Online Appendix El Niño and Mexican children: medium-term effects of early-life weather shocks on cognitive and health outcomes

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Table A.1: Sensitivity analysis: SEs scenarios that result from different correlation assumptions: clustered SEs and Conley SEs allowing correlation for two different radius (1 and 2 decimal degrees)

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$			A	nthropometr	ic			Cogn	itive		Motor	skills and beh	avioral
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$							Peabody Test	M	oodcock-Muñoz T	est	MSCA	Achenbac	ah CBCL
$ \begin{array}{c} {\rm coh} 97 \ {\rm x} \ {\rm rain_shock} & \left[0.1218 \right] & \left[0.0680 \right] & \ldots & \left[0.2481 \right] & \left[0.1027 \right] \\ {\rm (0.1081)} & \left(0.0655 \right) & \ldots & \left[0.1081 \right] & \left[0.1037 \right] \\ {\rm (0.2012)} & \left(0.0013 \right] & \left[0.0651 \right] & \ldots & \left[0.1789 \right] & \left[0.1037 \right] \\ {\rm (0.0870)} & \left[0.0850 \right] & \left[0.0652 \right] & \ldots & \left[0.1789 \right] & \left[0.0955 \right] \\ {\rm (0.0851)} & \left[0.0682 \right] & \left[0.0682 \right] & \left[0.0773 \right] & \left[0.1419 \right] & \left[0.0955 \right] \\ {\rm (0.0871)} & \left[0.0682 \right] & \left[0.0682 \right] & \left[0.0647 \right] & \left[0.1365 \right] & \left[0.1069 \right] \\ {\rm (0.0711)} & {\rm (0.0711)} & \left[0.0733 \right] & \left[0.1722 \right] & \left[0.1165 \right] \\ {\rm (0.0711)} & {\rm (0.0711)} & \left[0.0797 \right] & \left[0.0763 \right] & \left[0.1752 \right] & \left[0.1026 \right] \\ {\rm (0.0711)} & {\rm (0.0711)} & \left[0.0797 \right] & \left[0.0763 \right] & \left[0.1752 \right] & \left[0.1165 \right] \\ {\rm (0.0711)} & {\rm (0.0712)} & \left[0.0793 \right] & \left[0.0763 \right] & \left[0.1752 \right] & \left[0.1165 \right] \\ {\rm (0.0711)} & {\rm (0.0712)} & \left[0.0763 \right] & \left[0.0763 \right] & \left[0.1751 \right] & \left[0.1165 \right] \\ {\rm (0.0711)} & {\rm (0.0712)} & \left[0.0763 \right] & \left[0.0763 \right] & \left[0.1751 \right] & \left[0.1165 \right] \\ {\rm (0.0711)} & {\rm (0.0713)} & \left[0.0763 \right] & \left[0.0763 \right] & \left[0.1751 \right] & \left[0.1165 \right] \\ {\rm (0.0711)} & {\rm (0.0763)} & \left[0.0763 \right] & \left[0.0763 \right] & \left[0.1751 \right] & \left[0.1026 \right] \\ {\rm (0.0711)} & {\rm (0.0763)} & \left[0.0763 \right] & \left[0.0763 \right] & \left[0.1751 \right] & \left[0.1026 \right] \\ {\rm (0.0711)} & {\rm (0.0763)} & \left[0.0661 \right] & \left[0.2286 \right] & \left[0.0910 \right] \\ {\rm (0.061)} & {\rm (0.0713)} & \left[0.0910 \right] \\ {\rm (0.0711)} & {\rm (0.0763)} & \left[0.0661 \right] & \left[0.2433 \right] & \left[0.0910 \right] \\ {\rm (0.0713)} & {\rm (0.0713)} & \left[0.0743 \right] & \left[0.0910 \right] \\ {\rm (0.0713)} & {\rm (0.0713)} & \left[0.0743 \right] & \left[0.0910 \right] \\ {\rm (0.0713)} & {\rm (0.0713)} & \left[0.0743 \right] & \left[0.0910 \right] \\ {\rm (0.0713)} & {\rm (0.0713)} & \left[0.0925 \right] & \left[0.0345 \right] & \left[0.0910 \right] \\ {\rm (0.0910)} \\ {\rm (0.0713)} & {\rm (0.0723)} & \left[0.0925 \right] & \left[0.0823 \right] & \left[0.0823 \right] \\ {\rm (0.0910)} \\ {\rm (0.0823)} & {\rm (0.0923)} & {\rm (0.0923)} & \left[0.0823 \right] & \left[0.0823 \right] \\ {\rm (0.0910)} \\ {\rm (0.0910)} \\ {\rm (0.0713 $		weight (\mathbf{Z}) (\mathbf{I})	$\substack{\substack{\text{height}\\(\mathbf{Z})\\(2)}$	stunting (3)	days_sick (4)	anemia (5)	language (Z) (6)	long term memory (Z) (7)	short term memory (Z) (8)	visual-spatial thinking (Z) (9)	$\begin{array}{c} \operatorname{McCarthy} \\ (\mathbf{Z}) \\ (10) \end{array}$	depression (\mathbf{Z}) (11)	$\substack{ \substack{ \text{aggression} \\ (\mathbf{Z}) \\ (12) } }$
$ \begin{array}{c} {\rm coh98\ x\ rain_shock} & \left[0.0860 \right] & \left[0.0618 \right] & \left[0.0757 \right] & \left[0.1419 \right] & \left[0.0955 \right] \\ \left\{ 0.0870 \right) & \left(0.0870 \right) & \left(0.0682 \right) & \left(0.0732 \right) & \left(0.1365 \right) & \left(0.1069 \right) \\ \left\{ 0.0951 \right\} & \left\{ 0.0731 \right) & \left(0.0731 \right) & \left(0.1222 \right) & \left(0.0951 \right) \\ \left\{ 0.0971 \right) & \left(0.0731 \right) & \left(0.0731 \right) & \left(0.1751 \right) & \left(0.1165 \right) \\ \left\{ 0.0781 \right) & \left(0.0737 \right) & \left(0.0781 \right) & \left(0.1751 \right) & \left(0.1165 \right) \\ \left\{ 0.0681 \right\} & \left\{ 0.0797 \right\} & \left\{ 0.0783 \right) & \left(0.0768 \right) & \left(0.1751 \right) & \left(0.1165 \right) \\ \left\{ 0.0681 \right\} & \left\{ 0.0797 \right\} & \left\{ 0.0783 \right\} & \left\{ 0.0783 \right\} & \left\{ 0.1751 \right) & \left(0.1165 \right) \\ \left\{ 0.0681 \right\} & \left\{ 0.0783 \right\} & \left\{ 0.0783 \right\} & \left\{ 0.0783 \right\} & \left\{ 0.1751 \right) & \left(0.1165 \right) \\ \left\{ 0.0663 \right\} & \left\{ 0.0663 \right\} & \left\{ 0.0664 \right\} & \left\{ 0.2433 \right\} & \left\{ 0.1005 \right) \\ \left\{ 0.0910 \right\} & \left\{ 0.0910 \right\} & \left\{ 0.0910 \right\} \\ \left\{ 0.0011 \right\} & \left\{ 0.0061 \right\} & \left\{ 0.0946 \right\} & \left\{ 0.0910 \right\} & \left\{ 0.0910 \right\} \\ \left\{ 0.0011 \right\} & \left\{ 0.0010 \right\} & \left\{ 0.0661 \right\} & \left\{ 0.0946 \right\} & \left\{ 0.0946 \right\} & \left\{ 0.0910 \right\} \\ \left\{ 0.0015 \right\} & \left\{ 0.0061 \right\} & \left\{ 0.0925 \right\} & \left\{ 0.0845 \right\} & \left\{ 0.0823 \right\} & \left\{ 