IMPACT EVALUATION OF THE PANTAWID PAMILYANG PILIPINO PROGRAM

(Note 3: Third Wave Impact Evaluation of Pantawid: Further Analysis)

A. Introduction

1. **Background.** Impact evaluations have helped to confirm the effectiveness of the Pantawid Pamilyang Pilipino Program (4Ps) at various times. In 2011 and 2013, the Department of Social Welfare and Development (DSWD) partnered with Philippines Institute of Development Studies (PIDS) to conduct two "waves" of impact evaluations of the program with the help of the World Bank, and the Asian Development Bank (ADB).[1] The studies utilized a randomized controlled trial (RCT) design (wave 1) and regression discontinuity design (RDD) (wave 2). Program improvements were guided by the impact evaluation results, including expansion of the 4Ps program to cover children over 14 years of age in 2014.

2. **Previous findings.** Results from the earlier waves of impact evaluation indicate that 4Ps is generally improving health service utilization and school enrollment. Both waves show an increased (i) trial utilization of modern family planning; (ii) use of maternal and child health services including growth monitoring, and (iii) spending on education and health care. Some impact observed in 2011 was not found in 2013, such as improved utilization of antenatal care, postnatal care, and use of curative cure in case of illness; reduction in severe stunting; increased enrollment among younger children (3 to 11 years old); and increased attendance among 6-17 years old. However, an increase in rate of facility-based delivery or assistance and post-natal check-ups by a trained professional and in health facility, in enrollment rate for high-school aged children (12 to 15 years old), and attendance rate among preschool children (3 to 5 years old), which were not previously observed, appeared in the second wave of evaluation. Both waves found no significant impact on immunization rates and per capita consumption/expenditure. No adverse impact on labor or fertility decisions and spending on vice goods such as alcohol and tobacco were found. The program also appeared to be equally effective for boys and girls in the first 5 years of the program, with no strong gender differences found in program impacts on outcomes related to education and health service use. The studies also found improvement in outlook of 4Ps parents with regards to their hopes of their children finishing college and having a better life than them.

3. **Wave 3 study.** In 2017-2019, impact evaluation "wave 3" was undertaken by PIDS in partnership with DSWD, the World Bank and ADB. It has two components – an RDD study and a separate RCT follow up of households that were randomly selected to be initially enrolled in 2008 versus those enrolled later. The results of the PIDS analysis are expected to be publicly released by early 2020.

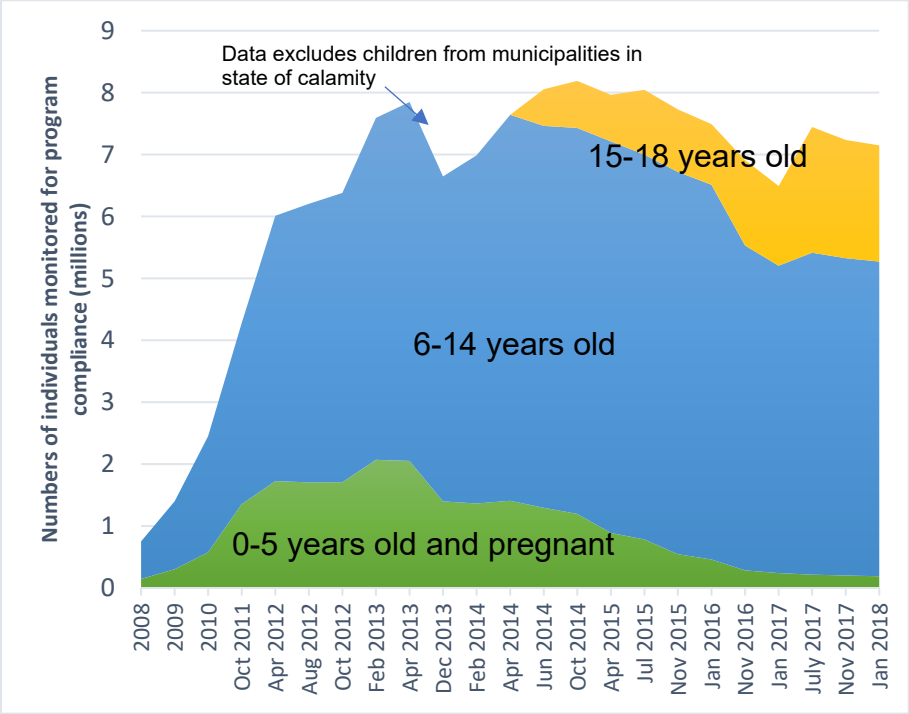
4. **Motivation for reanalysis.** Wave 3's RDD explores effects of the 4Ps program on health service utilization, health outcomes, child nutrition outcomes, school enrollment, income/consumption, and socio-emotional skills. The RCT follow up explores whether longer and early access to the program improves child nutrition end educational outcomes. Important, significant positive effects are found on school enrollment, school attendance, and access to maternal and child health services. However, the effects of the program on mean per capita consumption, child immunization, child labor and birth outcomes are less clear. In addition, on nutrition, the RCT suggests positive effects of the program, whereas the RDD identifies an

[1] PIDS. 2012. *Philippines Conditional Cash Transfer Program Impact Evaluation 2012*. Manila; PIDS. 2014. *Keeping children healthy and in school Pantawid Pamilyang Pilipino Program 2nd Wave Impact Evaluation Results*. Manila.

adverse impact on stunting. Moreover, the RDD provides some suggestive evidence that unmonitored children of 4Ps beneficiary households have worse educational outcomes relative to those in nonbeneficiary households.

5. The monitoring rate of children born to 4Ps households has also been observed to be falling over time. Figure 1 depicts the age composition of children monitored by year, and how nearly only older children are being monitored and that the number of children monitored has been in decline since 2014. The decline in monitoring rates suggests that the adverse effects on unmonitored children may become a larger issue over time without improvements to program implementation to ensure that all children are registered and monitored.

Figure 1: Profile of Those Monitored for Compliance with Conditionalities of the Pantawid Pamilyang Pilipino Program



Source: World Bank estimates using data from the Department of Social Welfare and Development.

