearing in the subsequent estimation results where significant differences are observed for the analysis of some outcomes.

The third set of indicators of disability looks at severity of disability. The definitions differ widely between the two sources of information on disability.

In the Department of Education data, severity is derived on the basis of the level of disability support received by the student which we collapsed into three categories. The coding of severity is defined as follows:

- Low (Consultancy; Review; F; Additional; Exit; Inclusive Education Support Program Grant)
- High (Direct; High sustained; Very high sustained; Intensive; Level 1-9)
- Not assigned (if the information is missing)

The definition of severity using the DS-NMDS data is more comprehensive as it applies to a wide variety of life areas. We derive a severity measure of disability using the information on the level of help and/or supervision a person with disability requires in nine life areas. The original classification used for the level of help and/or supervision variables is the following:

- 1 Unable to do or always needs help or supervision in this life area
- 2 Sometimes needs help/supervision in this life area
- 3 Does not need help or supervision in this life area but uses aids or equipment
- 4 Does not need help or supervision in this life area and does not use aids or equipment
- 5 Not applicable (only appears in the areas of domestic life and working)
- 9 Not stated

We assigned a severity score to each of the life areas on the basis of the original classification in the DS-NMDS, as shown in the table below. The severity score reflects the fact that an individual with more severe disability in a life area will be given a higher score.

Original class	Severity score
1	4
2	3
3	2
4	1
9	1
5	Missing

We then derive an average severity score for each individual by computing the mean of their severity scores across the nine life areas. Using this approach, the average severity score is between 1 and 4. Finally, we categorise individuals with disability into three severity groups based on their average severity score.

Average severity score	Severity group
$1 \leq \text{score} < 2$	Mild
$2 \leq \text{score} < 3$	Moderate
$3 \leq \text{score} \leq 4$	Severe

Altogether, the following two tables show the distributions of the students according to each definition of severity (Table 5 and 6).

Table 5: Disability Severity of the student population, SA School Enrolment data

	No. of individuals	Per cent
No support is needed	166,900	90.0
Low level	7,301	3.9
High level	8,341	4.5
Not assigned	2,937	1.6
Total	185,479	100.0

Table 6: Disability Severity of the South Australian student population, DSNMDS data

	No. of individuals	Per cent
With no disability	174,551	94.1
Mild	4,278	2.3
Moderate	2,552	1.4
Severe	4,098	2.2
Total	185,479	100.0

The fourth set of indicators of disability distinguishes between students with one disability and students with multiple disabilities. The distribution by source of information is given in the two tables (Table 1 and Table 2) above.

Baseline characteristics

In this section, we provide some descriptive statistics of the student population according to a number of socioeconomic characteristics and by disability status. We display these statistics using the Department of Education data.

The table below (Table 7) shows significant differences between students with disability and students without disability. 6.9% of females have disability compared to 12.9% of males. Larger proportions of students with disability are also observed for students living in outer regional and remote areas and in low SES areas.

Table 7: Disability status of the student population by socio-economic characteristics, SA School Enrolment data

		Per cent		
		With no disability	With disability	Total
All individuals		90.0	10.0	100.0
Gender	Female	93.1	6.9	100.0
	Male	87.1	12.9	100.0
Language at home	Non-English	91.9	8.1	100.0
	English	89.8	10.2	100.0
Remoteness	Major cities	90.2	9.8	100.0
	Inner regional	90.3	9.7	100.0
	Outer regional	88.7	11.3	100.0
	Remote and very remote	89.3	10.7	100.0
SEIFA IRSD	Low SES status (Decile 1-2)	85.5	14.5	100.0
	Middle SES status (Decile 3-8)	91.6	8.4	100.0
	High SES status (Decile 9-10)	95.0	5.0	100.0

SEIFA = IRSD = ; SES = socioeconomic status

Outcomes

We investigated a range of outcomes along students' educational and work pathway, namely:

- Students' attendance in Year 9 NAPLAN test
- Students' year 9 NAPLAN scores
- SACE completion
- Choice of post-school education
- Labour force participation: employment and full-time employment
- PAYG payments received and weekly income

This report does not lend itself to an exhaustive presentation of descriptive statistics for all these outcomes according to the indicators of disability introduced above². Nevertheless, we provide three tables below which report descriptive statistics of students' outcomes in terms of NAPLAN scores and SACE completion according to the 8 indicators of disability discussed above. The information contained in these tables corresponds to univariate statistics, representing the 'raw' gaps observed between South Australian students with disability and other students that is without controlling for individual socio-economic differences across students.