0.0823 \right\} \\ \left\{ 0.0913 \right\} & \left\{ 0.0810 \right\} & \left\{ 0.0826 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0823 \right\} & \left\{ 0.0823 \right\} \\ \left\{ 0.0913 \right\} & \left\{ 0.0823 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0823 \right\} & \left\{ 0.0823 \right\} \\ \left\{ 0.0913 \right\} & \left\{ 0.0823 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0825 \right\} & \left\{ 0.0823 \right\} & \left$	oh97 x rain_shock	$[0.1218] \\ (0.1081) \\ \{0.0885\}$	$\begin{array}{c} [0.0680] \\ (0.0665) \\ \{0.0652\} \end{array}$		[0.2481] (0.2012) $\{0.1789\}$	$[0.1022] \\ (0.1037) \\ \{0.0917\}$	$\begin{array}{c} [0.1603] \\ (0.1459) \\ \{0.1403\} \end{array}$	$\begin{array}{c} [0.1216] \\ (0.1461) \\ \{0.1236\} \end{array}$	$\begin{array}{c} [0.0759] \\ (0.0776) \\ \{0.0733\} \end{array}$	$[0.1168] \\ (0.1319) \\ \{0.1298\}$	[0.0459] (0.0528) $\{0.0456\}$	$[0.1216] \\ (0.1081) \\ \{0.0899\}$	
$ \begin{array}{c} {\rm coh99 \ x \ rain_shock} & \left[0.0687 \right] & \left[0.0658 \right] & \left[0.0630 \right] & \left[0.1852 \right] & \left[0.1026 \right] \\ & \left(0.0711 \right) & \left(0.0737 \right) & \left(0.0708 \right) & \left(0.1751 \right) & \left(0.1165 \right) \\ & \left(0.0681 \right) & \left\{ 0.0797 \right) & \left\{ 0.0787 \right) & \left(0.1751 \right) & \left(0.1655 \right) \\ & \left\{ 0.062 \right) & \left\{ 0.0628 \right) & \left\{ 0.0636 \right) & \left\{ 0.0636 \right] & \left[0.0628 \right] & \left[0.0910 \right] \\ & \left(0.0535 \right) & \left(0.0668 \right) & \left(0.0636 \right) & \left\{ 0.2366 \right] & \left[0.0910 \right] \\ & \left\{ 0.0615 \right) & \left\{ 0.0661 \right) & \left\{ 0.0915 \right) & \left\{ 0.0061 \right\} \\ & \left\{ 0.0015 \right) & \left\{ 0.0061 \right\} & \left\{ 0.0025 \right] & \left[0.3456 \right] & \left[0.0823 \right] \\ & \left\{ 0.0015 \right\} \\ & {\rm coh101 \ x \ rain_shock} & \left[0.0610 \right] & \left[0.0596 \right] & \left[0.0925 \right] & \left[0.3456 \right] & \left[0.0823 \right] \\ \end{array} $	oh98 x rain_shock	[0.0860] (0.0870) $\{0.0855\}$	$\begin{array}{c} [0.0618] \\ (0.0682) \\ \{0.0734\} \end{array}$	$egin{bmatrix} [0.0757] \ (0.0732) \ \{0.0647\} \end{cases}$	$\begin{matrix} [0.1419] \\ (0.1365) \\ \{0.1222\} \end{matrix}$	$\begin{array}{c} [0.0955] \\ (0.1069) \\ \{0.0951\} \end{array}$	[0.0992] (0.1016) $\{0.0982\}$	$[0.0719] (0.0713) \{0.0713\}$	[0.0570] (0.0663) $\{0.0657\}$	$[0.0814] \\ (0.0918) \\ \{0.0882\}$	$egin{array}{c} [0.0396] \ (0.0401) \ \{0.0447\} \end{array}$	$[0.0644] \\ (0.0571) \\ \{0.0538\}$	$\begin{array}{c} [0.0690] \\ (0.0652) \\ \{0.0653\} \end{array}$
$ \begin{array}{c} \mbox{coh00 x rain_shock} & \left[0.0450 \right] & \left[0.0595 \right] & \left[0.0636 \right] & \left[0.2286 \right] & \left[0.0910 \right] \\ & \left(0.0535 \right) & \left(0.0668 \right) & \left(0.048 \right) & \left(0.2433 \right) & \left(0.1005 \right) \\ & \left\{ 0.0516 \right\} & \left\{ 0.0655 \right\} & \left\{ 0.0661 \right\} & \left\{ 0.2047 \right\} & \left\{ 0.0915 \right\} \\ & \left\{ 0.0915 \right\} & \left\{ 0.0915 \right\} & \left\{ 0.0823 \right] \\ & \mbox{coh01 x rain_shock} & \left[0.0610 \right] & \left[0.0596 \right] & \left[0.0925 \right] & \left[0.3456 \right] & \left[0.0823 \right] \\ \end{array} $	oh99 x rain_shock 5	$\begin{bmatrix} 0.0687 \\ (0.0711) \\ \{0.0681 \end{bmatrix}$	$\begin{bmatrix} 0.0658 \\ (0.0737) \\ \{0.0797 \} \end{bmatrix}$	[0.0630] (0.0708) $\{0.0787\}$	$\begin{array}{c} [0.1852] \\ (0.1751) \\ \{0.1444\} \end{array}$	$[0.1026] \\ (0.1165) \\ \{0.1062\}$	[0.0696] (0.0666) $\{0.0548\}$	$\begin{array}{c} [0.0718] \\ (0.0741) \\ \{0.0704\} \end{array}$	[0.0609] (0.0560) $\{0.0513\}$	[0.0609] (0.0702) $\{0.0598\}$	$\begin{bmatrix} 0.0551 \\ (0.0606) \\ & \{ 0.0653 \end{bmatrix}$	$\begin{bmatrix} 0.0520 \end{bmatrix}$ (0.0479) $\{0.0407\}$	$[0.0635] \\ (0.0690) \\ \{0.0622\}$
coh01 x rain_shock [0.0610] [0.0596] [0.0925] [0.3456] [0.0823]	oh00 x rain_shock	$\begin{array}{c} [0.0450] \\ (0.0535) \\ \{0.0516\} \end{array}$	$\begin{bmatrix} 0.0595 \\ (0.0668) \\ \{0.0655 \end{bmatrix}$	$\begin{array}{c} [0.0636] \\ (0.0648) \\ \{0.0661\} \end{array}$	[0.2286] (0.2433) $\{0.2047\}$	$\begin{array}{c} [0.0910] \\ (0.1005) \\ \{0.0915\} \end{array}$	$\begin{array}{c} [0.0563] \\ (0.0521) \\ \{0.0467\} \end{array}$	$\begin{array}{c} [0.0544] \\ (0.0466) \\ \{0.0360\} \end{array}$	[0.0502] (0.0501) $\{0.0484\}$	$\begin{array}{c} [0.0547] \\ (0.0542) \\ \{0.0441\} \end{array}$	[0.0833] (0.0799) [0.0689]	$\begin{bmatrix} 0.0682 \\ (0.0715) \\ \{ 0.0788 \end{bmatrix}$	[0.0828] (0.0827) $\{0.0889\}$
(0.0707) (0.0649) (0.0921) (0.2726) $(0.0824)\{0.0698\} \{0.0668\} \{0.0946\} \{0.2336\} \{0.0742\}$	oh01 x rain_shock	[0.0610] (0.0707) $\{0.0698\}$	$\begin{array}{c} [0.0596] \\ (0.0649) \\ \{0.0688\} \end{array}$	$[0.0925] (0.0921) \{0.0946\}$	$\begin{bmatrix} 0.3456 \\ (0.2726) \\ \{0.2336 \end{bmatrix}$	$\begin{array}{c} [0.0823] \\ (0.0824) \\ \{0.0742\} \end{array}$	·	$[0.0436] \\ (0.0435) \\ \{0.0411\}$	[0.0758] (0.0735) $\{0.0743\}$	[0.0690] (0.0603) $\{0.0517\}$	$\begin{array}{c} [0.1145] \\ (0.0918) \\ \{0.0814\} \end{array}$	$egin{bmatrix} [0.0858] \ (0.0790) \ \{0.0610\} \ \end{bmatrix}$	$[0.1196] \\ (0.1115) \\ \{0.0992\}$

a Peabody Test measures language development. Peabody test scores are a reliable predictor of achievements in primary school.

b Woodcock-Muñoz Test is used to assess a set of cognitive abilities: working and long-term memory, short-term memory and visual spatial thinking.

