Online Appendix: The Effect of Quarantining Welfare on School Attendance in Indigenous Communities

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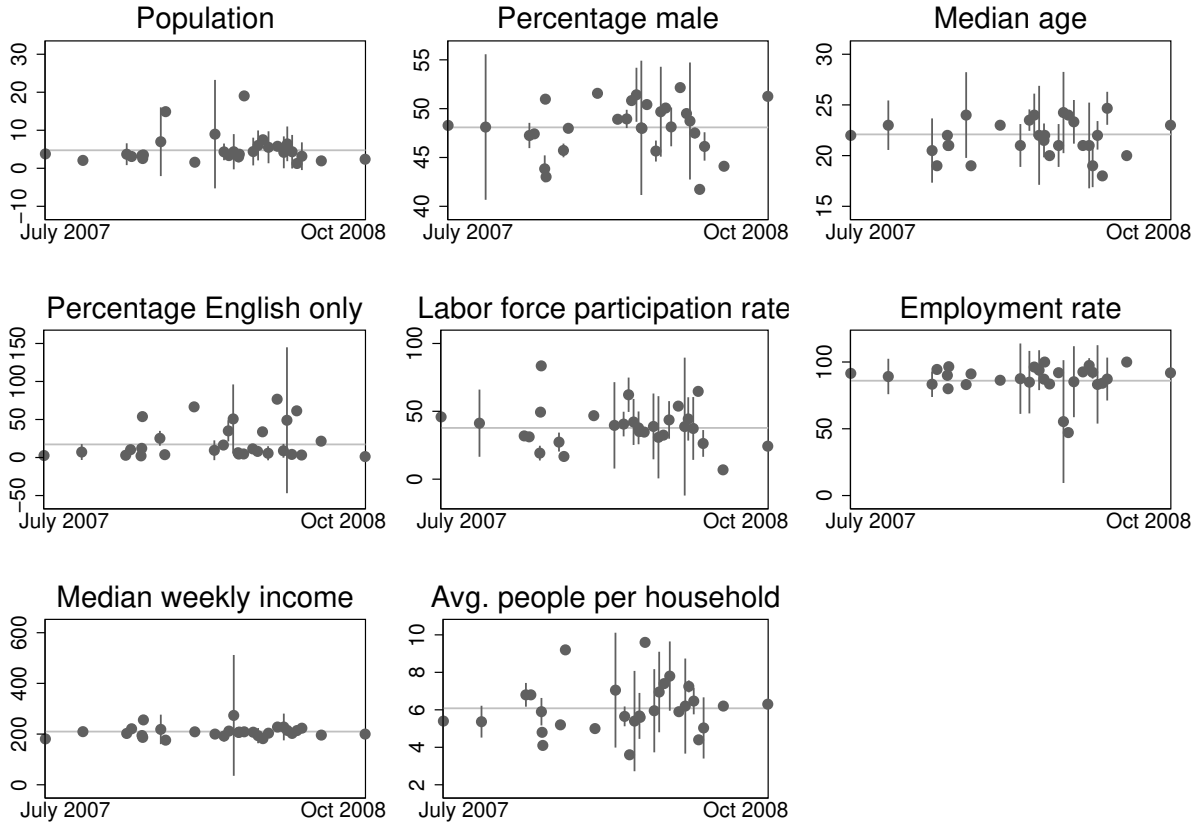
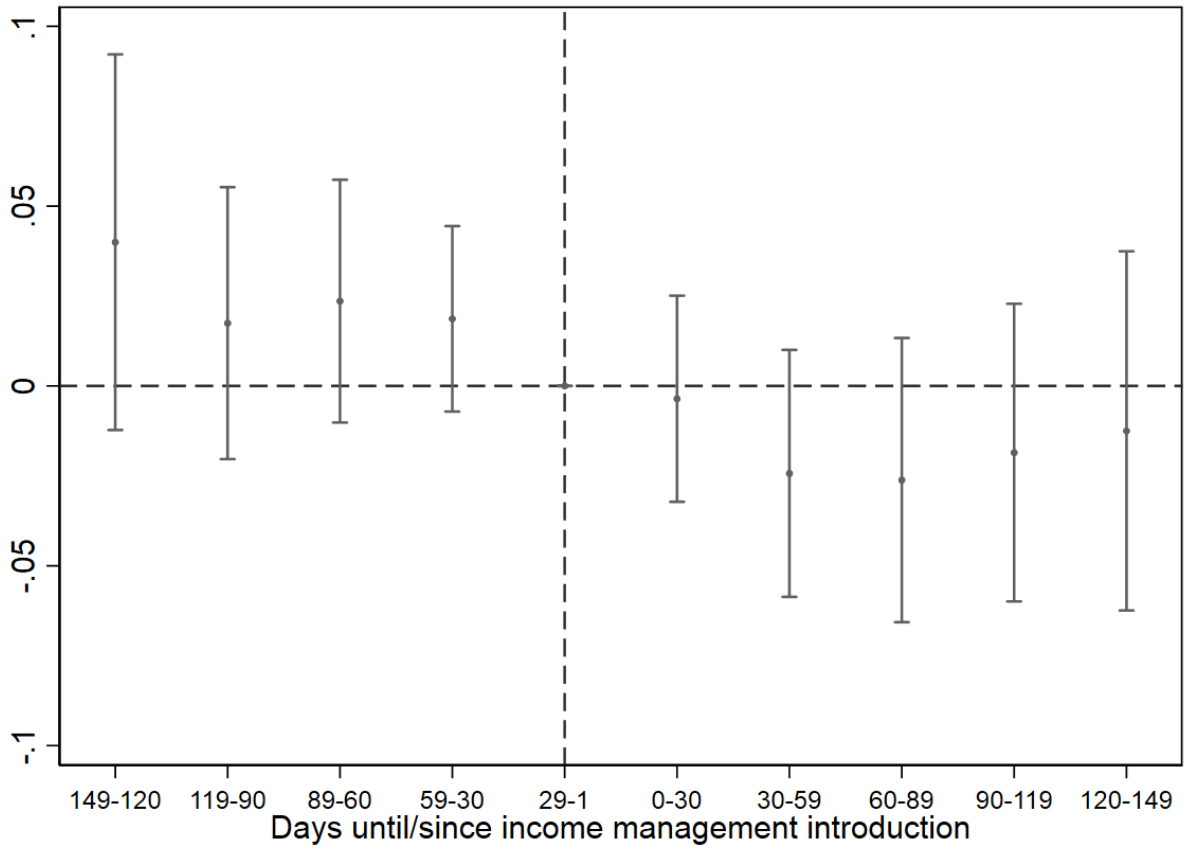
Appendix A