6. These results motivated the conduct of further ADB research into possible reasons behind the contradictory results found in wave 3 components on nutrition, and possible linkages to the effects observed on unmonitored children's educational outcomes.[2] One key feature of 4Ps implementation that has not been explored in previous studies is the 3-child limit on educational grants and educational monitoring. In effect, monitoring only a subset of the children of many households means that some children have subsidized human capital investment, whereas others do not, thus household returns to investment in monitored children are higher than for the unmonitored. If so, the program may unintentionally induce beneficiary households to redirect resources from unmonitored children, both in terms of education and nutrition. This document presents ADB reanalysis of the RDD component to address this question, and generally enhance the PIDS-led analysis.

[2] D. Raitzer et al. Forthcoming. *Intrahousehold Responses to Imbalanced Human Capital Subsidies: Evidence from the Philippine Conditional Cash Transfer Program*. Manila.

7. **Objectives and key questions.** Impact evaluation wave 3 and ADB reanalysis provide evidence on the impacts of the 4Ps at the household and child level. The key research questions addressed are:

a. Does the overall program improve:
   i. maternal health?;
   ii. child health and nutrition?;
   iii. educational and labor outcomes of children?; and
   iv. socioeconomic indicators of the household (labor, livelihood, consumption, savings, housing, etc.)?
b. How are monitored vs. unmonitored children affected by the program, in terms of:
   i. educational and labor outcomes of children?; and
   ii. child health and nutrition?

8. **Hypotheses.** The hypotheses to be tested are:

a. The program induces behavior change in line with program conditionalities, especially those that are enforced.
b. The program improves household welfare outcomes.
c. Any observed negative effects may be explained by differences in effects on children monitored for conditionality compliance and those that are unmonitored in program households.

B. Methodology

9. **RDD model**. Simple comparisons between populations with and without a program can be confounded by "selection bias", in that households are selected and choose to participate for specific reasons. They may have important differences that predate the program. The approach used here to avoid confounding is RDD, which infers causality based on a comparison of a sample just above and just below a program eligibility threshold regarding an exogenous quantitative characteristic. Because households above and below the threshold have only very minor differences (if they are not able to change the characteristic to gain access to the program), they only, on average, differ substantially regarding access to the program, and any other differences are likely to be effects of the program. In this case, the quantitative characteristic was predicted income from the national household targeting survey in 2009. Households are only eligible for 4Ps if predicated/estimated income (using a proxy means test model) is below the provincial poverty threshold. Thus, the RDD comparison is of households just above and below the threshold in terms of predicted income in 2009.

10. A simplified RDD model is shown below where: Y is the outcome of interest, D is the binary treatment indicator, and W is the vector of all observable characteristics of the household that might impact the outcome and/or the assignment variable X. Provincial level poverty threshold is given by φ.

$$Y = D\tau + W\delta_1 + U \qquad (1)$$
$$D = 1[X \geq \varphi] \qquad (2)$$
$$X = W\delta_2 + V \qquad (3)$$

11. RDD is only valid if households are unable to manipulate the program to become eligible. Evidence of this behavior appears in the density of observations being raised to one side of the eligibility cutoff. A McCrary test (shown in Appendix 1) rules out sorting around the cutoff, and using RDD is appropriate in this case**.**

12. **Data source.** Data collection was based on the intention to apply RDD, using a survey with sampling targeted to the eligibility threshold. A sampling of 6,775 households in 180 barangays across 30 municipalities and 25 provinces was done at barangay level, with the 20 available households closest to meeting the threshold, and 20 available households most barely exceeding the provincial cutoff selected as respondents. The sampling was done using data from the national household targeting system, which is the database that contains proxy means test scores and includes both beneficiary and non-beneficiary households. The sample consisted of households with at least 2 years of program exposure and maximum of 9 years in the program.

13. The household survey was conducted in late 2017 by Social Weather Stations, a Manila based survey firm. The paper questionnaire consisted of six different modules. The main module covered household characteristics, consumption and roster of household members. Other household modules covered mothers, school aged children and child anthropometry. There was also a barangay and health facility questionnaire.

14. Additional administrative data from DSWD were merged, with the survey dataset to create the dataset used in the analysis. This includes the (i) educational monitoring status of children; (ii) payroll data that included number of payments by category and the overall amount transferred to each household in September 2019; and (iii) households enrolled between 2010 and 2018, and ages of all children in the sample dataset that were actually monitored and selected for monitoring by DSWD. Actual educational monitoring is used to characterize the monitoring status of school aged children.

15. Educational monitoring of children begins only at the point of school enrollment, which is typically at age 6. Children under 6 years of age, thus, mostly are of unknown monitoring status, which complicates characterization of the effects of monitoring on nutrition outcomes, which are only measured for children under 6. At the same time, the 4Ps program has a cap on educational monitoring and compliance payments of three children. This means that younger children of households with three older children, who are already monitored or being monitoring, are ineligible in the future. Other children of 4Ps households may be monitored for educational compliance when of school age. However, considering the cap of three children and actual numbers of children of 4Ps households below school age, only approximately 50% of those children actually can be monitored. Thus, the comparison for outcomes of children under 6 is between monitoring ineligible and possibly monitored, but that the possibly monitored will have a mix of effects of expected monitoring and non-monitoring.

16. **Overall identification strategy.** The RDD was implemented as a nonparametric design, with inference based on a locally optimal bandwidth, a robust misspecification bias correction procedure. The design optimizes the tradeoff between bias (which increases as the sample bandwidth includes observations further from the eligibility cutoff) and variance (which decreases as the bandwidth increases).

17. In addition, the RDD was implemented as a “fuzzy” design due to a substantial no-show rate near the threshold, as 499 eligible households that were below the provincial poverty threshold did not receive any 4P benefits, although the crossover rate is minor with 81 households that were not eligible receiving benefits. This non-compliance has been checked using administrative payroll data provided by DSWD.

18. The fuzzy RDD was estimated using a local nonparametric estimator, using coverage error rate optimal bandwidths, with a triangular weighting kernel.[3] The polynomial order has been selected based on minimization of the Akaike Information Criteria for a parametric implementation of the estimator in the optimal bandwidths. A parametric two stage, least squares model with the same functional form, bandwidth, polynomial order, and triangular weighting kernel was used to predict outcomes with and without treatment. Covariates were included on municipality, household size, and the presence of facilities in the barangay.