² A more comprehensive presentation of the SA NDDA test case results form a report for the SA Department of Premier and Cabinet.

The following table (Table 8) displays the mean NAPLAN scores (year 3 through to year 9) by disability indicator. The first row of the table reports the mean score for the whole population of students who attended the NAPLAN tests.

Table 8: South Australian NAPLAN scores by disability indicators

	Year 3		Year 5		Year 7		Year 9	
	Mean score	N						
All South Australian students	383	41,366	464	61,347	521	83,191	556	109,592
Disability status (Education data)								
With no disability	390	37,595	471	55,892	528	75,925	562	101,204
With disability	315	3,771	397	5,455	455	7,266	488	8,388
No. of disability (Education data)								
With single disability	316	3,575	398	5,162	456	6,867	488	7,931
With multiple disabilities	301	196	380	293	437	399	473	457
Types of primary disability (Education data)								
Autistic/Asperger	361	852	445	1,065	502	1,198	537	1,224
Language and Communication disability	312	816	393	1,802	451	3,024	482	3,990
Intellectual disability	262	465	343	618	406	725	433	739
Speech/Language disability	295	1,224	382	1,379	442	1,546	474	1,540
Other	343	414	412	591	470	773	513	895
Disability severity (Education data)								
Low level	330	1,724	413	2,558	469	3,497	501	4,143
High level	307	1,828	387	2,637	445	3,535	477	4,036
Not assigned	260	218	341	260	400	233	420	208
Disability status (DSNMDS)								
With no disability	384	40,145	466	59,360	523	80,139	558	105,473
With disability	334	1,221	416	1,987	477	3,052	510	4,119
No. of disability (DSNMDS)								
With single disability	335	968	416	1,494	478	2,280	510	3,127
With multiple disabilities	328	253	414	493	475	772	510	992
Types of primary disability (DSNMDS)								
Intellectual	277	239	359	340	427	414	449	503
Psychosocial	353	137	430	347	499	678	532	984
Autism	356	484	440	644	497	800	534	891
Specific learning/ADD	305	100	383	213	448	516	481	872
Other	346	261	429	443	487	644	523	869
Disability severity (DSNMDS)								
Mild	339	309	423	664	482	1,283	513	2,002
Moderate	325	276	409	481	472	748	506	947
Severe	335	636	414	842	476	1,021	508	1,170

Note: We have dropped 9 individuals who have multiple NAPLAN records in the same year. For individuals with multiple NAPLAN records across calendar years for the same year level, we have kept the record in the earliest calendar year.

Since NAPLAN test scores have a different scale across years and in order to make it easier to compare groups of students, we converted the scores in terms of distance from the mean scores obtained by students without disability. We expressed these distances in terms of standard deviations. The following table (Table 9) displays students' scores accordingly. For instance, looking at Year 9 NAPLAN scores, the table shows that the mean score of students with intellectual disability is 1.97 standard deviations below the score of students without disability.

Table 9: NAPLAN scores in terms of deviation from the mean NAPLAN scores of South Australian students with no disability

	Year 3	Year 5	Year 7	Year 9
Disability status (Education data)				
With no disability	0.00	0.00	0.00	0.00
With disability	-1.04	-1.14	-1.15	-1.13
No. of disability (Education data)				
With single disability	-1.03	-1.12	-1.14	-1.12
With multiple disabilities	-1.24	-1.40	-1.44	-1.35
Types of primary disability (Education data)				
Autistic/Asperger	-0.39	-0.40	-0.41	-0.38
Language and Communication disability	-1.07	-1.20	-1.22	-1.21
Intellectual disability	-1.78	-1.96	-1.94	-1.97
Speech/Language disability	-1.32	-1.37	-1.36	-1.35
Other	-0.65	-0.90	-0.91	-0.75
Disability severity (Education data)				
Low level	-0.82	-0.90	-0.93	-0.93
High level	-1.15	-1.29	-1.32	-1.29
Not assigned	-1.80	-1.99	-2.03	-2.17
Disability status (DSNMDS)				
With no disability	0.00	0.00	0.00	0.00
With disability	-0.70	-0.77	-0.73	-0.73
No. of disability (DSNMDS)				
With single disability	-0.68	-0.76	-0.72	-0.73
With multiple disabilities	-0.78	-0.80	-0.76	-0.73
Types of primary disability (DSNMDS)				
Intellectual	-1.49	-1.64	-1.53	-1.66
Psychosocial	-0.43	-0.56	-0.39	-0.39
Autism	-0.40	-0.41	-0.41	-0.36
Specific learning/ADD	-1.10	-1.27	-1.20	-1.17
Other	-0.53	-0.56	-0.57	-0.52
Disability severity (DSNMDS)				
Mild	-0.63	-0.66	-0.66	-0.68
Moderate	-0.83	-0.88	-0.82	-0.79
Severe	-0.68	-0.80	-0.75	-0.77

