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Reassessing the Impact of the *Pantawid Pamilyang Pilipino* Program: Results of the Third Wave Impact Evaluation

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Kris Ann M. Melad
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Please address all inquiries to:

Philippine Institute for Development Studies
18th Floor, Three Cyberpod Centris - North Tower
EDSA corner Quezon Avenue, 1100 Quezon City
Telephone: (63-2) 8877-4000
Fax: (63-2) 8877-4099
E-mail: publications@pids.gov.ph
Website: https://www.pids.gov.ph

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Editorial and production team:
Sheila V. Siar, Gizelle G. Manuel, Wenilyn M. Asuncion, and Maryam P. Tubio

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List of Acronyms

ADB	Asian Development Bank
ATM	automated teller machine
BHS	barangay health stations
CER	coverage error rate
CCT	conditional cash transfer
DOH	Department of Health
DSWD	Department of Social Welfare and Development
FBD	facility-based delivery
FDS	Family Development Sessions
FP	family planning
HiB	*Haemophilus influenzae*
IE Wave 1	first wave impact evaluation
IE Wave 2	second wave impact evaluation
IE Wave 3	third wave impact evaluation
ITT	intent to treat
KAP	knowledge, attitude, and practices
LBP	Land Bank of the Philippines
LGU	local government unit
MSE	mean square error
NAC	National Advisory Committee
NDHS	National Demographic Health Survey
OTC	over the counter
PMT	proxy means test
PhilHealth	Philippine Health Insurance Corporation
PHP	Philippine peso
RCT	randomized control trial
RDD	regression discontinuity design
RHU	rural health unit
SBA	skilled birth attendance

SLP	Sustainable Livelihood Program
SSS	Social Security System
TOC	theory of change
TOT	treatment on the treated
VAW	violence against women
VPD	vaccine-preventable diseases
WHO	World Health Organization
WRA	women of reproductive age

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Abstract

The *Pantawid Pamilyang Pilipino* Program is the government's primary social protection strategy to break intergenerational poverty by supporting poor households and investing in children's health and education. Previous impact evaluations demonstrated the program's success in keeping children healthy and in school. This third impact evaluation seeks to reevaluate the program's impact on short-term and intermediate outcomes related to health, education, household welfare, and other sociobehavioral domains. The evaluation employs regression discontinuity design to compare the program's impact on treatment households (Pantawid beneficiaries) and comparison households (non-Pantawid beneficiaries) within specific bandwidths of distance from the poverty threshold that determines program eligibility. Results indicate that the program still positively impacts most of the target education and health outcomes of children and pregnant women. In addition, the program positively impacts household welfare, community participation, awareness of basic means to mitigate vulnerabilities, and children's grit or determination. However, some results are inconsistent with previous evaluations, such as the negative impact on some nutrition outcomes, maternal healthcare service usage variations, and an insignificant reduction in child labor incidence. The study recommends improving program monitoring, strengthening enforcement of health conditions, and further researching the factors driving some of the unexpected results. It also suggests adjusting program policies or incentives, particularly in terms of reevaluating the cash grant value and using the program's positive impacts on the behavior of children and adults as a model for other interventions.

Background

The *Pantawid Pamilyang Pilipino* Program is a conditional cash transfer (CCT) program aimed at stopping intergenerational poverty through investment in children's human capital. It is modeled after the CCTs in Latin America, particularly Brazil and Mexico, which pioneered such programs in the late 1990s. CCTs are widely used as a social safety net and social protection program across many developing countries.

The Department of Social Welfare and Development (DSWD) launched the Pantawid Pamilya in 2008, registering approximately 300,000 household beneficiaries in its first year. The program currently covers more than 4 million poor households from almost all municipalities[1] and provinces nationwide. As its coverage increased, so did its budget allocation from PHP 50 million in 2008 to PHP 78 billion in 2017. The latter amount constituted 61 percent of DSWD's budget and 0.5 percent of the country's gross domestic product (GDP) in 2017. Covering approximately 60 percent of the poorest quintile of households in the country (World Bank 2018), the program can be considered the core pillar of the government's social protection strategy.

Rigorous evaluations found that CCTs, on average, have positive impacts on smoothing the consumption of beneficiaries, increasing human capital investment, and alleviating poverty (Fiszbein et al. 2009). Most evidence showed that CCTs result in increased school enrollment and healthcare service utilization, while several studies indicated longer-term impacts (Gertler et al. 2012).

The Pantawid Pamilya has undergone the same rigorous evaluations as other CCTs as part of its monitoring and evaluation system. The first round of impact evaluation was conducted in 2011, and a second study was done in 2013. Findings from both rounds of evaluations showed that the program has successfully achieved its primary objective of keeping children in school and healthy through increased utilization of maternal and child healthcare services. However, the two evaluations showed mixed results for some outcomes and observed no program impact on crucial indicators such as total household consumption and infant immunization. In the 10th year of program implementation, another impact evaluation was conducted to reassess the program's impact on short-term and intermediate outcomes and confirm the mixed results of the previous studies. The evaluation also attempted to assess the impact of the Pantawid Pamilya after undergoing design changes since the first and second studies.

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[1] Since 2015, the program has covered all municipalities except those in Batanes and the Kalayaan Group of Islands in Palawan.

This report presents the findings of the main study of the third wave impact evaluation (IE Wave 3) of Pantawid Pamilya, which used regression discontinuity design (RDD). A sub-study was also done on the impact of time-critical inputs to education and health using data from a cohort of beneficiaries from the original randomized control trial (RCT) of the first wave impact evaluation (IE Wave 1). A separate report (Orbeta et al. 2021) discussed the latter, but some findings are mentioned here to supplement the discussion.

The content of this report is divided into eight sections. The succeeding discussions in this section provide a background of the previous program evaluations and identify the specific objectives and research questions the current evaluation is trying to address. Section 2 is an overview of the program design, including its conditions, targeting, and eligibility criteria for beneficiaries, as well as accounts of recent program changes since the most recent impact evaluation in 2014. Section 3 presents the program theory of change and hypotheses of interest. Section 4 discusses the methodology, data sources, and identification strategy, while Sections 5 and 6 present and discuss the evaluation results. Finally, Section 7 and Section 8 provide conclusions and actionable policy recommendations.

Previous impact evaluation studies

Prior to this evaluation, two rounds of rigorous evaluation studies were conducted (DSWD and World Bank 2014; DSWD 2014a). The IE Wave 1 was conducted in 2011 by the DSWD with the help of Australia's Department of Foreign Affairs and Trade, the World Bank, and the Asian Development Bank (ADB). The data collection was completed in the last quarter of 2011, and the report became available in 2012.

The IE Wave 1 used an RCT design, as the program was just starting then, and its coverage was not extensive yet. The study covered a sample of 3,742 households from 4 provinces and 8 municipalities spanning the three major island clusters in the Philippines (i.e., Luzon, the Visayas, and Mindanao). Of the sample, the main RCT analysis included 1,418 poor households from barangays randomly assigned as control and treatment areas. The rest of the sample households were used to measure the unexpected effects of the program (i.e., spillover effects) on the nontarget population living in program areas.

A phased-in RCT evaluation design was used for the main analysis, where the treatment areas were exposed to the program for 2.5 years, while the control areas were not exposed to program benefits. The latter serves as a source of counterfactual information to indicate what would have happened without CCT implementation. Program impact was then estimated by comparing outcomes between eligible households in the treatment areas with comparable households in the control areas.

The result of the RCT analysis showed that the Pantawid Pamilya is reaching most of its key objectives of improved education and health outcomes. Some of the key findings are:

- The program helps keep children in school. Results showed increased school enrollment among younger children ages 3–11 years and increased school attendance among children ages 6–17 years.
- The program helps keep poor children healthy. Results showed severe stunting was reduced by 10 percentage points, indicating children's improved long-term nutritional status. The program also encouraged poor mothers to avail of maternal healthcare services and poor children to take vitamin A, deworming pills, and regular weight monitoring.
- The program encourages beneficiary households to invest in their children's health and education. Results showed that beneficiaries spend more on health and education and less on vice goods compared to non-beneficiaries.
- The program does not affect decisions to work and fertility rates. Results did not find evidence that adults in beneficiary households worked less or made less effort to find work. Neither did it find evidence that beneficiary households are having more children than non-beneficiaries.

The second wave impact evaluation (IE Wave 2) was conducted in 2013 using RDD. At this point, the program covers almost all areas in the country, making it difficult to find representative areas not yet exposed to CCT to conduct an experimental study. Using RDD resolved this challenge because it uses ineligible households near the cutoff (i.e., poverty threshold) as the comparison group.

The survey covered 5,041 households that are just below (poor and eligible) and just above (near-poor and not eligible) the poverty threshold. These households are from 30 randomly selected municipalities (10 per island group), covering 26 provinces. The sample of CCT beneficiaries came from those who registered in 2008–2011 and were exposed to the program at least 2 years before the data collection.

The results showed that the Pantawid Pamilya is still on track in keeping children healthy and in school after five years of implementation. Some of the key findings are:

- The program keeps older children in school. Gross enrollment among high school children ages 12–15 was higher for beneficiary children.
- The program increases households' investment in education. Pantawid households spent PHP 206 more per school-aged child per year compared to non-beneficiary households.
- The program improves children's access to some key healthcare services. Take-up of vitamin A, iron supplements, deworming pills, and weight monitoring services was higher among beneficiary children.
- The program promotes facility-based services and access to professional postnatal care. More Pantawid mothers delivered in health facilities and availed of postnatal care services by skilled health professionals.
- The program contributes to reducing hours of child labor among poor children. Pantawid children (ages 10–14) worked seven days less in a month compared to non-beneficiary children.

In summary, findings from IE Wave 1 and IE Wave 2 showed that Pantawid Pamilya has successfully achieved its short-term objectives of increasing school enrollment, school attendance, and access to key maternal and child healthcare services. However, some findings and observations need to be investigated more closely, such as the lack of impact on mean per capita consumption and childhood immunization coverage and the persistent incidence of child labor among beneficiary households.

Research questions and objectives

The study aims to reassess the program's impact on short-term and intermediate outcomes after almost 10 years of implementation. Specifically, the evaluation aims to confirm or reexamine the program's impact on the following domains:

a. Health – utilization of reproductive, maternal, and child health services
b. Education – improved school participation of children, improved education outcomes, and reduced incidence and time spent on child labor
c. Household welfare – income, expenditure, labor participation, access to government services and benefits, participation in community activities
d. Other sociobehavioral outcomes – locus of control, grit, Family Development Sessions (FDS) outcomes

In view of these objectives, the IE Wave 3 aims to address the following research questions:

- Does the program increase awareness and utilization of responsible parenthood interventions?
- Does the program increase the utilization of maternal healthcare services?
- Does the program increase the utilization of healthcare services for children?
- Does the program improve the childcare practices of parents?
- Does the program improve the nutrition and health outcomes of children?
- Does the program increase the school participation of children?
- Does participation in the program result in improved education outcomes of children?
- Does the program reduce the incidence and time spent on child labor?
- Does the program promote higher investments in education?
- Does the program increase household consumption and income?
- Does the program encourage dependency?
- Does the program promote participation in community development activities?
- Does the program improve the outlook of beneficiaries on their current situation and the future of children?

About the Program

This section presents a detailed overview of the program design, including relevant design modifications not yet implemented in the impact evaluation survey in 2013.

Program overview

As with most CCTs, the Pantawid Pamilya pays grants to beneficiaries upon meeting conditionalities related to the education and health of children and pregnant women. In the Pantawid Pamilya, a third unique conditionality on family development was introduced and tied with the continuous provision of health grants.

The program aims to (1) improve young children's and mothers' health through increased utilization of preventive healthcare services and better health-seeking behavior, (2) improve children's school enrollment and attendance rates, and (3) promote family development and community participation.

Program conditions

The program provides cash grants to beneficiaries complying with (1) time-specific take-up of basic maternal and child health services, (2) enrollment and regular attendance in schools, and (3) regular attendance at family development sessions. The health conditions are required for children from birth up to 14 years old and pregnant women in the household, while the education conditions apply to children from 3 to 18 years old.

The health conditionalities for pregnant women are:

- Pregnant household member/s should visit a health facility at least once every two months to avail of pre- and postnatal care services. The pregnant woman should have at least one prenatal consultation for every trimester.
- Pregnant women should avail of basic/comprehensive emergency obstetrics and newborn care services or avail of delivery services from a skilled health professional.
- Avail of postnatal care services within six weeks after delivery of the child

The health conditionalities for children are:

- Children below 2 years old should be completely immunized according to the vaccination schedule of the Department of Health (DOH).
- Children ages 2–5 years should visit health centers once every two months for regular weight monitoring.
- Children ages 6–14 years must receive deworming pills at least twice per year.

The education conditionalities are:

- Children ages 3–5 years should enroll in day care or kindergarten and attend at least 85 percent of the school days in a month.
- Children ages 6–18 years should enroll in elementary or high school and attend at least 85 percent of the school days a month.

Family Development Session (FDS)

The third conditionality requires Pantawid beneficiaries to attend monthly FDS seminars for parents that promote and teach key messages on family development and participation in community development affairs. The FDS aims to capacitate beneficiaries to perform their roles in the human capital development of children and participate as active community members. It also serves as a venue to remind beneficiaries to comply with program conditions and encourage peer support among beneficiaries (DSWD 2015).

FDS discussions are based on "*Gabay sa Pagpapaunlad ng Pamilyang Pilipino*", an instruction manual developed by the DSWD. Upon registration to the program, a household should participate in nine sessions discussing the program objectives, expected outcomes, and beneficiaries' roles in achieving these outcomes. The succeeding sessions cover topics related to family development, ranging from "preparation for family life" to ways of "strengthening the family". These topics include husband-wife relations, parent-child relationships, responsible parenthood and family planning, maternal health, infant and childcare, child development, child rights, family resource management, and protection of children against abuse. The remaining topics focus on community development, such as roles in community development, active citizenship, and disaster preparedness.

Aside from the topics in the main FDS manual, several supplementary modules have been developed to include discussions on child labor; prevention of child sexual abuse; water, sanitation, and hygiene; food and nutrition; and indigenous peoples. The complete list of available supplemental modules and other modules in development are in Appendix 1.

The FDS is primarily conducted by municipal-level staff of the DSWD and other resource persons, depending on the scheduled topic. For instance, topics on health are delivered by key personnel from health facilities in the community (e.g., doctors, midwives) and/or representatives from other government agencies,[2] civil society organizations, and nongovernment organizations with health-related advocacies. Likewise, disaster preparedness and management topics are delivered by resource speakers from the local government or organizations with knowledge of the subject matter.

The FDS is delivered partially as a needs-based intervention. Aside from the program orientation module in the main FDS manual, the topics depend on what is necessary for the beneficiaries based on consultations with local stakeholders (e.g., local government, local offices of line agencies) and monitoring data. For example, beneficiaries in a community with a high number of reported cases of abuse receive more sessions and campaigns on abuse prevention and related social issues. Sometimes, FDS topics can also be thematic and seasonal, such as fire prevention in March, dengue prevention during the rainy season, and emerging diseases during outbreaks.

The household grantee (i.e., the adult member authorized to withdraw or receive the grants and usually the mother of the children beneficiaries) is expected to attend the FDS. In select sessions, both parents are required to attend.[3] By attending the FDS, the beneficiaries are expected to have an increased appreciation for human capital investments in education and health. Moreover, the FDS is expected to increase their knowledge and improve their practices in caring for children, performing familial roles, and participating in community development activities.

[2] Based on National Advisory Committee (NAC) Resolution 28 (s. 2015)

[3] Based on NAC Resolution 23 (s. 2014)

Targeting and eligibility

To be eligible for the program, households must be identified as poor by the *Listahanan*,[4] have a pregnant member or at least one child ages 0–18 years[5] at the time of assessment, and be willing to commit to comply with the program conditionalities.

During the program's early years of implementation, the DSWD employed a two-stage targeting system that begins with selecting areas based on poverty incidence estimates. Due to limited resources, the program prioritized registering eligible beneficiaries in areas with high poverty incidence. Starting in 2010, however, subsequent expansions of the program no longer used geographic targeting in actual implementation and relied on the direct household targeting of the Listahanan.

The Listahanan identifies beneficiaries by applying a proxy means test (PMT) methodology[6] to predict the income of households using characteristics generated from a household assessment survey. These characteristics include household composition, education, housing conditions, assets, tenure status, access to basic services, and regional control variables. Predicted incomes are then compared with official poverty thresholds at the provincial level to determine poor (below threshold) or nonpoor (equal or above threshold) households.

