Rewarding Commitment to Attend School: A Field Experiment with Indigenous Australian High School Students

Azhar Hussain Potia

Co authored with Uwe Dulleck, Juliana Silva Goncalves and Benno Torgler

Queensland University of Technology
Queensland Behavioural Economics Group (QuBE)

09 August 2018

Motivation: Closing The Gap Policy

No.	Target	Target year	Progress as of 2016
1	Close the gap in **life expectancy**	2031	Not on track
2	Halve the gap in **mortality rates** for Indigenous children under five	2018	On track
3	Ensure access to **early childhood education** in remote communities	2025	On track
4	Close the gap in **school attendance**	2018	Not on track
5	Halve the gap in **reading and numeracy achievements**	2031	Not on track
6	Halve the gap in **year 12 or equivalent attainment rates**	2020	On track
7	Halve the gap in **employment outcomes**	2018	Not on track

Source: Closing the Gap prime Minister's Report 2018

- Evidence confirms a significant gap in educational outcomes between Indigenous and non-Indigenous Australian students (Bath and Biddle, 2011; Gray and Beresford, 2008).

- Closing the gap in school outcomes is a major focus at all levels of government.

School Attendance: A Long-Standing Issue

- Irregular school attendance is an important driver of poor learning, school dropout and low educational achievement.

- No improvements have been observed in improving school attendance for Indigenous children.

- Attendance drop significantly more pronounced for Indigenous students once they enter high school.
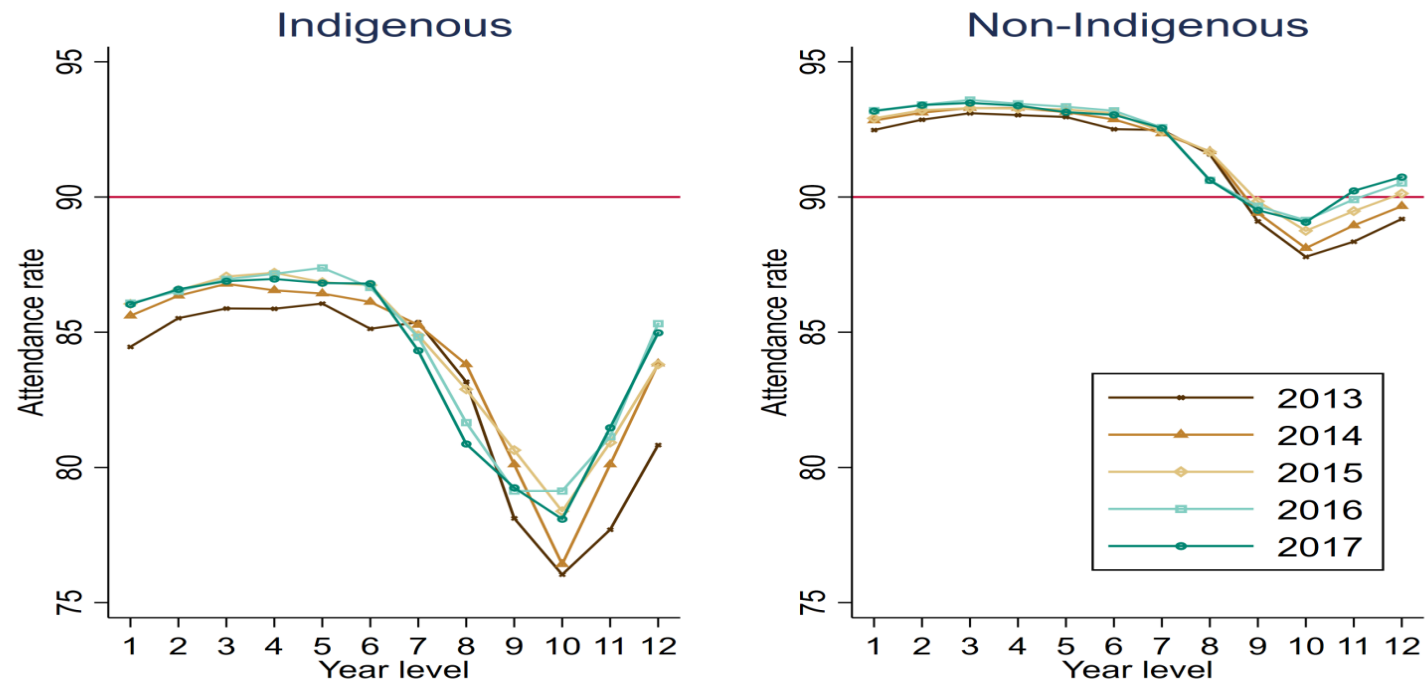
Source: Queensland Department of Education and Training

FOGS ARTIE Program

- ARTIE: Achieving Results Through Indigenous Education.