Note: The standard deviations of the NAPLAN scores for all individuals are 72 for Year 3, 65 for Year 5, 63 for Year 7 and 65 for Year 9.

The following table (Table 10) shows the proportion of South Australian students who complete SACE according to the 8 indicators of disability.

Table 10: SACE completion by disability indicator

	Proportion completing SACE (percent)	Total number of individuals
All individuals	57.3%	160,623
Disability status (Education data)		
With no disability	59.0%	145,831
With disability	40.6%	14,792
No. of disability (Education data)		
With single disability	39.2%	12,924
With multiple disabilities	50.1%	1,868
Types of primary disability (Education data)		
Autistic/Asperger's	56.5%	1,541
Language and Communication disability	33.6%	7,496
Intellectual disability	44.7%	2,870
Speech/Language disability	43.7%	1,475
Other	48.6%	1,410
Disability severity (Education data)		
Low level	39.2%	5,972
High level	36.2%	6,382
Not assigned	55.4%	2,437
Disability status (DSNMDS)		
With no disability	58.4%	151,509
With disability	39.4%	9,114
No. of disability (DSNMDS)		
With single disability	39.4%	5,991
With multiple disabilities	39.4%	3,123
Types of primary disability (DSNMDS)		
Intellectual	46.7%	2,581
Psychosocial	25.6%	1,882
Autism	48.9%	1,373
Specific learning/ADD	28.5%	1,457
Other	44.7%	1,821
Disability severity (DSNMDS)		
Mild	33.0%	3,689
Moderate	33.2%	2,170
Severe	50.7%	3,255

Methodology of the multivariate analysis of outcomes

For all outcomes listed above, we conducted multivariate analyses looking at the relationship between each outcome and disability, controlling for differences between South Australian students in terms of individual socioeconomic characteristics. The estimated coefficients obtained for the various indicators of disability are such that they indicate the relationship between outcomes and disability, everything else held constant. Typically, for each outcome, we control for differences in terms of gender, SES, Indigenous status, location (urban vs inner regional/outer regional/remote), cohort indicator (controlling for changes over time), language spoken at home, etc.

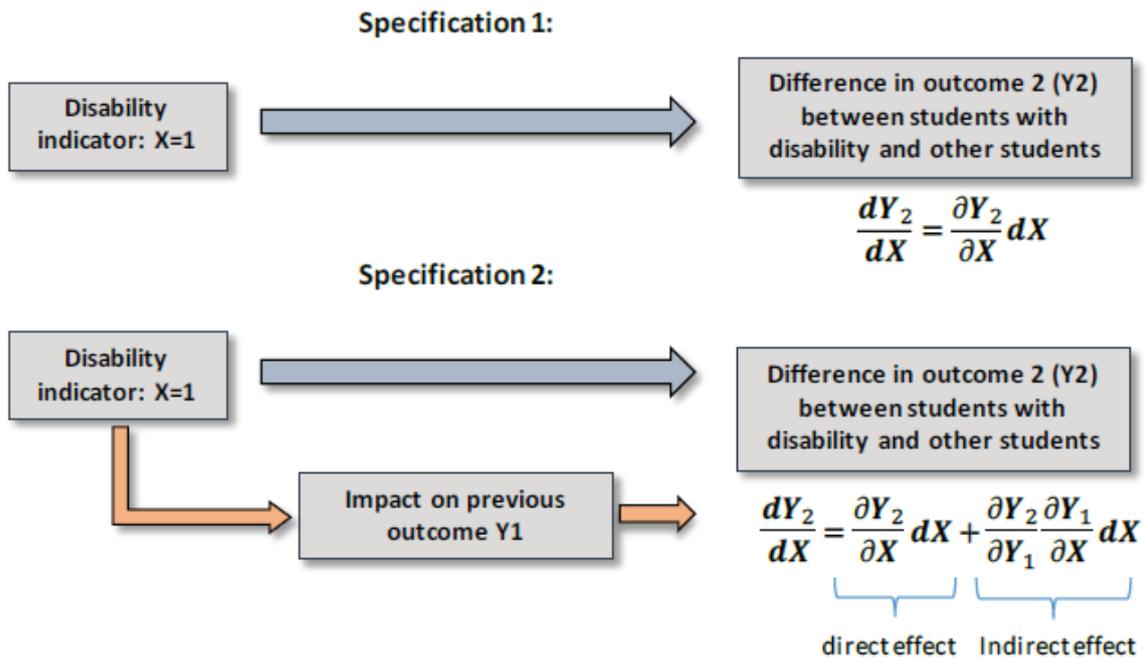
We estimated a series of models for each indicator of disability for a given outcome. We reported only the estimated coefficients (or marginal effects) associated with the indicators of disability and provided selected results in section 4 of this report.