Figure A1: Community characteristics by income management rollout timing



Notes: Each chart shows the average value of the characteristic for communities commencing income management on a particular day during the rollout. For days with multiple communities, 95% confidence intervals are shown. Data are from the 2006 Australian Census. For the sample characteristics, N=64 in the case of population and percentage male. N=55 for all other variables. Community data are for the Indigenous Local Area for that community.

Figure A2: The Effect of Income Management on School Attendance: OLS estimates with Time Varying Treatment Effects on Stacked Narrow Window Data



Notes: Reported are the estimated treatment effects of income management on school attendance, allowing for both pre- and post-policy dummy variables. Cluster robust (community level) standard errors are used to construct 95% confidence intervals. We follow ? (?) by creating 31 different datasets for each commencement group g (groups of communities that start income management on the same day). In each dataset, the sample is restricted to a 150 day window around the commencement date and communities c that are treated are identified by the indicator $Treat_{cg}$. Control communities are those that commence income management more than 150 days after the commencement date (communities commencing before this date are dropped). These datasets are then appended together and we estimate a DD model similar to that spcificed in Eq. **??**: $Y_{cdtg} = \alpha + \beta Treat_{cg} + \phi_1$149-120pre $+ \ldots + \phi_k$120-149post $+ \tilde{\phi}_1$149-120pre $* Treat_{cg} + \ldots + \tilde{\phi}_k$120-149post $* Treat_{cg} + \lambda G_{cdt} + \gamma_c + \delta_d + \tau_t + \epsilon_{cdtg}$. The efect of income management is given by the $\tilde{\phi}$ coefficients, which are plotted in our figure. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive). The reference period is the 30 days before before income management was introduced in the community.