The McCarthy Scale of Children's Abilities (MSCA) consists of a set of tasks employed to measure the children's gross motor skill development. υ

The Achenbach Child Behavioral Checklist is a set of questions related to the children's behavior that are self-reported by its main caregiver [Achenbach and Rescorla (2001)]. ч

e These outcomes are standardized with respect to the sample used for the estimations.

f The numbers displayed correspond to three different scenarios for the standard errors of the η_{1997} coefficient in specification (2). The values correspond to: (i) SEs clustered at the pixel level in brackets, (ii) Conley SEs with cutoff equal to 2 decimal degrees in keys.

Variable	Mean	Std. Dev.	Coefficient rain99×coh97-00
Walking Backward	0.911	0.284	$0.0085 \\ (0.0128)$
Tip-Toeing	0.833	0.373	-0.0039 (0.0168)
Walking Straight Line	0.861	0.346	$egin{array}{c} 0.0045 \ (0.0138) \end{array}$
Balancing Right Foot	0.571	0.495	$0.0076 \\ (0.0245)$
Balancing Left Foot	0.557	0.497	-0.0022 (0.0202)
Jumping Rhythmically	0.34	0.474	$0.0201 \\ (0.0212)$

Table A.2: Components Of The McCarthy Index. Mean, Standard Deviation And The Effect Of Rain Shock 1999.

The McCarthy Scale of Children's Abilities (MSCA) measures children's gross motor skill development. The MSCA test requires children to perform a series of physical exercises.

Each variable in this table measures a child's ability to satisfactorily perform one of the exercises. Outcomes from each exercise are combined into the *MSCA Index*, used in our analyses. Clustered standard errors in parenthesis.

Variable ^a	Mean	Std. Dev.	Coefficient ^b rain99×coh97_00	Sensitivity ^c
Feels alone	2.348	0.873	$0.0590 \\ (0.0531)$	t
Cries a lot	2.162	0.869	-0.0026 (0.0209)	
Scared of him/her doing something bad	2.278	0.914	0.0491^{***} (0.0178)	t
Feels need to be perfect	2.072	0.941	0.0696^{***} (0.020)	† † † † †
$\begin{array}{l} {\rm Feels\ nobody\ loves}\\ {\rm him/her} \end{array}$	2.362	0.862	0.0519^{***} (0.0176)	t
Feels people try to harm him/her	2.311	0.881	$0.0187 \\ (0.0156)$	
Feels inferior	2.638	0.716	0.0503^{***} (0.0114)	ť
Feels nervous	2.188	0.911	0.0935^{***} (0.024)	† † † † †
Feels guilty	2.562	0.761	0.0349^{***} (0.0121)	t

Table A.3: Components Of The Anxiety/Depression Index. Mean, Standard Deviation, The Effect Of Rain Shock 1999 and Sensitivity Analysis.

Clustered standard errors in parenthesis.

^a The Achenbach Child Behavioral Checklist is a set of questions related to the child behavior that are answered by the child's main caregiver [Achenbach and Rescorla (2001)]. Answers are combined in two indicators of two possible types of behavioral problems: internalizing behavioral problems (Anxiety and Depression), and exemalizing behavioral problems [Agressive Behavior]. In this table, each variable corresponds to a question about the internalizing behaviour of the child. The primary caregiver is invited to answer each question for their child. Responses can be yes (1), sometimes (2), no (3).

^b This column shows the coefficient of the interaction $rainshock \times coh97 - 00$ in the main specification using each of the components of the depression index as the dependent variable. Variable values of 2 (sometimes) and 3 (no) are recoded as zero for this specification.

^c New depression indices are formed by eliminating all possible combinations of three components and summing across the rest. Out of all the regressions, we rank the coefficient of the interaction $rainshock \times coh97 - 00$ according to its absolute value and focus on the elimination of variables that deliver the smallest 5 coefficients for the interaction. The \dagger represents the number of times, when eliminated, a specific question appeared in the smallest 5 coefficients for the interaction.

Variable	Mean	Std. Dev.	Coefficient ^a rain99×coh97_00	${f Sensitivity^b}$
Argues a lot	0.431	0.495	-0.0310 (0.0234)	††
Is boastfull	0.265	0.441	-0.0278 (0.0208)	
Is cruel/mean to others	0.217	0.412	$0.00216 \\ (0.0173)$	†††
Demands a lot of attention	0.439	0.496	0.0465^{**} (0.0203)	††
Destroys his/her things	0.396	0.489	0.0419^{*} (0.0223)	†††
Destroys his/her family's things	0.226	0.418	$0.0102 \\ (0.0158)$	††
Disobeys	0.364	0.481	$0.0374 \\ (0.0246)$	Ť
Easily gets jealous	0.541	0.498	-0.0496* (0.0290)	
Gets into fights often	0.226	0.418	0.0330^{**} (0.0145)	††

Table A.4: Components Of The Aggression Index. Mean, Standard Deviation, The Effect Of Rain Shock 1999 and Sensitivity Analysis.

Each variable records a child's response to a question. Responses can be yes (1), sometimes (2), no (3). Clustered standard errors in parenthesis.

^a This column shows the coefficient of the interaction $rainshock \times coh97 - 00$ in the main specification using each of the components of the agression index as the dependent variable. Variable values of 2 (sometimes) and 3 (no) are recoded as zero for this specification.

^b New agression indices are formed by eliminating all possible combinations of three components and summing across the rest. Out of all the regressions, we rank the coefficient of the interaction $rainshock \times coh97 - 00$ according to its absolute value and focus on the elimination of variables that deliver the smallest 5 coefficients for the interaction. The \dagger represents the number of times, when eliminated, a specific question appeared in the smallest 5 coefficients for the interaction.

	weight $(Z)^a$ (1)	$\begin{array}{c} \text{height } (\mathbf{Z})^{\mathbf{a}} \\ (2) \end{array}$	$\begin{array}{c} \mathrm{stunting}^\mathrm{b} \\ \mathrm{(3)} \end{array}$	$\begin{array}{c} \text{days_sick}^{c} \\ (4) \end{array}$	$anemia^d$ (5)
Panel A					
$coh97-00 \times rain_shock^{e}$	-0.183	-0.155	0.137	-0.0152	-0.122
	$[0.0648]^{***}$	$[0.0572]^{**}$	$[0.0605]^{**}$	[0.1326]	[0.0999]
	$(0.0641)^{\star\star\star}$	$(0.0664)^{\star\star}$	$(0.0647)^{\star\star}$	(0.1462)	(0.0991)
$coh01 \times rain_shock$	-0.111	-0.104	0.0686	0.0132	-0.0858
	$[0.0600]^*$	[0.0632]	[0.0968]	[0.4239]	[0.0818]
	(0.0677)	(0.0698)	(0.0966)	(0.3493)	(0.0757)
Panel B					
$\cosh 97 \times rain \ shock$	-0.240	-0.0897		0.275	-0.121
—	[0.1960]	[0.0936]		[0.3526]	[0.1257]
	(0.1763)	(0.0963)		(0.2673)	(0.1139)
$\cosh 98 imes rain_{ m shock}$	-0.272	-0.231	0.186	0.0944	-0.143
	$[0.0934]^{***}$	$[0.0609]^{***}$	$[0.0768]^{**}$	[0.1383]	[0.1019]
	$(0.0838)^{\star\star\star}$	$(0.069)^{\star\star\star}$	$(0.0767)^{\star\star}$	(0.1384)	(0.1003)
$\mathrm{coh99} imes \mathrm{rain_shock}$	-0.165	-0.120	0.118	-0.249	-0.120
	$[0.0676]^{**}$	$[0.0683]^*$	$[0.0647]^*$	[0.2052]	[0.1062]
	$(0.0708)^{\star\star}$	(0.0748)	$(0.0707)^{\star}$	(0.1837)	(0.1075)
$\mathrm{coh00} \times \mathrm{rain_shock}$	-0.0634	-0.114	0.140	0.00565	-0.101
	[0.0460]	$[0.0589]^*$	$[0.0629]^{**}$	[0.2800]	[0.0917]
	(0.0524)	$(0.0678)^{\star}$	$(0.0664)^{\star\star}$	(0.2989)	(0.0892)
$\mathrm{coh01} \times \mathrm{rain_shock}$	-0.108	-0.100	0.0692	0.0175	-0.0829
	$[0.0618]^*$	[0.0637]	[0.0971]	[0.4243]	[0.0821]
	$(0.0692)^{\star}$	(0.0699)	(0.0972)	(0.3494)	(0.0767)
Observations	3518	3518	2488	3518	3518
R^2	0.48	0.72	0.05	0.01	0.07
Mean	0.101	0.104	0.368	1.364	0.758

Table A.5: Effect of the 1999 September-October rainfall shock on anthropometric indicators measured in 2003 for children born between 1997 and 2001, without San Luis Potosi.