Depending on the nature of the outcome, we either estimated linear models (NAPLAN scores, PAYG payments, weekly income) or non-linear probabilistic models (attendance at NAPLAN test, SACE completion, employment, full-time employment) or non-linear multinomial models (choice of post-school education which includes 6 possible outcomes).

For the estimation of Year 9 NAPLAN scores, we accounted for the fact that students with disability are less likely to attend the test. This implies (as we demonstrated in the results) that students with disability who do attend the test are not representative of the broader population of students with disability. We corrected for the associated ‘selection bias’ in our estimation of Year 9 NAPLAN scores by implementing a Heckman two-step estimator.

In a second step, other specifications of the models are estimated which explicitly accounted for the sequential nature of outcomes along the education pathway. This is an important step in the analysis of the impact of disability on students’ outcomes because it enabled us to distinguish between an *indirect effect*, which manifests itself by negatively impacting on previous outcomes, and a *direct effect* which comes over and above.

The following figure illustrates the difference between the two specifications used to estimate the models of outcomes and what it implied with regards to the estimated impact of disability on a given outcome (denoted by Y2 in the figure).



In the relevant literature, we find examples of socioeconomic disadvantages whose negative impact on outcome significantly reduces when addressed early. Practically, these are disadvantages that exhibit a large indirect effect but a small direct effect. In the Education literature, it is the case, for instance of Indigenous status where most of the observed impacts in terms of dropping out of school or post-school education are explained by what happens early in the educational pathway; early improvements being associated with large and significant gap reductions along the pathway (see Mahuteau, 2014³). The estimation of the magnitude of each effect provides useful information as to the expected returns one can expect from early policy interventions.

For the estimation of young adults' labour market outcomes, we used the data from the ATO (Payment summaries) and the Census (2016). The two sources of data have strong limitations. The ATO data lacks detail on labour force status, hours worked, occupation and wage rates but contains information for every year. The Census data has more detailed information on labour market outcomes but is only available every 5 years. For both data, the modelling is possible only for older cohorts, those in age of participating in the labour market. Using the ATO data, we looked at two outcomes, namely (i) the probability to be employed, and (ii) the amount of payments received. Using the Census data, we refined the analysis by looking at, (i) the probability to be employed, (ii) the probability to be employed full-time, and (iii) the amount of weekly income from paid work.

Project team

The project team included:

Associate Professor Stephane Mahuteau, Co-director of the Future of Employment and Skills (FES) research centre (University of Adelaide) and lead CI of the project.

Professor Tom Karmel, researcher at FES, University of Adelaide.

Dr Zhang Wei, Senior Research Fellow at FES, University of Adelaide.

³ Mahuteau, S., Mavromaras, K., (2014), "An analysis of the impact of socioeconomic disadvantage and school quality on the probability of school dropout", *Education Economics*, vol 22(4), pp. 389-411.