Table A1: Overview of Main Policies Introduced Under the NTER

Welfare reform and employment	
Income management	Involved quarantining 50 percent of most welfare payments. Transfer payments subject to income management were: Newstart allowance; Disability support pension; Parenting payments (partnered/single); Carer allowance; Carer payment; Youth allowance, Age pension; ABSTUDY; Family tax benefits Part A and B. Income management applied to all recipients of these benefits unless they obtained an exemption. Exemptions could be given to: i) students living away from home or whose payments are received by a third party; ii) temporary residents to a community; iii) persons who moved indefinitely away from a community; iv) persons in the community to assist with the NTER; v) persons with little connection to the community. One-off payments (including the Baby Bonus) were subject to 100 percent income quarantining. Quarantined income could not be spent on alcohol, tobacco, pornography or gambling.
Store licence	The licensing of community stores was a precondition for the introduction of income management to ensure that participants had at least one local option for buying necessities with their managed funds. To obtain a licence stores needed to demonstrate sound financial practices with regards to stock and pricing. Centrelink clients could organize to access their income management funds at licensed stores, with the store-operator responsible for ensuring the income was not spent on prohibited items.
Remote area exemptions (RAEs) lifted	RAEs refer to exemptions given to job seekers on the required obligations in order to receive welfare support. This measure aligned the requirements for urban and rural job seekers.
Community Development Employment Projects (CDEP) transition	CDEP is a Government program whereby community members agree to pool unemployment benefits and have them paid as a type of wage in exchange for participation in various local community initiatives. Under the NTER, CDEP was to be phased out. However, the decision was overturned in April 2008 and CDEP was reinstated.
Community Employment Brokers (CEBs)	CEBs were employed to coordinate employment services under the NTER until mid-2009.
Education and child health	
Child health checks	Child health checks involved clinicians visiting areas covered by the NTER and conducting voluntary health assessments of children aged 15 years and under. Under the measure between 57-65 percent of eligible children were seen by a physician (?, ?).
School nutrition	Under this measure, schools provide breakfast and lunch to students, paid for by parents.
Accelerated literacy	A teaching program for enhancing literacy skills across all ages.
Quality teacher package (QTP)	The QTP is a professional development framework focused on improving the skills of local Indigenous staff in communities.
Law and Order	
Banning alcohol	Serious penalties associated with possession, use and supply of alcohol in affected communities.
Banning pornography	Made it an offence to possess or supply pornographic publications, videos or refused classification material.
Night patrols	Night patrols are community led services that aim to resolve issues of conflict and crime in a culturally appropriate way. The exact operation and role of night patrols is fluid and differs across communities.
Extra police	Additional police officers were placed in some communities.
THEMIS police station	Operation THEMIS involved the construction new police stations in 18 communities.

Family support	
Safe house	Additional safe houses were constructed or expanded. Safe houses provide sanctuary to people escaping family violence. Funding was also allocated to cooling off houses, which are used by people to avoid committing family violence.
Remote Aboriginal family and community workers (RAFCWs)	These workers provide support and community education in the area of child protection. RAFCWs were placed in 13 communities and provided outreach services to a further 20 communities (?, ?).
Child special services	Under this measure an Aboriginal Mobile Outreach Service was established, which involved teams of counsellors and social workers who provided support to children, adolescents and families in matters of sexual assault.
Housing and Land	
Leases	Compulsory five-year leases were used by the Australian Government as a legal basis for undertaking infrastructure and community service projects on Aboriginal land.
All Community Clean Up (CCU) works completed	Funding was provided for several measures to improve the safety and condition of existing buildings. These included property assessments, minor vital repairs, make safe works and an asbestos survey.
Governance	
Government Business Managers (GBMs)	GBMs were employees of the Department of Families, Housing, Community Services and Indigenous Affairs (Australian Government) who were allocated to NTER communities and tasked with coordinating all Government services for that community.

Table A2: Placebo Effects of Income Management on School Attendance: OLS Regression Results

	(1)	(2)	(3)	(4)
Panel A: Single treatment identifier				
Treatment	0.007	0.006	-0.006	-0.003
	(0.014)	(0.018)	(0.016)	(0.016)
Panel B: Treatment effect by time since income management commenced				
<30 days ago	0.006	0.003	0.003	0.003
	(0.024)	(0.019)	(0.022)	(0.022)
30-59 days ago	0.010	0.003	-0.003	0.003
	(0.020)	(0.019)	(0.018)	(0.019)
60-89 days ago	0.018	0.025	0.017	0.020
	(0.021)	(0.022)	(0.022)	(0.023)
90-119 days ago	-0.022	-0.013	-0.023	-0.021
	(0.021)	(0.024)	(0.021)	(0.022)
120-149 days ago	-0.001	0.013	-0.002	0.002
	(0.021)	(0.024)	(0.018)	(0.018)
150+ days ago	0.009	-0.004	-0.024*	-0.021*
	(0.015)	(0.024)	(0.013)	(0.013)
Community FE		Y	Y	Y
Time FE		Y		
Time trend			Y	Y
School-Term FE			Y	Y
C. group×Term			Y	Y
C. group×Time trend				Y
Time trend×Term				Y
C. group×Term×Time trend				Y
Day of the week FE		Y	Y	Y
N	41677	41677	41677	41677
R^2	0.001	0.479	0.475	0.507