Transfer package and payment system

At the time of evaluation, the program provides three types of cash grants to beneficiary households. These are:

- ***Education grant.*** This is provided to every child who complies with the education conditions of the program. Children enrolled in daycare/kindergarten or elementary receive PHP 300 per month, while children enrolled in high school receive PHP 500 per month for 10 months. The program limits the grant to three child beneficiaries per household, who are monitored for their school attendance. A household with three children in high school can receive a maximum of PHP 15,000 annually,

[4] Formerly known as the National Household Targeting System for Poverty Reduction Program

[5] The program used to cover only children ages 0 to 14 years. The eligible age was expanded to include children ages 15 to 18 years in 2014 through NAC Resolution 18.

[6] Proxy variables were selected using data from the Philippine Statistic Authority's Family Income and Expenditure Survey and Labor Force Survey, which are also available in the Listahanan.

while a household with three children in elementary can receive up to PHP 9,000 annually.

- ***Health grant.*** This amounts to PHP 500 monthly per household and is only given to beneficiaries who comply with all health conditions and attend the monthly FDS. A household can receive up to PHP 6,000 annually if all health and FDS conditions are satisfied.
- ***Rice subsidy.*** PHP 600 is given monthly to households that comply with either the education or health-FDS conditions. The maximum amount per year is PHP 7,200. This grant was not originally part of the program benefits and was only added in 2017 to improve the beneficiaries' food security situation.

Given the list of benefits, a fully compliant household can receive up to PHP 28,200 annually if three monitored children are enrolled in high school. Meanwhile, a household can receive up to PHP 22,200 annually if three monitored children are enrolled in preschool or elementary.

Upon registration to the program, a beneficiary household receives unconditional, noncompliance-based cash grants based on the composition and number of eligible household members. However, the succeeding grants are computed based on the household's compliance with the program conditions. From the start of the program until 2011, cash grants were paid to beneficiaries quarterly; in the succeeding years up to the present, cash grants are paid every two months.

Cash grants are delivered to beneficiaries through two modes of payment: (1) bank cash cards, where the grants are withdrawn via automated teller machines (ATM), and (2) over-the-counter (OTC) transactions, where the grants are provided directly to beneficiaries in cash. The Land Bank of the Philippines (LBP) manages the payment delivery system as the program's authorized government depository bank. In areas with available ATMs, beneficiaries are enrolled in LBP cash card accounts, and their cash grants are transferred to their cards/accounts during payout schedules. Meanwhile, in areas with difficult or zero access to banks or ATMs (usually rural areas), the LBP hires payment conduits such as rural banks and cooperatives to pay the beneficiaries via OTC. In this mode of payment, beneficiaries are assembled in a payout venue where the conduits give out the cash grants. In 2017, 44 percent of the total cash grant was delivered through cash cards, while the remaining proportion (56%) was delivered through OTC payments (DSWD 2018c).

Program implementation

Beneficiaries' compliance with the program conditions is monitored through a process done jointly by the DSWD, the DOH through the help of local government units (LGUs), and the Department of Education (DepEd). The process is done every two months, starting with generating the list of monitored household members for each type of condition. The lists are printed in monitoring forms (i.e., compliance verification forms) and distributed to schools, health facilities, and DSWD staff in charge of reporting the compliance status of beneficiaries for the reference period. Either the school head or the assigned Pantawid Pamilya focal person reports beneficiaries' compliance with the education condition of at least 85 percent monthly attendance. Likewise, the health facility head and/or program focal person monitors and reports compliance with the health conditions. Meanwhile, the DSWD municipal staff monitors FDS attendance (Table 1). The compliance data is encoded and approved at DSWD regional offices and later consolidated at the program's central information management system at the national level. The compliance data are used as the basis for paying grants and identifying support interventions, such as counseling for noncompliant beneficiaries.

Table 1. Compliance verification frequency

	Monitored Member	Conditionality	Frequency	In Charge of Monitoring
Education	3–18 years old	85% attendance per month	Monthly	School head/ Pantawid Pamilya focal person
Health	Pregnant women	Prenatal care Postnatal care within 6 weeks after childbirth	Once every 2 months	Health facility head/ Pantawid Pamilya focal person
	0–2 years old	Avail of immunization	Monthly	
	2–5 years old	Weight monitoring and nutrition counseling	Once every 2 months	
	6–14 years old enrolled in elementary	Intake of deworming pills twice a year	Twice every year	
FDS	Grantee/parents	Attendance in FDS	Monthly	Pantawid Pamilya municipal staff

FDS = Family Development Sessions
Source: DSWD (2015)

The average compliance rates are high. Based on DSWD administrative data, the average compliance rate from 2010 to 2018 was 95 percent for health and education conditions. Compliance rates were generally above 90 percent for all health and education conditions except for deworming children ages 6 to 14 years, where a dip was observed starting in 2016 (Table 2). The high compliance rates suggest that the beneficiaries continuously utilize health services and send their children to school.

Table 2. Average compliance rates in *Pantawid Pamilya*, 2010–2018

Year	Education			Health (0 to 5 years old)	Deworming (6 to 14 years old)	Health (Pregnant)
	3 to 5	6 to 14	15 to 18[a]			
2010	93.8	95.5	NA	95.5	94.3	88.0
2011	93.3	94.7	NA	95.5	95.8	93.7
2012	94.1	96.5	NA	96.0	98.6	95.9
2013	93.6	96.8	NA	95.3	99.5	95.8
2014	94.3	97.0	91.0	95.8	99.5	97.3
2015	95.3	97.2	94.0	95.7	99.3	96.1
2016	94.9	96.5	93.0	96.0	82.8	96.5
2017	95.5	96.5	93.5	97.0	82.4	96.6
2018[b]	96.6	96.6	94.5	97.5	78.5	96.8
Average	94.6	96.4	93.2	96.1	92.3	95.2

[a] From 2008 to mid-2014, the program only covered children ages 3–14 years for education benefits.
[b] Data covers until November 2018.
NA = not applicable
Source of basic data: Compliance rates monitored for 2010–2019 by DSWD via personal communication with the authors on March 1, 2019.

The compliance verification process relies on a system that requires beneficiaries to submit forms updating basic household member information in the program administrative database. Without these updates, the compliance data of beneficiaries will not be collected completely and correctly, thereby affecting the payment of grants. The most crucial updates include information on the enrollment of the school-aged child, new births in the households, succeeding pregnancies, and transfer of residence, school, and health centers. Household beneficiaries should file an update when they change residence so program implementers are aware of their new address and can delegate

monitoring responsibilities to DSWD staff assigned in their new location, the head of the new school where the children transferred, and the head of the health facility to be visited by the household. Updates are triggered by the forms submitted by beneficiaries to the DSWD, which are later encoded and approved to be reflected in the program database.

Program modifications

Since its launch in 2008, the program has undergone several design modifications. These are summarized below as they are deemed relevant to the analysis.

Extension of age coverage

Initially, the program provides benefits for children 0–14 years old for five years. Following a key policy recommendation to expand age coverage, the DSWD extended the education grants to children up to 18 years old in 2014. The rationale is to support beneficiary children to at least finish high school, thereby increasing their chances of getting better-paying jobs and higher incomes. The education grant also increased from PHP 300 to PHP 500 for children enrolled in high school, considering the bigger expenses of high school education and higher opportunity costs for older children.

This major policy decision was based on the result of the first impact evaluation (DSWD and World Bank 2014) and analyses by Paqueo et al. 2013 and Reyes et al. 2013. These studies suggest that (1) the education gains from the program can be further sustained if children beneficiaries finish high school, (2) children with high school diplomas have better income opportunities as they could earn 40 percent more in wages compared to those who have only completed elementary (Reyes et al. 2013), and (3) extending the age coverage could also result to "much greater positive impact on the welfare of the poor" (Paqueo et al. 2013, p.6).

Change in exit policy

In addition to the coverage of older children (ages 15–18) and the differentiation of grants for elementary and high school, the DSWD lifted the five-year limit of program participation in 2015. In the revised exit policy, beneficiary households cease to receive program benefits when the last of their (three) children beneficiaries graduate from high school or reach 19 years old, whichever comes first.

Open selection of monitored children

In the first semester of 2015, parent beneficiaries were allowed to reselect children within the household who will be monitored under the education conditionality in an "open selection" activity. Before the open selection, a computer-automated system selects up to three monitored children within the household by prioritizing those in the 6–14-year-old age group, then picking the eldest from the 3–5-year-old age group if the maximum number has not yet been reached.

The DSWD implemented the open selection after observing that some households have less than three children being monitored in the program (DSWD 2014b). The activity served as a massive updating effort to correct the beneficiaries' information, especially those pertaining to the schooling information of children. The activity was conducted following the introduction of the expanded age coverage in 2014.

Rice subsidy

Starting in January 2017, the program added a third type of cash grant with the provision of a rice subsidy, which aims to increase beneficiaries' food consumption. The households can receive the rice subsidy if they comply with either the education or health and FDS conditionalities.

Analytical Framework

Program theory of change (TOC)

The Pantawid Pamilya aims to break the intergenerational cycle of poverty[7] by encouraging poor households to invest in the education and health of their children so they can have a better chance of higher productivity and income. The program recognizes that poor households are trapped in a poverty cycle. Children from low-income families generally have lower educational attainment and poor health conditions due to their

[7] Levy (2018) noted that although CCTs generate improvements in health, education, and other socioeconomic outcomes, these are not sufficient to address intergenerational poverty. This is due to the effect of socioeconomic environment factors, including labor or entrepreneur-worker relations, taxation, and market conditions—termed by Levy as *E (L, T, M)*—which hinder poor workers from obtaining better and more stable jobs. Given this, Levy stated that rather than relying primarily on CCTs and their complementary programs to serve as the primary poverty alleviation strategy of the government, there should also be a shift in policy focus toward addressing stagnant growth and productivity to raise worker welfare and break intergenerational poverty.

families' limited resources, limited access to economic opportunities, and limited access to basic education and health services. Moreover, human capital investments are too far removed compared to their immediate needs for survival. Thus, these children grow into adults with limited education and skills and poor health conditions. They are less likely to be engaged in productive jobs and will likely start their own families earlier than usual, with the same poor living conditions and limited access to resources and opportunities to escape poverty.

The Pantawid Pamilya aims to break the poverty cycle through four pathways: (1) income augmentation through cash grants, (2) education, (3) health, and (4) FDS or social pathway. There is no clear distinction among the pathways on how they contribute to human capital development. It should also be recognized that outcomes are usually not derived from a single pathway alone. Nevertheless, Figure 1 and Appendix 2 present the program theory and expected short-, medium-, and long-term outcomes through different pathways.

The provision of cash grants augments poor households' income and is expected to smoothen consumption (e.g., food and other basic needs), lower the incidence of income poverty and hunger in the short term, lessen the effects of economic shocks, and contribute to higher savings and improved investment behavior in the long term.

The education and health conditionalities, supported with grant incentives, aim to encourage poor households to keep their children in school and invest in the education and health of children and pregnant women. By providing the education grant and requiring children to enroll in and attend school at least 85 percent of the time, education outcomes are expected to improve. Short-term outcomes include higher school enrollment and attendance rates, while medium-term outcomes relate to better school performance, such as increased promotion, completion, and transition rates and reduced repetition and dropout rates. The long-term outcome is for children beneficiaries to finish high school or attain higher education levels. Better education outcomes can contribute to the productivity of these children when they enter the labor force as adults.

As for health outcomes, the program expects to increase the utilization of preventive health care and improve the overall health-seeking behavior of beneficiaries. Short-term outcomes include increased immunization, regular growth monitoring, and preventive healthcare

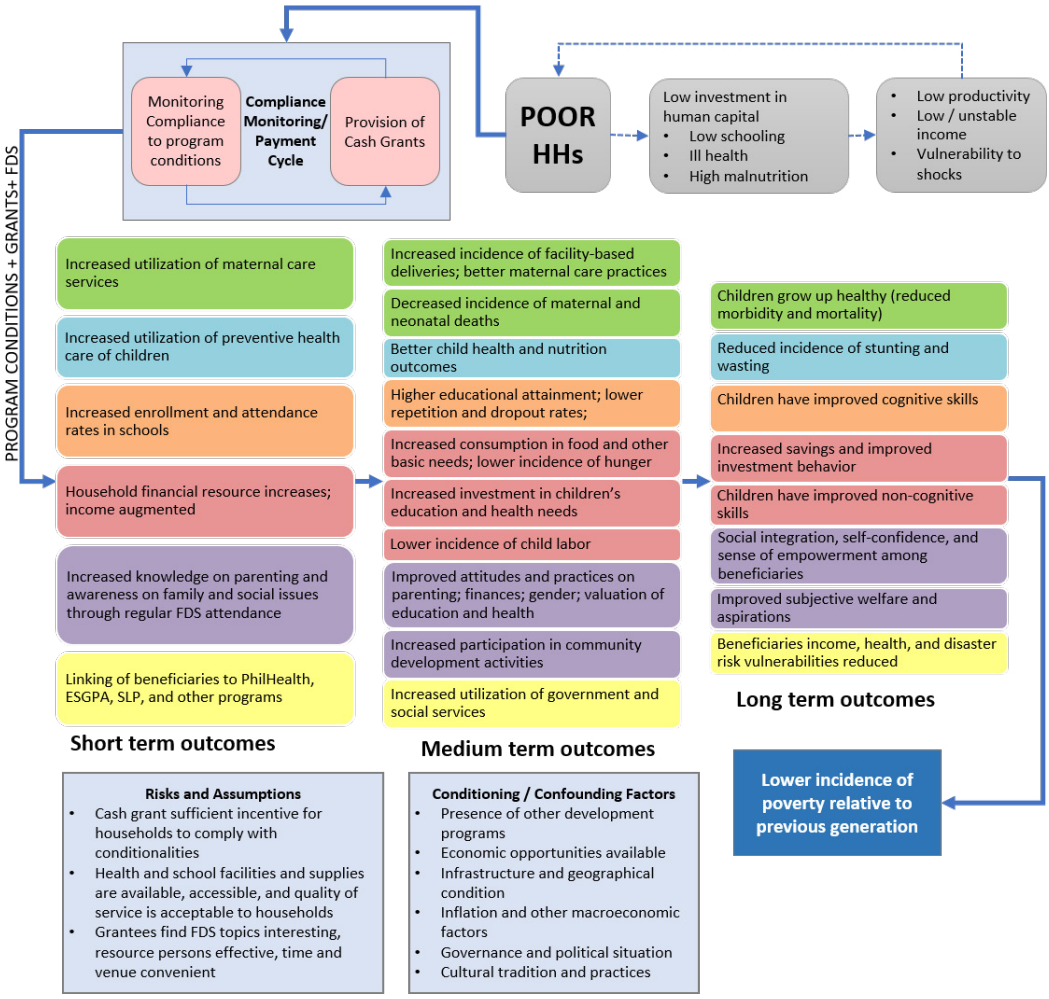
visits of children. Increased household food consumption and regular growth monitoring are expected to result in better nutrition outcomes for children in the medium term. In addition, an increased immunization rate is expected to decrease the incidence of vaccine-preventable diseases (VPDs) among children in the medium term and reduce children's mortality in the long term. The program also expects improved children's cognitive skills, as proper child health and nutrition, especially among children under five years old, are associated with better cognitive development (Nyaradi et al. 2013). In terms of maternal health, the program expects to increase utilization of maternal healthcare services (e.g., prenatal and postnatal care, facility-based delivery [FBD], skilled birth attendance [SBA]) and consequently reduce pregnancy complications and neonatal and maternal mortalities in the long term.

The fourth pathway is social and behavioral intervention. Through the FDS, beneficiaries are expected to have increased knowledge on better parenting and awareness of family and social issues; improved parenting attitudes and practices on child rearing, finances, gender, and marital relations; and increased valuation of education and health. In the medium term, beneficiaries are expected to actively engage in community development affairs and demand other/better services. The long-term outcome is for beneficiaries to experience improved subjective welfare and aspirations and social integration.

Ultimately, the beneficiaries are expected to accumulate human capital that will enable them to have higher productivity and better access to opportunities to improve their income and welfare. Through these outcomes, the program aims to lower the incidence of future poverty among program beneficiaries.

However, achieving the program outcomes relies on several assumptions: (1) the grant amount is enough to incentivize households to comply with program conditions and invest in their children's human capital; (2) the supply conditions help realize this goal (i.e., health and school facilities are available and accessible and service quality is acceptable); (3) the grantees find FDS topics interesting, resource persons effective, and time and venue convenient that they can absorb the information provided to them; and (4) the program banks on favorable macroeconomic conditions, infrastructures, and institutions to provide better employment and entrepreneurial opportunities. The nonfulfillment of these assumptions could hinder program outcomes.