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). \star p < 0.10, $\star\star$ p < 0.05, $\star\star\star$ p < 0.01

^a Weight and height are standardized with respect to the sample used for the estimations.

^b Stunting is a binary variable = 1 if the child is stunted. Stunting is defined as being two or more standard deviations below the age-sex standardized height with respect to a healthy reference population [WHO (1996)].

^c Number of days in the previous 4 weeks that the child was reported sick by the mother.

^d anemia is a binary variable = 1 if the child is anemic. Anemia is defined as hemoglobin less than 11 g/dL adjusted for altitude [WHO (2008)].

^e $coh97-00 \times rain$ shock indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable rain shock (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.6: Effect of the 1999 September-October rainfall shock on cognitive development indicators measured in 2003 for children born between 1997 and 2001, without San Luis Potosi. (Outcomes are standardized test scores).

	Peabody Test ^a	Woo	dcock-Muñoz 7	Fest^b
		WM1	WM2	WM3
		working/long	short term	visual spatial
	language	term memory	memory	thinking
	(1)	(2)	(3)	(4) –
Panel A				
$coh97-00 \times rain_shock^{c}$	-0.136	-0.140	-0.110	-0.165
	$[0.0750]^*$	$[0.0644]^{**}$	$[0.0540]^{**}$	$[0.0629]^{**}$
	$(0.0699)^{\star}$	$(0.0729)^{\star}$	$(0.0521)^{\star\star}$	$(0.0734)^{\star\star}$
$\cosh 01 \times rain \ shock$		0.0380	-0.123	-0.0164
		[0.0456]	[0.0808]	[0.0781]
		(0.0469)	(0.0664)*	(0.0686)
Panel B				
$ m coh97 imes rain_shock$	-0.469	-0.297	-0.108	-0.128
	$[0.2002]^{**}$	$[0.1491]^*$	[0.0992]	[0.1467]
	$(0.1921)^{\star\star}$	(0.2143)	(0.1011)	(0.1787)
$ m coh98 imes rain_shock$	-0.262	-0.202	-0.127	-0.248
	$[0.1097]^{**}$	$[0.0812]^{**}$	$[0.0674]^*$	$[0.0871]^{***}$
	$(0.1085)^{\star\star}$	$(0.0942)^{\star\star}$	$(0.0690)^{\star}$	$(0.1019)^{\star\star}$
$\mathrm{coh99} imes \mathrm{rain_shock}$	0.00479	-0.102	-0.143	-0.109
	[0.0760]	[0.0790]	$[0.0644]^{**}$	[0.0723]
	(0.0726)	(0.0836)	$(0.0516)^{\star\star\star}$	(0.0707)
$coh00 \times rain_shock$	0.0297	-0.0382	-0.0467	-0.129
	[0.0677]	[0.0650]	[0.0605]	$[0.0500]^{**}$
	(0.0606)	(0.0591)	(0.0550)	$(0.0541)^{\star\star}$
$\cosh 01 \times rain \ shock$		0.0403	-0.123	-0.0172
		[0.0454]	[0.0824]	[0.0798]
		(0.0458)	$(0.0676)^{\star}$	(0.0702)
Observations	2847	3518	3518	3518
R^2	0.32	0.25	0.50	0.42
Mean	-0.0202	0.0165	0.128	0.0382

Controlling for age (months), age^2 , gender, father's language, HH structure, cohorts.

* p < 0.10, ** p < 0.05, *** p < 0.01

* $p < 0.10, \star \star p < 0.05, \star \star \star p < 0.01$

Standard errors clustered by grid in brackets; Conley standard errors in parentheses (cutoff= 1 degree).

^a *Peabody Test* measures language development. Peabody test scores are a reliable predictor of achievements in primary school.

^b Woodcock-Muñoz Test is used to assess a wide range of cognitive abilities: long-term memory, short-term memory and visual spatial thinking.

^c $coh97 \times rain_shock$ indicates the interaction between the variable coh97 (=1 if the child was born in 1997) and the variable $rain_shock$ (=1 if a rainfall shock occurred in 1999).

Table A.7: Effect of the 1999 September-October rainfall shock on gross motor skills and behavioral outcomes measured in 2003 for children born between 1997 and 2001. Without San Luis Potosi. (Outcomes for McCarthy test scores, depression and aggression indexes are standardized).

	$\operatorname{McCarthy^{a}}$	Achenbach C l Anxiety	hild Behavioral Checklist ^b
		and	Aggressive
		Depression	Behaviour
	(1)	(2)	(3)
Panel A			
$coh97-00 \times rain shock^{c}$	-0.0607	0.220	-0.0189
—	[0.0376]	$[0.0464]^{***}$	[0.0610]
	(0.0369)	(0.0479)***	(0.0652)
$\cosh 01 \times rain \ shock$	-0.108	0.142	0.230
—	[0.1315]	[0.0972]	[0.1395]
	(0.0974)	(0.0873)	$(0.1270)^{\star}$
Panel B			
$\cosh 97 \times rain \ shock$	0.0744	0.311	-0.121
—	[0.0562]	[0.1388] **	[0.2252]
	(0.0663)	(0.1111)***	(0.1772)
$\cosh 98 imes rain \ shock$	-0.0221	0.178	0.00583
_	[0.0288]	$[0.0721]^{**}$	[0.0774]
	(0.0278)	$(0.0624)^{\star\star\star}$	(0.0724)
$\cosh 99 imes rain \ shock$	-0.0918	0.160	0.0869
—	$[0.0509]^*$	$[0.0633]^{**}$	[0.0787]
	$(0.0494)^{\star}$	$(0.0595)^{\star\star\star}$	(0.0868)
$\cosh 00 \times rain \ shock$	-0.119	0.325	-0.150
_	[0.0818]	$[0.0808]^{***}$	[0.0879]*
	(0.0794)	$(0.0892)^{\star\star\star}$	(0.0933)
$ m coh01 imes rain_shock$	-0.110	0.144	0.233
	[0.1323]	[0.1007]	[0.1395]
	(0.0973)	(0.0893)	$(0.1265)^{\star}$
Observations	3518	3518	3518
R^2	0.44	0.02	0.01
Mean	0.0816	0.00164	0.0271

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). \star p < 0.10, $\star\star$ p < 0.05, $\star\star\star$ p < 0.01

^a The McCarthy Scale of Children's Abilities Test measures children's motor skills development. The test requires children to complete a set of exercises. Results for each exercise are combined into a single indicator.

^b The Achenbach Child Behavioral Checklist is a set of questions related to the child behavior that are answered by the child's main caregiver [Achenbach and Rescorla (2001)]. Answers are combined in two indicators of two possible types of behavioral problems: internalization behavioral problems (Anxiety and Depression), and exernalization behavioral problems (Agressive Behavior).

