**Enforcing Compulsory Schooling by**

**Linking Welfare Payments to School Attendance:**

**Lessons from Australia’s Northern Territory**

**Moshe Justman** and **Kyle Peyton**

Justman (corresponding author): Department of Economics, Ben Gurion University of the Negev; and Melbourne Institute of Applied Economic and Social Research, University of Melbourne. [justman@bgu.ac.il](mailto:justman@bgu.ac.il);

Peyton: Department of Political Science, Yale University; and Melbourne Institute of Applied Economic and Social Research, University of Melbourne. [kyle.peyton@yale.edu](mailto:kyle.peyton@yale.edu).

Abstract

Australia's School Enrolment and Attendance through Welfare Reform Measure (SEAM), enacted against the backdrop of the Northern Territory Emergency Response, threatened to withhold welfare payments from Indigenous families with truant children. We show, using a difference-in-difference analysis, that this threat had a substantial, immediate impact on participation rates in standardized tests. However, as administrators rarely withheld welfare payments from truant families the credibility of the threat was undermined and most of the initial improvement in participation dissipated. This demonstrates the limitations of using financial measures to enforce compulsory schooling among severely disadvantaged populations, even in extreme circumstances.

**Enforcing Compulsory Schooling by**

**Linking Welfare Payments to School Attendance:**

**Lessons from Australia’s Northern Territory**

# 1. Introduction

Regular school attendance is a key element in breaking the intergenerational chain of poverty, yet children growing up in deprived circumstances are those most likely to be absent from school. Some developing countries have addressed this issue by offering conditional cash transfers (CCTs) to low-income parents as an inducement to send their children to school regularly (Rawlings and Rubio, 2005) but there is little scope for such interventions in democracies with compulsory schooling laws. Offering parents money for complying with the law, though potentially effective, is inherently unpopular when funded from tax revenues—and too expensive to fund routinely from private sources.[[1]](#footnote-1)

This has led some jurisdictions in the United States to experiment with the alternative approach of “negative CCTs”: addressing truancy among families on welfare by conditioning continued support on improved school attendance. Actually withholding welfare payments from these truly needy families raises difficulties, as it is likely to cause further harm to their children, and such policies implicitly assume that the threat of withholding payments will be sufficient to deter truancy and need not be carried out. Yet if targeted families realize that welfare administrators will resist following through, they will respond accordingly and ignore the threat. A review of such programs by Campbell and Wright (2005) found that caseworkers often found valid reasons for parents’ non-compliance; and in other cases, targeted families were unaware of the risk of losing their welfare support. Consequently, they concluded that such policies do not generally succeed in raising school attendance unless accompanied by an increase in case management resources that directly address the problems these families face.

This raises the question, what would be the effect of a credible threat to withhold welfare payments on school attendance? The unique experience of Australia's School Enrolment and Attendance through Welfare Reform Measure (SEAM) sheds light on this question. Initiated in 2009 and targeted at Indigenous parents of truant children in the Northern Territory, its threat to withhold welfare payments from these parents if their children failed to meet school attendance requirements was set against the backdrop of the Northern Territory Emergency Response (NTER). This broad intervention, implemented in late 2007 and generally directed at the territory's Indigenous population, came after a report commissioned by the Chief Minister of the Northern Territory alleged child abuse in Aboriginal communities, and urged that it be “designated an issue of urgent national significance” (Wild and Anderson, 2007). It involved a military presence (“Operation Outreach”) and temporary suspension of Australia's Racial Discrimination Act (Broome, 2010, Chapter 14). While formally separate from the NTER, SEAM gained its credibility from the heightened anxiety and uncertainty the NTER generated, and from the living memory of yet severer measures directed by past Australian governments at Aboriginal families.[[2]](#footnote-2)

In the absence of direct data on attendance by Indigenous students, we estimate the impact of SEAM indirectly through its effect on student participation in Australia’s National Assessment Program—Literacy and Numeracy (NAPLAN). Initiated in 2008, a year before SEAM, NAPLAN annually administers standardized tests in numeracy, reading, spelling, grammar and writing to all Australian students in grades 3, 5, 7 and 9. We apply a difference-in-difference analysis to participation rates of Indigenous students in the Northern Territory in NAPLAN numeracy and reading tests, comparing their variation over time to the variation of participation rates among Indigenous students in Australia's other states and territories. Specifically, we focus on the difference between 2008, the year before SEAM, and subsequent years to 2012.[[3]](#footnote-3)

Previewing our main results, we find that in 2009, the first year in which SEAM was implemented, test participation increased dramatically among Indigenous children in the Northern Territory, rising by 16-20 percentage points compared to 2008 pre-SEAM levels, where no similar increase appeared among the Indigenous student population in Australia’s other states and territories. Moreover, this sharp rise in participation rates did not lead to a decline in pass rates for the Indigenous students in the Northern Territory, suggesting that the observed increase in test participation indeed reflected an increase in school attendance.[[4]](#footnote-4)

We interpret these findings as demonstrating how a credible threat to link welfare payments to school attendance can substantially raise participation rates. This rests on a “common trends” assumption, namely that changes in Indigenous participation rates outside the Northern Territory are as a good approximation for the (unobservable) counterfactual changes in the NT had there in fact been no such threat. Equality of pre-2009 trends in participation rates between Indigenous students in the Northern Territory and in other parts of Australia would lend support to the common trends assumption. It would rule out the possibility that the sharp increase in participation in the Northern Territory between 2008 and 2009 was the continuation of a rising trend in relative Indigenous participation rates in the Northern Territory that began before 2008 and had nothing to do with SEAM.

Unfortunately, we have only one pre-treatment period of data, 2008, as there are no earlier data on NAPLAN participation rates, which would allow us to compare pre-2009 trends, nor could we find comparative pre-treatment data on attendance rates.[[5]](#footnote-5) However, it seems unlikely that the increase in participation rates we observe in the Northern Territory is the continuation of an earlier trend of specific, comparative increases. The NTER initiative was largely a response to a perceived crisis in childcare among Indigenous families in the Northern Territory, including high rates of truancy (Wild and Anderson, 2007). This is not consistent with a rising trend in school attendance. Had such a trend been observed at the time it could have been used to oppose enactment of the NTER by those who objected to its harsh measures; we found no mention of such a claim. On the contrary, the historical record suggests that the crisis in the Northern Territory preceded the NTER by some years (Broome, 2010, Chapter 14).

The combination of SEAM and the NTER immediately motivated many Indigenous parents in the Northern Territory to send their children to school, but those who failed to meet school attendance requirements were not punished. Suspension of welfare payments from these parents was not carried out in a single case (DEEWR, 2011), and as this became known, participation rates fell off. The following year, 2010, saw an erosion of about half the gains achieved in 2009, and they continued to fall to 2012, the last year in our study, though remaining significantly above the baseline level of 2008.[[6]](#footnote-6) This highlights both the importance of credibility for implementing policies linking welfare payments to school attendance over time, and the difficulty of sustaining their credibility even in the unique conditions of the NTER.