Figure 1. *Pantawid Pamilya* program theory



HH = household; FDS = Family Development Sessions; TOC = theory of change; PhilHealth = Philippine Health Insurance Corporation; ESGPA = Expanded Student's Grants-in-Aid Program for Poverty Alleviation; SLP = Sustainable Livelihood Program

Source: Adapted from the program TOC prepared by the 4Ps Impact Evaluation Technical Working Group (18 August 2017)

Although the TOC presents all expected outcomes, including those expected in the long term or after a generation, the analysis will focus only on select short- and medium-term outcomes.

Hypotheses

The IE Wave 3 analysis focuses on hypotheses on health, education, household welfare and access to government services, and other behavioral outcomes. These hypotheses address the short-, medium- and long-term outcomes shown in the program TOC. These hypotheses are presented in groups following the order of child development from womb to school.

Maternal Health

- ***Hypothesis 1: The Pantawid Pamilya promotes higher awareness and utilization of responsible parenthood interventions.*** The first hypothesis tests whether the Pantawid Pamilya increases awareness of responsible parenthood information and services. Because of the increased utilization of maternal health services, beneficiaries are expected to have better access to responsible parenthood services and commodities.
- ***Hypothesis 2: The Pantawid Pamilya promotes the utilization of maternal healthcare services.*** Because of the program conditionalities for pregnant women and promotion of better maternal health practices through the FDS, beneficiaries are more likely to avail of pre- and postnatal services, deliver in health facilities, and seek assistance from skilled health professionals.
- ***Hypothesis 3: Pantawid Pamilya mothers experience fewer problems during pregnancy and delivery.*** Provided that Pantawid Pamilya pregnant women have accessed prenatal care and have better knowledge, attitude, and practices (KAP) on maternal health, pregnancy, and delivery health problems are expected to be lower among pregnant women from beneficiary households.

Child health

- ***Hypothesis 4: The Pantawid Pamilya increases the utilization of healthcare services by children.*** Because of the program conditionalities and promotion of better childcare practices through the FDS, beneficiary children are expected to have higher utilization of healthcare

services, such as preventive health care, growth and weight monitoring, immunization, deworming, and micronutrient supplementation.

- ***Hypothesis 5: Pantawid Pamilya participation improves the childcare practices of parents.*** Through the FDS and increased knowledge on childcare gained from consultations in health facilities, parents are expected to have enhanced childcare practices. This hypothesis covers time spent on childcare, food hygiene, feeding practices, child discipline, and awareness of children's rights.
- ***Hypothesis 6: Pantawid Pamilya children have better nutrition and health outcomes.*** The program is expected to improve children's nutritional outcomes due to increased food consumption, better childcare and food hygiene practices, regular growth monitoring, and deworming. Likewise, the incidence of common illnesses and VPDs is expected to be lower among beneficiary children than their counterparts due to higher immunization rates, better childcare practices, growth monitoring, regular preventive healthcare visits, and improved nutrition.

Education and child labor

- ***Hypothesis 7: The Pantawid Pamilya increases the school participation of children.*** Because it is one of the direct program conditionalities, school enrollment and attendance rates are expected to be higher among beneficiary children. The program is expected to raise enrollment rates in preschool, which are typically low, and among high school-aged children, who are most prone to drop out of school.
- ***Hypothesis 8: The Pantawid Pamilya results in improved education outcomes of children.*** Testing this hypothesis determines whether the beneficiaries have better education outcomes than their counterparts because of higher valuation in education and increased school participation (increased enrollment and school attendance). In addition, this hypothesis will explore whether Pantawid Pamilya beneficiaries have lower drop-out rates and are enrolled in age-appropriate education levels.
- ***Hypothesis 9: The Pantawid Pamilya reduces the incidence and time spent on child labor.*** Children's higher school enrollment and attendance rates are expected to reduce the incidence of child labor, as children are more likely to spend time in school than engage in economic activities.

- ***Hypothesis 10: The Pantawid Pamilya promotes higher investments in education.*** This hypothesis tests if Pantawid Pamilya beneficiaries spend more on their children's education than non-Pantawid households. Through the conditionality and messages delivered in the FDS, the beneficiaries are expected to put more value in their children's education through higher school-related expenditures than non-beneficiaries.

Household consumption and income

- ***Hypothesis 11: The Pantawid Pamilya increases household consumption and income.*** Since the program provides additional income to the households, beneficiaries are expected to have higher consumption and income and lower hunger incidence than their counterparts.
- ***Hypothesis 12: The Pantawid Pamilya does not encourage dependency.*** Program beneficiaries are not expected to have a lower labor force participation rate and reduced time spent in work compared to non-beneficiaries.
- ***Hypothesis 13: The Pantawid Pamilya increases access to social services and utilization of government services and benefits.*** The program provides a platform for beneficiaries to access other social protection programs and information on available government services and benefits. Thus, beneficiaries are expected to have better access, and more would have availed of government services.

Other behavioral outcomes

- ***Hypothesis 14: The Pantawid Pamilya increases participation in community development activities.*** The FDS enables beneficiaries to become more aware of their civic rights and duties and more empowered as women or as representatives of marginalized groups. Thus, beneficiaries are expected to participate more in community development activities.
- ***Hypothesis 15: The Pantawid Pamilya promotes a better outlook on their children's current situation and future.*** Because of the improvement in households' welfare, beneficiaries are expected to have a better outlook for their families and their children's future.

Methodology

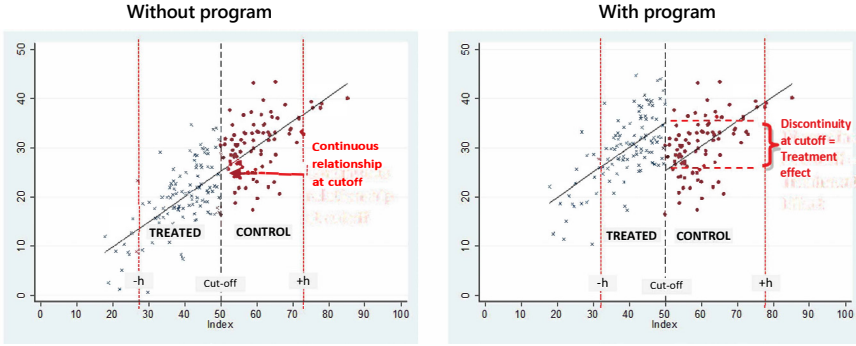
Regression discontinuity design

RDD is a quasi-experimental method that measures program impact based on the observed discontinuity of the outcome of interest at the cutoff of a running variable that determines treatment assignment. This methodology was first introduced by Thistlewaite and Campbell (1960) as an alternative method in program evaluation. The review of the literature on recent developments and practical guides on RDD is described in Lee and Lemieux (2010), Imbens and Lemieux (2008), and Cattaneo et al. (2019). In the case of the Pantawid Pamilya, households are ordered based on the PMT scores estimating household income. The eligibility of households was determined by comparing the PMT score with the official provincial poverty thresholds. Households below the poverty threshold with children ages 0–18 years or pregnant members are eligible to become beneficiaries.

RDD assumes that near the cutoff, observations below or above the eligibility criteria are comparable, and assignment to treatment or comparison group is as if done randomly. This means that before the intervention, observations just below the cutoff are similar and compare well to those just above the cutoff. Without the intervention, the values of the outcome variables are expected to run smoothly and continuously around the cutoff as the running variable changes. Therefore, a large jump in an outcome variable at the cutoff after the intervention has been implemented can be causally attributed to the intervention (Figure 2).

In RDD, program impact is commonly measured using local linear regressions, confining the analysis to observations near the cutoff. This procedure ensures the similarity assumption of observations just below and just above the cutoff. In practice, the observations considered in the estimation are optimally determined by balancing bias and variance based on the characteristics of the data. In terms of internal validity, RDD performs next only to RCT, but its primary weakness is that the results are only applicable for observations sufficiently near the cutoff or threshold.

Figure 2. Regression discontinuity design



Source: Filmer et al. (unpublished)

Estimation strategy

The analysis employed sharp and fuzzy RDD in the estimation of program impacts. In sharp RDD, there is perfect or near-perfect compliance with the treatment assignment. This means that all households eligible to be program beneficiaries (i.e., those with income below the poverty thresholds) participated in the program, while those not eligible did not receive program benefits. In the analysis, the sharp RDD considers all households below the cutoff (poverty threshold) as treated regardless of receipt of program benefits, while those who are on or above the threshold are part of the control or comparison group. In the presence of nonadherence to treatment assignment, this analysis reports intent-to-treat (ITT) effects. ITT presents the unbiased effect of the intervention among all eligible households regardless of their adherence to the treatment assignment.

On the other hand, fuzzy RDD reports the treatment on the treated (TOT) effects of the program, considering compliance with the treatment assignment. For example, some eligible households may have chosen to waive their benefits and not participate in the program, resulting in imperfect compliance with the treatment assignment. Similarly, households who are not supposed to be eligible are able to maneuver to receive the program benefits. To address the issue of noncompliance, an instrumental variable approach is used. The administrative information of the actual receipt of Pantawid benefits determines who got the benefits, while the treatment assignment based on the eligibility criteria is used as the instrument.

Main analysis

The main analysis of the study measures the program impact using local linear regression models. To illustrate, the expected program impact in a sharp RD is estimated by the equation:

$$y^- - y^+ = \lim_{x \uparrow \bar{x}} E[Y_i | X_i = x] - \lim_{x \downarrow \bar{x}} E[\quad_i | X_i = x]$$

For the fuzzy RD, the estimating equation is as follows:

$$\frac{\lim\limits_{x \uparrow \bar{x}} E[Y_i | X_i = x] - \lim\limits_{x \downarrow \bar{x}} E[Y_i | X_i = x]}{\lim\limits_{x \uparrow \bar{x}} E[T_i | X_i = x] - \lim\limits_{x \downarrow \bar{x}} E[T_i | X_i = x]}$$

In these equations, Y is the outcome of interest, X is the running variable with cutoff or threshold x, and T is the treatment assignment variable.

The analysis used the Stata package *rdrobust* developed by Calonico et al. (2014a; 2014b) and later upgraded by Calonico et al. (2017) in 2016. The command allows for data-driven bandwidth selection, cluster-robust options for variance estimation, and bias correction procedures for the RD estimator, resulting in more robust inference. The impact estimates and significance levels for sharp and fuzzy RD estimations presented in this report are based on this command.

The means of outcomes for the treatment and comparison groups were computed by getting the predicted outcome values at the threshold using standard least-squares regression that replicates the conventional estimates of *rdrobust*. The base estimation model for sharp RD is:

$$Y_i = \beta_0 + \tau T_i + \beta_1 \bar{X}_i + \beta_2 T_i \bar{X}_i + \beta_{\mathrm{n}} \mathbf{z} + \varepsilon_i$$

Here, $\bar{X}$ is the running variable; T is the treatment assignment; and z are other covariates included in the model. The equation is estimated within the bandwidth h determined by *rdrobust*. For fuzzy RD, two-stage least squares estimation was used with the treatment assignment as the instrument of the actual receipt of Pantawid benefits.

The impact of the program on each outcome is estimated within three sets of bandwidths: (1) coverage error rate (CER)-optimal bandwidth, (2) mean square error (MSE)-optimal bandwidth, and (3) full sample bandwidth. The Stata package *rdrobust* derived the first two bandwidths, while the third covers the full sample of observations in the dataset. The report discusses impact estimates based on the MSE bandwidth, while the significance of results is based on both CER and MSE-optimal bandwidths following the recommendations of Cattaneo et al. (2019). In some instances, full sample estimates are also discussed, especially when estimates are consistent in magnitude across the bandwidths. The consistency of estimates across the bandwidths indicates the robustness of estimates.

The PMT scores were recentered at the cutoff to simplify the interpretation of results, given that the cutoff (poverty threshold) varies per province. Municipal dummies were included in the model to account for municipal fixed effects, and the variance estimates were adjusted for barangay cluster effects. Supply and baseline covariates were also included in the models primarily to improve the precision of estimates.[8]

Subgroup analysis

Aside from the main analysis using sharp and fuzzy RD, subgroup analyses were also performed. However, since sampling was not designed for differential impact analysis, there were not enough observations to produce estimates for some outcomes and bandwidths.

The following grouping variables were used:

i. Urban or rural classification of barangay
ii. Sex of child
iii. Monitoring the status of the beneficiary child

[8] Changes in the precision of models were noted in the width of the confidence intervals. A reduction in the confidence interval means an increase in the precision of the model.

Subgroup analyses were performed by estimating the program's impact separately on subsets of the sample. Differences between impact estimates for the subgroups were tested using the z-test of equality of coefficients:

$$Z = \frac{\tau_1 - \tau_2}{\sqrt{(se_1)^2} + \sqrt{(se_2)^2}}$$

where: τ_1 = coefficient (program impact) on the first subgroup
τ_2 = coefficient (program impact) on the second subgroup
se_1 = standard error of the impact estimate on the first subgroup
se_2 = standard error of the impact estimate on the second subgroup

Validation of assumptions

The validity of program impacts detected from the RDD analysis relies on three assumptions: (1) beneficiaries should not have any influence on the treatment assignment; (2) households to the left and right near the cutoff are comparable in terms of key baseline characteristics; and (3) at the baseline, outcomes should not show discontinuity at the cutoff. Nonfulfillment of these assumptions jeopardizes the credibility of estimates. Therefore, validation tests were conducted to check for these issues.

Discontinuity tests were performed on the (1) running variable, (2) available baseline covariates expected to affect the outcomes of interest, and (3) available outcomes indicators in the baseline. The validation tests primarily used information from the Listahanan data to identify the program beneficiaries from 2008 to 2010.

- ***Discontinuity of the running variable at the threshold.*** The distribution of households on the running variable (PMT) should be checked for manipulation of the assignment to the program by the beneficiaries. Marked lumping of observations near the cutoff may indicate that the households directly influence the assignment variable.
- ***Discontinuity of baseline covariates at the threshold.*** Baseline characteristics that are expected to affect the outcomes of interest should not show any discontinuity at the threshold, as these are variables measured prior to the intervention.

- ***Discontinuity of outcome indicators at the threshold at the baseline.*** There should be no discontinuities in the outcome indicators at baseline, as the intervention has not been implemented yet. Discontinuities at baseline would invalidate the program impacts because discontinuities found after the intervention are used as impact measures.

The full results are presented in Appendix 5.

Limitations of RDD

The main limitation of an RDD is its low external validity, given that estimation is "local" because it only considers observations near the eligibility threshold. The estimated impact cannot be taken as the average impact among the beneficiaries but rather the average among the observation units near the eligibility threshold. In the context of the Pantawid Pamilya, this means that the RDD will estimate the program's impact among poor households with the highest PMT scores and among nonpoor households or those considered "near poor" with the lowest PMT scores. In contrast, an RCT can estimate the program's average impact among all beneficiaries, including the poorest among them. Unfortunately, at the current level of coverage of the program, an RCT design is no longer an option for evaluating the whole program.

This limitation of the RDD prevents the evaluation from commenting on the differential impacts of the program on the poorer segments of beneficiaries. Suppose it is true that the program has a higher impact among poorer households, as shown in Reyes et al. (2013) and Tutor (2014), impact estimates in this evaluation should be considered underestimates of the true impact. In addition, the evaluation may likely find no impact of the program at the threshold, even though there may be an impact if observations farther away from the threshold were studied.

During the IE Wave 3 planning stage, the technical working group attempted to look for options to study the program's effect on poorer segments of the beneficiaries, such as extrapolations using a multiple cutoff approach in RDD. However, these attempts were unsuccessful as variations in the poverty thresholds per province were merely driven by nominal differences in prices, and no real differences in the thresholds were present to allow extrapolation.

Nonetheless, the use of RDD is advantageous because it has high internal validity, next only to RCT. It also requires weaker assumptions compared to other nonexperimental designs, such as matching, difference-in-difference, and instrumental variable analyses.

Data source and sampling

Sampling

The IE Wave 3 covers households with at least 2 years of program exposure or those registered in the program from 2008 to 2014. At the time of data collection, households have already been exposed to the program for a minimum of 2 years and a maximum of 9 years.

Municipalities covered in the RCT subsample were excluded from the pool of potential sites. To ensure that there will be enough households and barangays, only municipalities with at least 20 barangays having at least 30 households were retained. From the 664 municipalities that satisfied these criteria, 30 municipalities were drawn, ensuring that 10 municipalities came from each of the 3 major island clusters. In total, 180 barangays with 38–39 households were the target sample for the data collection. Using IE Wave 2 data, power calculations by Cattaneo and Vasquez-Bare (2017) found that the sample has enough power (80%) to detect program impacts at the following effect sizes for the corresponding primary outcome indicators of the program (Table 3).