^c $coh97-00 \times rain_shock$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_shock$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

	weight $(Z)^a$ (1)	$\begin{array}{c} \text{height } (\mathbf{Z})^{\mathbf{a}} \\ (2) \end{array}$	$stunting^{b}$ (3)	$days_sick^c$ (4)	$anemia^d$ (5)
Panel A					
$\cosh 97-00 \times rain \ shock^{e}$	-0.0293	-0.0622	0.0912	0.0770	-0.0727
_	[0.0653]	[0.0465]	$[0.0435]^{**}$	[0.1292]	[0.1096]
	(0.0644)	(0.0495)	$(0.0411)^{**}$	(0.1414)	(0.1239)
$\mathrm{coh01} imes\mathrm{rain_shock}$	0.0421	0.0196	-0.0542	0.451	-0.0516
	[0.0641]	[0.0430]	[0.0551]	[0.3843]	[0.1076]
	(0.0752)	(0.0478)	(0.0569)	(0.3188)	(0.1044)
Panel B					
$\cosh 97 \times rain \ shock$	-0.214	-0.220		0.471	-0.0408
—	[0.1451]	$[0.0794]^{***}$		[0.2109] **	[0.1122]
	(0.1280)	(0.0678)***		$(0.1549)^{\star\star\star}$	(0.1134)
$\cosh 98 imes rain_{ m shock}$	-0.0440	-0.0844	0.0947	0.132	-0.131
	[0.0952]	[0.0547]	[0.0749]	[0.1687]	[0.1114]
	(0.0900)	(0.0586)	(0.0752)	(0.1659)	(0.1264)
$\mathrm{coh99} imes \mathrm{rain_shock}$	-0.0212	0.0100	0.0726	-0.0720	-0.0502
	[0.0779]	[0.0603]	[0.0450]	[0.2128]	[0.1181]
	(0.0731)	(0.0555)	$(0.0391)^{\star}$	(0.2101)	(0.1327)
$\mathrm{coh00} \times \mathrm{rain_shock}$	0.0626	-0.0482	0.113	-0.000617	-0.0407
	[0.0392]	[0.0507]	$[0.0532]^{**}$	[0.2639]	[0.1075]
	(0.0510)	(0.0561)	$(0.0481)^{\star\star}$	(0.3139)	(0.1183)
$\mathrm{coh01} \times \mathrm{rain_shock}$	0.0430	0.0188	-0.0549	0.456	-0.0505
	[0.0641]	[0.0431]	[0.0550]	[0.3842]	[0.1077]
	(0.0747)	(0.0475)	(0.0566)	(0.3179)	(0.1046)
Observations	3004	3004	2117	3004	3004
R^2	0.45	0.69	0.02	0.01	0.08
Mean	0.148	0.192	0.296	1.263	0.685

Table A.8: Effect of the 1999 September-October rainfall shock on anthropometric indicators measured in 2003 for children born between 1997 and 2001, without Guerrero and Michoacan.

Controlling for age (months), age^2 , gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). $\star p < 0.10, \star \star p < 0.05, \star \star \star p < 0.01$

^a Weight and height are standardized with respect to the sample used for the estimations.

^b Stunting is a binary variable = 1 if the child is stunted. Stunting is defined as being two or more standard deviations below the age-sex standardized height with respect to a healthy reference population [WHO (1996)].

 $^{\rm c}$ Number of days in the previous 4 weeks that the child was reported sick by the mother.

 d Anemia is a binary variable = 1 if the child is anemic. Anemia is defined as hemoglobin less than 11 g/dL adjusted for altitude [WHO (2008)].

^e $coh97-00 \times rain_shock$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_shock$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.9: Effect of the 1999 September-October rainfall shock on cognitive development indicators measured in 2003 for children born between 1997 and 2001, without Guerrero and Michoacan. (Outcomes are standardized test scores).

	Peabody Test ^a	Woo	dcock-Muñoz '	Γest^{b}
	·	WM1	WM2	WM3
		working/long	short term	visual spatial
	language	term memory	memory	$\operatorname{thinking}$
	(1)	(2)	(3)	(4)
Panel A				
$coh97-00 \times rain_shock^c$	-0.110	-0.140	-0.00178	-0.142
	[0.0682]	[0.0614] **	[0.0536]	$[0.0743]^*$
	$(0.0640)^{\star}$	$(0.0603)^{\star\star}$	(0.0570)	$(0.0824)^{\star}$
$\cosh 01 \times rain \ shock$		-0.0401	-0.0320	0.00476
		[0.0466]	[0.0897]	[0.0733]
		(0.0465)	(0.0915)	(0.0607)
Panel B				
$ m coh97 imes rain_shock$	-0.548	-0.375	0.000773	-0.310
	$[0.1702]^{***}$	$[0.1426]^{**}$	[0.0919]	$[0.1330]^{**}$
	$(0.1359)^{\star\star\star}$	$(0.1620)^{\star\star}$	(0.0890)	$(0.1368)^{\star\star}$
$\mathrm{coh98} imes \mathrm{rain_shock}$	-0.102	-0.180	-0.00648	-0.154
	[0.1038]	$[0.0834]^{**}$	[0.0666]	[0.1031]
	(0.1151)	$(0.0850)^{\star\star}$	(0.0796)	(0.1137)
$\cosh 99 \times rain_shock$	0.0107	-0.0439	-0.0277	-0.0733
	[0.0661]	[0.0819]	[0.0758]	[0.0845]
	(0.0654)	(0.0741)	(0.0653)	(0.0833)
$coh00 \times rain_shock$	-0.0426	-0.0985	0.0359	-0.131
	[0.0695]	[0.0591]	[0.0443]	$[0.0638]^{**}$
	(0.0578)	$(0.0476)^{\star\star}$	(0.0413)	$(0.0633)^{\star\star}$
$\cosh 01 \times rain_shock$		-0.0393	-0.0332	0.00140
		[0.0466]	[0.0900]	[0.0738]
		(0.0464)	(0.0919)	(0.0616)
Observations	2430	3004	3004	3004
R^2	0.34	0.25	0.48	0.42
Mean	0.0648	0.102	0.156	0.0990

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). \star p < 0.10, $\star\star$ p < 0.05, $\star\star\star$ p < 0.01

^b Woodcock-Muñoz Test is used to assess a set of cognitive abilities: working and long-term memory, short-term memory and visual spatial thinking.

^c $coh97-00 \times rain_{shock}$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_{shock}$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

^a *Peabody Test* measures language development. Peabody test scores are a reliable predictor of achievements in primary school.

Table A.10: Effect of the 1999 September-October rainfall shock on gross motor skills and behavioral outcomes measured in 2003 for children born between 1997 and 2001. Without Guerrero and Michoacan. (Outcomes for McCarthy test scores, depression and aggression indexes are standardized).

	${ m McCarthy^a}$	Achenbach C Anviety	Child Behavioral Checklist $^{ m b}$
		and Depression	Aggressive Behaviour
	(1)	(2)	(3)
Panel A			
$\cosh 97-00 \times rain \ shock^{c}$	0.0652	0.181	-0.0904
—	[0.0448]	$[0.0436]^{***}$	$[0.0465]^*$
	(0.0487)	(0.0388)***	(0.0454)**
$\cosh 01 \times rain_shock$	0.00786	0.209	0.0174
	[0.1142]	$[0.0913]^{**}$	[0.1263]
	(0.1064)	(0.0904)**	(0.1230)
Panel B			
$\cosh 97 \times rain \ shock$	0.0978	0.143	-0.154
—	$[0.0540]^*$	[0.1346]	[0.1257]
	$(0.0629)^{\star}$	(0.1301)	(0.1178)
$\cosh 98 \times rain_shock$	0.0877	0.189	-0.0625
	[0.0488] *	$[0.0655]^{***}$	[0.0684]
	$(0.0465)^{\star}$	$(0.0523)^{\star\star\star}$	(0.0641)
$\cosh 99 \times rain \ shock$	0.0826	0.145	-0.0194
_	[0.0586]	$[0.0579]^{**}$	[0.0637]
	(0.0599)	$(0.0484)^{\star\star\star}$	(0.0606)
$\cosh 00 \times rain \ shock$	0.000753	0.238	-0.189
	[0.0908]	$[0.0633]^{***}$	[0.0866]**
	(0.0882)	$(0.0563)^{\star\star\star}$	(0.0716)***
$coh01 \times rain_shock$	0.00665	0.205	0.0190
	[0.1153]	$[0.0921]^{**}$	[0.1273]
	(0.1069)	$(0.0911)^{**}$	(0.1243)
Observations	3004	3004	3004
R^2	0.40	0.02	0.01
Mean	0.0944	0.0261	0.0287

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). \star p < 0.10, $\star\star$ p < 0.05, $\star\star\star$ p < 0.01

^c $coh97-00 \times rain_shock$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_shock$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

^a The McCarthy Scale of Children's Abilities Test measures children's motor skills development. The test requires children to complete a set of exercises. Results for each exercise are combined into a single indicator.