The circumstances associated with the implementation of the NTER and were extreme, but the lessons it imparts apply more generally to the use of financial coercion by public authorities to promote school attendance among disadvantaged and socially excluded populations. The example of SEAM suggests that even where initially effective, such coercive policies are difficult to sustain for long periods of time, even in extreme circumstances. What they can do is create a window of opportunity in which parents and children in truant families are induced to experience school participation. For these policies to have a lasting effect and permanently increase attendance, the schools serving these populations must deliver education services that are of perceived value to parents and students. This may require changing what these schools teach and how they teach it; and offering students better employment prospects when they graduate.

The remainder of the paper is as follows. Section 2 provides background data on the Indigenous population in the Northern Territory; Section 3 describes the NTER and SEAM initiatives; Section 4 presents descriptive statistics on the impact of SEAM on participation rates and changes in average performance in the Northern Territory; Section 5 presents the results of our regression analysis; and Section 6 concludes.

# 2. Indigenous Australians in the Northern Territory

The number of Indigenous Australians in the Northern Territory—53,000 in 2006, 56,000 in the 2011 census—is not the largest among Australia’s states and territories, but their share of the total population in the territory is by far the largest, 27%, and they own roughly half its land. Indigenous Australians generally exhibit markedly weaker aggregate indicators of well-being compared to non-Indigenous Australians; and this gap is yet wider in the Northern Territory, where a large share of the Indigenous population lives in very remote areas and maintains a separate, traditional way of life outside the mainstream market economy.

Differences in life expectancy illustrate these gaps. In 2006, life expectancy at birth was 78.7 for all non-Indigenous Australian men; 75.7 for non-Indigenous men in the Northern Territory; 67.2 years for all Indigenous Australian men; and 61.5 years for Indigenous men in the Northern Territory (Australian Bureau of Statistics, 2009, Table 1.1).[[7]](#footnote-7) Differences in aggregate labor market outcomes are similarly arresting. In 2011, 76% of non-Indigenous Australians participated in the labor force, and 72% were employed, while only 57% of Indigenous Australians participated in the workforce and only 48% were employed. Among Indigenous Australians in the Northern Territory, these rates are even lower: 44% participated in the workforce and 38% were employed (Australian Bureau of Statistics, 2012, Table 1); and even these low rates could not have been maintained without the support of the Community Development Employment Project (CDEP), a targeted work-for-welfare scheme (Hunter and Gray, 2012).[[8]](#footnote-8)

Altman, Buchanan and Biddle (2006) describe Indigenous employment in Australia as divided among three sectors: the private or market sector; the public sector (predominately CDEP); and the customary or informal sector, which includes activities such as hunting, fishing and gathering, production of art and crafts, and land, habitat and species management participation. Though ignored by official statistics, employment in the customary or informal sector is especially large in remote Indigenous communities, which account for a disproportionately large fraction of the Indigenous population of the Northern Territory. This increases the opportunity cost of conventional schooling while lowering its expected incremental returns for Indigenous families in remote areas.

Differences in education achievement between Indigenous Australians and the Australian population at large and in the Northern Territory exhibit a similar pattern to those observed in life expectancy and the labor market.The NAPLAN results for 2008, its first year of operation and the year before SEAM was implemented, give the percentage of non-Indigenous Australian students in grade 7 achieving the national minimum as 95.4 in reading and 96.4 in numeracy. The corresponding rates for all Indigenous Australians were 71.9 in reading and 78.6 in numeracy; for Indigenous Australians in the Northern Territory, 32.4 and 50.2; and for Indigenous Australians in the Northern Territory in Very Remote locations, 13.7 and 34.9.[[9]](#footnote-9) The numbers for other grade levels are similar.

We conclude this section with data drawn from the National Aboriginal and Torres Strait Islander Social Survey (NATSISS) for 2008, presented in Table 1, which illustrates the distinct cultural identity and personal circumstances of Indigenous Australians living in the Northern Territory. Compared to other large Indigenous populations in Western Australia, Queensland, New South Wales and South Australia, Indigenous people in the Northern Territory have stronger ties to traditional Indigenous culture and ways of life, and to their tribal groups and natural families.

Table 1. Selected characteristics of the Indigenous population by state/territory (% share of the local Indigenous population)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Northern Territory | Western Australia | Queensland | New South Wales | South Australia |
| Speak Indigenous language | 62.6 | 22.6 | 19.1 | 3.2 | 25.9 |
| Identify with tribal group | 85.4 | 62.3 | 64.2 | 51.7 | 72.7 |
| Live on homelands | 40.5 | 29.5 | 16.7 | 29.6 | 17.9 |
| Involved in cultural events | 81.3 | 70.0 | 65.2 | 55.1 | 65.0 |
| Have crisis support | 85.2 | 90.1 | 84.6 | 92.0 | 90.8 |
| Removed from natural family | 4.8 | 11.0 | 7.2 | 7.7 | 11.9 |

*Source:* National Aboriginal and Torres Strait Islander Social Survey (NATSISS), 2008.

# 3. The perception of SEAM within the context of the NTER

The impact of the School Enrolment and Attendance through Welfare Reform Measure (SEAM) on participation in schooling, on which we focus in this paper, can only be understood against the backdrop of the controversial Northern Territory Emergency Response (NTER) initiated after parliamentary approval in August 2007. SEAM was not officially a part of the NTER, but it was the operational context of the NTER that lent SEAM much of its initial credibility and effectiveness. The conservative, Liberal-National Coalition government led by John Howard implemented the NTER in 2007, during the lead-up to a [federal election](http://en.wikipedia.org/wiki/Australian_federal_election,_2007), in response to allegations of widespread child neglect and sexual abuse in Indigenous communities set out in the report of a special Board of Inquiry entitled *Little Children are Sacred* (Wild and Anderson, 2007). The initial action involved an increased presence of police and military units in the Northern Territory, a show of force that would not have been constitutionally possible in an Australian state.[[10]](#footnote-10) It imposed government control on Indigenous communities for a five-year period, and introduced a range of measures aimed at addressing the abuse of children and women, as well as narrowing the gaps in economic opportunity between Indigenous and non-Indigenous Australians.

In addition to the deployment of police and military units, the Intervention included a set of racially targeted measures, which required temporary suspension of the Racial Discrimination Act. Among these were: restrictions on the consumption of alcohol and pornography, new limitations on Native land rights, and a sequestering of 50 percent of all welfare payments for basic needs. The Australian Defense Force presence ended in October 2008 but the Intervention continued until August 2012 (Altman and Russell, 2012). It enjoyed a strong bi-partisan mandate, with the continued support of subsequent Labor governments, but some Indigenous leaders came to see it as authoritarian and paternalistic, and spoke out against it.[[11]](#footnote-11)

SEAM was announced in June 2008, and its implementation began at the start of the following Australian school year, in March 2009. Administered by the Department of Families, Community Services and Indigenous Affairs (FaHCSIA), it aimed to raise the low school attendance rates among Indigenous Australians in the Northern Territory by conditioning income support payments on school attendance, with the ultimate goal of narrowing the economic gap between Indigenous and non-Indigenous Australians, and interrupting the intergenerational transmission of poverty.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 2—Target populations in SEAM sites, 2009 | | | | |
| Location | Total Population | Indigenous population | Parents in SEAM | Children in SEAM |
| Katherine Township | 9,208 | 2,365 | 354 | 611 |
| Katherine Town Camps | - | - | 111 | 191 |
| Hermannsburg | 623 | 537 | 87 | 125 |
| Wallace Rockhole | 68 | 63 | 15 | 21 |
| Tiwi Islands | 2,579 | 2,267 | 203 | 336 |
| Wadeye | 2,112 | 1,927 | 219 | 374 |
| Total |  |  | 989 | 1,658 |

*Note:* Target numbers are from Department of Education, Employment and Workplace Relations (2011). Population statistics are from the 2011 Australian Census. There are no publicly available census data on the population of Katherine Town Camps, an exclusively Indigenous community located near Katherine Township.