- FOGS aim to improve educational outcomes such as attendance rates, effort scores and academic achievements.

- FOGS utilise rewards conditional upon student achievement of specific education targets.

- ARTIE standard program: small gifts conditional on achievement of a given target.

Literature: Conditional Incentives in Education

- Literature on incentive programs aimed at improving educational achievements **conditional** on achieving specific goals has mainly focussed on:

  o **Cash transfers or financial incentives** (Angrist et al., 2002; Angrist et al., 2006; Angrist and Lavy, 2009),

  o **Non-monetary or in-kind incentives** (Levitt et al., 2016), and

  o **Combination of various interventions** (Angrist et al., 2009; Dulleck et al, 2016; Rodríguez-Planas, 2012).

- Empirical results from field studies indicate that incentives help to increase school attendance and enrolments (Gneezy et al., 2011; Schultz, 2004; Cornwell et al., 2006; Rodriguez-Planas, 2012).

- There have been mixed results for incentives aiming to increase student efforts and academic achievements (Angrist et al., 2002, 2006; Kremer et al., 2009).

The Promise Study: Overview

- Most incentive programs are presented to students as an ex-post reward mechanism.

- Aim – to understand the impact of providing a reward ex-ante to students conditional on their commitment to achieve a target.

- Method – compare two interventions introduced at different schools by FOGS:

  o **Promise intervention**: students receive a reward at the beginning of the school term, conditional on them promising to achieve an attendance rate of at least 90%.

  o **Standard intervention**: students receive a reward upon achieving 90% attendance by the end of the school term.

- First study to test the effect of rewarding commitments on improving school attendance.

- Commitment is voluntary and made by signing a "*promise*".

- Commitment is non-biding: students keep the gift independent of whether they reach the target

Promise Agreement

- A commitment has a stronger impact if it is made voluntarily, expressed publicly and/or costless to the maker (Cialdini, 1987; Kiesler, 1971).

- Students were asked to hand-write the word '*promise*' and the target they were expected to achieve.

- Reward was given immediately after the document was signed.

This contract has been approved by the ARTIE Academy, on the date of DD / MM / YYYY for the period of Term 1, 2015.

Conditions of Contract

For signing this promise you agree that you will achieve 90% in attendance in Term 1 in order to be rewarded with your very own ARTIE hoodie.

I .... that I will achieve ......% Attendance in Term 1 and fully understand that this reward is only available to students who have attended the Term 1 ARTIE Challenge Launch.

Signed ....

Date: DD / MM / YYYY

School..

Size (please circle):

X-Sml	Sml	Med	Large.
XL	2XL	3XL	4XL

Name..
Size..

I have accepted the promise to achieve 90% in attendance in Term 1 in order to be rewarded with an ARTIE hoodie.
'I can, I will, I must'
Hold onto this slip for your own record.

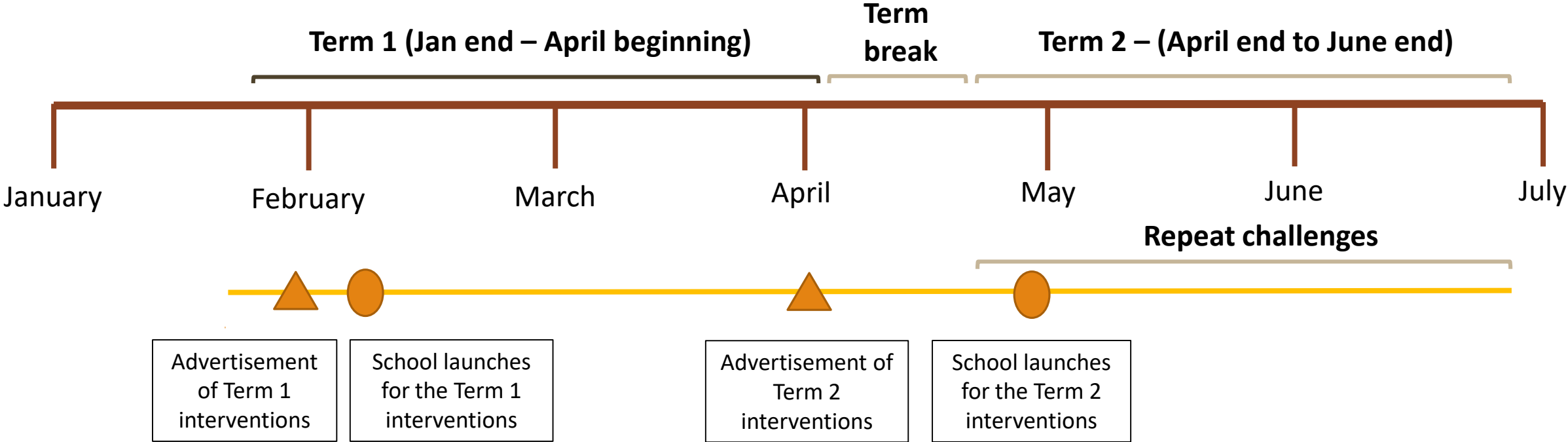# Relevant Literature: Promise Intervention