^b The Achenbach Child Behavioral Checklist is a set of questions related to the child behavior that are answered by the child's main caregiver [Achenbach and Rescorla (2001)]. Answers are combined in two indicators of two possible types of behavioral problems: internalization behavioral problems (Anxiety and Depression), and exernalization behavioral problems (Agressive Behavior).

	weight $(Z)^{a}$	height $(Z)^{a}$	$stunting^b$	days_sick ^c	$anemia^d$
	(1)	(2)	(3)	(4)	(5)
Panel A: Baseline result	s (Rain shock	occurred in 19	99)		
$coh97-00 \times rain_shock^{e}$	-0.112	-0.142	0.157	0.0770	-0.0524
	$[0.0604]^*$	$[0.0550]^{**}$	[0.0599] **	[0.1120]	[0.0950]
$ m coh01 imes rain_shock$	-0.0558	-0.0898	0.0742	0.114	-0.0434
	[0.0603]	[0.0595]	[0.0924]	[0.3453]	[0.0825]
Panel B: Robustness. R	ain shock occu	rred in 1998			
coh97-00 x rain shock ^e	-0.111	-0.125	0.111	0.201	-0.122
	[0.0593] *	$[0.0559]^{**}$	$[0.0593]^*$	$[0.1091]^*$	[0.0889]
$\cosh 01 \ x \ rain_shock$	-0.0337	-0.0854	0.0723	0.189	-0.0753
	[0.0603]	[0.0608]	[0.0894]	[0.3656]	[0.0775]
Panel C: Robustness. R	ain shock occu	rred both in 1	998 and 1999		
gen97-00 x rain_shock	-0.105	-0.135	0.149	-0.0437	0.0877
	$[0.0602]^*$	$[0.0553]^{**}$	$[0.0603]^{**}$	[0.0948]	[0.1104]
gen01 x rain shock	-0.0458	-0.0832	0.0736	-0.0376	0.120
	[0.0607]	[0.0595]	[0.0923]	[0.0823]	[0.3432]
Observations	4111	4111	2912	4111	4111
	0				

Table A.11: Effect of the 1998 September-October rainfall shock on anthropometric indicators measured in 2003 for children born between 1997 and 2001.

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). $\star p < 0.10, \star \star p < 0.05, \star \star \star p < 0.01$

^a Weight and height are standardized with respect to the sample used for the estimations.

^b Stunting is a binary variable = 1 if the child is stunted. Stunting is defined as being two or more standard deviations below the age-sex standardized height with respect to a healthy reference population [WHO (1996)].

^c Number of days in the previous 4 weeks that the child was reported sick by the mother.

 d Anemia is a binary variable = 1 if the child is anemic. Anemia is defined as hemoglobin less than 11 g/dL adjusted for altitude [WHO (2008)].

^e $coh97-00 \times rain_{shock}$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_{shock}$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.12: Effect of the 1998 September-October rainfall shock on cognitive development indicators measured in 2003 for children born between 1997 and 2001. (Outcomes are standardized test scores).

	Peabody Test ^a	Wood	dcock-Muñoz '	$\operatorname{Test}^{\mathrm{b}}$	_		
	-	WM1	WM2	WM3			
		working/long	short term	visual spatial			
	language	term memory	memory	$\operatorname{thinking}$			
	(1)	(2)	(3)	(4)			
Panel A: Baseline result	s (Rain shock occu	rred in 1999)					
$coh97-00 \times rain shock^{c}$	-0.136	-0.153	-0.0543	-0.161	_		
_	[0.0680]*	[0.0559]***	[0.0471]	$[0.0602]^{***}$			
$\cosh 01 \times rain \ shock$	L J	0.0211	-0.0673	-0.0109			
—		[0.0408]	[0.0752]	[0.0676]			
Panel B: Robustness. R	ain shock occurred	l in 1998					
$coh97-00 \times rain shock^{c}$	-0.0929	-0.109	-0.0556	-0.156			
	[0.0710]	$[0.0551]^*$	[0.0388]	$[0.0634]^{**}$			
$coh01 \times rain_shock$		0.0399	-0.0962	-0.0241			
		[0.0431]	[0.0784]	[0.0739]			
Panel C: Robustness. Rain shock occurred both in 1998 and 1999							
gen97-00 x rain shock	-0.122	-0.150	-0.0504	-0.155			
	$[0.0687]^*$	$[0.0555]^{***}$	[0.0466]	$[0.0599]^{**}$			
$gen01 \ge rain_shock$		0.0178	-0.0682	-0.00885			
		[0.0407]	[0.0745]	[0.0675]			
	0000	4111	4111	4111			
Observations	3339	4111	4111	4111			
Mean	0.0138	0.0495	0.139	0.0688			

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). \star p < 0.10, $\star\star$ p < 0.05, $\star\star\star$ p < 0.01

^a *Peabody Test* measures language development. Peabody test scores are a reliable predictor of achievements in primary school.

^b Woodcock-Muñoz Test is used to assess a set of cognitive abilities: working and long-term memory, short-term memory and visual spatial thinking.

^c $coh97-00 \times rain_shock$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_shock$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.13: Effect of the 1998 September-October rainfall shock on gross motor skills and behavioral outcomes measured in 2003 for children born between 1997 and 2001. (Outcomes for McCarthy test scores, depression and aggression indexes are standardized).

	${ m McCarthy^a}$	Achenbach C	hild Behavioral Checklist ^b	
		Depression	Aggression	
	(1)	(2)	(3)	
Panel A: Baseline resul	ts (Rain shock	occurred in 1999))	
$\cosh 97-00 \times rain \ shock^{c}$	0.00981	0.190	-0.0283	
	[0.0431]	[0.0407]***	[0.0496]	
$\cosh 01 \times rain \ shock$	-0.0609	0.189	0.118	
—	[0.1141]	[0.0845]**	[0.1196]	
Panel B: Robustness. R	tain shock occu	rred in 1998		
$\cosh 97-00 \times rain shock^c$	-0.000703	0.188	0.00710	
_	[0.0423]	$[0.0452]^{***}$	[0.0512]	
$\cosh 01 \times rain \ shock$	-0.0636	0.166	0.169	
_	[0.1167]	$[0.0945]^*$	[0.1254]	
Panel C: Robustness. Rain shock occurred both in 1998 and 1999				
gen97-00 x rain shock	0.0139	0.196	-0.0304	
	[0.0426]	$[0.0404]^{***}$	[0.0490]	
gen01 x rain shock	-0.0599	0.204	0.103	
<u> </u>	[0.1136]	$[0.0843]^{**}$	[0.1188]	
		-		
Observations	4111	4111	4111	
Mean	0.0757	-0.0149	0.0376	

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). $\star p < 0.10, \star \star p < 0.05, \star \star \star p < 0.01$

^a The McCarthy Scale of Children's Abilities consists of a set of tasks employed to measure the children's gross motor skill development.

^b The Achenbach Child Behavioral Checklist is a set of questions related to the child behavior that are answered by the child's main caregiver [Achenbach and Rescorla (2001)]. Answers are combined in two indicators assessing two possible types of behavioral problems: internalizing behavioral problems (Anxiety and Depression), and exernalizing behavioral problems (Agressive Behavior].