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NDDA Education to Employment South Australia (SA) test case: qualitative research into lived experience to support quantitative analysis

High Level Findings Summary

Dr Megan Moskos, Dr Linda Isherwood and Dr Llainey Smith

November 2021

Future of Employment and Skills Research Centre

**make
history.**

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1. Introduction

This project was designed to complement and strengthen the quantitative analyses being undertaken for the South Australia (SA) NDDA test case. It adopted a qualitative approach to investigate the lived experiences of education and employment pathways of young adults with disability.

In-depth semi-structured interviews were conducted with young adults with disability living in South Australia. These interviews incorporated oral histories of transitions into education and employment.

To date 11 interviews have been undertaken: 7 of these were face-to-face and 4 were undertaken virtually (by phone or video call). Table 1 provides an overview of the demographic characteristics of the participants who have been interviewed to date. Appendix 1 provides further information about the methodology.

Table 1: Participant Demographics

Attribute Type	Number = 11	Percentage (%) ^b
Age		
17-24 years	5	45.5
25-34 years	3	27.3
35+ years	3	27.3
Location		
Metropolitan	11	100.0
Regional	0	0.0
Gender		
Male	4	36.4
Female	7	63.6
Identifies as Aboriginal or Torres Strait Islander		
Yes	1	9.1
Identifies as Culturally and Linguistically Diverse		
Yes	1	9.1
Disability Type^a		
Acquired Brain Injury	1	9.1
ADHD	5	45.5
Autism	4	36.4
Intellectual Disability	1	9.1
Learning Disability	1	9.1
ME/Chronic Fatigue Syndrome	1	9.1
Psychosocial Disability	2	18.2

Notes: ^a Respondents could nominate more than one type of disability. ^b Due to rounding, the percentages presented may not total 100 in each sub-section.

2. Key Findings

2.1. Experiences of post-school transitions to education and employment

The interviews sought to understand both the **types and experiences of post-school transitions** into education and employment for young people living with disability in South Australia. A wide variety of transitions had been experienced with some respondents having either currently or previously undertaken further studies (at TAFE or university). Other respondents had transitioned into employment (both paid and unpaid) from school or following their completion of further education. A minority were still in the midst of trying to transition into further education or employment despite having finished their schooling several years previously.

Post-school transitions into education and employment were not straightforward or linear, with respondents typically moving into and out of study and work, or combining work and part-time study.

Post-school transitions were often extensive and delayed suggesting that some young people living with disability may take longer to enter (and complete) post-school study and work compared to young people without disability. Respondents reported that their post-school pathways were impacted upon by their disability or a lack of available opportunities. Some respondents also described having periods of time out of labour force (i.e. where they were not looking for/engaging in study or work) in order to come to terms with a new diagnosis or to manage the symptoms of their disability.

Respondents' experiences of post-school transitions into further education and employment were mixed. While successes were acknowledged and enablers identified which had aided these pathways, many respondents had faced **considerable challenges and barriers** to entering further education or the workforce.

For those who had been diagnosed with a disability either at birth or during childhood, **little preparation for transitioning from school** into further education or work had been experienced. This was especially the case for those respondents who had not intended to enter university, and a lack of awareness of other potential options was reported.

Respondents also commonly described **poor experiences of their time at school**. Teachers and school staff were said to have inadequate understanding of disability and the supports provided were considered to be fairly limited. At times, respondents acknowledged that the symptoms of their disability had created difficulties with classmates and also with their ability to study. Coping mechanisms which had been adopted by some respondents, such as drinking and drugs, sometimes compounded the issues faced in the school environment. Several respondents had left school prior to Year 12 because of their poor experiences and perceived that this had limited their future opportunities for work and study.

For some respondents, the **diagnosis of their disability had occurred during their post-school transition** (either in their final years of schooling or after leaving school) which added to the complexity of their pathways into further education and employment. These respondents reported that their disability symptoms had emerged or became more pronounced and problematic during this period of change.

2.2. Enablers of successful education and employment transitions

Respondents described **various enablers which had assisted them in their post-school transition** into further education and/or employment. These included both personal and structural (educational, employment and broader) enablers.