19. **Identification strategy for analysis of effects by monitoring status.** The above approach addresses potential self-selection and placement bias for pooled effects of the program. However, children who are monitored and not monitored for educational compliance may still differ in characteristics that predate the program, as they are nonrandomly selected by the program (until 2015) and households more recently. Because the selection of children for monitoring only exists for households in the program, this may confound comparisons with the entire pool of nonprogram children. For example, if households selected more academically apt children for educational compliance monitoring, aptitude may be conflated with the effects of monitoring in a simple subgroup analysis. To address this, a secondary instrument is interacted with the RDD design in the analysis of effects on monitored and unmonitored children. The secondary instrument interacted RDD still uses a local estimator in a coverage error rate optimal bandwidth, with triangular kernel weighting, optimized polynomial order, and robust bias corrected inference.

20. The secondary instruments consist of two elements for different age groups, following program eligibility rules for children. Until 2015, the PIDS program enrolled children, with priority placed on children between 6 and 14 years of age in ascending order of age, and below 6 in descending order of age. Ranking in the top three of children following these rules (at the time at which enrollment of children started in the barangay) is used as an instrument for monitoring of school aged children (most of whom would have been enrolled under these rules). In early 2015, PIDS started “open selection”, so that parents could select children. Rules are less clear thereafter, and especially for children below school age in late 2017. However, being child number four or higher (counting from children 14 or less at the initial year of implementation) in the family increases the likelihood that all three monitoring slots for a household are already occupied (so that the child is monitoring ineligible). This ranking of four or higher thus is the instrument for children below 6 years of age. The instruments are confirmed as exogenous, as they have no significant effects on key outcomes for non 4Ps households in placebo test regressions, but they are relevant, as they have highly significant effects on monitoring among 4Ps households.

C. Results

21. **Descriptive statistics.** For contextual purposes, summary statistics are presented on the means of program participants and nonparticipants. These are not causal effects. Table 1 presents simple tabulations of the 4P conditionalities by administrative payroll variable. Except for participation in parenting sessions, 4P households were similar in many variables that track compliance with program participation.

[3] S. Calonico et al. 2014. Robust Nonparametric Confidence Intervals for Regression Discontinuity Designs. *Econometrica*, 2295–2326.

Table 1: Description of Average Compliance Rates with 4Ps Conditionalities

Program Conditionality	4Ps	Non-4Ps
Health Conditionalities for Pregnant Women		
Pregnant household members should visit a health facility at least once every 2 months to avail of pre- and post-natal care services.	81% N:1354	79% N:1738
Pregnant women should avail of avail of delivery services from a skilled health professional	87% N: 1264	87% N: 1633
Avail of postnatal care services within 6 weeks after delivery of child	82%	84%
	N: 1267	N: 1638
Health Conditionalities for Children		
Children below 2 years old should be completely immunized according to prescribed vaccination schedule	17% N: 1292	16% N: 1628
Children 2 to 5 years old should visit health centers once every 2 months for regular weight monitoring	38% N: 1179	34% N: 1497
Children 6 to 14 years old must receive deworming pills at least twice per year	89% N: 3864	87% N: 4266
Education Conditionalities		
Children 3 to 5 years old should enroll in daycare or kindergarten and Attend at least 85% of the school days in a month	22% N: 1722	20% N: 2213
Children 6 to 18 years old should enroll in elementary or high school and attend at least 85% of the school days in a month	81% N: 6047	79% N: 6669
Family Development Sessions Conditionality		
The 4Ps household grantee[a] and/or spouse must attend monthly family development sessions at least once per month	36% N: 2955	6% N: 3726

4Ps = Pantawid Pamilyang Pilipino Program.

a The grantee of Pantawid households refer to the mother or the most responsible adult member of the households authorized to withdraw or receive the grants.

Source: ADB estimates.

22. Table 2 shows that most eligible children in households are enrolled for educational monitoring and grants. At the same time, there exists important scope to increase monitoring as nearly 25% of potential slots for educational monitoring for households with three children or more remain utilized.

Table 2: Monitoring of Children by Household Size

Number of children in household	Average number monitored	Share of eligible monitored
1	0.88	88%
2	1.65	80%
3	2.23	74%
more than 3	2.36	77%

Source: ADB estimates

23. **Pooled results.** Overall results confirm that the program has important significant effects. Prenatal behavior, child school enrollment outcomes, and socioemotional skills of children are significantly improved on average for children of 4Ps households. Household consumption is significantly increased, especially on food, and reported hunger is reduced. Effects on child nutrition outcomes are the sole deviation from effects that are otherwise positive and significant or insignificant.

Income/consumption

a. There is no evidence that the program creates dependency, as labor force participation and employment are unaffected (Table 3). Per capita household income increases by 61% when the value of grants is included in household income, but without grants no significant change to per capita income is detected. This increase in household income translated to an 8% increase in total household consumption, with clothing, school supplies, healthcare, and food only showing significant and substantial increases

Maternal health

b. Prenatal behavior moderately improves (Table 3). The share of mothers who report at least four prenatal checkups increases by nine percentage points, and the utilization of midwifes decreases in favor of nurses for deliveries. Other outcomes are unaffected.

Parenting

c. As part of the 4Ps beneficiary requirements, the parents or caregivers of children attend weekly Family Development Sessions (FDS). The analysis finds a 38 percentage point effect on the caregiver ever attending a parenting session (Table 3). The FDS appears to affect behavior, as there is a similar significant increase in community engagement.

d. Parents' expectations of children's future outcomes improve with the program, as more 4Ps children are expected to grow up healthy and finish school (Table 4). These expectation changes are confined to boys.

e. Children in 4Ps households exhibit more grit, a key socio-emotional skill, compared to children in non-4Ps households (Table 4). An index constructed based on four questions related to grit as a character trait shows a 4% improvement. The effect on grit occurs only among boys.

Education

f. The school enrollment requirement of 4Ps has led to a 19 percentage point increase in enrollment of 16- to 17-year-old children in beneficiary households. The effects of the program on enrollment of children in elementary and middle school are positive, but not statistically significant. Effects are confined to girls. Children in 4Ps households have a 9 percentage point increases in engagement in extracurricular activities.