^c $coh97-00 \times rain_shock$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_shock$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.14: Effect of the 1999 September-October rainfall shock on anthropometric indicators measured in 2003 for children born between 1997 and 2001. Controlling for variables with significant differences in the exogeneity test.

	weight (Z) ^a	height (Z) ^a	stunting ^b	days_sick ^c	$anemia^d$
	(1)	(2)	(3)	$(\overline{4})$	(5)
Panel A					
coh97-00 x rain shock ^e	-0.0672	-0.120	0.120	-0.0328	-0.0577
_	[0.0617]	$[0.0541]^{**}$	$[0.0619]^*$	[0.1481]	[0.0957]
	(.0577)	$(0.0564)^{\star\star}$	$(0.0595)^{\star\star}$	(0.1476)	(0.1061)
coh01 x rain shock	0.00639	-0.00938	0.00792	0.372	-0.125
	[0.0628]	[0.0553]	[0.0940]	[0.3222]	[0.0757]
	(.0689)	(0.0619)	(0.0924)	(0.3064)	(0.0694)
Panel B					
coh97 x rain shock	-0.147	-0.165		0.456	-0.0728
—	[0.1118]	[0.0733] **		[0.2915]	[0.1035]
	(0.1028)	$(0.0657)^{\star\star}$		(0.2531)	(0.0995)
coh98 x rain shock	-0.116	-0.173	0.126	-0.0685	-0.0936
	[0.0904]	$[0.0610]^{***}$	[0.0774]	[0.1903]	[0.0975]
	(0.0789)	$(0.0616)^{***}$	(0.0733)	(0.1890)	(0.1092)
$\cosh 99 \ x \ rain \ shock$	-0.0603	-0.0625	0.130	-0.286	-0.0474
	[0.0720]	[0.0715]	[0.0662] *	[0.2309]	[0.1049]
	(0.0720)	(0.0762)	$(0.0681)^{\star}$	(0.2358)	(0.1188)
$coh00 \ x \ rain_shock$	0.0404	-0.0849	0.104	0.0754	-0.0133
	[0.0577]	[0.0686]	[0.0699]	[0.2733]	[0.0918]
	(0.0499)	(0.0652)	$(0.0616)^{\star}$	(0.2729)	(0.0959)
$\cosh 01 \ x \ rain_shock$	0.00546	-0.00956	0.00804	0.374	-0.125
	[0.0626]	[0.0553]	[0.0940]	[0.3229]	[0.0756]
	(0.0687)	(0.0618)	(0.0922)	(0.3066)	$(0.0692)^{\star}$
Observations	2569	2569	1758	2569	2569
R^2	0.48	0.71	0.07	0.01	0.08
Mean	0.145	0.182	0.359	1.279	0.730

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). $\star p < 0.10, \star \star p < 0.05, \star \star \star p < 0.01$

^a Weight and height are standardized with respect to the sample used for the estimations.
 ^b Stunting is a binary variable = 1 if the child is stunted. Stunting is defined as being two or more standard deviations below the age-sex standardized height with respect to a healthy reference population [WHO (1996)].

Number of days in the previous 4 weeks that the child was reported sick by the mother.

^d Anemia is a binary variable = 1 if the child is anemic. Anemia is defined as hemoglobin less than 11 g/dL adjusted for altitude [WHO (2008)].

^e $coh97-00 \times rain_{shock}$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_{shock}$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.15: Effect of the 1999 September-October rainfall shock on cognitive development indicators measured in 2003 for children born between 1997 and 2001. Controlling for variables with significant differences in the exogeneity test. (Outcomes are standardized test scores).

	Peabody Test ^a	$Woodcock-Muñoz Test^b$		lest ^b
		WM1	WM2	WM3
		working/long	short term	visual spatial
	language	term memory	memory	$\operatorname{thinking}$
	(1)	(2)	(3)	(4)
Panel A				
coh97-00 x rain_shock ^c	-0.162	-0.152	-0.0102	-0.146
	[0.0643] **	$[0.0561]^{***}$	[0.0488]	[0.0678] **
	$(0.0636)^{\star\star}$	$(0.0619)^{\star\star}$	(0.0531)	$(0.0761)^{\star}$
coh01 x rain shock		0.0453	-0.0493	0.0377
		[0.0484]	[0.1060]	[0.1024]
		(0.0529)	(0.1051)	(0.0980)
Panel B				
coh97 x rain_shock	-0.543	-0.287	-0.0158	-0.225
	$[0.1739]^{***}$	$[0.1424]^{**}$	[0.0839]	[0.1436]
	$(0.1665)^{\star\star\star}$	$(0.1616)^{\star\star}$	(0.0930)	(0.1416)
$\cosh 98 \ x \ rain \ shock$	-0.230	-0.230	-0.0236	-0.186
	$[0.0955]^{**}$	$[0.0787]^{***}$	[0.0627]	$[0.0861]^{**}$
	$(0.0967)^{\star\star}$	$(0.0812)^{\star\star\star}$	(0.0708)	$(0.0945)^{\star\star}$
$\cosh 99 \ x \ rain \ shock$	-0.0350	-0.0635	-0.0212	-0.0930
	[0.0695]	[0.0826]	[0.0706]	[0.0733]
	(0.0719)	(0.0825)	(0.0630)	(0.0819)
$\cosh 00 \ x \ rain_shock$	0.0348	-0.0718	0.0273	-0.112
	[0.0589]	[0.0520]	[0.0567]	$[0.0645]^*$
	(0.0563)	(0.0503)	(0.0558)	$(0.0669)^{\star}$
$\cosh 01 \ x \ rain_shock$		0.0443	-0.0497	0.0376
		[0.0483]	[0.1059]	[0.1033]
		(0.0524)	(0.1048)	(0.0984)
Observations	2148	2569	2569	2569
R^2	0.38	0.27	0.50	0.43
Mean	0.0329	0.0750	0.163	0.107

Controlling for age (months), age², gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). $\star \, p < 0.10, \, \star \star \, p < 0.05, \, \star \star \star \, p < 0.01$

^a *Peabody Test* measures language development. Peabody test scores are a reliable predictor of achievements in primary school.

^b Woodcock-Muñoz Test is used to assess a set of cognitive abilities: working and long-term memory, short-term memory and visual spatial thinking.

^c $coh97-00 \times rain_shock$ indicates the interaction between the variable coh97-00 (=1 if the child was born between 1997 and 2000) and the variable $rain_shock$ (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.16: Effect of the 1999 September-October rainfall shock on gross motor skills and behavioral outcomes measured in 2003 for children born between 1997 and 2001. Controlling for variables with significant differences in the exogeneity test. (Outcomes for McCarthy test scores, anxiety-depression and aggressive behavior indexes are standardized).

	${ m McCarthy^a}$	Achenbach Child Behavioral Checklist ^b		
	(1)	and Depression	Aggressive Behaviour	
	(1)	(2)	(3)	
Panel A				
coh97-00 x rain_shock ^c	0.0135	0.180	-0.00373	
	[0.0351]	$[0.0464]^{***}$	[0.0654]	
	(0.0371)	$(0.0438)^{\star\star\star}$	(0.0663)	
$\cosh 01 \ x \ rain_shock$	0.0354	0.255	0.148	
	[0.1374]	$[0.0867]^{***}$	[0.1464]	
	(0.1165)	$(0.0824)^{\star\star\star}$	(0.1356)	
Panel B				
coh97 x rain shock	0.124	0.201	-0.0368	
	[0.0454] ***	[0.1427]	[0.1330]	
	$(0.0496)^{\star\star}$	(0.1304)	(0.1284)	
$\cosh 98 \ x \ rain_shock$	0.0549	0.112	0.0156	
	[0.0367]	[0.0793]	[0.0960]	
	(0.0384)	(0.0756)	(0.0922)	
$\cosh 99 \ x \ rain \ shock$	-0.0330	0.126	0.0769	
	[0.0578]	$[0.0743]^*$	[0.0860]	
	(0.0601)	$(0.0735)^{\star}$	(0.0762)	
$\cosh 00 \ x \ rain_shock$	-0.0475	0.344	-0.122	
	[0.0840]	$[0.0829]^{***}$	[0.1126]	
	(0.0702)	$(0.0803)^{\star\star\star}$	(0.1005)	
$coh01 \ x \ rain_shock$	0.0362	0.255	0.148	
	[0.1378]	$[0.0872]^{***}$	[0.1472]	
	(0.1165)	$(0.0828)^{\star\star\star}$	(0.1360)	
Observations	2569	2569	2569	
R^2	0.43	0.03	0.01	
Mean	0.104	-0.0106	0.0689	

Controlling for age (months), age^2 , gender, father's language, HH structure, cohorts.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Conley standard errors in parentheses (cutoff= 1 degree). $\star~p<0.10,~\star\star~p<0.05,~\star\star\star~p<0.01$

^a The McCarthy Scale of Children's Abilities Test measures children's motor skills development. The test requires children to complete a set of exercises. Results for each exercise are combined into a single indicator.