Promises as a commitment tool

- Literature has substantiated that an exchange of promises between study participants **_improves cooperative behaviour_** (Vanberg, 2008) and **_encourages people to keep their commitment_** (Ellingsen and Johannesson, 2004).

- Literature on promises has provided two main explanation streams:
    - **Expectation based**: promise-makers experience guilt if they sense they are letting someone down (Charness and Dufwenberg, 2006; Dufwenberg and Gneezy, 2000).
    - **Commitment based**: promise-makers feel an intrinsic obligation to stay true to their word (Vanberg, 2008; Ellingsen and Johannesson, 2004).
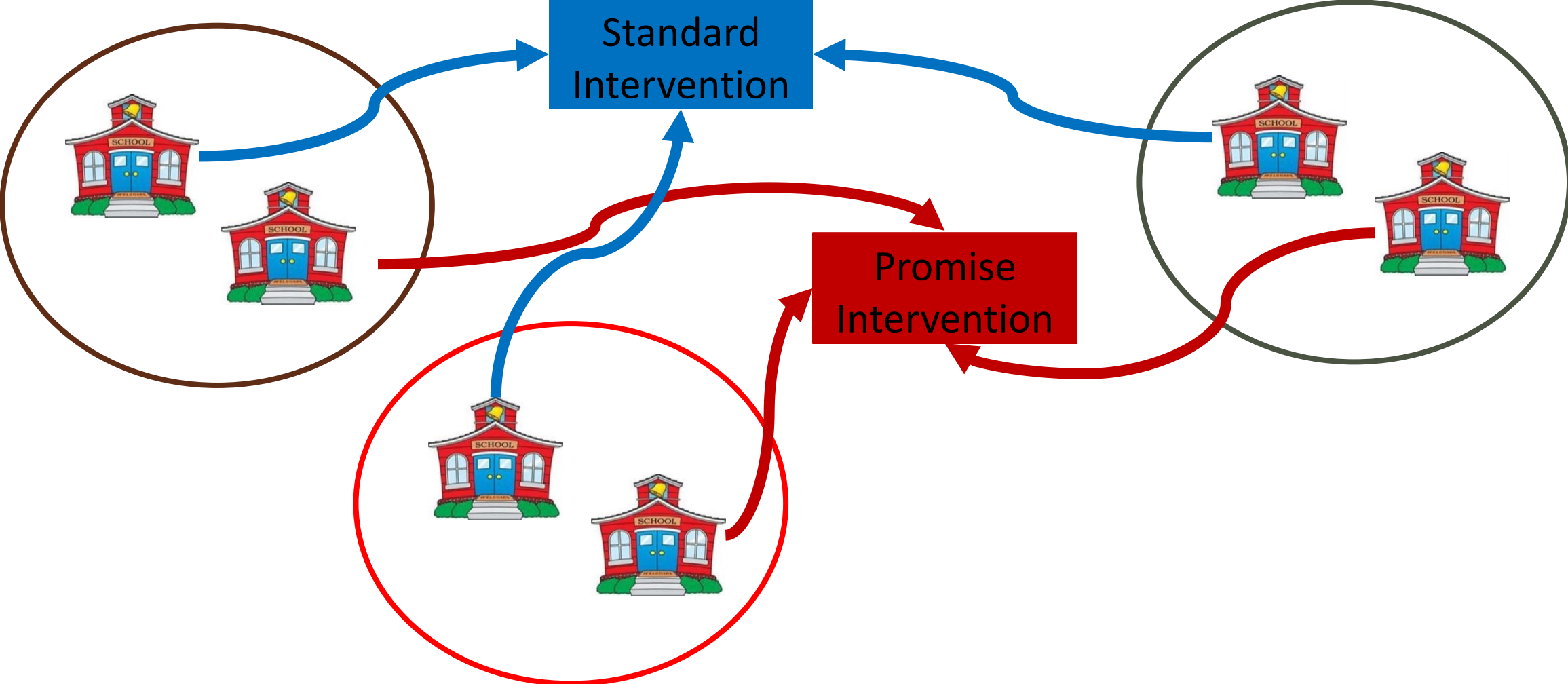
Upfront rewards or gift-exchanges