Personal factors which were reported by respondents as enabling their pathways into further study and employment included having the **personal determination** to succeed along with a **willingness to engage** with the supports that were available to them. Having a **supportive network** of family and friends was also considered to have aided post-school transitions, e.g. with parents helping to find information and assist with educational/employment applications. Respondents also reported that having an official diagnosis and **understanding of their own needs and capabilities** was a further personal enabler of transitions into education and/or employment. The adoption of effective **individual coping mechanisms** was also noted by some respondents. These centred around the use of technologies such as noise cancelling headphones, document readers or organisational apps. For those respondents with ADHD, the deletion of social media apps which could distract them from their studies or work was also noted.

Respondents also described various **educational enablers** which had supported their transition to TAFE or university. This included having **support from disability units or advisors** within their educational institution. The development, and implementation, of an **access plan** which acknowledged their learning needs and provided flexibility was commonly noted. Access plans were said to be useful in allowing assignment deadlines to be extended when needed or in granting special provisions for examinations (e.g. additional time). Opportunities for **flexible modes of learning** (e.g. online learning, in-person study and part-time study) were also appreciated particularly at times when respondents may be experiencing acute issues related to their disability. A final educational enabler was **access to learning supports** (e.g. tutors and writing groups) which allowed respondents to gain better understanding of course content or kept them on track with course requirements.

For those respondents who had transitioned into work, several **employment-related enablers** were reported. These included having **pre-employment support** with preparing for work (e.g. CVs, job applications and skill development) and subsequent **assistance with searching for, and obtaining, employment**. Once employment had been secured, appropriate **support from managers and colleagues** was seen as assisting people with disability to feel comfortable and accepted within their workplace. For some respondents, **workplace adjustments** had been made which supported their employment. These included adjustments to the physical environment, flexible working hours or work arrangements, and the availability of a quiet space to retreat to if overwhelmed. Finally, some respondents described the importance of having **access to appropriate transportation** in order to be able get to their place of work.

A final enabler of post-school transitions into further education and/or employment which was highlighted by many respondents was **access to financial support**. Being able to access Centrelink payments – such as the Disability Support Pension (DSP) – was considered to provide a level of needed financial security while studying or seeking work. This also allowed respondents to pursue part-time study or employment options if this was preferable given their disability needs.

2.3. Barriers to successful education and employment transitions

Despite the enablers to successful post-school transitions described above, respondents had typically faced **considerable challenges and barriers** in moving onto further study and/or work following school. These barriers included both personal and structural (educational, employment and broader) factors.

Respondents reported significant **personal barriers** which had impacted upon their capacity to achieve and experience successful post-school transitions. These included **factors relating to their disability** such as experiencing fatigue, mobility issues, and the ability to cope with stressful situations. Some respondents also described facing sensory overload, fixation on a task until they experienced burn out, or behavioural issues which impacted negatively on their post-school pathways. A **lack of family support** was also considered to have hampered the ability of some respondents to successfully move into education or employment. Widespread **stigma around disability** affected the willingness and ability of respondents to reveal their disability (to lecturers, employers, fellow students or colleagues) and engage with available supports; this issue was especially noted by respondents living with a psychosocial disability.

For those respondents who had or were currently attending TAFE or university, **educational barriers** were commonly reported. These included lecturers, tutors and administrative staff having an **inadequate understanding of disability** and the types of support that were required by an individual student. A **lack of on-the-ground support** in further education was also noted. For example, unlike in school settings no specific one-on-one assistance was available to support the learning needs of students with a disability, with lecturers and tutors having limited time to provide this support. Aligned with this, many respondents felt that they had received **insufficient support from their institutions' disability support unit**. Moreover, the **onus on obtaining support** within further education was felt to rest with the young person with disability themselves which was a constraint for those who may be unable to effectively advocate for their needs. Respondents also reported that disability supports could only be arranged once a qualification had been started and there were often subsequent **delays in obtaining support**; this effectively left them studying without any provisions being set in place. Likewise, some respondents considered that their **access plan was limited in scope** and was not sufficiently tailored to their individual disability and learning needs. Several respondents also noted that they had to keep reminding their lecturers and tutors about their access plan and the specific provisions contained within. The **physical environment** of TAFEs and universities was said to be challenging, especially for young people with autism who may experience sensory overload as a consequence of brightly-lit or noisy environments. The **social aspects of studying** were also considered to be challenging with respondents experiencing difficulties with orientation activities, group work or making friends.