Child health and nutrition

g. Per capita spending on food increases by 12%, as a result of the 4Ps, and there is a major reduction in total incidence of reported hunger (Table 3). Children reported eating more vegetables but less fish.

h. There are significant negative impacts of the 4Ps program on anthropometry measurements for children under 6 years of age (Table 4). The mean child's length for age z-score drops by 0.48, compared to children not in 4Ps households. A significant rise in stunting and severe stunting in children of 4Ps beneficiary households was detected, but this was not accompanied by significant changes in the child's weight for age z-scores.

Effects are detected much more for boys than girls. Given the increase on per capita food consumption, the negative impact on length for age z scores does not seem to be driven by vice consumption.

24. **Results for monitored and unmonitored children.** The previous results are averages for all children of 4Ps households. However, these results may mask substantial differences in effects for children monitored and unmonitored for conditionality compliance. Given that most children under 6 years of age will not have "space" to be monitored for educational compliance (due to the three child per household cap), and are not being monitored for health compliance, negative overall nutritional effects may be driven by effects on unmonitored children. These negative nutritional effects may also indicate a broader range of negative effects on unmonitored children.

Parenting

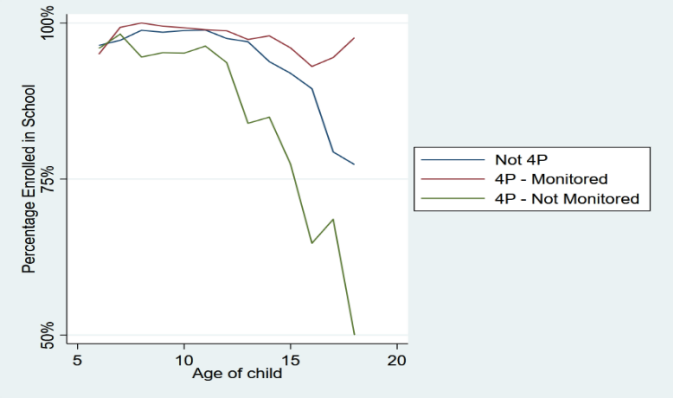
a. Parental aspirations for the children's future are very different for monitored and unmonitored children. Monitored children's expectations of finishing elementary school, high school and college increase, but parents report that monitoring ineligible children have a 6 percentage point reduction in expected completion of high school (Table 5).

b. Grit improves only among monitored children. Table 5 shows that monitored children have positive significant coefficients, while monitoring ineligible children only have one significant coefficient and no significant change in the grit index.

Education

c. Monitoring eligible children reported higher school enrollment, as 12- to 17-year-old monitored children increase the rate of enrolling in school by 9 percentage points, while the same age cohort of unmonitored children has a 14 percentage point reduction in enrollment Table 5). For 16- to 18-year-old children, the percentage point increase is 20 for those monitored. Among 12- to 15-year-old children, the reduction for unmonitored children is 30 percentage points. Figure 2 illustrates the lower enrollment rate for 4Ps-un monitored children, compared to non-4Ps children. The dropout rate significantly falls only for those who are monitored.

Figure 2: School Enrollment by Age



Note: The figure compares summary statistics, rather than impact estimates.
Source: ADB estimates.

Child health and nutrition

d. Analysis of anthropometric outcomes children (measured for those below 6 years of age) who are monitoring ineligible versus potentially eligible demonstrates that negative effects are principally on ineligible children. Substantial increases in stunting and reductions in height/length for age and weight for age are only significant for children who are monitoring ineligible (Table 5).

D. Discussion and Implications

25. The effects of the 4Ps program are positive and significant for a range of outcomes. Those effects are especially positive for conditionalities that are more strictly enforced for those monitored for conditionality compliance.

26. Effects on monitored and unmonitored children are consistent with "resource maximizing" behavior by households. Such households will invest resources according to expected returns to household investment. Children with subsidized educational costs will have higher private investment returns than children who are unsubsidized, so that resource maximizing behavior results in diverting resources from unmonitored to monitored children. Such resource maximizing behavior has been demonstrated empirically in a range of context and is not unique to the Philippines.[4]

27. The results by monitoring status also explain the inconsistency between previous impact evaluation waves and wave 3 regarding nutrition. Given that households were enrolled into the program based on predicted poverty status in 2009, they represent an aging population cohort, with expanding numbers of children over time. In earlier periods, a greater share of young children was monitoring eligible. By late 2017, most children will not have "space" to be monitored for educational compliance, and the program has slowed down in terms of enrolling younger children in monitoring. The share of young children who will not be monitored was much higher for RDD wave 3 than previous evaluations, so that negative nutritional effects dominated for the age cohorts for which anthropometric measurements were taken.

28. **Recommendations.** These findings imply that the 4Ps program can be made much more effective by simple reforms to help equalize program incentives across all children.

a. First, even within the existing cap of three children per household, it appears that households are not registering all eligible children for educational monitoring. Registration of all children could reduce intrahousehold disparities for an important share of 4Ps households. This suggests that a renewed effort is needed to register all children. The new national household poverty targeting effort (known as Listahanan 3) to be conducted in late 2019 and early 2020 will help to address this problem.

b. Second, to help reduce negative effects on unmonitored children, all children, even those beyond the cap of three, should be monitored for conditionality compliance.

[4] M. Barrera-Osorio. 2008. *Conditional Cash Transfers in Education Design Features, Peer and Sibling Effects Evidence from a Randomized Experiment in Colombia*. NBER Working Paper No. 13890; F. Ferreira. 2017. Own and Sibling Effects of Conditional Cash Transfer Programs: Theory and Evidence from Cambodia. *Research on Economic Inequality*. pp. 259-298.

Improved caseload management processes and integration with Department of Education efforts can enable this to be done.

c. Third, with monitoring information available, it can be possible to further equalize incentives across children. These incentives can be equalized by removing the child cap, introducing penalties into the cash transfer payment calculations for noncompliance of any children with conditionalities, or introducing nonfinancial penalties for noncompliance of any children, such as disclosure and follow up during family development sessions. Alternatively, the program could focus monitoring and compliance efforts on children with the greatest estimated risk of dropping out of school, rather than children self-selected by households.