- Upfront rewards can take the form of **gift exchanges**, where a kind gesture is met with a kind response (Falk and Fischbacher, 2006 ; Falk, 2007).
    - Increase donation amounts for a charity organisation (Falk 2007).
    - Improve response rates for completing questionnaires and surveys (Berry and Kanouse, 1987 ; James and Bolstein, 1992).
    - Improve labour efficiency (Akerlof, 1982 ; Gneezy and List, 2006).

Promise Program – Timeline

Term 1 (Jan end – April beginning)

Term break

Term 2 – (April end to June end)

January   February   March   April   May   June   July

Repeat challenges

Advertisement of Term 1 interventions

School launches for the Term 1 interventions

Advertisement of Term 2 interventions

School launches for the Term 2 interventions
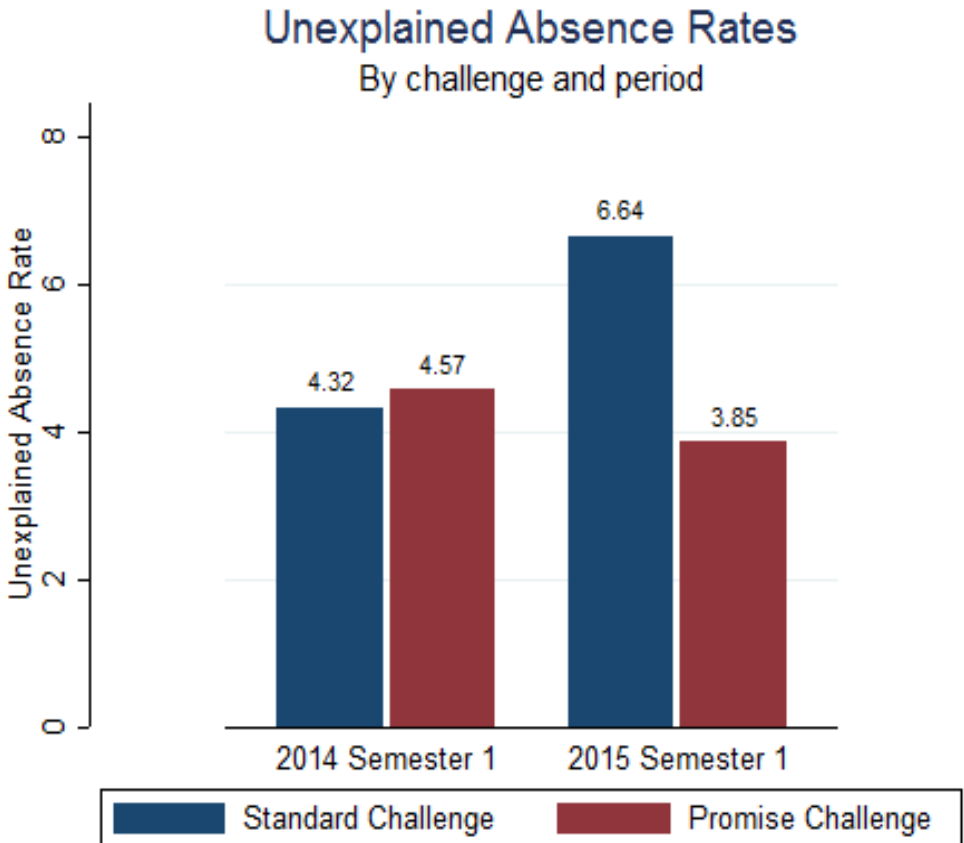
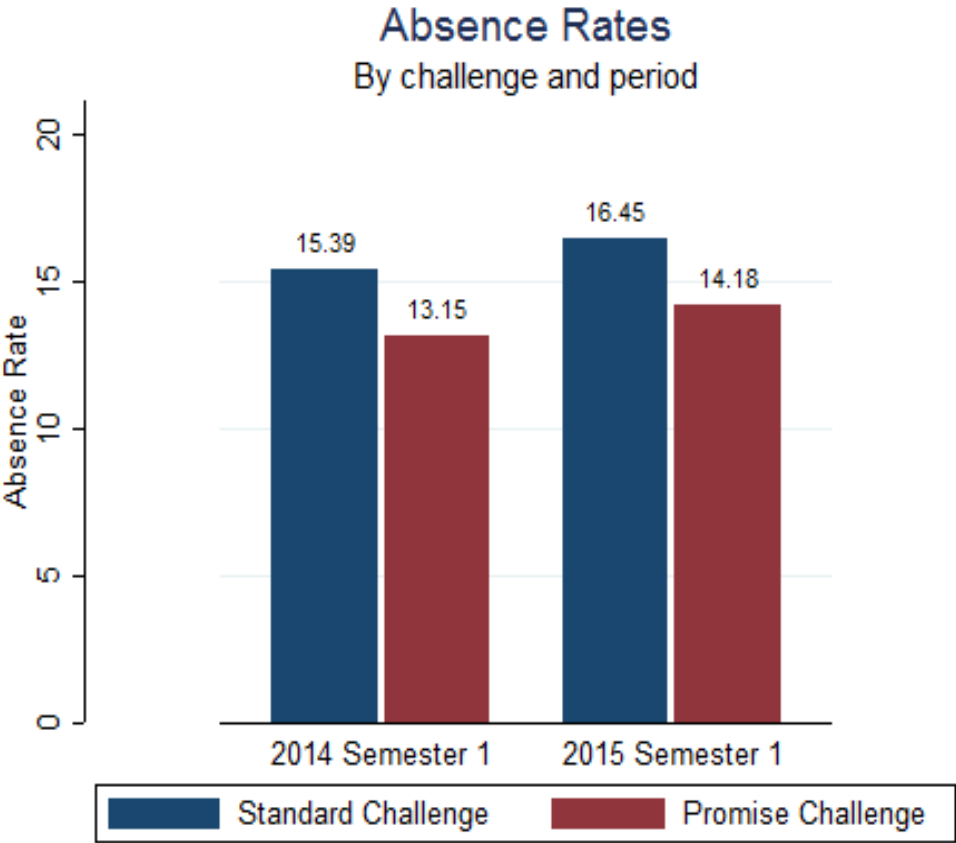# Promise Program – Selection Process