In its first year, SEAM formally targeted only a small number of parents receiving Centrelink (welfare) payments, and with children in one of fourteen schools in six trial areas, comprising 989 parents and 1658 children, a small fraction of the Indigenous population of the Northern Territory (Table 2). Yet it was widely perceived as applying to the Indigenous population of the Northern Territory as a whole. A report published by the Department of Employment, Education and Workplace Relations indicated a high degree of awareness of the SEAM program among Indigenous parents in the Northern Territory, while observing that “parents and communities had limited understanding of the details of SEAM, and this was compounded by misinformation.” (DEEWR, 2011) It cites common misconceptions among parents and community members, noting they incorrectly believed that:

* SEAM was directed in general at Indigenous children in remote areas.
* All child-carers (including grandmothers and aunts) would have their payments suspended if they were caring for a truant child.
* Indigenous families subject to SEAM included wage-earning families and families participating in CDEP.
* Non-compliance with SEAM would trigger immediate suspension of payments (where a compliance period was actually required).

As a result, SEAM effectively raised school attendance not only among its target population *but among the entire Indigenous population of the Northern Territory*, as evident from Figure 1, which traces annual attendance rates for all students in Northern Territory schools in 2008-2011, separately for the 14 schools formally targeted by SEAM, and for all other schools.[[12]](#footnote-12) Both groups of schools exhibit an increase in attendance rates in 2009 and a subsequent tapering off, the SEAM schools beginning from a lower base rate of attendance and experience a slightly larger initial gain. The similarity of the two graphs supports the argument that parents who were not nominally targeted by SEAM behaved as if they were targeted.

Figure 1. Northern Territory school attendance rates, all students, schools targeted by SEAM and non-targeted schools, 2008-2011

*Source*: Authors’ calculations using data from My School Australia (https://www.myschool.edu.au/).

We attribute the tapering off of attendance rates after 2009 to negligible enforcement of the threat to withhold welfare payments (DEEWR, 2011). Of the 989 parents in the targeted group, 918 (1604 children) were sent enrolment notification letters, which requested that they provide their child’s school enrolment details to Centrelink within 14 days. Of these—the DEEWR evaluation report notes—170 parents (286 children) were non-compliant; and of these, 56 parents (84 children) were sent enrolment warning notices, the final step before having their benefits suspended. The majority complied but eleven chose to move out of the target area; effectively this was the most severe sanction for non-compliance in 2009. The threats implicit in the information campaign that accompanied SEAM’s initial implementation were highly credible and effective at the time, but were not carried out in practice.

# 4. The impact of SEAM on educational outcomes: Descriptive statistics

We estimate the impact of SEAM on school attendance among Indigenous children in the Northern Territory through its impact on NAPLAN participation rates, while also following how this affected pass rates. We use publicly available data on Indigenous participation aggregated at the state or territory level, rather than data on school attendance both because we see it as a relevant indicator of active participation in learning, and because publicly available data on attendance is not broken down by Indigenous status or grade level, appearing only as a single number for each school as a whole.[[13]](#footnote-13)

Table 3—NAPLAN participation rates by knowledge domain and population group, averaged over grade levels, %

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | |  | | | |
|  | Reading | | | | Numeracy | | |
|  | All non-Indigenous | All Indigenous | Indigenousin NT | | All non-Indigenous | All Indigenous | Indigenousin NT |
| 2008 | 96 | 87 | 67 | | 96 | 86 | 68 |
| 2009 | 96 | 89 | 86 | | 96 | 88 | 85 |
| 2010 | 96 | 87 | 76 | | 95 | 87 | 75 |
| 2011 | 96 | 87 | 77 | | 95 | 86 | 76 |
| 2012 | 95 | 86 | 74 | | 95 | 85 | 72 |

*Source:* The 2008-2012 NAPLAN National Reports, <http://www.nap.edu.au/results-and-reports/national-reports.html>. Entries are averages over grades 3, 5, 7 and 9. We present detailed participation rates, subject, grade level, year and state/territory, in the Appendix.

Table 3 presents comparative summary statistics on NAPLAN participation rates in two knowledge domains, reading and numeracy, averaged over four grade levels, 3, 5, 7, and 9, in five successive years: from 2008, the year before SEAM was implemented to 2012. The participation rate is the share of students participating in the NAPLAN test as a percentage of the total number of students in the year level. Students exempted from the test by the school are counted as having participated while those classified as absent or withdrawn by their parents are counted as non-participating. The pattern of change in participation rates is clearly similar for both knowledge domains.The data illustrate both the immediate impact, in 2009, of the perceived threat of SEAM on education outcomes in the Northern Territory, and how this effect dissipated in subsequent years, as this threat proved hollow. The large increase in 2009—19 percentage points in reading, 17 points in numeracy—was unmatched in the general Indigenous population, and nearly erased, in a single year, the difference in participation rates between the Indigenous population in the Northern Territory and the general Indigenous population. In subsequent years, as it became increasingly clear that the threat of withholding welfare payments would not be carried out, participation rates steadily declined—by ten percentage points in 2010—so that by 2012 less than a third of the initial gains remained.

Surprisingly, the sharp rise in participation rates in 2009 did not trigger an overall decline in pass rates, as Table 4 shows. The pass rate in reading rose by three percentage points, mirroring a similar rise in the general Indigenous population, while the pass rate in numeracy fell by the same measure. Subsequent years saw yet further gains in reading pass rates, and fluctuating changes in numeracy. This suggests that those induced by SEAM to participate in NAPLAN were reaching the minimum required level at a similar rate to those participating in NAPLAN before the implementation of SEAM.

Table 4—NAPLAN pass rates, by subject and population group, averaged over grade levels, %

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | |  | | | |
|  | Reading | | | | Numeracy | | |
|  | All non-Indigenous | All Indigenous | Indigenousin NT | | All non-Indigenous | All Indigenous | Indigenousin NT |
| 2008 | 95 | 70 | 33 | | 97 | 77 | 48 |
| 2009 | 96 | 73 | 36 | | 97 | 77 | 45 |
| 2010 | 96 | 73 | 39 | | 97 | 76 | 43 |
| 2011 | 96 | 75 | 39 | | 97 | 79 | 49 |
| 2012 | 96 | 73 | 36 | | 96 | 75 | 43 |

*Source:* The 2008-2012 NAPLAN National Reports, <http://www.nap.edu.au/results-and-reports/national-reports.html>. Entries are averages over grades 3, 5, 7 and 9.