Table 3: Pooled Household Level Results

Outcome	Coefficient	p-value	N	Treatment Mean	Control Mean
Pre/Post Natal Services					
Aware Of Any Modern Rh Method	-0.01	0.27	2092	1.00	1.00
Ever Used Any Modern Rh Method	0.06	0.07	2636	0.80	0.73
Count Of Modern Rh Method Aware Of	0.39	0.14	2140	6.62	6.23
Count Of Modern Rh Method Ever Used	0.15	0.18	2146	1.36	1.22
Current User Of Any Modern Rh Method	0.03	0.61	2242	0.48	0.45
Modern Contraceptive Prevalence Rate (Among In Union)	0.03	0.69	1896	0.51	0.49
At Least One Prenatal Checkup	-0.02	0.16	1206	0.99	1.01
At Least 4 Prenatal Checkup	0.09	0.07	1010	0.83	0.74
How Many Times Did You Receive Prenatal Care / Sought Prenatal Checkup	-0.09	0.83	1166	6.26	6.35
Prenatal Provider Skilled Professional	-0.06	0.01	976	0.95	1.01
Prenatal Done In Health Facility	-0.03	0.20	990	0.97	1.00
Delivery Assisted By Skilled Health Professional	-0.01	0.81	954	0.86	0.87
Delivery Assisted By Midwife	-0.11	0.11	972	0.42	0.53
Delivery Assisted By Nurse	0.04	0.11	739	0.05	0.01
Facility-Based Delivery	0.04	0.49	934	0.84	0.80
Postnatal Check - Any	0.06	0.30	882	0.83	0.77
Postnatal Check Within 24 Hours (Wave 1)	0.03	0.54	1083	0.28	0.25
Postnatal Check Within 72 Hours (Wave 2)	0.06	0.40	897	0.46	0.40
Postnatal Check Within 24 Hours By Skilled Professional	0.05	0.41	952	0.26	0.21
Postnatal Check Within 72 Hours By Skilled Professional	0.06	0.39	867	0.43	0.37
Postnatal Check Up In A Facility	0.02	0.72	907	0.78	0.76
Experienced Any Pregnancy Risk (With Others)	0.01	0.83	1045	0.97	0.96
How Many Times Experienced Any Pregnancy Risk?	-0.25	0.23	739	1.77	2.02
Experienced Any Delivery Complication	0.02	0.75	959	0.28	0.26
Child Health and Nutrition					
Child Aged 2 To 5 Weight Measured At Least 3 Times In The Past 6 Months	0.10	0.15	1374	0.37	0.27
No. Of Times Child's Weight Was Measured In The Past 6 Months Age 2 To 5	0.36	0.26	1103	2.68	2.32
Vitamin A 6 Months To 6 Years Old	0.05	0.25	1367	0.84	0.79
Deworming Pills Under 6 Years Old	0.04	0.40	1627	0.48	0.44
Child Received Epi Vaccines (W/O Hib) Among 12 Months And Older	-0.02	0.75	1414	0.25	0.27
Visited A Health Facility Or Health Professional In The Past 8 Weeks	0.01	0.99	1633	0.39	0.38
Child Visited A Health Facility For Incidence Of Fever During Past Month	0.16	0.30	551	0.53	0.36

Child Visited A Health Facility For Incidence Of Cough During Past Month	-0.16	0.08	590	0.47	0.63
Child Visited A Health Facility For Incidence Of Fever Or Cough During The Past	-0.06	0.55	707	0.48	0.54
Exclusively Breastfed For 6 Months	0.00	0.84	1263	0.81	0.81
Child Ate Eggs In The Last Week	-0.03	0.19	1643	0.93	0.97
Child Ate Fish In The Last Week	-0.07	0.10	1704	0.91	0.98
Child Ate Meat In The Last Week	0.03	0.63	1675	0.74	0.71
Child Ate Vegetables In The Last Week	0.09	0.08	1360	0.85	0.76
Dietary Diversity Score	-0.17	0.43	1364	4.90	5.07
Adult Literacy					
Able To Read Completely Any One Of Items A, B, And C	-0.03	0.01	3879	0.96	0.99
Able To Write Numbers And Words On Items A, B, And C	-0.02	0.09	4173	0.97	0.99
Able To Correctly Compute Answers For Items A And B	-0.05	0.02	3937	0.90	0.94
Able To Understand And Give Sensible Answer To Item C	0.00	0.96	4104	0.86	0.86
Can Read And Write	-0.03	0.03	3867	0.94	0.98
Can Read, Write, And Do Basic Math	-0.03	0.16	3990	0.80	0.84
Household Consumption					
Log of Expenditure on Tuition	0.00	1.00	4454	3.32	3.31
Log of Expenditure on Materials	0.10	0.06	4625	3.52	3.42
Log of Expenditure on Uniform	0.07	0.13	4052	3.89	3.82
Log of Expenditure on Allowance	0.04	0.60	5449	5.46	5.42
Log of Total Expenditure on School Related Items	0.12	0.02	5126	6.00	5.89
Per Capita Outpatient Expenditure; Log Transformed, Real	-0.01	0.84	3533	0.63	0.64
Per Capita Total Health Expenditure; Log Transformed, Real	0.15	0.51	3570	3.38	3.23
Per School age Child Education Expenditure; Log Transformed, Real	-0.21	0.50	3293	5.63	5.84
Per Capita Income + Grants (Real, Log Transformed)	0.61	0.00	3626	9.62	9.01
Per Capita Income No Grants(Real, Log Transformed)	0.06	0.83	3463	9.01	8.95
Per Capita Income from Salaries and Wages (Real, Log Transformed)	0.04	0.93	3744	6.75	6.71
Per Capita Income from Entrepreneurial Activities (Real, Log Transformed)	0.16	0.35	1578	8.20	8.05
Per Capita Income from Other Receipts (Real, Log Transformed)	-0.07	0.75	1616	8.03	8.10
Self-Rated Poverty Status Is Not Poor	0.02	0.61	3764	0.13	0.11
Self-Rated Poverty Status Is Poor	-0.03	0.43	3875	0.22	0.25
Annual Expenditures on Alcohol and Tobacco	464.62	0.26	3333	1975.31	1510.69
Share of Food in Total Expenditures	0.02	0.21	3180	0.64	0.63