Several **employment-related barriers** were also reported by respondents which hampered successful transitions from school into employment. Some respondents stated that they had received **ineffectual support from disability employment services** in relation to job readiness and assistance with job searches and applications. Within the workplace, respondents described various challenges that they had experienced. Managers and colleagues were said to often possess **inadequate understanding of disability** which impacted upon the supports that were available and the inclusiveness of the workplace. The **physical environment** of some workplaces was also said to be problematic; for example, respondents with autism and ADHD described episodes of sensory overload which impacted upon their work. The **social aspects of work** could also be challenging for young people with disability including relationships with co-workers and the completion of team tasks. Respondents also expressed **uncertainty as to when to disclose their disability status to their employer**, e.g. upon job application, at interview, or upon starting work. Concerns were expressed that disclosure may disadvantage them from having

successful labour market outcomes and consequently workplace supports were not able to be put in place. Finally, a **lack of appropriate transportation options** acted as a barrier for some young people with disability to access work.

A final set of **broader structural barriers** to post-school transitions into education and employment were identified by respondents. Several respondents highlighted constraints relating to the National Disability Insurance Scheme (NDIS). This included either being ineligible and **unable to access the NDIS** or, for those participating in the scheme, a **lack of appropriate NDIS funding** to assist with post-school transitions. Finally, the **ability to access financial support** through Centrelink whilst studying or seeking work had been problematic for some respondents.

2.4. Improving education and employment outcomes

A final key topic of the interviews centred on how education and employment outcomes could be improved for young school-leavers with disability.

Within **school settings**, a need for teachers to have a **better understanding of disability** (including the support needs of individual students) was reported by respondents. The **provision of greater support** to students with disability was also recommended in order to improve overall educational outcomes and to prepare students more effectively for transitioning into further study and/or work.

Respondents also identified several improvements that could be made to the support offered to young people with disability at **TAFE and university settings**. It was recommended that educational institutions needed to provide **greater visibility of how to access support** and the types of support that were available. **Ongoing assistance from the disability support unit** was also advocated by some respondents to ensure that students with disability were progressing well with their studies and that any issues could be quickly addressed. For some respondents, the need for more **one-to-one learning support** was also highlighted to help them to better understand course requirements and content. Changes were also recommended in relation to the **development of access plans**. Respondents requested that clear descriptions of the types of supports that could be provided under an access plan were outlined. In addition, the development of plans which were better tailored to the needs of individual students and had the potential to offer more support were also suggested. **Improved physical environments** were recommended by some respondents including having learning spaces which reduced the potential for sensory overload and the provision of **dedicated spaces for students with disability**. Finally, the need for TAFE and university staff to have a **better understanding of disability** and the support needs of students living with disability was recommended by respondents.

Several improvements were suggested which to potentially **enhance employment outcomes** for young people living with disability. These included the provision of **greater support with job readiness and securing work** to ensure that more young people with disability were able to successfully enter the labour market. It was also noted that Disability Employment Providers needed **better understanding of disability** in order to provide appropriate assistance towards employment goals. Respondents also suggested that it would be beneficial if **employers could be more understanding** that young people with disability may lack previous work experience but, despite this, be prepared to take a chance on them and give them a go. Finally, the availability of **appropriate workplace adjustments** including the provision of a suitable work environment and flexible work hours/arrangements was recommended by respondents.

Finally, respondents reported several broader interventions which could potentially improve education and employment outcomes for young people living with disability. These included **easier access to financial support** via Centrelink and the provision of **appropriate NDIS funding and disability services** which could support post-school transitions.

3. Background

The National Disability Data Asset (NDDA) aims to improve outcomes for people with disability, their families and carers, by sharing de-identified data to better understand the life experiences and outcomes of people with disability in Australia.

The NDDA is currently in an 18-month pilot phase, which commenced in April 2020. The pilot aims to demonstrate the value of the NDDA, with five test cases being used to demonstrate the potential of using data to support improved policy development, program design and service delivery for people with disability. The five test cases focus on themes such as early childhood, justice, education to employment, mental health and how linked administrative data can support an outcomes framework.

The Future of Employment and Skills (FES) research centre at the University of Adelaide has been commissioned to conduct the South Australian test case. The key policy focus of the SA NDDA test case is to understand the pathways from education into employment of young adults with disability through school education, senior secondary education, vocational education, university education and training participation.