Table 3. Power calculations for IE Wave 3 RDD sample

Outcome Indicator	Standardized Effect Size
Household total per capita consumption	0.12
Prenatal checkup by a skilled health professional	0.10
Weight monitoring of children ages 0–2 years	0.15
Receipt of deworming pills of children ages 6–14 years at least twice in the past year	0.15

IE Wave 3 = third wave impact evaluation; RDD = regression discontinuity design
Source: Cattaneo and Vasquez-Bare (2017)

Consistent with the RDD, households were sampled based on their proximity to the cutoff or poverty thresholds. That is, households nearer the poverty threshold are more likely to be drawn into the sample. This sampling methodology maximizes the internal validity of the RDD.

Treatment and comparison group assignment in the sample was based on their estimated annual per capita income or PMT scores and the corresponding provincial poverty thresholds used in targeting.

- ***Treatment:*** Households with PMT scores below the provincial poverty threshold/cutoff score for eligibility and children ages 0–18 years or a pregnant member at the time of targeting were considered the treated group.
- ***Comparison:*** The comparison group consisted of households in the same barangay as the treatment households with PMT scores on or above the poverty thresholds, with children ages 0–18 years or a pregnant member at the time of targeting.

As with the original sample households, replacement households were selected based on their proximity to the cutoff or threshold. If some households selected for the sample could not be found for a given barangay, the household with a PMT score nearest the cutoff is selected next for the interview.

Survey instruments

The primary source of data for IE Wave 3 is the Social Weather Stations' survey specifically conducted for the study. The data collection occurred from November 2017 to January 2018.

There were 6 instruments used in the IE Wave 3 survey. These include 4 questionnaire modules for household interviews, 1 questionnaire for health facilities, and 1 questionnaire for barangay officials.

Module A is the main household questionnaire covering various socioeconomic characteristics and program participation information. The module consisted of three parts with different target respondents for each part. Part 1 was answered by the household head and covered questions on the household roster information, household members' labor participation, residential characteristics, household members' availment of social services and other government services, and household experience with economic difficulties and shocks. Part 2 covered questions on

household income and expenditures and should ideally be answered by the household head's spouse or the person most responsible for managing the household's finances. Finally, Part 3 is the functional literacy assessment module. It should be answered by all respondents of the modules who were 10 years old or above and had not completed high school education at the time of the survey.

Module B captured the reproductive history, contraceptive use, and KAP of women ages 15 to 49 years who have had a partner in the past or women ages 50 years and above who were pregnant at the time of the interview.

Module C was dedicated to school-aged household members (ages 6 to 20 years). It gathered data on school participation of children ages 6 to 20 years and labor indicators among children ages 10 to 20 years. Part 1 (on schooling information) was answered by the mother or caretaker of the child, while Part 2 (on child labor) was answered by the child of interest.

Module D captured health and nutrition information and anthropometric measurements of children ages 0 to 5 years. The ideal respondent for this module was the mother or caretaker of the child.

Module G collected information on health facilities' characteristics, catchment population, and resources (supplies and personnel). It also asked questions to assess the knowledge and perceptions of the health facility respondents on Pantawid Pamilya. The ideal respondent was the head of the health facility or his/her designated representative. This information was collected from all rural health units (RHUs) and barangay health stations (BHS) visited by the beneficiaries, as revealed in the household survey.

Module H collected data on barangay characteristics and other supply-side indicators. The ideal respondent was the barangay captain or other officials who could provide the needed information (e.g., the barangay secretary).

Relative to the IE Wave 2 instruments, new questions were asked in the IE Wave 3. These include questions on the income of the households, access of households to government services, coping mechanisms during economic difficulties, community involvement and social integration, access to information (e.g., printed, TV, radio, internet), perception of non-4Ps beneficiaries of the program (e.g., targeting, provision of financial assistance to 4Ps households), assessment of functional literacy, food

hygiene and positive disciplining practices of mothers, locus of control test statements, decisionmaking/arguments in the household, participation of a child in extracurricular activities and receipt of awards, questions on grit and parent-child relations, the incidence of VPDs, quality of health service received (last visit) and reason for satisfaction/dissatisfaction, and perception on the frequency of violence and trust within the community.

During the data collection, the field interviewers were not aware of the treatment and control assignments of the sample households.

Description of the sample

Thirty municipalities (10 municipalities per major island cluster) were selected from the 1,627 cities and municipalities covered by the Pantawid Pamilya (see Appendix 3). Six villages per municipality were drawn, totaling 180 villages across 25 provinces. A total of 6,775 households from 180 villages were covered in the study, with around 38 households interviewed per village.

As discussed earlier, the IE Wave 3 measures ITT and TOT effects through sharp and fuzzy RD estimations, respectively. In sharp RD, treatment assignment is based strictly on the household's distance or position relative to the eligibility cutoff or the provincial poverty threshold. Households below the poverty threshold were assigned to the treatment group regardless of their self-reported beneficiary status. Households on or above the poverty threshold with school-aged children or a pregnant household member were assigned to the comparison group. Meanwhile, in fuzzy RD, compliance with the treatment assignment is considered and used to correct the identification of the impact estimates. For this reason, it is important to examine the actual receipt of benefits by the households and the corresponding compliance or cross-over rates regarding the original treatment assignment.

Table 4 presents the treatment assignment and beneficiary status based on program administrative data. Beneficiary status is defined as the receipt of program cash grants at least once since the program started in 2008 up to the data collection date. This criterion was adopted instead of the reported beneficiary status of the respondent households during the survey because of minor inconsistencies in the data. From the table, a total of 511 households (14.8%) have never received cash grants from the program despite being below the poverty threshold. Meanwhile,

Table 4. Sample distribution according to beneficiary status

Listahanan 1 Category	Never Paid		Paid at Least Once[1]		Total
Above threshold/ineligible	3,243	(0.975)	82	(0.025)	3,325
Below threshold/eligible	511	(0.148)	2,939	(0.852)	3,450
Total	3,754	(0.554)	3,021	(0.446)	6,775

[1] Paid at least once from 2008 to February 2018, according to DSWD data
Source: Authors' computations using DSWD administrative data (Payroll data of RDD households sent via personal communication with authors on February 19, 2019).

82 households (2.5%) received program benefits despite being above the threshold at the time of the survey.

The households' eligibility status was based on the poverty threshold and PMT score in Listahanan as of 2011, while the beneficiary status was based on the program administrative data from 2017 to 2018. The 82 ineligible households (i.e., their PMT score was above or equal to the threshold in 2011) may have been enrolled in the program through its grievance process in the succeeding years. In this process, a non-beneficiary may appeal for inclusion in the program. The household is assessed using the same PMT model used in targeting and may be registered once found eligible. However, since the Listahanan data used is based on the baseline values, the updated PMT values and categories are not reflected. On the other hand, the 511 households who were eligible as of 2011 but were not beneficiaries per program data may include households who waived their program benefits or may still be waiting for their first cash grants but are unable to do so due to various reasons.

The study included Pantawid households who registered in the program from 2008 to 2014. At the time of data collection (November 2017–January 2018), household program exposure from 2 to 9 years. In total, 3,450 households in the treatment group and 3,325 households in the comparison group were included. The household composition of the treatment and comparison groups was comparable. Expectedly, the estimated income (based on the 2008 PMT score) was lower for the treatment group (Table 5).

The formal tests on the discontinuity of baseline characteristics of the treatment and comparison households are presented in Appendix 6. These tests were done to identify threats to the identification strategy.

Table 5. Household composition and estimated household income at baseline by treatment assignment

	Treatment	Comparison	All
Total number of households	3,450	3,325	6,775
Ave. number of HH members	5.17	5.10	5.13
Ave. number of HH members by age group			
0–5 years old	0.6	0.59	0.6
6–14 years old	1.28	1.21	1.25
15–18 years old	0.5	0.47	0.48
19–60 years old	2.48	2.49	2.48
Total no. of WRA (aged 15–49 years)	2,646	2,494	5,140
Ave. estimated income based on PMT	PHP 14,466	PHP 15,596	PHP 15,017

Ave. = average; HH = household; WRA = women of reproductive age; PMT = proxy mean test; PHP = Philippine peso
Source: Authors' computations

In addition, a brief description of the supply conditions in the study areas is presented in Appendix 4. The data came from interviews with health facility heads and barangay captains in Module G and Module H. The impact estimation models also used this information on the supply conditions as additional control variables.

Results

The results of the estimation are presented under four groups of outcome indicators: (1) health, (2) education, (3) household welfare, and (4) other sociobehavioral outcomes.

The tables in this section present the estimated program impact using three types of bandwidths: CER-optimal, MSE-optimal, and full sample. The first two bandwidths were data-derived based on the procedure and software developed by Calonico et al. (2014a; 2014b), while the third used all the sample observations in the analysis. Cattaneo et al. (2019) recommended using point estimates using MSE-optimal bandwidth and either MSE or CER-optimal bandwidth for the confidence interval. Using MSE bandwidth for the confidence interval is valid, but using CER bandwidth minimizes coverage error. Hence, the discussion of the results is based on point estimates using the MSE-optimal bandwidth, and the significance will be based on both MSE and CER bandwidths. In addition, the sample bandwidth estimates are reported to demonstrate robustness.

In the succeeding tables, impact refers to the estimated program impact at the threshold; non-Pantawid is the predicted mean of outcome variable for non-treated observations (comparison group) above the poverty threshold under the sharp RD estimation. To arrive at the predicted mean for the treated or Pantawid group, the estimated impact is added to the predicted mean of the non-Pantawid group. It must be noted that these values are predicted at the threshold based on the estimation model and are not the actual means of the subsample of the comparison and treatment groups. The actual means and simple comparison of means between Pantawid and non-Pantawid are presented in Appendix 6.

For some binary outcomes (i.e., those expressed in percentages or incidence), the predicted means may exceed 100 percent or have a negative value. This is because the estimation used a linear probability model to estimate impact, meaning the predicted means are unbounded and may exceed 0 or 100. However, the estimated impact remains valid as it reports the difference between the predicted means of the treated and the untreated group.[9]

The study presents both sharp and fuzzy RD estimates. Generally, the results of the fuzzy estimation are consistent with the sharp RD in terms of direction. As expected, the fuzzy estimates are also generally higher in magnitude than that of the sharp RD. This is because the fuzzy RD impact is measured considering the actual program take-up rates among the eligible households.

In the presentation of results, the significance of impact estimates is indicated at 90-percent, 95-percent, and 99-percent confidence levels. While it is preferable to have estimates that are at least significant at a 95-percent confidence level to minimize the type 1 error rate (i.e., rejecting a true null hypothesis), the 90-percent confidence level is also used in most social science research papers. It is also consistent with the previous Pantawid Pamilya impact evaluation reports. In addition, the p-values of the estimates are presented to guide the reader in interpreting the results. In most of the results, the estimated impacts that are significant at a 90-percent confidence level are also significant for stricter confidence levels (i.e., 95% and 99%) in other bandwidths, suggesting the robustness of the results.

[9] For comparison, estimates using logistic regression models may be generated upon request. However, it must be noted that the optimal bandwidths were derived based on a linear function and, therefore, may not be appropriate for nonlinear model estimations.

In addition to the main estimates, subgroup analyses for urban or rural location, sex, and monitoring status are also discussed.[10] Comparisons are also made between the predicted means from the estimation with available statistics based on other data sources, such as national surveys. Differences in the definitions and other possible nuances in the comparison are mentioned. However, the most important thing to note is that RDD estimates are local around the eligibility threshold and do not represent the average behavior of the beneficiaries or poor households in general.

Impact on health

The succeeding tables present the program impact estimates on children's and mothers' health outcomes. The outcome indicators include the utilization of modern family planning interventions, maternal and child health services, nutrition outcomes, childcare practices, and households' health-seeking behavior.

Subgroup analysis based on the urban-rural location of the households was performed for all health outcomes, while subgroup analysis by sex was only performed for child health indicators. Analysis by monitoring the status of children and pregnant women was not pursued as matching the list of monitored children showed that only a very small percentage of the sample was monitored by the program at the time of data collection. Out of the 2,049 children ages 0–5 years in the treatment group, only 91 (less than 1%) were monitored in the program for compliance with health conditionalities. Out of the 122 pregnant women in the treatment group, no one was being monitored by the program. The very low proportions of monitored children and pregnant women in the sample did not allow for a successful estimation of health outcomes among monitored and non-monitored household members.

Hypothesis 1: The Pantawid Pamilya promotes higher awareness and utilization of responsible parenthood interventions.

Among women of reproductive age (WRA)[11], beneficiaries are aware of more modern family planning methods than non-beneficiaries. Both

[10] The full results are not included in the report for brevity, but statistical tables may be requested from the authors.

[11] Women ages 15–49 years or pregnant women at the time of the interview, regardless of age

Pantawid and non-Pantawid WRA (99–100%) know at least 1 modern family planning method. Still, on average, Pantawid beneficiaries are aware of around 7 types of modern family planning methods, while non-Pantawid beneficiaries are aware of only 6 types. This result is consistent in both fuzzy and sharp RD estimates. The IE Wave 2 observed high awareness levels for modern family planning methods among beneficiary and non-beneficiary WRA (99%), but it did not include the number of family planning methods the respondents knew.

The results also showed that the program encourages trial use of modern family planning methods by 4.8 percentage points compared to non-Pantawid beneficiaries (76%) in the sharp RD estimation and up to 6.7 percentage points based on the fuzzy RD results (Table 6). This is mirrored in the count of modern family planning methods used by the respondents, where Pantawid beneficiaries used a slightly higher count of modern family planning method types. However, this result is only statistically significant in the fuzzy RD estimation. A higher proportion of Pantawid beneficiaries reported being current users of modern family planning methods across the three bandwidths, but the difference between Pantawid and non-Pantawid is only statistically significant if estimated using the full sample (4–5 percentage points higher). The same was observed for the contraceptive prevalence rate among women currently in union (i.e., married, living together), with Pantawid beneficiaries having a higher rate by 5–7 percentage points compared to non-Pantawid beneficiaries (52% Pantawid, 47% non-Pantawid in sharp RD; 53% Pantawid, 47% in non-Pantawid in fuzzy RD). However, the difference is not statistically significant in both MSE and CER bandwidths and is only statistically significant if estimated using the full sample. Similar results for trial use of modern FP methods were observed in the IE Wave 2.

The predicted proportions on awareness of family planning methods compare well with the 2017 National Demographic Health Survey (NDHS) estimate of 99 percent awareness of modern contraceptive methods among respondents in the lowest wealth quintile. Meanwhile, the contraceptive prevalence rate of modern methods is estimated at 43 percent among the lowest wealth quintile, which is only slightly lower than the estimated mean of the sharp RD estimation.

Table 6. Awareness and use of family planning methods

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Awareness of any modern RH method	Impact	-0.47	-0.19	0.08	-1.12	-0.61	0.09
	Robust p-value	0.35	0.58	0.96	0.12	0.27	0.96
	Non-Pantawid	99.71	99.56	99.52	100.00	99.74	99.52
	Number of obs.	2,638	3,223	5,138	2,091	2,608	5,138
Count of modern RH methods aware of	Impact	0.41*	0.39**	0.27**	0.51*	0.48**	0.32**
	Robust p-value	0.06	0.05	0.03	0.06	0.05	0.03
	Non-Pantawid	6.29	6.28	6.31	6.27	6.26	6.30
	Number of obs.	2,188	2,737	5,138	2,126	2,645	5,138
Ever use any modern RH method	Impact	5.30*	4.81*	2.25**	7.46*	6.65*	2.71**
	Robust p-value	0.08	0.08	0.04	0.06	0.07	0.04
	Non-Pantawid	75.40	75.59	76.70	74.69	75.07	76.61
	Number of obs.	2,480	3,039	5,117	2,059	2,575	5,117
Count of modern RH methods ever used	Impact	0.11	0.10	0.07	0.19*	0.17*	0.09
	Robust p-value	0.13	0.14	0.11	0.09	0.09	0.11
	Non-Pantawid	1.27	1.28	1.29	1.24	1.25	1.29
	Number of obs.	3,238	3,828	5,138	2,069	2,587	5,138

Table 6 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Current users of modern RH method	Impact	4.68	4.77	4.20*	4.76	6.33	5.05*
	Robust p-value	0.27	0.25	0.09	0.41	0.26	0.09
	Non-Pantawid	43.50	43.31	42.74	43.87	42.98	42.59
	Number of obs.	2,535	3,125	5,138	2,262	2,811	5,138
Contraceptive prevalence rate	Impact	4.59	5.43	4.13*	4.30	6.63	4.92*
	Robust p-value	0.31	0.22	0.07	0.46	0.23	0.07
	Non-Pantawid	47.42	46.90	46.66	47.93	46.71	46.51
	Number of obs.	2,230	2,726	4,594	1,980	2,469	4,594

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; RH = reproductive health; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Regarding urban-rural location, findings showed a positive impact on the proportion of WRA from rural municipalities aware of at least one modern family planning method, while no statistically significant impact was observed in urban areas. This result was observed for all bandwidths of sharp and fuzzy RD estimations. However, it must be noted that predicted proportions are high (98–100%) for treatment and comparison households in rural and urban areas. As for other outcomes such as the count of modern family planning methods aware of, the proportion of WRA who ever used modern family planning methods, and the count of modern family planning methods ever used, statistically significant positive program impact was observed only in urban areas. Possible differences in accessibility of modern family planning methods between urban and rural residents may have influenced this discrepancy in outcomes. No statistically significant impact differences are noted for other indicators related to family planning.