Share of Non-Food in Total Expenditures	-0.02	0.21	3180	0.36	0.37
Share of Education in Total Expenditures	0.00	0.64	3183	0.02	0.03
Share of Clothing and Footwear in Total Expenditures	0.00	0.02	3101	0.01	0.01
Share of Health in Total Expenditures	0.00	0.63	3295	0.01	0.01
Share of Alcohol and Tobacco to Total Expenditures	0.00	0.32	3145	0.01	0.01
Per Capita Food Expenditure; Log Transformed, Real	0.12	0.00	2981	9.88	9.76
Per Capita Alcohol and Tobacco Expenditure; Log Transformed, Real	0.16	0.65	3440	3.25	3.09
Per Capita Nonfood Exp Excl Other Disbursements; Log Transformed, Real	0.04	0.39	3669	9.26	9.21
Per Capita Nonfood Exp Incl Other Disbursements; Log Transformed, Real	0.05	0.37	3671	9.24	9.19
Per Capita Total Expenditure; Log Transformed, Real	0.08	0.02	3162	10.33	10.25
Per Capita Clothing and Footwear Expenditure; Log Transformed, Real	0.69	0.00	3644	5.21	4.52
Per Capita Inpatient/Hospital Care Expenditure; Log Transformed, Real	0.32	0.10	3291	0.48	0.16
Labor force participation					
In Labor Force?	0.04	0.36	2359	0.19	0.14
Employment?	0.04	0.68	420	0.78	0.74
Usual Work Hours Per Week, Primary Job	4.31	0.44	325	35.07	30.76
Have Other Job Or Business During The Past Week?	0.03	0.45	277	0.03	0.00
Total Usual Work Hours Per Week	4.90	0.37	312	35.68	30.78
Employed But Looking for Additional Work; 1 Yes, 0 Otherwise	0.04	0.46	372	0.05	0.01
Public services					
Has at Least One Member of Philhealth Indigent	0.37	0.00	3799	0.85	0.49
Number of Memberships in SSS Or Philhealth	0.11	0.44	3803	1.83	1.72
Has At Least One Beneficiary of Social Protection and Other Programs	0.14	0.00	3723	0.95	0.80
Number of Social Protection and Other Programs Accessed	0.03	0.59	3599	0.45	0.41
Any Social Protection and Other Programs Accessed	0.01	0.72	3652	0.33	0.31
Count of Type of Govt Services Accessed in The Past 12 Months	0.00	0.99	3821	1.32	1.32
Accessed Any Type of Govt Service in The Past 12 Months	-0.01	0.86	3821	0.65	0.66
Ever Attended Any Parenting Session	0.38	0.00	3661	0.72	0.34
Voluntary Participation in Community Activities in The Past Six Months	0.27	0.00	3740	0.54	0.28
HH Owns Evacuation Kit - Seen or Not Seen	0.18	0.00	3564	0.35	0.17

At Least One HH Member Who Is a Member of An Organization in The Community	0.17	0.00	3598	0.32	0.15
At Least One HH Member Who Is an Officer of An Organization in The Community	0.13	0.01	794	0.20	0.07
Reported welfare					
Experienced Hunger at Least Once in The Past 3 months	-0.05	0.05	3777	0.13	0.18
Number of Days in Past 3mos Experienced Hunger	-0.26	0.52	3760	0.68	0.95
Log of Number of Days in Past 3 Months Experienced Hunger	-0.08	0.18	3777	0.19	0.26
Self-Rated Poverty Status Is NOT POOR	0.02	0.61	3764	0.13	0.11
Self-Rated Poverty Status Is POOR	-0.03	0.43	3875	0.22	0.25

Note: Control means are predicted means for the treated population in the absence of treatment.
Source: ADB estimates.

Table 4: Pooled Child Results Disaggregated by Gender

	Pooled Fuzzy RDD					RDD: Female children 4P vs non 4P			RDD: Male children 4P vs non 4P		
Outcome	Coefficient	p-value	N	Treatment Group Mean	Control Group Mean	Coefficient	p-value	N	Coefficient	p-value	N
Socioemotional skills											
Grit: Ask for Help When Lesson Is Difficult.	0.04	0.06	4591	0.90	0.86	-0.01	0.86	2188	0.09	0.02	2403
Grit: Strive to Get Higher Grades.	0.04	0.11	4631	0.92	0.88	0.05	0.08	2210	0.03	0.48	2421
Grit: Finish School Work Before Playing Or Resting.	0.08	0.01	4308	0.76	0.69	0	0.98	2044	0.15	0.01	2264
Grit: Finish School Work Despite Lack of Time	0.03	0.16	4598	0.85	0.82	0.01	0.76	2191	0.05	0.16	2407
Grit Index	0.14	0.07	4753	3.42	3.28	-0.01	0.87	2266	0.27	0.03	2487
Parental Expectations											
Child Will Finish Elementary School?	0.03	0.01	2524	0.98	0.95	0	0.99	1155	0.05	0	1369
Child Will Finish High School?	0	0.78	4281	0.97	0.97	-0.01	0.44	2035	0.01	0.55	2246
Child Will Finish College?	0.02	0.44	3482	0.92	0.90	-0.02	0.31	1668	0.05	0.13	1814
Child Will Grow Up Healthy?	0.01	0.05	4658	0.99	0.98	0.01	0.22	2184	0.01	0.26	2474
Child Will Have Decent Employment?	-0.01	0.12	3689	0.98	0.99	-0.01	0.16	1776	-0.01	0.42	1913
Child Will Have Better Future?	0.03	0.18	6027	0.90	0.88	0.05	0.15	2857	0.01	0.67	3170
Nutrition and Health											
Stunting	0.14	0.01	995	0.39	0.25	0.12	0.15	515	0.25	0	480
Severe Stunting	0.07	0.04	1208	0.14	0.07	0.06	0.3	627	0.11	0.02	581
Length for Age Z-Scores	-0.48	0.02	1262	-1.45	-0.97	-0.62	0.03	646	-0.51	0.09	601
Weight for Age Z-Scores	-0.31	0.13	1155	-1.00	-0.69	-0.3	0.37	592	-0.37	0.15	567
Weight for Length Z-Scores	-0.27	0.28	1287	-0.52	-0.25	-0.32	0.28	647	-0.33	0.35	630
Incidence of Diarrhea During Past Month	0.02	0.36	1642	0.10	0.08	0.02	0.61	825	0.02	0.5	822