Figures 2 and 3 compare the changing levels of participation in NAPLAN reading and numeracy tests among Indigenous students across Australia's eight states and territories for each grade level over time. (The underlying data are in the appendix.) In both subjects, the percentage of Indigenous students participating in NAPLAN in the Northern Territory indicated by the black line, follows a markedly different pattern from that of Indigenous students in Australia's other states and territories, indicated by gray lines. In 2008, before SEAM, participation in NAPLAN among Indigenous students in the Northern Territory was the lowest in Australia—for all four grade levels and both subjects. The subsequent spike in 2009 raises the Northern Territory Indigenous participation share so that it is no longer the lowest of all states and territories in any grade. However, this increase falls off immediately, and in each subsequent year it is again the lowest of all states and territories in all four grade levels, and both subjects. Nonetheless, in all grade levels, NAPLAN participation rates in 2012 are noticeably higher than in 2008.

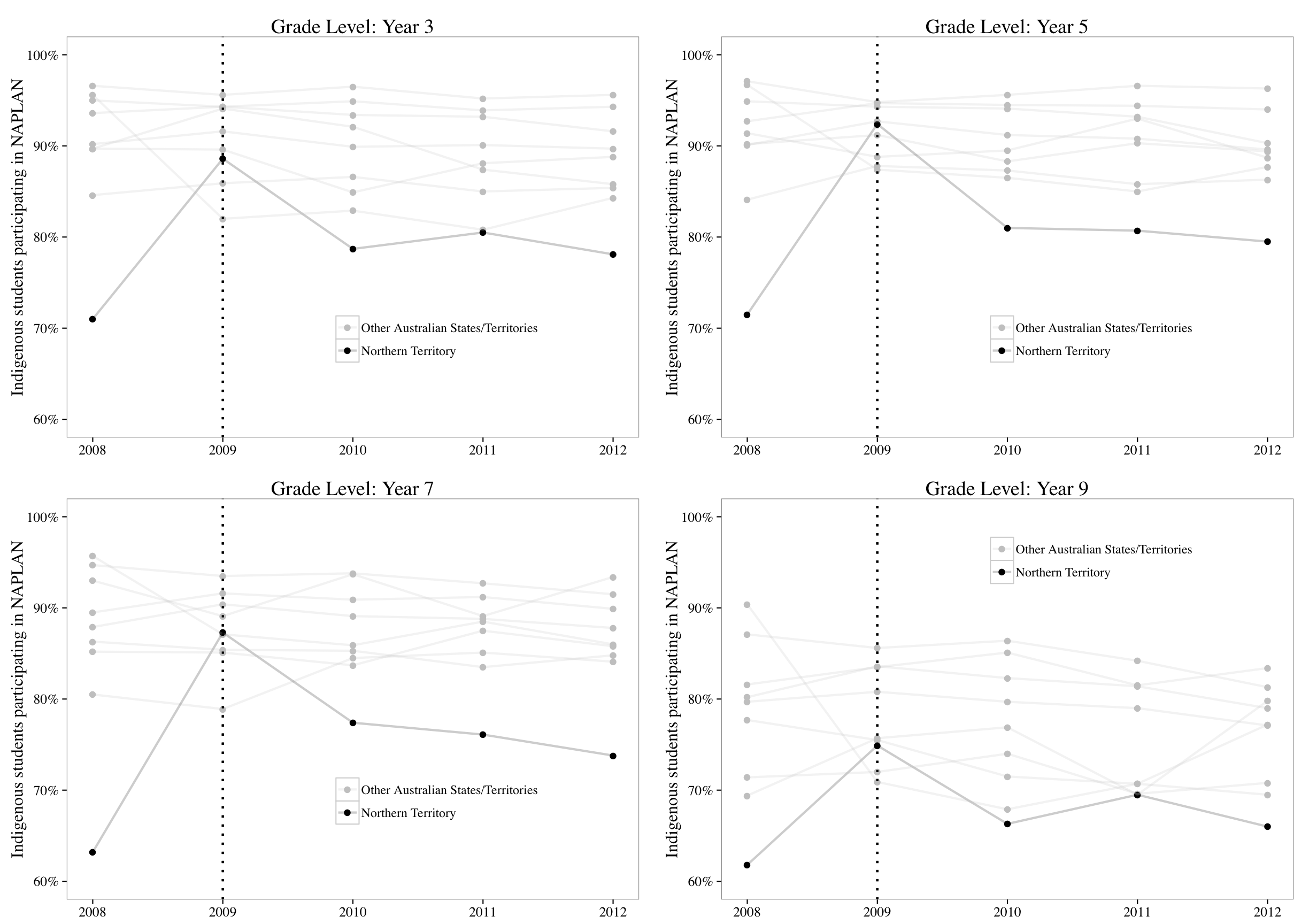


Figure 2. Indigenous participation in NAPLAN reading tests by year, grade and state/territory

*Source:* NAPLAN National Reports. http://www.nap.edu.au/results-and-reports/national-reports.html.