The results indicate that although the program encouraged the use of modern FP methods, there is not enough evidence to confirm the sustained use of modern FP methods among Pantawid beneficiaries, as no strong impact is observed on current usage. This result is consistent with the IE Wave 2 findings. The higher awareness of modern FP commodities among Pantawid beneficiaries may be due to increased utilization of maternal health services and visits to health facilities to access responsible parenthood interventions such as family planning counseling and provision of free FP commodities. This result may also be due to their attendance at FDS, where reproductive health and family planning are discussed. Still, it must be noted that the use of modern FP methods can be influenced by factors such as costs, perceived or real health risks, underlying fertility behavior, and decisionmaking between couples. Results of the urban-rural disaggregation point to possible differences in the accessibility of modern FP methods, as more outcomes returned statistically significant impact in urban areas.

Hypothesis 2: The Pantawid Pamilya promotes the utilization of maternal healthcare services.

Prenatal care

The study found a positive program effect on availing of prenatal checkups at least four times among pregnant beneficiaries, but no

such result was observed on availing of prenatal checkups at least once (Table 7). For both sharp and fuzzy RD estimations, a slightly higher proportion of Pantawid pregnant women avails of at least one prenatal checkup. However, this result is only statistically significant when estimated using the full sample of WRA respondents, which means the result is not robust. For the recommended four-time prenatal visits, no statistically significant positive impact is also observed in both CER and MSE bandwidth estimates of sharp RD, but the CER bandwidth of fuzzy RD showed a positive impact.

The DOH recommends at least four prenatal checkup visits during pregnancy.[12] Likewise, the program conditionality requires pregnant women to avail of a prenatal checkup at least once during each trimester of the pregnancy. While no statistically significant difference in one-time prenatal care visits was observed, it must be noted that predicted proportions for those in the narrowest bandwidth are already very high at 97–99 percent for both beneficiaries and non-beneficiaries. In the IE Wave 2, no statistically significant impact was measured on the availment of prenatal care services, and proportions were similarly high. Understandably, when certain behaviors or outcomes are almost universal for the non-beneficiaries, it is difficult for the program to produce an improvement or significant marginal increase in proportions among its beneficiaries.

In terms of availing of prenatal checkups from a skilled professional (i.e., doctor, nurse, or midwife), there is no statistically significant difference between the utilization rates of Pantawid and non-Pantawid pregnant women. The same is true for the availment of prenatal care in a health facility. However, the proportions are already very high (up to 96%) and almost universal, even in both indicators' raw sample means.

Using the 2017 NDHS data, estimates showed that 76 percent of poor pregnant WRA attend at least four prenatal checkups, similar to the predicted proportions of the sharp and fuzzy RD estimation for non-Pantawid women (see MSE bandwidth estimates). Meanwhile, the proportion of WRA who received prenatal care from a skilled professional based on the NDHS is 86 percent and 95 percent among the lowest and second lowest wealth quintiles, respectively. The predicted proportion of the RD models is nearer the latter.

[12] The World Health Organization (2016) has since updated its recommended number of prenatal contacts to eight in the duration of a woman's pregnancy.

Table 7. Prenatal care

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
At least 1 prenatal checkup	Impact	-1.40	-0.83	1.50**	-2.04	-1.67	1.84**
	Robust p-value	0.21	0.32	0.05	0.18	0.15	0.05
	Non-Pantawid	98.63	98.23	96.46	98.86	98.65	96.42
	Number of obs.	1,304	1,634	3,139	1,044	1,318	3,139
At least 4 prenatal checkups	Impact	6.71	6.38	5.25**	11.75*	8.44	6.41**
	Robust p-value	0.13	0.12	0.02	0.06	0.14	0.02
	Non-Pantawid	76.02	76.38	77.69	74.11	75.71	77.53
	Number of obs.	1,320	1,675	3,139	1,043	1,315	3,139
Frequency of prenatal checkups	Impact	-0.09	-0.09	-0.02	-0.13	-0.11	-0.03
	Robust p-value	0.83	0.83	0.62	0.79	0.83	0.62
	Non-Pantawid	6.25	6.24	6.20	6.28	6.25	6.20
	Number of obs.	1,366	1,708	3,051	1,061	1,355	3,051
Prenatal care provided by skilled professional	Impact	-2.36	-1.45	1.32	-3.59	-3.14	1.62
	Robust p-value	0.29	0.39	0.34	0.28	0.26	0.34
	Non-Pantawid	96.35	95.90	94.11	96.55	96.51	94.07
	Number of obs.	1,291	1,630	3,180	1,009	1,266	3,180
Prenatal care availed in a health facility	Impact	-1.49	-0.59	1.91	-3.20	-2.29	2.34
	Robust p-value	0.29	0.49	0.38	0.22	0.28	0.38
	Non-Pantawid	97.02	96.19	94.37	97.66	97.33	94.30
	Number of obs.	1,619	1,986	3,178	1,061	1,343	3,178

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Subgroup analysis results indicate that the program may affect women in rural areas more positively than those in urban areas. The results showed that the program positively impacted availing of at least four prenatal checkups in rural areas (11 and 12 percentage points higher for MSE bandwidth). Meanwhile, a negative program impact was observed in urban areas on availing of at least one prenatal checkup (2 and 3 percentage points lower for MSE bandwidth) and prenatal care provided by a skilled professional (3 and 5 percentage points lower for MSE bandwidth). The more positive results for rural beneficiaries may be attributed to low baseline means for rural women and very high baseline proportions for most prenatal care outcomes of urban women.

In summary, the results pointed to a positive program impact on availing of prenatal healthcare services, particularly in the minimum required number of checkups prescribed by the World Health Organization and DOH. Aside from being a program conditionality, the positive impact on availing of the minimum desired number of prenatal checkups may be due to the reinforcement provided by the FDS. One of the core chapters in the FDS curriculum is devoted to maternal care, including providing prenatal care services for pregnant women.

Skilled birth attendance and facility-based delivery

The study did not find any program impact on SBA (Table 8), which is a birth delivery assisted by either a doctor, midwife, or nurse. The IE Wave 2 reported the same findings.

Disaggregating by type of health professional, a positive impact was observed on birth attendance by a doctor. Pantawid pregnant women have a higher incidence of giving birth assisted by a doctor by up to 9 percentage points compared to non-Pantawid pregnant women (36%) in the sharp RD results for both MSE and CER bandwidths. However, the impact estimate was only statistically significant within the CER and sampling bandwidths in the fuzzy RD result. The proportion of pregnant women assisted by a nurse during birth is also higher among Pantawid beneficiaries by 5 percentage points based on the fuzzy RD results within the MSE-optimal bandwidth. Interestingly, the proportion of Pantawid pregnant women assisted by a midwife is lower by 10.4 percentage points than non-Pantawid based on the fuzzy RD results for MSE bandwidth. This may indicate a shift from midwife- to doctor- or nurse-assisted deliveries among Pantawid beneficiaries.

Table 8. Skilled birth attendance and facility-based delivery

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Skilled birth attendance	Impact	-0.52	0.11	1.57	0.05	-0.13	1.93
	Robust p-value	0.84	0.96	0.36	0.97	0.89	0.36
	Non-Pantawid	85.61	85.41	85.81	85.16	85.33	85.77
	Number of obs.	1,446	1,777	2,936	1,012	1,294	2,936
Skilled birth attendance by a doctor	Impact	8.78*	8.66**	3.84**	14.95*	11.37	4.71**
	Robust p-value	0.07	0.05	0.03	0.05	0.11	0.03
	Non-Pantawid	35.90	35.64	37.82	33.76	35.44	37.71
	Number of obs.	1,408	1,731	2,936	1,047	1,323	2,936
Skilled birth attendance by a midwife	Impact	-7.27	-5.23	-0.62	-14.64**	-10.40*	-0.76
	Robust p-value	0.10	0.17	0.53	0.04	0.10	0.53
	Non-Pantawid	48.26	47.11	45.72	51.33	49.13	45.74
	Number of obs.	1,409	1,736	2,936	963	1,205	2,936

Table 8 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Skilled birth attendance by a nurse	Impact	2.92	0.66	0.67	4.55	4.71*	0.83
	Robust p-value	0.14	0.67	0.77	0.11	0.07	0.77
	Non-Pantawid	3.64	5.43	6.79	2.34	2.58	6.77
	Number of obs.	1,334	1,661	2,936	883	1,102	2,936
Facility-based delivery	Impact	2.53	2.93	2.87	3.83	3.00	3.52
	Robust p-value	0.50	0.41	0.10	0.50	0.54	0.10
	Non-Pantawid	80.58	80.59	81.65	79.94	80.44	81.57
	Number of obs.	1,648	1,963	2,941	1,128	1,427	2,941

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

It may also indicate changes in the beneficiaries' preference from home deliveries to health facilities or from smaller to bigger health facilities where it is more likely that a doctor or nurse is available.

The subgroup analysis by urban-rural location showed a positive program impact on SBA by doctors and nurses in urban areas only for both sharp and fuzzy RD estimations. There is a large positive program impact on SBA by a doctor (16 and 21 percentage points higher for MSE bandwidth) and by a nurse (5 and 7 percentage points higher for MSE bandwidth) for urban mothers, possibly due to better access in urban areas. The contrary is observed on SBA by a midwife, with a negative impact noted for beneficiaries in urban areas (12 and 15 percentage points lower for MSE bandwidth). Meanwhile, no statistically significant impact was observed for beneficiaries in rural areas. This marked difference among the types of SBA by skilled professionals implies a shift in Pantawid mothers' availment of delivery services, favoring doctors and nurses over midwives. The discrepancy in urban and rural subgroups could also suggest the influence of supply conditions, given that access to doctors tends to be lower in rural than urban areas.

As for FBD, no statistically significant difference was observed for both sharp and fuzzy RD results. Higher predicted proportions of FBD are generally observed for the Pantawid group, but the lack of statistical significance suggests that the impact measured is not robust within the bandwidths. Moreover, no strong evidence indicates that the program increases FBD rates.

Breaking down by urban and rural location, a larger positive program impact on FBD was observed only among women in urban areas. Only the result among urban women is statistically significant (12 and 15 percentage points higher for MSE bandwidth). Even if the estimations were controlled for some supply variables, this discrepancy in impact might indicate differences in access to health facility resources depending on the location that was possibly not captured in the covariates. This result is consistent with the finding on SBA, where urban women prefer deliveries assisted by doctors and nurses. It is common for doctors and nurses to perform delivery services in bigger health facilities or hospitals, which are more easily accessible in urban areas. Meanwhile, fewer options are available for beneficiaries in rural areas where access to bigger health facilities and/or doctors is limited, and program impact may be more constrained.

Based on the 2017 NDHS, 58 percent and 74 percent of women in the lowest and second lowest quintiles, respectively, deliver in health facilities. These NDHS proportions are slightly lower compared to the predicted proportions at the threshold. On the other hand, the predicted proportions in this evaluation are higher than those in the IE Wave 2. However, given that the program aims to ensure that all beneficiaries avail of maternal healthcare services, the FBD utilization rates observed in this third round of evaluation can still be increased.

Postnatal care

No statistically significant impact was observed on availing of postnatal care within 24 or 72 hours, postnatal care from a skilled professional, and postnatal care from a health facility (Table 9). Based on the results, 50 percent of pregnant women avail of postnatal care regardless of treatment assignment or beneficiary status (MSE bandwidth). As for postnatal care from a skilled professional within 72 hours, the proportions are the same for Pantawid and non-Pantawid pregnant women at 47 percent. Availing of postnatal care from a health facility for Pantawid women is at 78–79 percent, and non-Pantawid women are at 82 percent based on MSE bandwidth. These findings are inconsistent with the IE Wave 2, where a positive program impact on availing of postnatal care from a skilled health professional and postnatal care in a facility was found.

The subgroup analysis showed heterogeneity in program impact on postnatal care services for pregnant women in urban and rural areas. Results for facility-based postnatal care showed a positive program impact among Pantawid mothers in urban areas (10 percentage points higher for MSE bandwidth), while no program impact was observed for Pantawid mothers in rural areas. The results are reversed for postnatal care within 72 hours, where a negative program impact is observed among Pantawid mothers in urban areas, and a positive impact is observed among Pantawid mothers in rural areas. This is despite urban areas having more health facility resources and higher results for facility-based postnatal care. The results may indicate that availing postnatal care services is not influenced so much by supply conditions but by other factors like the level of awareness and behavior of pregnant beneficiaries.

Table 9. Postnatal care

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Postnatal check within 72 hours	Impact	2.74	0.09	-2.48	4.26	0.32	-3.01
	Robust p-value	0.61	0.86	0.26	0.56	0.84	0.26
	Non-Pantawid	48.19	49.57	50.56	47.72	49.46	50.62
	Number of obs.	1,016	1,278	2,418	963	1,213	2,418
Postnatal check within 72 hours by a skilled professional	Impact	1.99	0.37	-1.27	3.67	0.52	-1.54
	Robust p-value	0.78	0.61	0.07	0.90	0.68	0.07
	Non-Pantawid	45.93	46.81	47.45	45.38	46.77	47.48
	Number of obs.	1,031	1,307	2,416	937	1,187	2,416
Postnatal checkup in a facility	Impact	-2.72	-3.36	-0.83	-0.51	-3.41	-1.02
	Robust p-value	0.51	0.38	0.48	0.96	0.59	0.48
	Non-Pantawid	81.70	82.12	80.12	80.17	81.81	80.15
	Number of obs.	1,364	1,691	2,933	1,076	1,357	2,933

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Given the program's positive impact on prenatal care and the overall lack of statistically significant impact on postnatal care, the results seem to indicate an unequal understanding and appreciation among the beneficiaries of the value of postnatal care relative to prenatal care, even though the program requires both.

Hypothesis 3: Pantawid Pamilya mothers experience fewer health problems during pregnancy and delivery.

Pregnancy problems are symptoms or conditions such as vaginal bleeding, headache, dizziness, blurred vision, night blindness, swollen face/hands/feet, anemia, and fatigue. Meanwhile, birth delivery problems include long labor that lasts more than 12 hours, excessive bleeding, infection or sepsis, and loss of consciousness. The program is not intended to specifically address pregnancy and childbirth issues, which can be triggered by various factors such as chronic illnesses and poor healthcare facilities. However, it may still indirectly impact beneficiaries through increased use of healthcare services (e.g., prenatal care, reproductive health counseling) and improved household nutrition as a result of higher food consumption.

The findings indicate that there is no significant difference in the occurrence of pregnancy complications between Pantawid and non-Pantawid groups, except for the full sample where a slightly higher percentage of Pantawid pregnant women (around 3–4 percentage points) experience at least one type of problem during pregnancy (Table 10). However, when looking at the count of pregnancy problems, Pantawid beneficiaries experience a significantly lower count of pregnancy problems than non-Pantawid pregnant women, as shown in the fuzzy RD results for the CER bandwidth. The results also showed that the predicted proportion of Pantawid pregnant women who experienced problems during delivery is lower by 1–4 percentage points compared to non-Pantawid women. However, these differences are not statistically significant for all bandwidths, including the full sample.