The SA test case project aims to:

1. Provide baseline data for Government policy development, service planning and reporting on the educational and employment outcomes and pathways for young adults with disability.
2. Explore the relationships between the characteristics, use of services and supports, and the educational and employment outcomes of young adults with disability.
3. Provide a baseline for before COVID-19 to measure the impacts of the pandemic on educational and employment outcomes and to help determine future work to respond to the crisis.
4. Identify what data gaps and further sources of information are required for an enduring NDDA to assess the effectiveness of different educational pathways and supports in achieving positive employment outcomes for young adults with disability.
5. Inform the development of potential indicators to support the new National Disability Strategy in 2021.

Using descriptive and inferential multivariate analyses, the FES team are exploring the relationship between individual characteristics, use of services and supports and the educational and employment outcomes of young adults with disability. The impact of support/services on outcomes is also being evaluated as well as the identification of any issues with data quality including gaps in the data.

The findings of the quantitative analyses enable greater understanding of the pathways taken by young adults with disability from school into vocational education and training, university education and employment; as well as the frequency such pathways are taken. It also aids understanding of how these pathways may differ compared to young adults without disability. However, using quantitative data alone, the SA NDDA test case is unable to explore the lived experience of educational and employment pathways.

In order to support and further the evidence gathered in the quantitative analyses, the FES team also undertook qualitative interviews with young adults with disability. This research sought to hear the voices of young adults

with disability in order to understand the deep personal stories behind key life transitions such as those from education to employment. The high level findings from these interviews are outlined in this summary report.

4. Appendix 1 - Methodology

4.1. Research Design

This project was designed to complement and strengthen the quantitative analyses being undertaken for the SA NDDA test case. It adopted a qualitative approach to investigate the lived experiences of education and employment pathways of young adults with disability.

In-depth semi-structured interviews were conducted with young adults with disability living in South Australia. These interviews incorporated oral histories of transitions into education and employment.

The interviews explored:

- Personal experiences of transitions from school to VET, higher education, and employment;
- Enablers of successful education and employment transitions;
- Barriers to successful education and employment transitions; and
- Potential ways to better facilitate successful education and employment outcomes.

In line with recommendations for sampling size for qualitative interviewing (Cresswell 2007¹), 20 interviews were sought with young adults with disability who had transitioned (or were in the process of transitioning) into post-school education and employment. This number of interviews enables saturation point in the data collection to be reached. To date 11 interviews have been undertaken (with further interviews booked) and the high-level findings from these initial interviews are presented in this summary report.

Sampling for the interviews captured three transitions: (1) School to VET, (2) School to University, and (3) School to employment (both mainstream and supported). Given that these transitions are likely to differ for different people and for people living in different locations, we also sought to include two further sub-groups: (1) Young people with disability from Indigenous and/or CALD backgrounds, and (2) those living in regional and remote areas in SA. Variation in respondents was also sought on core characteristics such as disability type and gender.

Ethics approval for the research was granted by the University of Adelaide Human Research Ethics Committee. Recruitment for the study occurred via educational establishments, disability employment services, disability support providers and peer support groups.

Topic guides were developed by the FES research team for use in the qualitative interviews. These guides were developed to ensure their appropriateness for a wide range of people with disability. The topic guides also incorporated culturally appropriate and accessible content and protocols developed in conjunction with senior researchers from FES and relevant stakeholders.

The interviews were conducted either face-to-face or by virtual modes (phone and video conferencing) and typically lasted around one hour. Each interview was audio-recorded and transcribed verbatim. The implementation of the fieldwork was adapted to the circumstances of each interview to accommodate needs

¹ Cresswell, J.W. (2007). *Qualitative inquiry & research design: choosing among five approaches*, (2nd ed.). Thousand Oaks, CA: Sage Publications.

relating to the participant's disability, and other considerations such as culture, language, family and location. Interviews were carried out in a flexible manner to enable these circumstances to be taken into account.

Interview transcripts were analysed using thematic analysis. All transcripts were entered into qualitative analysis software NVivo 12 and analysed in six phases. These phases consisted of: 1) Deep immersion with the data, 2) Generating initial codes, 3) Searching for themes, 4) Reviewing themes, 5) Defining and naming themes, and 6) Producing the report (Braun & Clarke 2006²). This multi-phase approach to data analysis ensured that themes are reviewed multiple times, resulting in rigorous qualitative analysis.

²Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.