Empirical Strategy

- We are comparing the trends in outcomes between the promise intervention and standard intervention groups both before and after the Promise Program was implemented.

- To do this, we utilise an Intention to Treat (ITT) **difference-in-differences** type regression model

$$y_{ijt} = a + \beta_1 \gamma_j + \beta_2 \sigma_t + \boxed{\beta_3 (\gamma_j \times \sigma_t)} + \delta_1 X'_{ijt} + \delta_2 Z'_{ijt} + \varepsilon_{ijt}$$

- y_{ijt} outcome variable for student i, treatment j, time t;

- γ_j treatment indicator variable, 1 if the student is in the promise intervention;

- σ_t is a time indicator variable, 1 if the outcomes in semester one, 2015 (post-intervention) and 0 if in semester one, 2014 (pre-intervention);

- X'_{ijt} and Z'_{ijt} are individual and school control variables and;

- β_3, is the coefficient of interest

Reduced Unexplained Absences for Promise Intervention

Absence Rates
By challenge and period

Unexplained Absence Rates
By challenge and period

Results – Impact on Absence Rates

	Absence Rates					
	Indigenous					
	Pooled		**Male**		**Female**	
	[1]	[2]	[3]	[4]	[5]	[6]
Promise x Year 2015 (Semester 1)	-0.0004 (0.0090)	-0.0070 (0.0069)	0.0020 (0.0094)	-0.0038 (0.0055)	-0.0030 (0.0145)	-0.0156 (0.0146)
N	716	716	374	374	342	342
Controls	No	Yes	No	Yes	No	Yes

Note: * p<0.10; ** p<0.05; *** p<0.01; standard errors in parenthesis and clustered at the school students attended in semester 1 2015; controls include mother education, dummy for disability status, whether student attended a different school during the baseline, student attended at least one term launch, school attended during the treatment period and year level.