The sample's predicted proportions are high compared to the 2017 NDHS, which reported that only 58 percent of women had experienced problems during pregnancy. However, the NDHS estimate represents the nationwide population and may not be comparable to the sample in this evaluation, where the households are poor or near-poor.[13]

[13] Households that are considered not poor but with incomes very near the poverty threshold

Table 10. Problems experienced during pregnancy and delivery

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Experienced any signs of pregnancy risks	Impact	1.64	2.16	3.36**	2.62	2.73	4.15**
	Robust p-value	0.61	0.51	0.02	0.44	0.43	0.02
	Non-Pantawid	94.74	94.18	93.13	94.30	93.94	93.01
	Number of obs.	1,072	1,316	2,178	1,218	1,446	2,178
Count of signs of pregnancy risks experienced during pregnancy	Impact	-0.27	-0.22	-0.08	-0.37*	-0.29	-0.10
	Robust p-value	0.10	0.12	0.38	0.10	0.12	0.39
	Non-Pantawid	1.95	1.92	1.77	1.98	1.94	1.78
	Number of obs.	986	1,245	2,178	936	1,184	2,178
Experienced at least one delivery complication	Impact	-0.60	-0.25	-3.51	-0.45	-1.09	-4.29
	Robust p-value	0.95	0.96	0.72	0.94	0.85	0.73
	Non-Pantawid	27.49	27.59	29.28	27.41	27.67	29.39
	Number of obs.	1,484	1,838	3,182	1,134	1,433	3,182

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

In contrast, the predicted proportions for women who experienced problems during delivery are comparable with the NDHS estimate of 26 percent.

Subgroup analysis results indicate that a lower proportion of Pantawid women in urban areas experienced signs of pregnancy risks compared to counterparts in the non-treated group based on the CER bandwidth for sharp RD. Results also showed fewer signs of pregnancy problems experienced by beneficiaries in urban areas (0.4 to 0.6 fewer signs for MSE bandwidth). At the same time, no statistically significant impact was observed among women in rural areas. There was also no statistically significant program impact observed in other indicators.

Overall, the results suggest small but positive indirect effects of the program in reducing problems experienced during pregnancy and delivery. However, results are inconclusive and require further investigation using a more rigorous design specific to the outcomes of interests.

Hypothesis 4: The Pantawid Pamilya increases the utilization of healthcare services by children.

Growth monitoring of children ages 0–5 years

Results showed positive impacts on weight monitoring of children ages 0–5 years (Table 11). Regular weight monitoring for children below 2 years old—defined as weighing at least once a month—is higher among Pantawid beneficiaries by up to 12 percentage points based on the MSE-optimal bandwidth of the sharp RD and up to 15 percentage points in the fuzzy RD result. Comparable estimates were generated in the narrower CER-optimal bandwidth, but the results were not statistically significant due to the small number of observations in the analysis. In terms of frequency, there is also no statistically significant difference between beneficiaries and non-beneficiaries.

Regular weight monitoring for children ages 2–5 years—defined as monitoring at least once every two months—is higher among Pantawid children by around 9 percentage points in MSE and CER bandwidths in the sharp RD estimation. At the same time, the positive impact based on the fuzzy RD result is 11–12 percentage points. In terms of frequency, a statistically significant difference between beneficiaries and

non-beneficiaries is only detected within the sampling bandwidth (0.3 to 0.4 higher) for both sharp and fuzzy RD estimations.

The findings are consistent with the IE Wave 2 results, where regular weight monitoring is significantly higher statistically for beneficiaries in both age groups. This means that the program has sustained its effect on the utilization of growth monitoring of young children. Parents are also expected to monitor their children's weight in health facilities, so the finding implies that children beneficiaries visit health facilities more often than non-Pantawid children. Note, however, the low proportion of Pantawid children ages 0–2 years (28–31%) and 2–5 years (38–40%) that are weight-monitored (MSE bandwidth). These proportions are slightly higher than IE Wave 2, which are 11–12 percent for children ages 0–2 years and 25–28 percent for children ages 2–5 years. In addition, while the frequency of weight monitoring is near the required thrice in 6 months (i.e., once every 2 months) for children ages 2–5 years, the average frequency falls short for younger children below 2 years old who are supposed to be weighed monthly (i.e., 6 times/6 months) but are only weighed every other month.

The low proportion of weight monitoring is surprising since the program requires children ages 2–5 years to visit health facilities every 2 months for weight monitoring. This can indicate a deficiency of the program in influencing beneficiary behavior related to this conditionality and/or the existence of other factors that hinder them from complying with the condition. On the other hand, the growth monitoring of children below 2 years old is not explicitly stated as a condition in the programs' operations manual (DSWD 2015). Even so, beneficiaries should do this as this age group encompasses the first 1,000 days of child development, which is known to affect long-term health and cognitive development outcomes (UNICEF 2013).

Regarding urban/rural location, a statistically significant positive impact was noted on regular weight monitoring of children below 2 years old only in rural areas (23 percentage points higher for sharp RD MSE bandwidth; 22 percentage points higher for fuzzy RD MSE bandwidth). The opposite is observed for weight monitoring of children ages 2–5 years, where statistically significant positive impact was observed only in urban areas (13 percentage points higher for sharp RD MSE bandwidth; 16 percentage points higher for fuzzy RD MSE bandwidth).

Table 11. Growth monitoring

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Regular weight monitoring for children 0 to <2 years old (0 to 23 months)	Impact	12.85	11.80*	-6.82	17.42	15.43*	-8.45
	Robust p-value	0.11	0.08	0.18	0.11	0.08	0.17
	Non-Pantawid	14.31	15.99	25.88	13.61	15.57	26.01
	Number of obs.	384	487	1,124	391	494	1,124
Frequency of weight monitoring for children 0 to <2 years old in the past six months (0 to 23 months)	Impact	0.21	0.10	-0.30	0.29	0.14	-0.37
	Robust p-value	0.56	0.61	0.23	0.54	0.58	0.23
	Non-Pantawid	2.98	3.07	3.23	2.96	3.06	3.24
	Number of obs.	482	611	1,124	478	602	1,124
Regular weight monitoring for children 2 to 5 years old (24 to 71 months)	Impact	9.17*	9.35*	6.61**	11.21*	12.02**	8.05**
	Robust p-value	0.06	0.05	0.01	0.07	0.04	0.01
	Non-Pantawid	28.18	28.41	32.08	27.70	27.64	31.89
	Number of obs.	1,257	1,539	2,716	1,119	1,421	2,716
Frequency of weight monitoring for children 2 to 5 years old in the past six months (24 to 71 months)	Impact	0.27	0.32	0.35***	0.33	0.42	0.42***
	Robust p-value	0.30	0.23	0.00	0.30	0.20	0.00
	Non-Pantawid	2.22	2.22	2.31	2.22	2.20	2.30
	Number of obs.	1,114	1,406	2,716	1,203	1,496	2,716

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

However, results indicate more frequent weight monitoring among Pantawid children ages 2–5 years in rural areas (0.8 times more for fuzzy RD MSE bandwidth).

Meanwhile, results of the subgroup analysis by sex imply that the program impacts male children more in terms of regular weight monitoring. Results for both CER and MSE bandwidths showed that the proportion of male children below 2 years old who are regularly weighed is 24–30 percentage points higher than their non-Pantawid counterparts. For older male children (ages 2–5 years), the estimated program impact is also high and statistically significant across all bandwidths (19 and 23 percentage points higher for MSE sharp and fuzzy RD, respectively). These results may have been because the baseline proportion of male children regularly weighed is lower than that of female children.

Micronutrient supplementation, immunization, and health facility visit

More Pantawid children ages 6 months to 5 years received vitamin A supplementation than non-Pantawid children by 6 percentage points based on estimates of the sharp RD for all bandwidths used. A larger impact was noted in the fuzzy RD result at around 7 percentage points, statistically significant in the MSE-optimal and sampling bandwidths (Table 12).

The positive impact of vitamin A supplementation is consistent with the findings of both the first and second waves of impact evaluation. IE Wave 1, which used an RCT design, estimated program impact at 6 percentage points. Meanwhile, IE Wave 2, which used RDD, reported a statistically significant increase of 12 percentage points using the second narrowest bandwidth.[14] Interestingly, the impact estimate using the narrowest bandwidth was also 6 percentage points, although not statistically significant. These results showed that the Pantawid Pamilya's positive impact on vitamin A intake among young children has been sustained since the early stages of program implementation.

Compared to the 2017 NDHS, the predicted proportions are close to the NDHS estimate of 81 percent among children from the 2nd lowest wealth quintile.

[14] The IE Wave 2 used a different set of bandwidths proposed in Imbens and Kalyanaraman (2012), and Calonico et al. (2014a)—IK and CCT bandwidths (using uniform kernel) and the sampling bandwidth as estimated in Grover (2013).

Table 12. Child health services

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Vitamin A supplementation (6 months to 6 years old)	Impact	5.83*	5.62*	5.65**	5.44	7.43*	6.90**
	Robust p-value	0.09	0.07	0.02	0.26	0.09	0.02
	Non-Pantawid	78.44	78.59	78.64	78.99	78.10	78.48
	Number of obs.	1,768	2,165	3,621	1,439	1,802	3,621
Iron supplementation among low-birthweight children (under 6 years old)	Impact	-3.92	-1.60	-0.10	-10.99	-5.29	-0.12
	Robust p-value	0.69	0.89	0.48	0.38	0.59	0.48
	Non-Pantawid	37.14	37.07	35.36	38.56	37.33	35.36
	Number of obs.	454	569	944	359	451	944
Full immunization at 1 year old	Impact	-0.37	-1.10	-0.66	-0.32	-0.63	-0.80
	Robust p-value	0.99	0.90	0.59	1.00	0.98	0.59
	Non-Pantawid	25.64	26.56	27.09	25.44	25.85	27.11
	Number of obs.	1,547	1,893	3,013	1,303	1,651	3,013
Visited a health facility or health professional in the past 8 weeks	Impact	-1.72	-1.28	4.03	-2.16	-2.37	4.96
	Robust p-value	0.55	0.51	0.16	0.61	0.47	0.17
	Non-Pantawid	39.24	38.76	35.71	39.59	39.37	35.60
	Number of obs.	1,916	2,353	3,983	1,560	1,952	3,983

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

By sex, a positive program impact was observed only among male children when using the full sample bandwidth (11 and 13 percentage points higher for sharp RD and fuzzy RD, respectively). However, the estimates for the narrower bandwidths showed that the program impact on male and female children does not differ. Hence, there is not enough evidence to conclude that male children benefit more. By urban and rural location, there is also no discernable difference in the program's impact on vitamin A supplementation.

No impact was observed on the proportion of iron supplementation among low-birthweight children (i.e., babies below 2,500 grams birthweight) in both sharp and fuzzy RD models. The lack of impact may be due to insufficient sample power, as the outcome indicator was only estimated for a subset of children. Interestingly, as the sample size increases in the estimations, the more the impact estimates approach zero, suggesting no difference between the treated and comparison. No statistically significant differences in impact were also observed when disaggregated by sex or urban-rural location.

Although the program does not specifically require beneficiaries to practice iron supplementation, the condition for child beneficiaries to visit health facilities is expected to indirectly affect the utilization of health services available for younger children in need of this intervention.

In the IE Wave 2, iron supplementation was estimated among all children below 6 years old regardless of whether they were born with low birth weight. Program impact was consistently estimated across all bandwidths to be at least a 12-percentage-point increase in iron supplementation. According to the DOH, however, iron supplementation is only provided to children with low birth weight as they are at risk of micronutrient deficiencies, including iron-deficiency anemia.

Among children ages 1–5 years, there is still no discernible impact on full immunization, as observed in the previous waves. This observation is consistent for the sharp and fuzzy RD estimations and the subgroup analyses. The lack of impact may be explained by the power calculations made by Cattaneo and Vasquez-Bare (2017), which predicted that the current sample only has around 30 percent power to detect an impact on immunization at 0.15 standardized effect size.

Moreover, it is important to note that the proportion of fully immunized children is low. Based on the predicted means, only 1 in 4

Pantawid and non-Pantawid children ages 1–5 years is completely immunized for age-appropriate vaccinations, excluding *Haemophilus influenzae* (HiB). This is slightly lower than the IE Wave 2 proportion at around 32 percent. The proportions cannot be directly compared with the 2017 NDHS results, as the survey only reports immunization rates for children ages 12–23 months and 24–35 months and includes HiB in its definition of complete immunization. Nevertheless, the fact that children in Pantawid households are not fully immunized, even if it is a program conditionality, suggests a gap in the utilization of this health service by the beneficiaries.

Lastly, no program impact was also detected on the proportion of children who visited a health facility or health professional in the past 8 weeks. This means that an equal proportion of children in Pantawid and non-Pantawid households visited a health facility or professional in the past 8 weeks. The estimated proportions range from 37–41 percent in the sharp and fuzzy RD estimations. The lack of impact is also observed in the subgroup analyses by urban and rural areas and by sex.

Given that the program encourages monthly health facility visits for children ages 0–5 years, the proportions observed in the study are very low. Overall, only 1 in 3 children ages 0–5 years in the sample visited a health facility in the past 2 months. Partially, the supply conditions in the barangay may explain these low proportions. Based on interviews with barangay captains in the study sites, only 91 percent of the barangays have BHS, while only 20 percent have RHUs within their jurisdiction.

Overall, the results on the availing of child health services are mixed. Positive impacts are noted on vitamin A supplementation and growth monitoring, but results are underwhelming for immunization and health facility visits. These results warrant further analysis of determinants that affect the availing of these services to understand why the program does not impact some outcomes.

Deworming

In terms of intake of deworming pills, no impact was observed among children below 6 years old and 6–14 years old (Table 13). However, the predicted probabilities for intake of deworming pills among children 6–14 years old are high at around 89–90 percent across the bandwidths.

Table 13. Deworming

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Deworming (under 6 years old)	Impact	4.52	3.83	3.05	6.06	5.08	3.74
	Robust p-value	0.29	0.37	0.15	0.27	0.33	0.15
	Non-Pantawid	43.69	44.49	46.12	43.25	44.06	46.03
	Number of obs.	1,727	2,173	3,949	1,603	2,008	3,949
Deworming at least once (6 to 14 years old)	Impact	1.10	0.74	2.09	0.98	1.06	2.43
	Robust p-value	0.64	0.78	0.50	0.72	0.68	0.50
	Non-Pantawid	87.55	87.88	87.18	87.53	87.71	87.11
	Number of obs.	4,729	5,723	8,336	4,341	5,310	8,336
Deworming at least twice (6 to 14 years old)	Impact	7.67**	8.46***	5.37**	9.46***	10.03***	6.23**
	Robust p-value	0.02	0.00	0.03	0.01	0.00	0.02
	Non-Pantawid	24.31	23.91	26.84	23.71	23.64	26.67
	Number of obs.	3,661	4,569	8,299	4,144	5,110	8,299

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

This indicates a substantial improvement in the proportion of children 6–14 years old who received at least one deworming pill in a year from the IE Wave 2, which was at 69–73 percent.

Meanwhile, a positive impact was observed on receiving deworming pills at least twice, with 8–10 percentage points higher proportion among Pantawid children than non-Pantawid children in sharp and fuzzy RD models for MSE bandwidth, respectively. This positive program impact was consistently observed in all bandwidths with comparable magnitude, indicating the robustness of the results. In contrast, the IE Wave 2 found a positive impact on the receipt of deworming pills at least once and found no impact on the receipt of deworming pills at least twice.

The proportion of children that take deworming pills at least twice per school year is still low at only 32–34 percent among Pantawid children, even though it is a program conditionality. In addition, this is lower than the proportion estimated in the IE Wave 2, which put the estimate at 50 percent. Further investigation is needed to determine whether other factors, such as the supply chain of deworming medicine, program monitoring, or other behavioral reasons, can explain the lower proportions observed.

Disaggregating by location, results showed that the statistically significant impact on deworming at least twice is driven by rural areas (9–12 percentage points higher). In contrast, no impact was observed in urban areas. By sex, a positive program impact on one-time intake was observed among male children below 6 years old (12–14 percentage points higher for sharp RD MSE and fuzzy RD MSE, respectively), but no impact was observed among female children. This result coincides with the positive impact observed on weight monitoring among male children ages 0–5 years old and the lack of impact among female children of the same age group.

Hypothesis 5: Pantawid Pamilya participation improves the childcare practices of parents.

Table 14 shows results on the feeding practices among children ages 0–5 years. No impact was observed on exclusive breastfeeding, although the predictive proportions are high at around 80–81 percent (MSE bandwidth). Hence, it is expected that 8 out of 10 children from both non-Pantawid and Pantawid households are exclusively breastfed for 6 months. This result was consistently observed in the main estimation

using sharp RD and fuzzy RD models and in the subgroup analyses on urban-rural areas and sex. The lack of program impact observed is consistent with the findings in the first two evaluations.

In terms of dietary intake of certain food items in the past 7 days, no program impact was observed except for the intake of vegetables. Only found to be statistically significant when using the full sample, the intake of eggs is 2 percentage points higher among Pantawid children than non-Pantawid children. In the IE Wave 1, Pantawid children were more likely to be fed eggs and fish compared to non-Pantawid children.