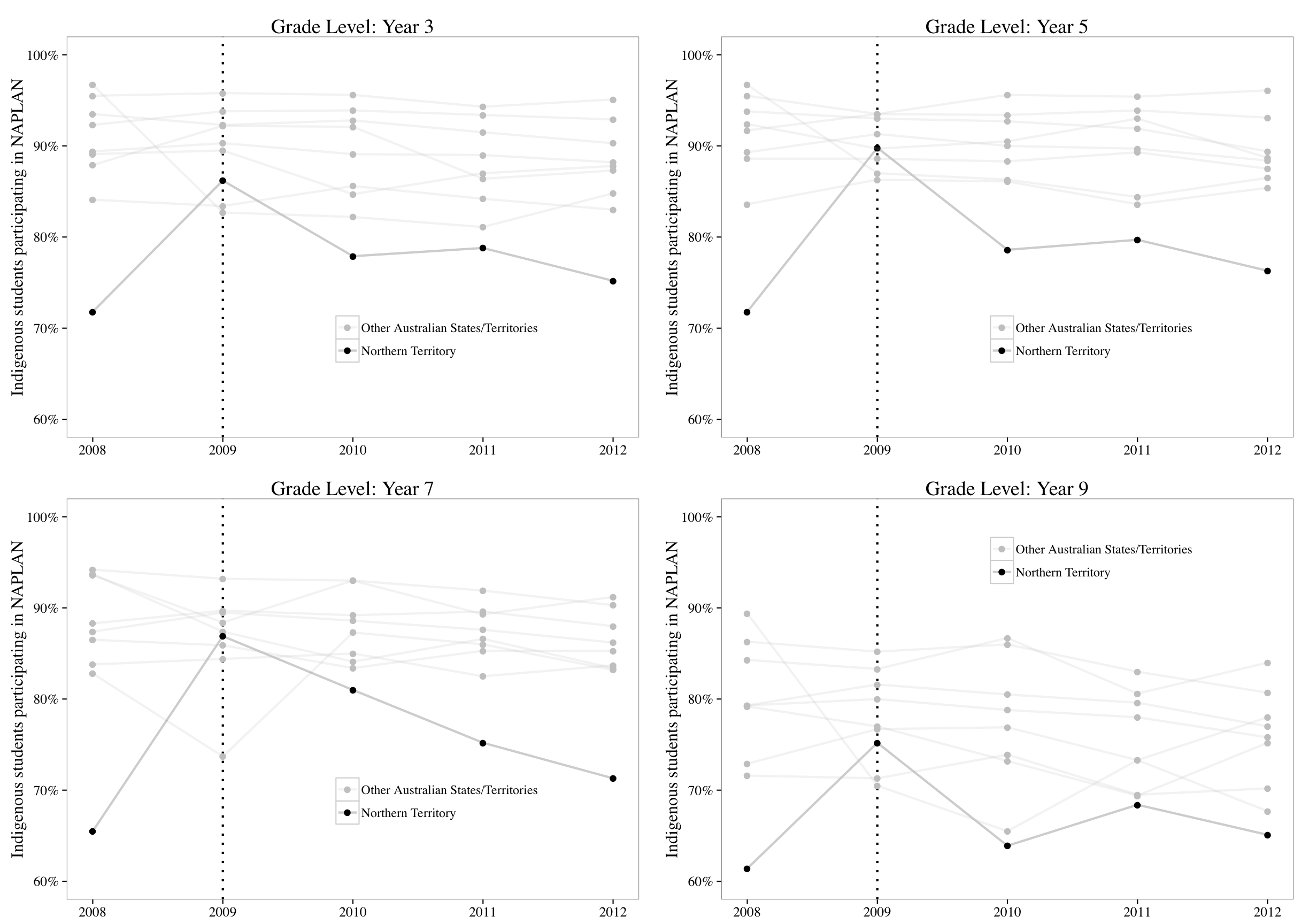


Figure 3. Indigenous participation in NAPLAN numeracy tests by year, grade and state/territory

*Source:* NAPLAN National Reports. <http://www.nap.edu.au/results-and-reports/national-reports.html>.

# 5. Regression analysis of NAPLAN participation rates

In this section, we apply regression analysis to annual state-level NAPLAN participation data for Indigenous students in 2008-2012 presented graphically in Figures 2 and 3. We use a difference-in-difference approach to estimate average annual effects of SEAM on participation rates among Indigenous students in the Northern Territory, comparing them to the corresponding changes among Indigenous students in other Australian states and territories over the five years, pooling all four grade levels and both knowledge domains in one regression. We assume that the population of Indigenous students in the Northern Territory was "untreated" by SEAM in 2008, the year prior to implementation; then fully treated in 2009, the first year of implementation, by the credible threat that Indigenous parents who did not send their children to school jeopardized their continued welfare support. These families were partially or ineffectively treated in 2010, 2011 and 2012, as the threat lost its credibility. The Indigenous students in other states and territories are the comparison group; we assume this group is untreated by SEAM in all years, grade levels, and knowledge domains.

Our assumption of full treatment in 2009 is based on the evidence from government reports presented in Section 3, indicating that extensive misinformation generally led the Indigenous population of the Northern Territory to feel threatened by SEAM, though it was formally directed at only a small fraction of schools; and by the attendance data for SEAM and non-SEAM schools presented in Figure 1. In the context of our analysis, this is a conservative assumption. If it is an overstatement—i.e., if not all child-carers believed that their welfare payments would be reduced if they did not send the children in their care to school—then our estimated effects are biased downward and the actual initial effect of SEAM on participation was stronger than our estimates indicate.

Our basic regression specification is:

**

where *Yidgt* is the participation rate for the Indigenous population in state/territory *i*, in knowledge domain *d* (numeracy or reading) and grade *g* (3, 5, 7 or 9), in year *t* (2008, …, 2012). Here, *Ir* is an indicator for the reading domain (numeracy is the omitted category) and *r* is a fixed effect for reading. *Ig* is an indicator for grade level (grade 9 is the omitted category) and *g* are grade level effects for *g* = 3, 5, 7. *It* is an indicator for year *t* (2008 is the omitted category) and *t*are year effects for years *t* = 2009, 2010, 2011, 2012. *INT* is an indicator for the Northern Territory and ** is the Northern Territory fixed effect. The coefficients *t* are the difference-in-difference effects for years *t* = 2009, 2010, 2011 and 2012. The last term, *vidgt*, is an error term, which we assume to be independent across states, but possibly correlated across grade levels and domains within a state.

Our interest focuses on *t* as it varies over time. It estimates the difference in the difference in participation rates between the base year and year *t* between the Northern Territory Indigenous population and the Indigenous populations in other states and territories, averaged over all grade levels and knowledge domains. We expect a large, statistically significant, positive value for , the coefficient associated with the interaction between the year 2009 and NT indicators, and smaller effects for subsequent years, for , as the threat became less credible.

Table 5— Regression of Indigenous participation rates

|  |  |  |  |
| --- | --- | --- | --- |
|  | Coefficient | 95% Conf Interval | *p-*value |
| Intercept | 0.803 | [0.745,0.861] | < 0.001 |
| Northern Territory (NT) | -0.218 | [-0.262,-0.174] | < 0.001 |
| T=2009 | -0.003 | [-0.027,0.021] | 0.883 |
| T=2010 | -0.006 | [-0.032,0.020] | 0.746 |
| T=2011 | -0.013 | [-0.036,0.011] | 0.436 |
| T=2012 | -0.023 | [-0.056,0.011] | 0.135 |
| Grade 3 | 0.112 | [0.087,0.138] | < 0.001 |
| Grade 5 | 0.117 | [0.091,0.144] | < 0.001 |
| Grade 7 | 0.096 | [0.080,0.113] | < 0.001 |
| Reading | 0.010 | [0.007,0.013] | < 0.001 |
| NT in 2009 | 0.183 | [0.158,0.208] | < 0.001 |
| NT in 2010 | 0.092 | [0.066,0.117] | < 0.001 |
| NT in 2011 | 0.102 | [0.077,0.123] | < 0.001 |
| NT in 2012 | 0.083 | [0.048,0.118] | < 0.001 |

*Note.* Linear model fit with weights for total Indigenous students in each grade, domain, state and year pooled over all eight states and territories; *N* = 320; *R2* = 0.726. P-values and confidence intervals from bootstrapped t-statistics (2000 replications) using Cameron et al.'s (2008) wild cluster bootstrap procedure clustered at the state level using the clusterSEs package in R (Esarey, 2015).