Incidence of Illness With Cough Or Fever	-0.07	0.25	1754	0.43	0.50	-0.09	0.24	881	-0.04	0.73	873
Underweight	0.05	0.35	1090	0.22	0.17	0.11	0.03	873	0.01	0.78	871
Severe Underweight	0	0.94	1004	0.05	0.05	0.06	0.45	560	0.06	0.29	534
Wasting	0.03	0.48	1199	0.12	0.09	-0.01	0.85	520	0.01	0.78	498
Severe Wasting	0	0.91	1138	0.02	0.02	0.01	0.87	605	0.08	0.2	591
Incidence of Any Vaccine Preventable Disease	0.06	0.1	1724	0.13	0.07	-0.01	0.76	605	0.02	0.54	594
Education											
Enrollment Among 16 to 17 Yr.	0.19	0.04	773	0.88	0.70	0.31	0.01	369	0.15	0.16	404
Enrollment Among 16 to 18 Yr.	0.09	0.19	1255	0.83	0.74	0.09	0.44	586	0.1	0.24	669
Enrollment Among 6 to 11 Yr.	0.01	0.4	2129	0.99	0.98	-0.01	0.63	1003	0.02	0.14	1126
Enrollment Among 12 to 15 Yr.	0	0.84	1443	0.95	0.95	-0.04	0.01	674	0.05	0.35	769
Enrollment Among 12 to 17 Yr.	0.05	0.12	1960	0.92	0.87	0.04	0.25	927	0.05	0.22	1033
Enrollment Among 6 to 14 Yr.	0.01	0.36	3213	0.98	0.97	-0.02	0.07	1522	0.03	0.05	1691
Enrollment Among 15 to 20 Yr.	-0.01	0.8	2359	0.76	0.78	-0.1	0.14	1094	0.04	0.44	1265
Attended 85% of School Days Among 6 to 11 Yr.	0.02	0.31	2400	0.94	0.92	0.04	0.19	1133	0.01	0.77	1267
Attended 85% of School Days Among 12 to 15 Yr.	-0.02	0.56	1348	0.95	0.96	-0.01	0.76	649	-0.03	0.53	699
Attended 85% of School Days Among 16 to 17 Yr.	-0.06	0.14	576	0.96	1.01	0	0.93	284	-0.09	0.02	292
Enrollment in Elementary Among 6 to 11 Yr.	0.01	0.69	2132	0.95	0.94	-0.01	0.83	1005	0.01	0.85	1127
Enrollment in High School Among 12 to 15 Yr.	0.05	0.25	1836	0.84	0.79	0.11	0.04	876	0	0.88	960
Enrollment in Senior High School Among 16 to 17 Yr.	0.06	0.5	686	0.52	0.47	0.11	0.41	328	-0.03	0.76	358
Child Dropped Out of School Aged 6_11	0	0.9	2012	0.00	0.01	0.01	0.08	952	-0.01	0.39	1060
Child Dropped Out of School Aged 12_15	-0.02	0.3	1722	0.02	0.04	-0.01	0.4	827	-0.03	0.37	895
Child Dropped Out of School Aged 16_17	-0.03	0.46	584	0.06	0.10	-0.14	0.16	287	0.02	0.75	297
Child Dropped Out of School Aged 16_18	-0.04	0.43	1025	0.05	0.09	-0.16	0.11	502	0.04	0.47	523

Child Dropped Out of School Aged 12_17	-0.02	0.36	2243	0.03	0.05	-0.04	0.03	1086	0.01	0.79	1157
Child Dropped Out of School Aged 6_14	-0.01	0.19	3346	0.01	0.02	0.01	0.14	1607	-0.02	0.11	1739
Child Dropped Out of School Aged 15_20	-0.01	0.89	1475	0.07	0.07	-0.04	0.39	717	0.03	0.41	758
Participation in Any Extracurricular Activity in School	0.07	0.01	4539	0.52	0.45	0.05	0.25	2196	0.09	0.03	2343
Count of Extracurricular Activities Participated in School	0.04	0.58	5178	1.17	1.13	-0.02	0.9	2495	0.08	0.41	2683

Note: Control means are predicted means for the treated population in the absence of treatment. Local polynomial estimation may lead to inconsistencies between pooled and subgroup results.
Source: ADB estimates.

Table 5: Child Results Disaggregated by Monitoring Eligibility

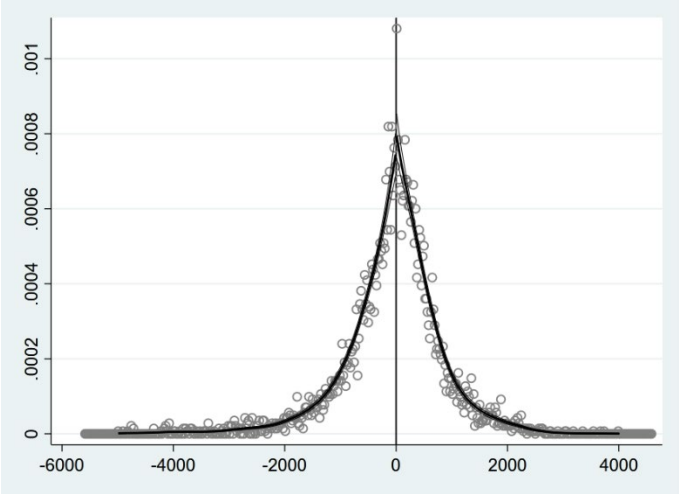
	RDD: Pooled Fuzzy RDD					IVREG: Monitoring eligible vs non 4P			IVREG: Monitoring ineligible vs non 4P		
Outcome:	Coefficient	p-value	N	Treatment Group Mean	Control Group Mean	Coefficient	p-value	N	Coefficient	p-value	N
Socioemotional skills											
Grit: Ask for Help When Lesson Is Difficult.	0.04	0.06	4661	0.90	0.86	0.04	0.13	3951	0.06	0.24	2307
Grit: Strive to Get Higher Grades.	0.04	0.11	4738	0.92	0.88	0.04	0.46	4041	0.03	0.63	2657
Grit: Finish School Work Before Playing	0.07	0.01	4492	0.76	0.69	0.07	0.11	3941	0.14	0.19	2164
Grit: Finish School Work Despite Lack of Time	0.03	0.12	4618	0.85	0.82	0.05	0.5	3897	-0.06	0.35	2449
Grit Index	0.14	0.01	4881	3.42	3.28	0.18	0.24	3954	0.13	0.65	2484
Parental Expectations											
Child Will Finish Elementary School?	0.03	0.01	2557	0.98	0.95	0.05	0.04	2158	-0.01	0.69	1985
Child Will Finish High School?	0	0.91	4483	0.97	0.97	0.04	0.02	3538	-0.06	0.02	2513
Child Will Finish College?	0.02	0.46	3386	0.92	0.90	0.06	0.06	2487	-0.04	0.43	2056
Child Will Grow Up Healthy?	0.01	0.05	4662	0.99	0.98	0.01	0.13	4729	0	1	3538