Pantawid children are 8–10 percentage points more likely to be fed vegetables in the past 7 days than non-Pantawid children based on both MSE and CER bandwidths. This may be due to the recent promotion of backyard and communal gardening activities among beneficiaries. In 2017, which coincided with the release of the rice subsidy, the beneficiaries were encouraged to have vegetable backyard gardens as part of the efforts to address food insecurity in the household.[15] Although inconclusive, the result of the third evaluation may indicate changes in the dietary practices among younger Pantawid children since the earlier evaluations. However, the total dietary diversity score (i.e., index of variation in food groups in a child's diet) does not differ between Pantawid and non-Pantawid children controlling for age.

Results for intake of protein-rich foods are markedly different for beneficiaries in urban and rural municipalities. Fish intake is significantly lower statistically for Pantawid beneficiaries in urban areas. In comparison, meat intake is significantly higher for Pantawid children in rural areas than non-Pantawid children in the comparison group. In most indicators, rural children seem to have experienced a greater positive program impact (i.e., higher protein consumption). A possible explanation for this variance would be differences in the costs of food items in urban and rural areas and how the grants affect the beneficiaries' additional purchasing power and preferences. This result needs a more rigorous examination.

Regarding the sex of the child, a positive program impact on the intake of vegetables is observed among male Pantawid children (9–10 percentage points higher for sharp RD and fuzzy RD MSE, respectively), while no statistically significant program impact was observed for the subgroup of female Pantawid children.

[15] NAC Resolution 34 (s. 2016) encourages Pantawid households to establish backyard and/or communal gardens to improve nutrition outcomes and alleviate food security.

Table 14. Dietary practices for children below 6 years old

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Exclusive breastfeeding for 6 months	Impact	0.56	1.42	1.08	-1.06	0.52	1.31
	Robust p-value	0.96	0.83	0.27	0.80	0.99	0.27
	Non-Pantawid	80.46	79.99	80.37	81.56	80.53	80.34
	Number of obs.	1,669	1,989	3,076	1,060	1,348	3,076
Dietary intake of eggs (past 7 days)	Impact	-3.82	-2.13	1.98*	-2.91	-1.58	2.42*
	Robust p-value	0.16	0.28	0.06	0.29	0.34	0.06
	Non-Pantawid	93.32	92.43	89.91	92.66	92.05	89.85
	Number of obs.	1,160	1,471	3,563	1,384	1,735	3,563
Dietary intake of fish (past 7 days)	Impact	-2.22	-0.70	1.68	-5.05	-2.28	2.05
	Robust p-value	0.36	0.65	0.82	0.12	0.34	0.84
	Non-Pantawid	91.50	90.98	90.14	92.51	91.43	90.09
	Number of obs.	1,633	2,015	3,563	1,353	1,714	3,563
Dietary intake of meat (past 7 days)	impact	-0.02	0.14	3.17	-3.05	0.39	3.87
	Robust p-value	0.99	0.98	0.19	0.61	0.98	0.19
	Non-Pantawid	69.97	70.26	69.74	71.21	69.88	69.65
	Number of obs.	1,625	2,002	3,548	1,326	1,686	3,548
Dietary intake of vegetables (past 7 days)	Impact	7.99**	8.07**	4.77***	9.91*	10.07*	5.83***
	Robust p-value	0.04	0.03	0.01	0.09	0.05	0.01
	Non-Pantawid	78.29	78.35	80.42	78.02	77.84	80.28
	Number of obs.	1,816	2,211	3,558	1,371	1,724	3,558
Dietary diversity score (1 to 7)	Impact	-0.11	-0.09	0.05	-0.17	-0.13	0.06
	Robust p-value	0.38	0.39	0.99	0.32	0.36	0.99
	Non-Pantawid	4.91	4.92	4.89	4.92	4.92	4.89
	Number of obs.	1,662	2,110	3,983	1,499	1,900	3,983

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

No program impact was observed on the incidence of common illnesses and VPDs—the latter was expected considering the lack of impact on immunization in this evaluation and the previous rounds. Neither is there an impact on visits to a health facility during an incidence of fever or cough in the past month (Table 15). This means that for the sample, an equal proportion of poor children are ill and visit a health facility when sick, regardless of beneficiary status. This may be attributed to a common belief or behavior among parents that they do not need to take their child with a fever or cough to a health facility. Alternatively, it could be due to high transportation costs and other missed opportunities, such as lost income, associated with visiting a healthcare facility. Based on the IE Wave 3 survey, the average waiting time in health facilities from arrival until the child is examined or given care is 39 minutes, with 12 percent of the respondents claiming a waiting time of more than 1 hour. Moreover, 11 percent of the rural barangays in the study sites do not have a government health facility within their premises (Appendix 4).

Subgroup analysis by sex showed no statistically significant differences in impact between male and female children for health visits, but results of the CER bandwidth showed a statistically significant increase in the incidence of VPDs among female Pantawid children. By rural-urban location, a statistically significant reduction in the incidence of fever or cough was observed only in rural areas, while a statistically significant higher incidence of VPDs was reported in urban areas. Regarding the probability of going to a health facility for a checkup during an incidence of illness, the estimated impacts were not statistically significant for all bandwidths.

Hypothesis 6: Pantawid Pamilya children have better nutrition and health outcomes

The results on nutrition outcomes are unexpected. As shown in Table 16, more Pantawid children are stunted (5.6 and 7 percentage points higher in sharp RD and fuzzy RD MSE bandwidth, respectively) and severely stunted (5 and 6 percentage points higher in sharp RD and fuzzy RD MSE bandwidth, respectively) compared to non-Pantawid children. On the other hand, no program impact was observed on all other nutrition indicators, such as underweight, severely underweight, wasting, and severe wasting. These results were consistently observed for both sharp and fuzzy RD models.

Table 15. Health facility visit during illness

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Incidence of diarrhea	Impact	1.80	1.14	-1.21	0.96	1.97	-1.48
	Robust p-value	0.43	0.50	0.37	0.70	0.43	0.38
	Non-Pantawid	9.44	10.06	11.12	9.43	9.31	11.16
	Number of obs.	1,701	2,158	3,980	1,231	1,558	3,980
Incidence of fever or cough	Impact	-3.08	-4.79	-6.69***	-2.50	-4.07	-8.24***
	Robust p-value	0.62	0.43	0.00	0.83	0.69	0.01
	Non-Pantawid	49.35	50.57	50.59	48.51	49.57	50.78
	Number of obs.	1,560	1,951	3,981	1,235	1,566	3,981
Vaccine-preventable diseases	Impact	3.51	2.44	0.99	5.10	4.39	1.22
	Robust p-value	0.18	0.28	0.67	0.15	0.14	0.67
	Non-Pantawid	12.19	11.99	11.18	12.40	11.97	11.15
	Number of obs.	1,743	2,191	3,983	1,415	1,787	3,983
Child visited a health facility during incidence of fever in the past month	Impact	6.14	2.52	0.59	14.07	7.85	0.75
	Robust p-value	0.37	0.59	0.78	0.25	0.41	0.78
	Non-Pantawid	49.26	50.53	53.64	46.83	49.07	53.62
	Number of obs.	603	751	1,272	488	619	1,272
Child visited a health facility during incidence of cough in the past month	Impact	-8.24	-8.88	-3.25	-13.62	-11.05	-4.19
	Robust p-value	0.30	0.24	0.12	0.25	0.32	0.13
	Non-Pantawid	58.54	58.40	56.11	60.81	58.95	56.23
	Number of obs.	655	812	1,394	522	644	1,394
Child visited a health facility during incidence of fever or cough in the past month	Impact	-3.17	-4.00	-2.04	-1.12	-4.94	-2.68
	Robust p-value	0.67	0.57	0.29	0.97	0.65	0.29
	Non-Pantawid	55.10	55.28	55.38	54.25	55.49	55.47
	Number of obs.	906	1,110	1,862	722	917	1,862

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Table 16. Nutrition and child health outcomes among children below 6 years old

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Underweight	Impact	5.32	4.50	2.20	6.07	5.18	2.70
	Robust p-value	0.14	0.19	0.19	0.16	0.20	0.19
	Non-Pantawid	20.10	20.16	20.14	20.02	20.06	20.08
	Number of obs.	1,688	2,091	3,717	1,829	2,247	3,717
Severe underweight	Impact	1.22	1.04	0.96	1.94	1.29	1.18
	Robust p-value	0.60	0.66	0.45	0.49	0.63	0.46
	Non-Pantawid	5.09	4.91	4.70	4.91	4.95	4.67
	Number of obs.	1,705	2,095	3,717	1,584	2,012	3,717
Stunting	Impact	5.53*	5.60*	4.59**	8.69*	7.14*	5.61**
	Robust p-value	0.10	0.08	0.04	0.05	0.09	0.04
	Non-Pantawid	29.77	29.51	29.68	29.28	29.55	29.56
	Number of obs.	2,059	2,477	3,628	1,529	1,928	3,628
Severe stunting	Impact	5.34**	4.98**	3.06**	7.27**	6.42**	3.73**
	Robust p-value	0.04	0.04	0.02	0.03	0.04	0.02
	Non-Pantawid	8.16	8.47	9.30	7.53	8.05	9.22
	Number of obs.	1,770	2,156	3,628	1,445	1,825	3,628
Wasting	Impact	-1.17	-1.24	0.37	-1.67	-1.22	0.45
	Robust p-value	0.62	0.50	0.97	0.56	0.53	0.97
	Non-Pantawid	12.35	11.84	10.65	12.29	11.53	10.64
	Number of obs.	1,343	1,698	3,239	1,489	1,842	3,239
Severe wasting	Impact	-2.05	-1.83	-0.81	-3.29	-2.72	-0.98
	Robust p-value	0.19	0.17	0.33	0.19	0.20	0.34
	Non-Pantawid	4.23	4.07	3.65	5.04	4.52	3.67
	Number of obs.	1,949	2,340	3,239	1,338	1,689	3,239

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

As for prevalence, the predicted proportions for severely underweight are slightly lower than in the Philippine Nutrition Facts and Figures 2015 by the Food and Nutrition Research Institute (FNRI). The FNRI estimated 8 percent severely underweight children 0–5 years old among the poorest quintile of the population, while this evaluation only estimated around 6–7 percent severely underweight among the children in the study sample. Predicted proportions of underweight Pantawid children are also slightly lower at around 25 percent compared to FNRI's estimate of 32 percent among the poorest quintile. For stunting, the FNRI estimated 49.7 percent stunting and 20.2 percent severe stunting prevalence among children 0–5 years old belonging to the poorest segment of the population. This estimate is higher than the predicted proportions of the model among Pantawid children, with around 35–38 percent stunting prevalence and 13–15 percent severe stunting prevalence. On the other hand, the wasting prevalence predicted by the estimation models at around 11 percent is higher compared to the proportions reported by the FNRI, which is 8.1 percent. Severe wasting prevalence is also slightly higher in the estimation than the FNRI report of 1.9 percent severe wasting among the poorest quintiles.

Disaggregating by age group, no statistically significant difference was observed in proportions of underweight, stunting, and wasting between Pantawid and non-Pantawid children 0–2 years old (Table 17) and 2–5 years old (Table 18) using sharp and fuzzy RD models. However, the lack of significance may be partly due to the reduction in power after trimming the sample. For both age groups, the estimates still indicate a higher proportion of underweight and stunting, as in the main estimation table.

In urban and rural locations, an increase in the prevalence of severe stunting was only observed among children 0–5 years old living in urban areas. Using the MSE bandwidth, the prevalence of severe stunting among Pantawid children is higher by 7–8 percentage points compared to non-Pantawid children in urban areas. In contrast, the program's impact on rural children is near zero and not statistically significant. No differential impact was observed in other nutrition indicators between urban and rural children for sharp and fuzzy RD estimations.

Table 17. Nutrition and health outcomes among children 0–2 years old

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Underweight	Impact	-4.75	-2.03	-0.41	-9.24	-5.22	-0.51
	Robust p-value	0.38	0.56	0.73	0.27	0.40	0.73
	Non-Pantawid	17.15	15.42	14.07	19.04	16.87	14.08
	Number of obs.	596	717	1,072	497	616	1,072
Severe underweight	Impact	-0.17	0.40	-0.10	0.85	-0.28	-0.12
	Robust p-value	0.95	0.94	0.49	0.88	0.97	0.49
	Non-Pantawid	4.00	3.61	4.03	3.82	3.93	4.04
	Number of obs.	516	635	1,072	437	549	1,072
Stunting	Impact	5.75	5.50	3.77	8.72	7.46	4.64
	Robust p-value	0.35	0.35	0.36	0.34	0.37	0.37
	Non-Pantawid	16.87	16.78	17.42	16.45	16.71	17.37
	Number of obs.	575	691	1,031	449	567	1,031
Severe stunting	Impact	3.33	3.87	1.47	5.62	4.13	1.80
	Robust p-value	0.43	0.34	0.40	0.39	0.49	0.40
	Non-Pantawid	5.73	5.65	6.62	5.19	5.69	6.60
	Number of obs.	583	700	1,031	447	567	1,031
Wasting	Impact	-7.88	-5.01	2.58	-8.48	-4.56	3.11
	Robust p-value	0.36	0.43	0.58	0.39	0.47	0.58
	Non-Pantawid	26.67	24.20	19.94	25.86	23.36	19.91
	Number of obs.	371	460	748	418	502	748
Severe wasting	Impact	-4.43	-4.49	-4.06	-5.12	-6.91	-4.90
	Robust p-value	0.47	0.47	0.28	0.42	0.24	0.29
	Non-Pantawid	8.83	8.62	9.41	8.62	9.38	9.47
	Number of obs.	363	452	748	426	510	748

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Table 18. Nutrition and health outcomes among children 2–5 years old

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Underweight	Impact	5.49	4.86	3.64	8.61	6.54	4.40
	Robust p-value	0.19	0.22	0.22	0.14	0.21	0.23
	Non-Pantawid	22.80	22.81	22.49	21.97	22.65	22.40
	Number of obs.	1,506	1,814	2,645	1,251	1,522	2,645
Severe underweight	Impact	0.66	0.46	1.32	1.34	0.78	1.60
	Robust p-value	0.85	0.94	0.69	0.77	0.91	0.70
	Non-Pantawid	5.81	5.68	5.03	5.83	5.79	5.00
	Number of obs.	1,476	1,765	2,645	1,210	1,483	2,645
Stunting	Impact	2.83	3.62	4.84	4.16	4.52	5.84
	Robust p-value	0.68	0.62	0.11	0.53	0.52	0.12
	Non-Pantawid	36.42	35.81	34.61	35.82	35.45	34.49
	Number of obs.	1,409	1,671	2,597	1,643	1,943	2,597
Severe stunting	Impact	4.58	4.25	3.79*	5.51	5.08	4.58*
	Robust p-value	0.16	0.20	0.06	0.16	0.19	0.06
	Non-Pantawid	10.01	10.35	10.36	9.87	10.23	10.26
	Number of obs.	1,447	1,733	2,597	1,449	1,739	2,597
Wasting	Impact	-0.13	-0.18	-0.10	-0.06	-0.02	-0.12
	Robust p-value	0.89	0.82	0.74	0.94	0.92	0.74
	Non-Pantawid	8.03	7.65	7.74	7.85	7.46	7.74
	Number of obs.	1,189	1,448	2,491	1,275	1,539	2,491
Severe wasting	Impact	-1.46	-0.95	-0.02	-2.25	-1.77	-0.03
	Robust p-value	0.32	0.41	0.54	0.27	0.27	0.54
	Non-Pantawid	2.94	2.62	2.04	3.37	2.99	2.04
	Number of obs.	1,563	1,862	2,491	1,297	1,563	2,491

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Subgroup analysis by sex showed that more male Pantawid children 0–5 years old are underweight (8 and 12 percentage points for sharp and fuzzy RD MSE, respectively), stunted (11 and 14 percentage points for sharp and fuzzy RD MSE, respectively), and severely stunted (11 and 15 percentage points for sharp and fuzzy RD MSE, respectively). In contrast, program impacts on these indicators among female children of the same age group are generally small and not statistically significant. Interestingly, this finding coincides with the earlier observation that program impact on growth monitoring of male children is higher than that of female children. This may mean beneficiaries themselves feel the need to monitor the growth of male children as the prevalence of malnourishment is higher for them.

Generally, the study noted no impact on nutrition outcomes besides stunting. However, the negative result on stunting is surprising given that participation in the program is expected to improve children's nutritional outcomes as a result of increased food consumption, better childcare and food hygiene practices, regular growth monitoring, and deworming. The results are inconsistent with the IE Wave 1 findings that noted a 10-percentage-point reduction in the prevalence of stunting among Pantawid children. In the IE Wave 2, no statistically significant impact was observed on any nutritional outcomes.