Table 5 presents the results from a linear model with weights equal to the number of Indigenous students in each grade, domain, state, year. As we allow that observations across grade levels and domains within a state may be correlated, we apply Cameron et al.'s (2008) wild cluster bootstrap procedure clustered at the state level to estimate standard errors. We find that the average participation rate of the Indigenous population in the Northern Territory in 2008 is almost 22 percentage points lower than the average rate for Indigenous students in other states and territories, highlighting the relative disadvantage of the Indigenous population in the Northern Territory. This accords with the differences outlined in Section 2. For all Indigenous students in Australia, participation rates in grades 3, 5 and 7 are significantly higher than in grade 9, indicating a substantial degree of general truancy in grade 9—still in compulsory schooling—among the general Indigenous population. We also find participation rates declining slightly over time after 2008 among all Indigenous children, mirroring a similar trend in the general population of Australia. We find that participation rates in reading are, on average, one percentage point higher than in numeracy, a small difference.

The difference-in-difference coefficients, which indicate the impact of the threat to withhold welfare payments on Indigenous participation in the Northern Territory as it varies over time, appear in the bottom four rows of Table 5, below the dotted line. We find a large increase of 18.3 percentage points in 2009, which then declines by half in 2010, followed by a slight rise in 2011, and again a fall in 2012 to a level 8.4 percentage points above 2008 participation rates. All the difference-in-difference estimates are significantly greater than the base year, 2008, with the point estimate for 2009 significantly different from all the other years. The estimates for 2010, 2011 and 2012 are not statistically different from each other. The slight rise in 2011 presumably echoes the strong effect registered in 2009, as students tested in 2011 in grades 5, 7 and 9 were the same students tested in 2009, in grades 3, 5 and 7.[[14]](#footnote-14)

Difference-in-difference analysis rests on the assumption that if the Indigenous population in the Northern Territory had not actually been threatened, the change over time in student participation rates in the Northern Territory would be approximately the same as that of the Indigenous students outside the Northern Territory. Evidence of Indigenous student participation in the Northern Territory sharing a common trend with Indigenous students elsewhere in Australia before 2009 would support this assumption. This cannot be evaluated directly in our case, as NAPLAN data is available only from 2008, providing just one pre-treatment period; nor are there other sources of comparable nationally standardized data on Indigenous school attendance or participation in earlier years that we are aware of.

There is, however, good reasons to believe that the sharp increase in participation in 2009 does not continue a rising trend from previous years.[[15]](#footnote-15) The implementation of the NTER in 2008 was framed as a response to widespread concern for the welfare of Indigenous children in the Northern Territory, including concern that school-age children were not attending school regularly. Had school participation been improving in the period before 2008 it is reasonable to assume that this would have been remarked upon at the time by opponents of the NTER. On the contrary, historical evidence suggests that the NTER’s initial support was based on the perception of a crisis in the Northern Territory (Wild and Anderson, 2007; Toohey, 2008; Broome, 2010, Chapter 14).[[16]](#footnote-16)

# 6. Conclusion

Australia's School Enrolment and Attendance through Welfare Reform Measure (SEAM), implemented in 2009 against the backdrop of the Northern Territory Emergency Response (NTER), aimed to raise school attendance rates among Indigenous children in the Northern Territory by threatening to withhold welfare payments from parents who failed to send their children to school regularly. The official target population was narrowly defined but the circumstances in which SEAM was implemented—a period of increased social control of Indigenous families, the temporary suspension of the Racial Discrimination Act, and the troubled history of race relations in Australia—all contributed to creating a climate in which Indigenous families in the Northern Territory came to believe in 2009, the first year SEAM was implemented, that truancy of children in the family immediately jeopardized its welfare support. This had an immediate positive effect on attendance, not only on the fourteen schools formally targeted by SEAM but among the entire Indigenous population of the Northern Territory. However, this effect was short-lived. Administrators did not actually withhold welfare payments from families with truant children, and this quickly undermined the credibility of the threat, leading to a decline in attendance in subsequent years.

We quantify these developments through a difference-in-difference regression analysis of participation rates in NAPLAN reading and numeracy tests in grades 3, 5, 7 and 9, comparing variation in these rates in 2008-2012 among the Indigenous population of the Northern Territory, to their variation among the Indigenous populations of Australia's other states and territories. We use NAPLAN participation rates as a proxy for school attendance because they reflect students’ active participation in education; and because they are available separately for Indigenous children where attendance data are not.

Our analysis reveals that in 2009, the first year in which SEAM was implemented, test participation in the Northern Territory increased by 18.3 percentage points, beyond the average change in participation rates among the Indigenous populations of Australia’s other states and territories, averaged over our four grade levels and two knowledge domains. Moreover, this rise in participation rates was not accompanied by a reduction in overall pass rates among Indigenous students, suggesting that the increase in participation rates we observe reflects a similar increase in school attendance. As we have only one annual observation preceding 2009, we cannot evaluate whether participation rates in the NT and elsewhere followed similar time trends prior to 2009. An obvious concern is that the increase observed in 2009 was simply the continuation of an earlier upward trend. However, the implementation of the NTER in 2008 amidst grave concern for the welfare of Indigenous children in the Northern Territory, suggests that the gains observed between 2008 and 2009 were not the continuation of an earlier trend of improved attendance. If anything, it seems more reasonable to consider the possibility of a declining trend in participation rates in the Northern Territory relative to other states and territories in the preceding period. This would imply that the effect in 2009 of the threat to withhold welfare was actually stronger than our estimates indicate.

The gains in Indigenous student participation in the Northern territory observed in 2009 were not sustained in subsequent years, as the threat to withhold welfare payments from truant families proved hollow. Participation rates among Indigenous students in the Northern Territory fell significantly after 2009. Our difference-in-difference estimates indicate that more than half the gain dissipated in 2010, and by 2012 participation rates were only 8.3 percentage points above pre-SEAM levels—much reduced, but still a significant increase.

The gains achieved through the joint implementation of the NTER and SEAM are not easily replicable elsewhere. They entailed extreme measures, including an initial military presence and the temporary suspension of anti-discrimination laws, which were made possible by unique circumstances and, constitutionally, could not have been implemented in an Australian state. Yet we believe there are general lessons to be learned from this unique set of policy measures about the scope for reducing truancy in disadvantaged populations by threatening to impose further resource constraints on them. Even with such strong measures at its disposal, the government achieved only temporary success. It was able to induce large numbers of Indigenous parents to start sending their truant children to school in 2009, but could not follow through on the threat, and many did not continue to do so when they saw the threat was hollow.

While the joint experience of the NTER and SEAM shows that a credible threat to link welfare payments to school attendance can be effective in the short run, it also highlights the difficulty of following through on such a threat, even in extreme circumstances. The NTER and SEAM provided a window of opportunity in which to persuade parents of the value of sending their children to the schools available to them. Sustained change may require changes in what these schools teach and how they teach it; and better employment prospects for these children when they graduate from school.

**Acknowledgments:** We thank, without implicating, for their valuable comments, Peter Aronow, Richard Burkhauser, Danny Cohen-Zada, John Haisken De-New, Colm Harmon, Nikhil Jha, Patrick Lam, Raymond Orr, Cain Polidano, Dave Ribar, Ben Stephens, seminar participants at the University of Melbourne, and especially Chris Ryan for early support and advice. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

Altman, Jon, Geoff Buchanan and Nicholas Biddle, 2006. Measuring the ‘Real’ Indigenous Economy in Remote Australia Using NATSISS 2002. *Australian Journal of Labour Economics* 9:17–31.