Notes: The dependent variable is the average full-day school attendance at day t in community c. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2005-2007 (inclusive). The full set of available controls include community fixed effects, time fixed effects (day level), a linear time trend, day of the week fixed effects (Monday-Friday), school-term fixed effects and average grade level for the community. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Effects of Income Management on School Attendance: Detrended OLS Regression Results

Panel A: Single treatment identifier	
Treatment	-0.016
	(0.018)
Panel B: Treatment effect by time since income management commenced	
<30 days ago	-0.015
	(0.022)
30-59 days ago	-0.039**
	(0.019)
60-89 days ago	-0.048**
	(0.019)
90-119 days ago	-0.036*
	(0.020)
120-149 days ago	-0.029
	(0.020)
150+ days ago	-0.009
	(0.020)
N	55902
R^2	0.135

Notes: The dependent variable is the residualized average full-day school attendance at day t in community c after estimating a linear regression model controlling for a full factorial of interactions between community, school term and a linear time trend on pre-treatment data. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive). Additional controls include community and day-of-the-week fixed effects and average grade level. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Effects of Income Management on School Attendance: OLS Regression Results Excluding Communities that Received Police Stations

	(1)	(2)	(3)	(4)
Treatment	-0.013	-0.028*	-0.028**	-0.030**
	(0.013)	(0.016)	(0.013)	(0.013)
Panel B: Treatment effect by time since income management commenced				
<30 days ago	-0.032*	-0.007	-0.017	-0.018
	(0.018)	(0.016)	(0.019)	(0.019)
30-59 days ago	-0.027	-0.027*	-0.033**	-0.033**
	(0.018)	(0.015)	(0.015)	(0.015)
60-89 days ago	-0.065***	-0.049**	-0.059***	-0.061***
	(0.021)	(0.020)	(0.021)	(0.020)
90-119 days ago	-0.075***	-0.045**	-0.049***	-0.049***
	(0.016)	(0.022)	(0.015)	(0.015)
120-149 days ago	-0.050**	-0.038	-0.036**	-0.036**
	(0.019)	(0.026)	(0.016)	(0.016)
150+ days ago	-0.001	-0.003	-0.015	-0.019
	(0.013)	(0.020)	(0.017)	(0.017)
Community FE		Y	Y	Y
Time FE		Y		
Time trend			Y	Y
School-Term FE			Y	Y
C. group×Term			Y	Y
C. group×Time trend				Y
Time trend×Term				Y
C. group×Term×Time trend				Y
Day of the week FE		Y	Y	Y
N	43027	43027	43027	43027
R^2	0.001	0.551	0.543	0.558

Notes: The dependent variable is the average full-day school attendance at day t in community c. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive). The full set of available controls include community fixed effects, time fixed effects (day level), a linear time trend, day of the week fixed effects (Monday-Friday), school-term fixed effects and average grade level for the community. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Table A5: Effects of Income Management on School Attendance: OLS Regression Results Excluding Communities that Transitioned out of the Community Economic Development Program

	(1)	(2)	(3)	(4)
Treatment	-0.032***	-0.023	-0.027**	-0.025**
	(0.011)	(0.019)	(0.011)	(0.012)
Panel B: Treatment effect by time since income management commenced				
<30 days ago	-0.042**	-0.013	-0.025	-0.028
	(0.018)	(0.018)	(0.018)	(0.018)
30-59 days ago	-0.040**	-0.028	-0.040***	-0.039***
	(0.017)	(0.020)	(0.013)	(0.014)
60-89 days ago	-0.085***	-0.045*	-0.060***	-0.057***
	(0.017)	(0.026)	(0.018)	(0.018)
90-119 days ago	-0.070***	-0.038	-0.040***	-0.037**
	(0.018)	(0.029)	(0.015)	(0.014)
120-149 days ago	-0.047***	-0.035	-0.027*	-0.024
	(0.017)	(0.032)	(0.015)	(0.015)
150+ days	-0.023**	-0.016	-0.013	-0.011
	(0.011)	(0.031)	(0.016)	(0.017)
Community FE		Y	Y	Y
Time FE		Y		
Time trend			Y	Y
School-Term FE			Y	Y
C. group×Term			Y	Y
C. group×Time trend				Y
Time trend×Term				Y
C. group×Term×Time trend				Y
Day of the week FE		Y	Y	Y
N	39561	39561	39561	39561
R^2	0.010	0.564	0.551	0.566

Notes: The dependent variable is the average full-day school attendance at day t in community c. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive). The full set of available controls include community fixed effects, time fixed effects (day level), a linear time trend, day of the week fixed effects (Monday-Friday), school-term fixed effects and average grade level for the community. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Table A6: Mobility Patterns of Students in Income-Managed Communities: Number of Students by Year (Proportion of Total Enrolled)