^b The Achenbach Child Behavioral Checklist is a set of questions related to the child behavior that are answered by the child's main caregiver [Achenbach and Rescorla (2001)]. Answers are combined in two indicators of two possible types of behavioral problems: internalization behavioral problems (Anxiety and Depression), and exernalization behavioral problems (Agressive Behavior).

c $coh97.00 \times rain$ shock indicates the interaction between the variable coh97.00 (=1 if the child was born between 1997 and 2000) and the variable rain shock (=1 if a rainfall shock occurred in 1999. The rainfall shock is defined as the rainfall in a given grid in September or October being 0.7 standard deviations above its long-term (1961-1999) average).

Table A.17: Effect of the 1998 rainfall shock on overall income, agricultural income and probability of receiving formal and informal aid. Estimates contemporaneous to the shock (t), one and two years after the shock (t + 1 and t + 2) are shown. Formal transfers include food and other forms of government aid. Informal transfers include food and other transfers from either a family member or from a neighbor.

Dependent Variables	Binary Variable $(\checkmark)^a$	Coefficient ^b	Std_Dev			
Total household income (log)						
$income_t$		-0.444***	(0.131)			
$income_{t+1}$		-0.227^{***}	(0.067)			
$income_{t+2}$		-0.376^{***}	(0.079)			
Household income from agriculture (log)						
$a gricultural_income_t$		-0.233***	(0.057)			
$a gricultural_income_{t+1}$		-0.339***	(0.054)			
$a gricultural_income_{t+2}$		-0.276***	(0.055)			
=1 if household received government aid						
$food_aid_t$	\checkmark	0.040^{**}	(0.019)			
$other_aid_t$	\checkmark	0.043	(0.042)			
=1 if household received informal transfers						
$from_family_{t+1}$	\checkmark	-0.016^{***}	(0.005)			
$from_neighbor_t$	\checkmark	-0.028***	(0.010)			

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

^a Indicates if the dependent variable is a dummy.

^b Each line shows the result of a different regression where equation (3) is estimated and the dependent variable is the one indicated in the first column. Control variables include *household's head age, gender, education, language spoken, and HH structure.*

Dependent Variables	Coefficient ^a	Std_Dev
Food consumption (log)		
food $consumption_t$ [pesos]	-0.131***	(0.046)
$food consumption_{t+1}$ [pesos]	-0.099**	(0.042)
$food_consumption_{t+2}$ [pesos]	-0.162**	(0.072)
$food_consumption_t$ [kg]	-0.048	(0.043)
$food_consumption_{t+1}$ [kg]	0.021	(0.041)
$food_consumption_{t+2}$ [kg]	0.027	(0.081)
$food_consumption_t$ [calories]	-0.075	(0.054)
$food_consumption_{t+1}$ [calories]	0.055	(0.037)
$food_consumption_{t+2}$ [calories]	0.038	(0.086)
Diet composition (log)		
tortilla consumption [pesos]	0 187***	(0, 064)
$tortilla consumption_{t+1}$ [pesos]	-0.040	(0.073)
$tortilla_consumption_{t+1}$ [pesos]	-0.212**	(0.090)
animal consumption [pasas]	0 199	(0, 110)
animal consumption [posss]	-0.122	(0.110) (0.107)
animal consumption [posss]	-0.202	(0.107) (0.108)
$animal_consumption_{t+2}$ [pesos]	-0.237	(0.108)
$fruit_and_vegetable_consumption_t$ [pesos]	-0.280***	(0.095)
$fruit_and_vegetable_consumption_{t+1}$ [pesos]	-0.050	(0.067)
$fruit_and_vegetable_consumption_{t+2}$ [pesos]	-0.141^{*}	(0.074)
Children reported sick by the mother		
<i>children</i> sick _t (% in the HH)	-0.032	(0.034)
<i>children</i> sick _{t+1} (% in the HH)	0.003	(0.030)
$children_{sick_{t+2}}$ (% in the HH)	0.008	(0.034)
Modicino Expondituro (log)		
medicine expenditure (log)	0 109	(0, 120)
$meascine_expensionality res_t$	-U.100 0 281***	(0.139) (0.136)
$meanine_expension est_{+1}$	-0.001	(0.130)
meancine_expenditures $_{t+2}$	0.232	(0.200)

Table A.18: Effect of the 1998 rainfall shock on food consumption, diet composition, child health and medicine expenditure. Estimates contemporaneous to the shock (t), one and two years after the shock (t + 1 and t + 2) are shown.

Standard errors clustered by grid in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

^a Each line shows the result of a different regression where equation (3) is estimated and the dependent variable is the one indicated in the first column. Control variables include *household's head age, gender, education, language spoken, and HH structure.*



Figure A.1: Localities affected by Rain Shock 1998

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Figure A.2: Anthropometric outcomes' levels by amount of rainfall in 1999 harvest season

On each graph, the y-axis corresponds to the residuals of a regression of the outcome of interest against cohorts and controls. The x-axis corresponds to the standardized precipitation anomaly level in October 1999. Each dot represents a conditional mean for a 0.1 interval, the line is a local polynomial regression and the shaded area is its corresponding 95% confidence interval.



Figure A.3: Cognitive outcomes' levels by amount of rainfall in 1999 harvest season

On each graph, the y-axis corresponds to the residuals of a regression of the outcome of interest against cohorts and controls. The x-axis corresponds to the standardized precipitation anomaly level in October 1999. Each dot represents a conditional mean for a 0.1 interval, the line is a local polynomial regression and the shaded area is its corresponding 95% confidence interval.



Figure A.4: Gross motor and behavioral outcomes' levels by amount of rainfall in 1999 harvest season

On each graph, the y-axis corresponds to the residuals of a regression of the outcome of interest against cohorts and controls. The x-axis corresponds to the standardized precipitation anomaly level in October 1999. Each dot represents a conditional mean for a 0.1 interval, the line is a local polynomial regression and the shaded area is its corresponding 95% confidence interval.



Figure A.5: Localities being removed for the geographical robustness test

The states being removed for the robustness checks are shaded in blue: (i) San Luis Potosi and (ii) Michoacan and Guerrero.



Figure A.6: RD analysis: Anthropometric Outcomes

On each graph, the x-axis corresponds to the standardized poverty index used by the administrative rule to select Progresa beneficiaries. The administrative cutoff is centered at zero.

The standardized poverty index (x_pmt) is formed with a formula that weights household's asset ownership and socio-economic characteristics of its members.

Analysis restricted to original randomized treatment villages.

The y-axis gives conditional means of the individual outcomes. As the conditional mean for individuals from villages affected by a rain shock. \bigcirc is the conditional mean for individuals from villages not affected by a rain shock.



Figure A.7: RD analysis: Cognitive Outcomes

On each graph, the x-axis corresponds to the standardized poverty index used by the administrative rule to select Progresa beneficiaries. The administrative cutoff is centered at zero.

The standardized poverty index (x_pmt) is formed with a formula that weights household's asset ownership and socio-economic characteristics of its members.

Analysis restricted to original randomized treatment villages.

The y-axis gives conditional means of the individual outcomes. As the conditional mean for individuals from villages affected by a rain shock. \bigcirc is the conditional mean for individuals from villages not affected by a rain shock.



Figure A.8: RD analysis: Other outcomes

On each graph, the x-axis corresponds to the standardized poverty index used by the administrative rule to select Progresa beneficiaries. The administrative cutoff is centered at zero.

The standardized poverty index (x_pmt) is formed with a formula that weights household's asset ownership and socio-economic characteristics of its members.

Analysis restricted to original randomized treatment villages.

The y-axis gives conditional means of the individual outcomes. As the conditional mean for individuals from villages affected by a rain shock. \bigcirc is the conditional mean for individuals from villages not affected by a rain shock.



Figure A.9: Effects of Rain Shock on Average Number of Kids Born by Localities

F(inf) and p(inf) represent the Fstat and pvalue of a test of global significance in the differential effect of the rainshock on fertility between affected and non affected communities from 12 months before up to the month of the rainshock. F(ut) and p(ut) represent the Fstat and pvalue of a test of global significance in the differential effect of the rainshock on fertility between affected and non affected communities from 1 to up to 12 months after the rainshock