Child Will Have Decent Employment?	-0.01	0.11	3586	0.98	0.99	0	0.45	3995	-0.02	0.25	2119
Child Will Have Better Future?	0.01	0.73	6009	0.90	0.88	0.02	0.78	5206	0.01	0.73	3951
Nutrition and Health											
Stunting	0.14	0.01	962	0.39	0.25	0.12	0.45	840	0.15	0.07	610
Severe Stunting	0.07	0.04	1171	0.14	0.07	0.09	0.21	1020	0.05	0.53	751
Underweight	0.05	0.35	1090	0.22	0.17	0.05	0.26	950	0.04	0.75	692
Severe Underweight	0	0.94	1004	0.05	0.05	-0.01	0.84	877	0.03	0.49	638
Wasting	0.03	0.48	1199	0.12	0.09	0.02	0.57	1036	-0.01	0.99	763
Severe Wasting	0	0.91	1138	0.02	0.02	0.01	0.65	987	-0.03	0.11	724
Length for Age Z-Scores	-0.48	0.02	1262	-1.45	-0.97	-0.43	0.14	1096	-0.66	0.06	807
Weight for Age Z-Scores	-0.31	0.13	1155	-1.00	-0.69	-0.29	0.46	1007	-0.56	0.08	735
Weight for Length Z-Scores	-0.27	0.28	1287	-0.52	-0.25	-0.27	0.16	1113	-0.13	0.76	819
Incidence of Diarrhea During Past Month	0.02	0.36	1642	0.10	0.08	0.04	0.4	1437	0.01	0.61	1021
Incidence of Illness With Cough Or Fever	-0.07	0.25	1754	0.43	0.50	-0.07	0.84	1531	-0.04	0.39	1097
Incidence of Any Vaccine Preventable Disease	0.06	0.1	1724	0.13	0.07	0.04	0.21	1503	0.14	0.33	1072
Education											
Enrollment Among 16 to 17 Years Old	0.19	0.04	773	0.88	0.70	0.17	0	654	0	0.92	371
Enrollment Among 16 to 18 Years Old	0.09	0.19	1255	0.83	0.74	0.2	0	1025	-0.04	0.53	814
Enrollment Among 6 to 11 Years Old	0.01	0.4	2129	0.99	0.98	0.01	0.05	1872	-0.02	0.47	1676
Enrollment Among 12 to 15 Years Old	0	0.84	1443	0.95	0.95	0.05	0.16	1564	-0.3	0.01	739
Enrollment Among 12 to 17 Years Old	0.05	0.12	1960	0.92	0.87	0.09	0	2536	-0.14	0.07	1315
Enrollment Among 6 to 14 Years Old	0.01	0.36	3213	0.98	0.97	0.03	0.05	3498	-0.04	0.5	1968
Enrollment Among 15 to 20 Years Old	-0.01	0.8	2359	0.76	0.78	0.12	0.03	1706	-0.1	0.1	1258
Attended 85% of School Days Among 6 to 11 yr.	0.02	0.31	2400	0.94	0.92	0.03	0.42	2187	-0.04	0.21	1580

Attended 85% of School Days Among 12 to 15 yr.	-0.02	0.56	1348	0.95	0.96	-0.03	0.44	1294	0.13	0	666
Attended 85% of School Days Among 16 to 17 yr.	-0.06	0.14	576	0.96	1.01	-0.02	0.96	515	-0.24	0.02	310
Enrollment in Elementary Among 6 to 11 yr.	0.01	0.69	2132	0.95	0.94	0.02	0.17	1848	-0.04	0.46	1467
Enrollment in High School Among 12 to 15 yr.	0.05	0.25	1836	0.84	0.79	0.12	0.02	1826	-0.18	0.05	1356
Enrollment in Senior High School Among 16 to 17 yr.	0.06	0.5	686	0.52	0.47	0.18	0	567	-0.01	0.66	369
Child Dropped Out of School Aged 6_11	0	0.9	2012	0.00	0.01	-0.01	0.25	1836	0.02	0.7	1321
Child Dropped Out of School Aged 12_15	-0.02	0.3	1722	0.02	0.04	-0.03	0.2	1728	0.1	0.42	860
Child Dropped Out of School Aged 16_17	-0.03	0.46	584	0.06	0.10	-0.07	0.52	581	-0.01	0.74	315
Child Dropped Out of School Aged 16_18	-0.04	0.43	1025	0.05	0.09	-0.06	0.12	887	-0.03	0.57	486
Child Dropped Out of School Aged 12_17	-0.02	0.36	2243	0.03	0.05	-0.03	0.15	1957	0.1	0.39	902
Child Dropped Out of School Aged 6_14	-0.01	0.19	3346	0.01	0.02	-0.02	0.1	3018	0.03	0.73	1746
Child Dropped Out of School Aged 15_20	-0.01	0.89	1475	0.07	0.07	-0.04	0.2	1328	0.04	0.7	745
Participation in Any Extracurricular Activity in School	0.07	0.01	4539	0.52	0.45	0.1	0.03	4027	0	0.86	2318
# Extracurricular Activities Participated in School	0.04	0.58	5178	1.17	1.13	0.14	0.57	3975	-0.17	0.69	2104

Note: Control means are predicted means for the treated population in the absence of treatment. Local polynomial estimation may lead to inconsistencies between pooled and subgroup results.
Source: ADB estimates.

APPENDIX 1: MCCRARY TEST FOR SORTING AT THE PROGRAM ELIGIBILITY THRESHOLD



Source: ADB estimates