	2006	2007	2008	2009
No. of students who move IM to IM[a]	726	862	1065	1264
	(14.4)	(14.6)	(16.0)	(17.4)
No. of students who move IM to non-IM[b]	654	783	970	989
	(12.9)	(13.3)	(14.6)	(13.6)
No. of students who move non-IM to IM[c]	558	729	917	1008
	(11.0)	(12.4)	(13.8)	(13.9)
No. of students who join NT Education System[d]	629	725	691	665
	(12.4)	(12.3)	(10.4)	(9.1)
No. of students who leave NT Education System[e]	562	558	695	797
	(11.1)	(9.5)	(10.4)	(11.0)
No. of students with no moves[f]	2838	3347	3653	3975
	(56.8)	(56.1)	(54.8)	(54.7)
Avg. no. IM to IM moves | at least one move	10.91	11.14	10.11	8.09
Avg. no. IM to non-IM moves | at least one move	3.88	4.73	4.36	4.50
Avg. no. non-IM to IM moves | at least one move	4.36	4.99	4.54	4.43
No. of students enrolled[g]	5060	5891	6665	7273

Notes: Data are from the NT Department of Education administrative records and the reported statistics are based on the authors' calculations. The sample includes students born from 1994 enrolled in schools administered by the NT Department of Education operating in communities selected for income management. Figures in parentheses are the number of students with a relevant move divided by the total number of students enrolled at any stage that year. These figures do not sum to 100 since students can experience more than one type of move in a single year. [a] This is the number of students who at any time during the year changed their enrollment from a NT Government school in an income-managed community to a different NT Government school in a different income-managed community. [b] This is the number of students who at any time during the year changed their enrollment from a NT Government school in an income-managed community to a different NT Government school in a non income-managed community. [c] This is the number of students who at any time during the year changed their enrollment from a NT Government school in a non income-managed community to a NT Government school in an income-managed community. [d] This is the number of students who at any time during the year join the administrative dataset. Students are counted as having joined if they first enter the dataset or return to the dataset after an absence of at least six months. Students who join the sample in grade 1 are not included in this calculation. [e] This is the number of students who at any time during the year leave the administrative dataset. Students are counted as having left if they exit the dataset for at least six months. Students who exit the sample in grades 11 or 12 are not included in this calculation. [f] This is the number of students who for the whole year never change their enrollment to a school in a different community and do not join or leave the dataset. [g] This is the total number of students who are enrolled in an NT Government school in an income-managed community at some point during the year.

Table A7: The Effect of Income Management on School Attendance: OLS Regression Results with Non-Movers Only

	(1)	(2)	(3)	(4)
Panel A: Single treatment identifier				
Treatment	-0.021*	-0.019	-0.012	-0.012
	(0.011)	(0.013)	(0.010)	(0.010)
Panel B: Treatment effect by time since income management commenced				
<30 days ago	-0.036**	-0.009	-0.017	-0.016
	(0.016)	(0.015)	(0.014)	(0.014)
30-59 days ago	-0.033*	-0.016	-0.022*	-0.020*
	(0.018)	(0.015)	(0.011)	(0.011)
60-89 days ago	-0.055***	-0.031*	-0.034**	-0.031**
	(0.018)	(0.016)	(0.015)	(0.015)
90-119 days ago	-0.050***	-0.030	-0.023	-0.021
	(0.019)	(0.018)	(0.016)	(0.016)
120-149 days ago	-0.043**	-0.025	-0.011	-0.008
	(0.016)	(0.020)	(0.013)	(0.014)
150+ days ago	-0.014	-0.006	0.000	-0.001
	(0.012)	(0.017)	(0.015)	(0.016)
Community FE		Y	Y	Y
Time FE		Y		
Time trend			Y	Y
School-Term FE			Y	Y
C. group×Term			Y	Y
C. group×Time trend				Y
Time trend×Term				Y
C. group×Term×Time trend				Y
Day of the week FE		Y	Y	Y
N	52701	52701	52701	52701
R^2	0.004	0.516	0.502	0.524

Notes: The dependent variable is the average full-day school attendance at day t in community c. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive) that excludes those students who moved community during this period. Movers are those students who are either i) enrolled in two or more different schools in different communities during the period (as identified in the NT Department of Education school enrollment records) or ii) who join/leave the estimation sample during the period, except for those students entering in grade 1 or exiting in grades 11 or 12. Students are counted as having left if they exit the dataset for at least six months. Students are counted as having joined if they first enter the dataset or return to the dataset after an absence of at least six months. The full set of available controls include community fixed effects, time fixed effects (day level), a linear time trend, day of the week fixed effects (Monday-Friday), school-term fixed effects and average grade level for the community. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Table A8: The Effect of Income Management on Number of Students in Community: OLS Regression Results