Altman, Jon, Nicholas Biddle and Boyd Hunter, 2008. How realistic are the prospects for ‘closing the gaps’ in socioeconomic outcomes for Indigenous Australians? Working Paper 287/2008 Centre for Aboriginal Economic Policy Research, Australia National University, Canberra.

Altman, Jon and Susie Russell, 2012. Too much ‘Dreaming’: Evaluations of the Northern Territory National Emergency Response Intervention 2007-2012. *Evidence Base* 3.

Australia Bureau of Statistics, 2009. Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005–2007. Cat. No. 3302.0.55.003.

Australia Bureau of Statistics, 2012. Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians, Estimates from the Labour Force Survey, 2011. ABS cat. no. 6287.0.

Australian Human Rights Commission, 1997. Bringing them Home: Report of the National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from Their Families. Downloaded from:

https://www.humanrights.gov.au/publications/bringing-them-home-report-1997

Broome, Richard, 2010. *Aboriginal Australians: A history since 1788*, 4th ed. Sydney: Allen and Unwin.

Cameron, A. Colin, Jonah B. Gelbach, and Douglas L. Miller. 2008. Bootstrap-Based Improvements for Inference with Clustered Errors. *The Review of Economics and Statistics* 90(3): 414-427.

Campbell, David and Joan Wright, 2005. Rethinking Welfare School-Attendance Policies. *Social Service Review* 79:2-28.

Cook, Philip J., Kenneth Dodge, George Farkas, Roland G. Fryer, Jonathan Guryan, Jens Ludwig, Susan Mayer, Harold Pollack, and Laurence Steinberg. 2014. The (Surprising) Efficacy of Academic and Behavioral Intervention with Disadvantaged Youth: Results from a Randomized Experiment in Chicago. DP 19862, National Bureau of Economic Research. Cambridge, MA.

Department of Education, Employment and Workplace Relations (DEEWR), 2011. Improving School Enrolment and Attendance through Welfare Reform Measure (SEAM): Evaluation Report for the Northern Territory in 2009. Social Policy and Economic Strategy Group, DEEWR, Canberra.

Esarey, Justin, 2015. clusterSEs: Calculate Cluster-Robust p-Values and Confidence Intervals. R package version 2.1. http://CRAN.R-project.org/package=clusterSEs.

Hunter, Boyd and Matthew Gray, 2012. Indigenous Labour Supply Following a Period of Strong Economic Growth. *Australian Journal of Labour Economics* 15(2): 141-159.

Levitt, Steven, John List, Susanne Neckerman and Sally Sadoff. 2012. The Behavioralist Goes to School: Leveraging Behavioral Economics to Improve Educational Performance. WP 18165, NBER, Cambridge, MA.

Rawlings, Laura and Gloria Rubio, 2005. Evaluating the Impact of Conditional Cash Transfer Programs. *The World Bank Research Observer* 20(1):29–55.

Steering Committee for the Review of Government Service Provision (SCRGSP), 2011. Overcoming Indigenous Disadvantage: Key Indicators 2011. Productivity Commission, Canberra.

Stephens, Benjamin J, 2010. The Determinants of Labour Force Status among Indigenous Australians. *Australian Journal of Labour Economics,* 13:287-312.

Toohey, Paul. "Last drinks: the impact of the Northern Territory intervention."*Quarterly Essay* 30 (2008).

Wild, Rex and Patricia Anderson, 2007. *Ampe Akelyernemane Meke Mekarle: Little Children are Sacred*. Report of the Northern Territory Board of Inquiry into the Protection of Aboriginal Children from Sexual Abuse. Darwin, NT.

## **Appendix**

Table A1: Grade 3 Participation rates

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Reading | | | | | Numeracy | | | | |
| *State/Territory* | 2008 | 2009 | 2010 | 2011 | 2012 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Northern Territory | 0.71 | 0.89 | 0.79 | 0.81 | 0.78 | 0.72 | 0.86 | 0.78 | 0.79 | 0.75 |
| Western Australia | 0.85 | 0.86 | 0.87 | 0.85 | 0.85 | 0.84 | 0.83 | 0.86 | 0.84 | 0.83 |
| Queensland | 0.95 | 0.94 | 0.93 | 0.93 | 0.92 | 0.94 | 0.92 | 0.93 | 0.92 | 0.90 |
| New South Wales | 0.94 | 0.94 | 0.95 | 0.94 | 0.94 | 0.92 | 0.94 | 0.94 | 0.93 | 0.93 |
| Victoria | 0.90 | 0.90 | 0.85 | 0.88 | 0.89 | 0.89 | 0.89 | 0.85 | 0.87 | 0.88 |
| South Australia | 0.96 | 0.82 | 0.83 | 0.81 | 0.84 | 0.97 | 0.83 | 0.82 | 0.81 | 0.85 |
| Tasmania | 0.97 | 0.96 | 0.96 | 0.95 | 0.96 | 0.95 | 0.96 | 0.96 | 0.94 | 0.95 |
| Australian Capital Territory | 0.90 | 0.94 | 0.92 | 0.87 | 0.86 | 0.88 | 0.92 | 0.92 | 0.86 | 0.87 |

Table A2: Grade 5 participation rates

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Reading | | | | | Numeracy | | | | |
| *State/Territory* | 2008 | 2009 | 2010 | 2011 | 2012 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Northern Territory | 0.71 | 0.92 | 0.81 | 0.81 | 0.80 | 0.72 | 0.90 | 0.79 | 0.80 | 0.76 |
| Western Australia | 0.84 | 0.88 | 0.87 | 0.86 | 0.86 | 0.84 | 0.86 | 0.86 | 0.84 | 0.85 |
| Queensland | 0.95 | 0.94 | 0.94 | 0.93 | 0.90 | 0.94 | 0.93 | 0.93 | 0.92 | 0.89 |
| New South Wales | 0.93 | 0.95 | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 | 0.93 | 0.94 | 0.93 |
| Victoria | 0.90 | 0.91 | 0.88 | 0.90 | 0.89 | 0.89 | 0.89 | 0.88 | 0.89 | 0.88 |
| South Australia | 0.97 | 0.87 | 0.87 | 0.85 | 0.88 | 0.97 | 0.87 | 0.86 | 0.84 | 0.87 |
| Tasmania | 0.97 | 0.95 | 0.96 | 0.97 | 0.96 | 0.95 | 0.94 | 0.96 | 0.95 | 0.96 |
| Australian Capital Territory | 0.91 | 0.89 | 0.89 | 0.93 | 0.89 | 0.92 | 0.90 | 0.90 | 0.93 | 0.89 |