Results – Impact on Unexplained Absence Rates

	Unexplained absence Rates					
	Indigenous					
	Pooled sample		**Male**		**Female**	
	[1]	[2]	[3]	[4]	[5]	[6]
Promise x Year 2015 (Semester 1)	-0.0304*** (0.0096)	-0.0337*** (0.0051)	-0.0308** (0.0132)	-0.0313*** (0.0077)	-0.0299** (0.0141)	-0.0366** (0.0100)
N	716	716	374	374	342	342
Controls	No	Yes	No	Yes	No	Yes

Note: * $p<0.10$; ** $p<0.05$; *** $p<0.01$; standard errors in parenthesis and clustered at the school students attended in semester 1 2015; controls include mother education, dummy for disability status, whether student attended a different school during the baseline, student attended at least one term launch, school attended during the treatment period and year level.

Results – Percentile Impact on Absence Rates

	Absence Rates		
	Indigenous		
	Pooled sample	**Male**	**Female**
Promise x lagged percentile in 20% to 40%	-0.0090 (0.0181)	-0.0102 (0.0321)	0.0002 (0.0252)
Promise x lagged percentile in 40% to 60%	0.0187 (0.0293)	0.0026 (0.0330)	0.0562 (0.0318)
Promise x lagged percentile in 60% to 80%	0.0136 (0.0088)	0.0278 (0.0367)	0.0296 (0.0214)
Promise x lagged percentile in top 20%	-0.0657** (0.0223)	-0.1053*** (0.0408)	0.0011 (0.0351)
N (Students)	501	262	239
Controls	Yes	Yes	Yes

Note: * $p<0.10$; ** $p<0.05$; *** $p<0.01$; standard errors in parenthesis and clustered at the school students attended in semester 1 2015; controls include mothers' education and further education, dummy for disability status, whether student attended a different school during the baseline, student attended at least one term launch, school attended during the treatment period and year level.

Impact of the Promise Signed on Absence Rate

$$y_{ijt} = a + \beta_1(Term1promise) + \beta_2(Term2promise) + \beta_3(Bothtermpromise) + \delta_1 X'_{ijt} + \delta_2 Z'_{ijt} + \varepsilon_{ijt}$$

	Absence Rates			
	Term 1 Absence rate		**Term 2 Absence rate**	
	[1]	[2]	[3]	[4]
Only term 1 promise signed	-0.0424** (0.0205)	-0.0456** (0.0209)	-0.0291 (0.0275)	-0.0266 (0.0274)
Only term 2 promise signed	-0.0076 (0.0215)	-0.0014 (0.0224)	-0.0675** (0.0289)	-0.0555* (0.0294)
Both term promise signed	-0.0890*** (0.0157)	-0.0901*** (0.0164)	-0.1135*** (0.0211)	-0.1208*** (0.0215)
No promise signed (constant term)	0.1807***	0.2034***	0.2346***	0.2375***
N (Observations)	406	406	406	406
Controls	No	Yes	No	Yes

Note: * p<0.10; ** p<0.05; *** p<0.01; controls include mothers' education and further education, school attended, and a dummy for gender, disability status and year level.

Conclusion

- No significant difference in absence rates was observed between students on the promise intervention and standard intervention.

- Lower unexplained absence rate in the promise intervention program (by 3% on average).

- Students in the promise intervention may have felt more compelled to provide a valid justification for their absence.

- Previously low attending students performed significantly better on the promise intervention.

- Signing the promise and taking on the promise intervention had an impact on student absence rates in the short run.

- Future work:

  o Interesting to know whether the promise, the upfront gift or their combination is driving the effect.

  o Test further whether promises or upfront gifts may be effective in improving attendance.

Thank you

FOGS Promise Program

	Promise Intervention	Standard Intervention
Participants	Six schools around South East Queensland were selected with a large population of Indigenous students. Three were randomly assigned to the Promise Intervention.	
Launch approach	Indigenous students could voluntarily attend the launch of their respective intervention where a well-known Indigenous role model encouraged those students to make good, educational decisions for their future.	
Incentives	Term 1: watch and football jumper Term 2: sports bag and beanie	
Challenge target	Term 1 and Term 2: 90% attendance by the conclusion of each term	
Delivery of incentive	Students signed a promise agreement at the beginning of term 1 and term 2 (at the launches) and, in return for signing each agreement, received the pre-arranged incentive.	Students were told at the launch of this challenge that receiving their incentives was conditional upon meeting their attendance target by the end of term one and term two.