	(1)	(2)	(3)	(4)
Panel A: Single treatment identifier				
Treatment	24.964***	-3.245	-2.300	-3.253
	(5.940)	(4.407)	(6.205)	(6.532)
Panel B: Treatment effect by time since income management commenced				
<30 days ago	30.042**	1.974	-0.065	-1.595
	(14.557)	(3.653)	(6.058)	(5.887)
30-59 days ago	13.625**	-6.404	-3.924	-4.922
	(6.201)	(3.864)	(6.083)	(6.505)
60-89 days ago	8.715	-7.771	-2.264	-2.274
	(5.651)	(6.199)	(9.926)	(11.000)
90-119 days ago	18.657	0.616	6.702	7.822
	(22.883)	(5.877)	(10.738)	(11.255)
120-149 days ago	16.934*	-8.894	-3.871	-3.269
	(9.116)	(7.633)	(9.164)	(9.523)
150+ days ago	27.221***	-9.266	-4.754	-6.853
	(6.749)	(6.816)	(4.203)	(4.475)
Community FE		Y	Y	Y
Time FE		Y		
Time trend			Y	Y
School-Term FE			Y	Y
C. group×Term			Y	Y
C. group×Time trend				Y
Time trend×Term				Y
C. group×Term×Time trend				Y
Day of the week FE		Y	Y	Y
N	55902	55902	55902	55902
R^2	0.013	0.962	0.961	0.974

Notes: The dependent variable is the average number of enrolled students at day t in community c. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive). The full set of available controls include community fixed effects, time fixed effects (day level), a linear time trend, day of the week fixed effects (Monday-Friday), school-term fixed effects and average grade level for the community. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Table A9: The Effect of Income Management on In-migration: OLS Regression Results

	(1)	(2)	(3)	(4)
Panel A: Single treatment identifier				
Treatment	-0.001**	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Panel B: Treatment effect by time since income management commenced				
<30 days ago	-0.000	-0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
30-59 days ago	0.001	-0.002	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
60-89 days ago	0.001	-0.001	0.000	0.000
	(0.001)	(0.002)	(0.002)	(0.002)
90-119 days ago	0.001	-0.001	0.001	0.001
	(0.001)	(0.002)	(0.001)	(0.001)
120-149 days ago	-0.001	-0.003*	-0.001	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
150+ days ago	-0.002***	-0.004**	-0.002**	-0.003***
	(0.001)	(0.002)	(0.001)	(0.001)
Community FE		Y	Y	Y
Time FE		Y		
Time trend			Y	Y
School-Term FE			Y	Y
C. group×Term			Y	Y
C. group×Time trend				Y
Time trend×Term				Y
C. group×Term×Time trend				Y
Day of the week FE		Y	Y	Y
N	55902	55902	55902	55902
R^2	0.002	0.198	0.136	0.146

Notes: The dependent variable is the average number of in-migrating students at day t in community c. Moves into a community include students moving from other income-managed communities; other non income-managed communities; or students joining the administrative dataset for the first time or after an absence of at least six months (e.g., interstate moves or moves between the private and public education sector). The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive). The full set of available controls include community fixed effects, time fixed effects (day level), a linear time trend, day of the week fixed effects (Monday-Friday), school-term fixed effects and average grade level for the community. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Table A10: The Effect of Income Management on Out-migration: OLS Regression Results

	(1)	(2)	(3)	(4)
Panel A: Single treatment identifier				
Treatment	-0.001	-0.001	-0.001	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Panel B: Treatment effect by time since income management commenced				
<30 days ago	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
30-59 days ago	0.002	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
60-89 days ago	0.002	-0.000	0.001	0.000
	(0.001)	(0.002)	(0.002)	(0.002)
90-119 days ago	0.001	-0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
120-149 days ago	-0.000	-0.002*	-0.002	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
150+ days ago	-0.002**	-0.004**	-0.003***	-0.003***
	(0.001)	(0.002)	(0.001)	(0.001)
Community FE		Y	Y	Y
Time FE		Y		
Time trend			Y	Y
School-Term FE			Y	Y
C. group×Term			Y	Y
C. group×Time trend				Y
Time trend×Term				Y
C. group×Term×Time trend				Y
Day of the week FE		Y	Y	Y
N	55902	55902	55902	55902
R^2	0.001	0.188	0.139	0.148