Table A3: Grade 7 participation rates

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Reading | | | | | Numeracy | | | | |
| *State/Territory* | 2008 | 2009 | 2010 | 2011 | 2012 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Northern Territory | 0.63 | 0.87 | 0.77 | 0.76 | 0.74 | 0.65 | 0.87 | 0.81 | 0.75 | 0.71 |
| Western Australia | 0.86 | 0.85 | 0.85 | 0.83 | 0.85 | 0.84 | 0.84 | 0.85 | 0.82 | 0.84 |
| Queensland | 0.95 | 0.94 | 0.94 | 0.93 | 0.92 | 0.94 | 0.93 | 0.93 | 0.92 | 0.90 |
| New South Wales | 0.89 | 0.92 | 0.91 | 0.91 | 0.90 | 0.88 | 0.90 | 0.89 | 0.90 | 0.88 |
| Victoria | 0.85 | 0.85 | 0.84 | 0.88 | 0.86 | 0.87 | 0.86 | 0.83 | 0.85 | 0.85 |
| South Australia | 0.96 | 0.87 | 0.86 | 0.88 | 0.86 | 0.94 | 0.87 | 0.84 | 0.87 | 0.83 |
| Tasmania | 0.93 | 0.89 | 0.94 | 0.89 | 0.93 | 0.94 | 0.88 | 0.93 | 0.89 | 0.91 |
| Australian Capital Territory | 0.81 | 0.79 | 0.85 | 0.85 | 0.84 | 0.83 | 0.74 | 0.87 | 0.86 | 0.83 |

Table A4: Grade 9 participation rates

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Reading | | | | | Numeracy | | | | |
| *State/Territory* | 2008 | 2009 | 2010 | 2011 | 2012 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Northern Territory | 0.62 | 0.75 | 0.66 | 0.69 | 0.66 | 0.61 | 0.75 | 0.64 | 0.68 | 0.65 |
| Western Australia | 0.71 | 0.72 | 0.74 | 0.70 | 0.71 | 0.72 | 0.71 | 0.74 | 0.69 | 0.70 |
| Queensland | 0.87 | 0.86 | 0.86 | 0.84 | 0.81 | 0.86 | 0.85 | 0.86 | 0.83 | 0.81 |
| New South Wales | 0.80 | 0.84 | 0.82 | 0.81 | 0.79 | 0.79 | 0.82 | 0.81 | 0.80 | 0.77 |
| Victoria | 0.78 | 0.75 | 0.71 | 0.71 | 0.77 | 0.79 | 0.77 | 0.73 | 0.69 | 0.75 |
| South Australia | 0.90 | 0.71 | 0.68 | 0.71 | 0.69 | 0.89 | 0.70 | 0.65 | 0.73 | 0.68 |
| Tasmania | 0.82 | 0.83 | 0.85 | 0.81 | 0.83 | 0.84 | 0.83 | 0.87 | 0.81 | 0.84 |
| Australian Capital Territory | 0.69 | 0.76 | 0.77 | 0.69 | 0.80 | 0.73 | 0.77 | 0.77 | 0.73 | 0.78 |

1. Levitt et al. (2012) and Cook et al. (2014) report on successful field experiments with CCTs in Chicago, funded from non-government sources. [↑](#footnote-ref-1)
2. Prominent among these is the forced removal of Indigenous children from their families by Australian federal and state government agencies, which began around the turn of the 20th century and continued until the mid-1970s. In 2008, Australian Prime Minister Kevin Rudd issued a formal recognition and apology for what the Australian Government called "The Stolen Generations" (Australian Human Rights Commission, 1997). [↑](#footnote-ref-2)
3. Our analysis relies on publicly available data aggregated by state/territory and Indigenous status. More finely disaggregated data would allow a more detailed analysis but is not publicly available. Earlier observations would allow us to examine whether treated and untreated groups followed a common trend in the pre-treatment period but are also not available as uniform national data collection began in 2008. We elaborate on this below. [↑](#footnote-ref-3)
4. It also indicates that students induced by SEAM to participate in NAPLAN were of similar academic ability to those who participated in NAPLAN before SEAM. [↑](#footnote-ref-4)
5. The Australian Bureau of Statistics (ABS) publishes estimates of total enrolment for Indigenous students across states and territories, beginning in 2001 (Table 4221.0, from Schools, Australia, http//www.abs.gov.au). However, this data does not relate to attendance or participation rates, nor does it correlate with our NAPLAN participation data for the years that both are available. [↑](#footnote-ref-5)
6. We cannot rule out the possibility that the subsequent decline in participation rates did not reflect a similar decline in attendance, but it seems more likely that the two went hand in hand. [↑](#footnote-ref-6)
7. The numbers for women are about four years higher with similar inter-group differences. [↑](#footnote-ref-7)
8. Altman, Biddle and Hunter (2008) judge that “labour force participation rates would take over a century to converge if the trends for the period 1971-2006 were to persist.” Similar gaps characterize health outcomes, employment, family and community violence, incarceration and freedom from poverty (Stephens, 2010; Steering Committee for the Review of Government Service Provision, 2011). [↑](#footnote-ref-8)
9. See <http://www.nap.edu.au/results-and-reports/national-reports.html> National Assessment Program (2014). [↑](#footnote-ref-9)
10. As distinct from a territory. The Australian Defence Force (ADF) began “Operation Outreach” on 27 June 2007, deploying approximately 600 ADF personnel, 400 of them soldiers (http://www.defence.gov.au/opEx/global/opoutreach/index.htm). [↑](#footnote-ref-10)
11. Broome (2010) describes this public response, noting in particular an open letter against the Intervention signed by sixty Aboriginal community and church organizations. However, some Indigenous leaders, notably women such as Professor Marcia Langston, expressed support for the NTER, viewing it as necessary for protecting the rights of Indigenous women and children in view of the failure of the Northern Territory government to address these issues effectively. <http://www.abc.net.au/news/2008-02-08/trapped-in-the-aboriginal-reality-show/1036918>. The NTER has since been replaced by the Stronger Futures Policy. [↑](#footnote-ref-11)
12. The 14 SEAM schools had an average annual enrolment of 3,020 students, of whom 62.5% were indigenous; the 166 schools not targeted by SEAM had an average annual enrolment of 35,740 students, of whom 37.9% were Indigenous. Attendance is calculated as the ratio of the number of student days attended to the total number of student days for the student body as a whole. The publicly available data we use does not break out school attendance by Indigenous status or grade level, providing just a single number for each school. We include all types of school: primary, secondary and combined; and omit a small number of comparison schools for which data were not available for all four years. [↑](#footnote-ref-12)
13. This is less of a drawback for the Northern Territory, where Indigenous students are a large segment of the school population, and general attendance rates follow the same pattern as Indigenous participation rates in NAPLAN (Figure 1, above). [↑](#footnote-ref-13)
14. We also estimated an unweighted regression with very similar results. The interaction coefficients for 2009-2012 were respectively 0.197, 0.100, 0.115 and 0.084, with slightly larger 95% confidence intervals ranging in size from .07 to .09. [↑](#footnote-ref-14)
15. Of course, the subsequent decline in participation rates, after 2009, cannot be the continuation of a trend. [↑](#footnote-ref-15)
16. If anything, the trend in Indigenous student participation in the Northern Territory may have been on a declining path before 2008, relative to other states and territories. If this was the case it would imply that our regressions underestimate the impact of the threat to withhold welfare payments from Indigenous families in the Northern Territory on participation rates. [↑](#footnote-ref-16)