Notes: The dependent variable is the average number of out-migrating students at day t in community c. Moves out of a community include students moving to other income-managed communities; other non income-managed communities; or students leaving the administrative dataset. The estimation sample is derived from an unbalanced panel of all students in grades 1-12 enrolled in the NT public education system during the period 2006-2009 (inclusive). The full set of available controls include community fixed effects, time fixed effects (day level), a linear time trend, day of the week fixed effects (Monday-Friday), school-term fixed effects and average grade level for the community. There are four school terms per year; in 2007 the school terms were as follows: term 1 – 29 January-5 April; term 2 – 16 April-22 June; term 3 – 23 July-28 September; and term 4 – 8 October-14 December. These dates are similar for other years. Panel A and Panel B are the results of separate OLS regressions. All regressions use weights proportional to the number of students in each community for each day. Cluster robust (community level) standard errors reported in parentheses. Significance level: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix B – LSIC Analysis

We draw on data from the Longitudinal Study of Indigenous Children (LSIC) to better understand the changes in family functioning that occurred as a result of income management. The LSIC has surveyed Aboriginal children and their parents nationwide each year since 2008. In total, 1,680 families with a child aged five years or younger participated in the first wave. LSIC families reside in communities with large Aboriginal population shares across Australia, including in the Northern Territory (see Figure C1). The LSIC collected the following markers of family functioning in both waves 1 (2008) and 2 (2009):

- Humbugging: In the last year have you or your family been humbugged (harassed for money)?
- Alcohol use: In the last year have you or a close family member had an alcohol or drug problem?
- Arguing: In the last year has (STUDY CHILD) or any other child of yours been involved in or upset by family arguments?
- Money concerns: In the last year has your family had serious worries about money?

To estimate the effect of income management on these outcomes we exploit the fact that the first wave of LSIC (collected 21 April 2008 to 23 February 2009) includes people observed before income management had been fully rolled out, while the second wave (collected 3 March 2009 to 17 December 2009) is after the rollout. The period between the data collection for waves 1 and 2 is relatively short, however, interviews in wave 2 were staggered such that more than 85 percent were conducted at least six months after the corresponding wave 1 interview. Importantly, some people are on income management in both waves while others were not on income management in either wave. This lends itself to estimating DD models with two possible control groups – those continuously on income management and those never on income management.[1] We utilise both potential control groups to estimate a triple DD (DDD) model of the following form.

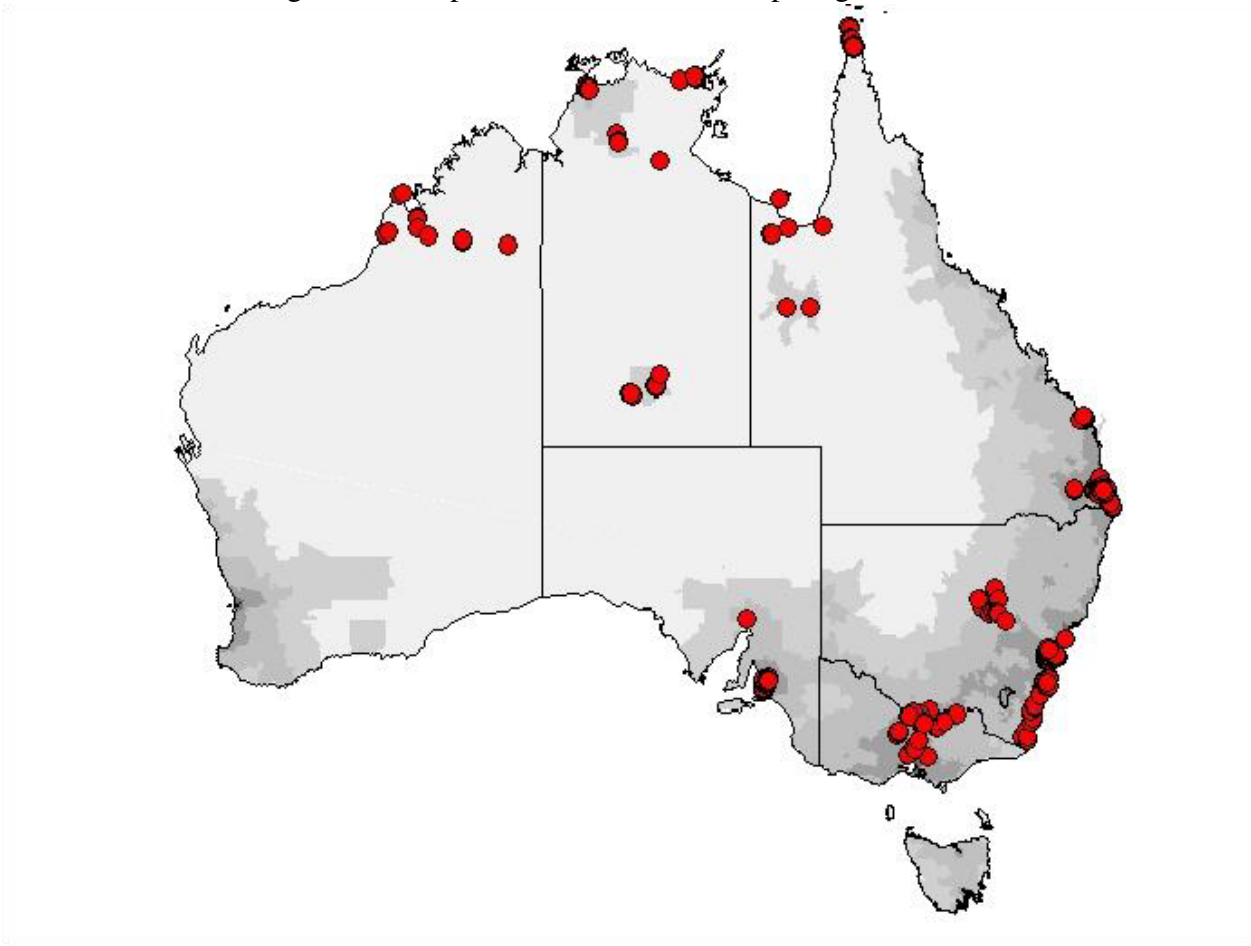
$$Y_{it} = \alpha + \beta_1 T_i + \beta_2 Wave_2 + \beta_3 T_i Wave_2 + \beta_4 C_i + \beta_5 C_i Wave_2 + \epsilon_{it} \tag{C.1}$$

In Eq. C.1, Y_{it} is the relevant outcome variable (all dummies); T_i is an indicator which equals one if the parent was not income managed in wave 1 but is income managed in wave 2 (i.e. the treatment group); $Wave_2$ is an indicator for wave 2; C_i is an indicator for if the parent is income managed in both waves (continuously income managed); and ϵ_{it} is a stochastic error term. Under the parallel trends assumption, β_3 is the causal effect of income management using those who are never on income management as a reference group.

One weakness of the LSIC data is that, due to privacy concerns, we do not observe the actual community (or even state) that a family resides in. However, families who were never income managed are likely to come from communities outside the Northern Territory. Therefore, $\hat{\beta}_5$ is a kind of pseudo DD estimate that compares the change in Y_{it} between waves 1 and 2 for those who are always vs. never income managed. This parameter likely captures changes in outcomes that

[1] We drop ten individuals who transitioned off income management between waves from the analysis as it is unclear why these transitions occurred.

Figure C1: Map of Communities Participating in LSIC



Source: LSIC User Guide Release 8.0.

affect the broader Australian Aboriginal population, which may either bias downward or upward our baseline DD estimate ($\hat{\beta}_3$). Taking the difference $\hat{\beta}_3 - \hat{\beta}_5 = \hat{\beta}_{DDD}$ results in a DDD estimator for the effect of income management. This DDD estimator is in fact the difference-in-difference between the expected value in wave 2 for those entering income management vs. those continuously income managed. Since the time effects are identified by both potential control groups, it is arguably more robust than a standard DD estimate with the sample restricted to those who are income managed by wave 2.[2]

Before proceeding to the results, we need to highlight some other data limitations. Fist, since we do not observe where people live, we rely on survey responses to determine income management status. Specifically, we classify a family as being income managed if the main parent (almost always the mother) indicates that she is on income management. To improve comparability, we limit the sample to families receiving social assistance in both waves. A second limitation is the small sample size. We observe only 30 transitions onto income management between waves 1 and 2. The third limitation is that we cannot be sure that all people we classify as being income

[2]In practice, standard DD estimates using those continuously on income management as a reference group are close in magnitude and significance to the DDD estimates.

managed are part of the NTER income management scheme. A separate income management scheme was operating in Cape York in Northern Queensland from 1 July 2008, and this is one of the LSIC sites. The main difference between the Cape York scheme and NTER scheme we study is the degree of targeting – the Cape York scheme sought out vulnerable families whereas the NTER scheme was compulsory for all people living in prescribed communities. By December 2011, only 424 people had been placed on income management in Cape York (?, ?); a tiny fraction of those on income management in the Northern Territory. We are therefore hopeful that most income managed families captured in the LSIC data are from the Northern Territory.