Moreover, the results are inconsistent with the findings of the RCT cohort study of the IE Wave 3 (Orbeta et al. 2021), which revisited the households in the original treatment and control areas of the first evaluation. Nutrition and other outcomes were compared based on the assumption that children or mothers in treatment areas received program benefits during the first 1,000 days of a child's life. The hypothesis is that children who received program benefits at the right time (the treatment) have better outcomes than children who received program benefits later (the control). Findings showed that receipt of program benefits during the first 1,000 days of life results in better nutrition outcomes among children, with a 3-percentage-point reduction in the likelihood of being severely underweight among children in the treatment group. While no statistically significant impacts on other nutrition outcomes were observed, the rates were consistently lower in treatment compared to control and are in the correct sign.

There was also no statistically significant difference between Pantawid and non-Pantawid children's dietary intake except for the intake of vegetables. After making this observation and noting the discrepancy with the RCT study, it is possible that current dietary habits or childcare practices do not solely cause the adverse effects of stunting. Instead, these effects could be attributed to past practices and other factors that accumulated from the time these children were conceived. According to WHO (2010), stunting occurs from the accumulation of ill effects of undernutrition and infections since the child's fetal development. Wasting, in general, is considered acute or sudden weight loss due to illnesses, while underweight is considered a hybrid indicator that may occur due to both stunting and wasting. In addition, Christian et al. (2013) estimated that in-utero conditions determine 20 percent of stunting during pregnancy, primarily driven by maternal health. Keeping these in mind, the negative result on stunting and the lack of statistically significant difference on wasting suggest that these are effects of more chronic behavior among the beneficiaries that the program has not addressed.

A possible explanation is that the children in the sample were not exposed to the program at the right time to counter or reverse the chronic effects of nutrition deficiency like stunting. In the RCT study, the children in the treatment group were exposed to the program during their first 1,000 days of life. In contrast, children in the treatment group in this RDD analysis did not necessarily benefit from the program during their first 1,000 days of life.

To approximate the RCT design, additional analysis was performed on a limited sample of children who were estimated to have been exposed to the program starting conception based on their birthday and receipt of the first cash grant payment by the household (Table 19). Only stunting and underweight were included in the analysis to focus on the chronic outcomes of undernourishment.

Results of the supplementary analysis returned no statistically significant differences in the prevalence of underweight and stuntedness between the treatment and comparison groups. However, this could have been due to the smaller sample included in the analysis, as impact estimates are still positive, which means an increase in the prevalence of undernutrition indicators. Impact on severe stunting is still observed for the full sample estimation, although significance disappears in the narrower bandwidths.

Table 19. Program impact on underweight and stunting among limited sample of children born after first receipt of program cash grants

Outcomes	Sharp RD Impact Estimate			Fuzzy RD Impact Estimate		
	CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Underweight	3.14	1.68	-0.56	3.46	2.13	-0.57
Severe underweight	1.11	0.94	0.4	1.00	1.17	0.4
Stunting	7.27	5.66	2.75	6.56	5.68	2.8
Severe stunting	4.62	4.34	2.69*	5.02	4.44	2.74*

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Note: Asterisks reflect the level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Further study on the health knowledge of child caregivers, specific behaviors like maternal care during pregnancy, and dietary practices in the past for this specific cohort of children should be performed to understand this evaluation's findings better. Additional analysis can also focus on the utilization of health services such as deworming for children ages 0–5 years, growth monitoring of younger children, labor force participation of mothers, and visits to health facilities for treatment.[16]

Impact on education

This section presents the program impact estimates on education outcomes, including school enrollment and attendance and household investments in children's education. Also included is the program's impact on child labor since it is expected that incidence and time spent on child labor will be affected by changes in school attendance.

Aside from the subgroup analyses by urban and rural areas and by sex of the child, the discussion will also include the subgroup analysis according to the monitoring status of the child. Unlike in health, there were enough number of children ages 6–20 years who were monitored and not monitored to make a reliable comparison of program impact between groups (Table 20).

[16] Supplemental study was conducted by the research team in Araos, Melad, and Orbeta (2022).

Table 20. Number of monitored and non-monitored children by age group

Age Group	Number of not monitored (%)		Number of Monitored (%)		Total
6–11 years old	1,263	(47.0)	1,713	(63.7)	2,689
12–15 years old	566	(33.3)	1,378	(81.1)	1,700
16–17 years old	332	(42.5)	528	(67.6)	781
12–17 years old	898	(36.2)	1,906	(76.8)	2,481
6–14 years old	1,684	(42.1)	2,788	(69.7)	3,998
15–20 years old	1,207	(63.0)	920	(48.0)	1,915

Source: Authors' compilation

Hypothesis 7: The Pantawid Pamilya increases the school participation of children

Table 21 shows the estimated program impact on children's school enrollment by age group. Based on the sharp RD results, the program increased the enrollment rates of older but not younger children. A positive impact was observed for children ages 12–17 using the CER and sample bandwidths. The results are not statistically significant for the preferred MSE bandwidth, but the predicted proportions are comparable to the CER estimates (88% in non-Pantawid versus 93% in Pantawid). Meanwhile, no statistically significant difference was observed in elementary-aged children, where the enrollment rate is relatively high even for the non-Pantawid group at around 98 percent for children ages 6–11 and 6–14. In the fuzzy RD model, the enrollment rate among children ages 6–14 was found to be statistically significant across all bandwidths. However, the magnitude of impact is very small (only 1–2 percentage points higher) given that enrollment in this age group is almost universal, leaving little room for the program to increase it marginally. These results are consistent with IE Wave 2 findings that expanding the program to cover older children has translated to increased school participation for older children.

While the program has shown a positive impact on enrollment rates of older children and high enrollment rates for elementary-aged children, no program impact was observed for children ages 3–5 who are in nursery, daycare, preschool, or kindergarten. Moreover, enrollment rates are low for non-Pantawid and Pantawid children at only 53–56 percent (all bandwidths). This means that only half of children in this age group are in school. When mothers or guardians were asked why their children were not enrolled, most reported they were too young or unprepared to attend school.

Disaggregating by urban and rural location, heterogeneity in program impact was observed for enrollment of children ages 16–17 and 12–17. In both indicators, a higher positive program impact was observed in urban than rural areas. For children ages 12–17, the increase in enrollment rate in urban areas was around 8 percentage points (MSE bandwidth), while the impact estimate in rural areas is smaller in magnitude and not statistically significant. An even larger difference in impact was observed for the older children (ages 16–17), where the increase

Table 21. Enrollment

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ages 3–5 years	Impact	-1.11	-0.14	2.10	-1.55	-0.17	2.55
	Robust p-value	0.82	0.97	0.69	0.78	0.93	0.69
	Non-Pantawid	54.73	54.09	54.19	54.89	54.08	54.13
	Number of obs.	1,164	1,373	2,138	1,150	1,362	2,138
Ages 6–11 years	Impact	0.62	0.72	0.08	0.89	0.77	0.10
	Robust p-value	0.38	0.28	0.29	0.36	0.43	0.29
	Non-Pantawid	97.85	97.80	98.18	97.80	97.80	98.18
	Number of obs.	2,778	3,460	5,663	2,444	3,089	5,663
Ages 12–15 years	Impact	-0.15	0.73	1.91**	0.48	1.60	2.19**
	Robust p-value	0.85	0.88	0.03	1.00	0.74	0.03
	Non-Pantawid	94.28	93.68	93.45	93.90	93.25	93.39
	Number of obs.	1,448	1,837	3,643	1,670	2,080	3,643
Ages 16–17 years	Impact	8.47	7.42	6.24*	10.36	9.09	7.31*
	Robust p-value	0.13	0.17	0.06	0.13	0.17	0.06
	Non-Pantawid	78.03	78.80	80.11	77.58	78.37	79.91
	Number of obs.	927	1,102	1,641	923	1,099	1,641
Ages 12–17 years	Impact	4.46*	3.80	3.56***	4.88*	4.40	4.11***
	Robust p-value	0.08	0.12	0.00	0.09	0.13	0.00
	Non-Pantawid	88.19	88.32	89.13	88.09	88.19	89.02
	Number of obs.	2,295	2,866	5,284	2,444	3,002	5,284
Ages 6–14 years	Impact	1.20	1.31	1.15***	1.63*	1.97**	1.34***
	Robust p-value	0.16	0.12	0.00	0.07	0.02	0.00
	Non-Pantawid	96.61	96.48	96.71	96.38	96.26	96.68
	Number of obs.	3,700	4,650	8,467	4,929	5,917	8,467
Ages 15–20 years	Impact	-0.09	0.27	0.56	0.13	0.41	0.64
	Robust p-value	0.83	0.76	0.42	0.93	0.69	0.42
	Non-Pantawid	97.86	97.71	97.65	97.76	97.67	97.64
	Number of obs.	1,583	1,961	3,020	1,769	2,111	3,020

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

in enrollment rate was estimated at 28 percentage points (MSE bandwidth) for urban areas and no impact for rural areas. Fuzzy RD estimates within the MSE bandwidth also noted an increase in enrollment rates by 9 percentage points for ages 12–17 and 30 percentage points for ages 16–17. These results were observed even though the baseline enrollment rates were relatively higher in urban than rural areas. These results also highlight the differences in access to junior and senior high schools between urban and rural areas (Appendix 4). In the study sites, 74 percent of urban barangays have a high school compared to 55 percent of rural barangays.

As for children ages 6–14, the impact on enrollment was significantly higher among children in rural than urban areas in both models. Since the supply of elementary schools does not differ for urban and rural areas, this result can be explained by the lower baseline enrollment rate in rural areas.

Disaggregating by sex of the child, a statistically significant difference was observed for male children ages 6–14. Looking closely, the enrollment rate for female children is estimated at high rates of around 98–99 percent, making it difficult for the program to increase the proportions further marginally. This observation is consistent with several studies showing that more girls are enrolled in school than boys. As for children ages 16–17, positive program impact was observed among female Pantawid children, while results for the male subgroup did not return statistically significant program impact. Using the MSE bandwidth, the program increases enrollment rates of children ages 16–17 by 13–15 percentage points compared to female children in non-Pantawid households.

Analysis by monitoring status showed a strong disparity between children who are monitored in the program versus those who are not, based on sharp and fuzzy RD estimates. For all age groups except ages 3–5, program impact on enrollment is strongly positive among monitored children. For younger children, the difference between the monitored and non-monitored children, although statistically significant, is relatively smaller. This implies that younger children are almost equally likely to be affected by the program and are equally likely to attend school regardless of monitoring status. As for older children, being monitored in the program increases the probability of enrollment in school relative to

non-Pantawid children and children who are not monitored. Conversely, older children who are not monitored in the program are less likely to be enrolled in school compared to monitored beneficiary children and non-beneficiaries.

Regarding attendance rates, no statistically significant difference was observed between Pantawid and non-Pantawid children across all age groups, including preschool age, for both sharp and fuzzy RD models (Table 22). On average, attendance rates are around 88 percent for ages 3–5, 97 percent for ages 6–11, 98 percent for ages 12–15, and 98 percent for ages 16–17. Likewise, no statistically significant difference was observed in terms of the proportion of Pantawid and non-Pantawid children who attended class at least 85 percent of the school days (Table 23). Despite the lack of impact on attendance rates, it must be noted that the attendance rates for all age groups are already very high, even for older children, who are expected to have higher risks of dropping out of school. In the IE Wave 2, a positive impact on attendance of children ages 3–5 was found; this was not observed in this study.

Disaggregating by urban and rural location, a statistically significant impact was observed on the attendance rate of children ages 3–5 in rural areas by 7 percentage points for sharp RD (92% in Pantawid and 85% in non-Pantawid, MSE bandwidth) and 8 percentage points for fuzzy RD (93% in Pantawid and 85% in non-Pantawid, MSE bandwidth). In addition, a positive but smaller impact was observed for children ages 16–17 in rural areas where Pantawid impact is 2 percentage points based on the sharp RD estimation. No statistically significant impact is observed on this outcome, however, using fuzzy RD. As for children ages 15–20, the Pantawid impact yielded a 2-percentage-point increase in attendance rate based on the sharp and fuzzy RD estimations. Regarding the proportion of children with at least 85 percent attendance, an increase of 20 percentage points for sharp RD and 22 percentage points for fuzzy RD using the MSE bandwidth was noted for children ages 3–5 in rural areas.

Meanwhile, the subgroup analysis by sex showed a disparity in the program impact on attendance rates of male and female children ages 12–15 and 6–14. For both outcomes, a small positive impact was noted for female beneficiary children using both sharp and fuzzy RD, while no impact was noted for male beneficiary children.

Table 22. Attendance rates (in %)

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ages 3– 5 years	Impact	1.25	1.45	-1.13	0.98	1.94	-1.37
	Robust p-value	0.66	0.56	0.98	0.82	0.61	0.98
	Non-Pantawid	86.53	86.66	88.45	86.70	86.42	88.49
	Number of obs.	512	616	1,139	466	589	1,139
Ages 6–11 years	Impact	0.85	0.69	0.52	1.01	0.88	0.60
	Robust p-value	0.19	0.21	0.22	0.22	0.20	0.22
	Non-Pantawid	96.56	96.73	96.99	96.48	96.64	96.97
	Number of obs.	2,687	3,364	5,558	2,450	3,093	5,558
Ages 12–15 years	Impact	0.58	0.58	0.73	0.68	0.65	0.84
	Robust p-value	0.43	0.44	0.13	0.41	0.45	0.14
	Non-Pantawid	96.95	97.03	97.22	96.94	97.03	97.20
	Number of obs.	1,804	2,220	3,438	1,849	2,269	3,438
Ages 16–17 years	Impact	-0.94	-0.70	0.23	-1.16	-0.88	0.27
	Robust p-value	0.33	0.37	0.60	0.34	0.38	0.60
	Non-Pantawid	98.26	98.17	97.79	98.33	98.23	97.78
	Number of obs.	692	859	1,365	683	842	1,365

Table 22 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ages 12–17 years	Impact	0.05	0.16	0.59	0.06	0.20	0.68
	Robust p-value	0.99	0.90	0.33	1.00	0.90	0.33
	Non-Pantawid	97.35	97.36	97.38	97.36	97.35	97.36
	Number of obs.	2,273	2,833	4,803	2,347	2,891	4,803
Ages 6–14 years	Impact	0.77	0.63	0.59	0.89	0.85	0.68
	Robust p-value	0.18	0.20	0.13	0.22	0.18	0.13
	Non-Pantawid	96.65	96.81	97.06	96.56	96.67	97.04
	Number of obs.	4,014	4,984	8,235	3,430	4,321	8,235
Ages 15–20 years	Impact	-0.09	0.27	0.56	0.13	0.41	0.64
	Robust p-value	0.83	0.76	0.42	0.93	0.69	0.42
	Non-Pantawid	97.86	97.71	97.65	97.76	97.67	97.64
	Number of obs.	1,583	1,961	3,020	1,769	2,111	3,020

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Table 23. Attendance of at least 85 percent

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ages 3–5 years	Impact	0.14	1.57	-1.36	-1.53	0.99	-1.65
	Robust p-value	0.96	0.76	0.89	0.88	0.90	0.89
	Non-Pantawid	71.94	71.79	73.97	72.59	71.84	74.02
	Number of obs.	543	662	1,139	477	598	1,139
Ages 6–11 years	Impact	1.75	1.55	2.00	2.17	1.96	2.32
	Robust p-value	0.36	0.38	0.23	0.37	0.36	0.23
	Non-Pantawid	92.50	92.84	93.21	92.19	92.54	93.15
	Number of obs.	3,201	3,844	5,563	2,711	3,380	5,563
Ages 12–15 years	Impact	-0.55	-0.73	0.57	-0.62	-0.89	0.66
	Robust p-value	0.78	0.65	0.82	0.77	0.63	0.82
	Non-Pantawid	93.98	94.28	94.20	94.03	94.35	94.19
	Number of obs.	1,763	2,173	3,443	1,816	2,228	3,443
Ages 16–17 years	Impact	-3.70	-3.84	0.26	-4.82	-4.58	0.30
	Robust p-value	0.24	0.18	0.44	0.19	0.17	0.44
	Non-Pantawid	96.94	96.84	94.74	97.23	97.02	94.73
	Number of obs.	624	762	1,369	685	843	1,369

Table 23 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ages 12–17 years	Impact	-1.54	-1.56	0.44	-1.85	-1.79	0.51
	Robust p-value	0.43	0.36	0.55	0.40	0.34	0.55
	Non-Pantawid	94.82	94.93	94.37	94.93	95.02	94.36
	Number of obs.	2,276	2,822	4,812	2,384	2,930	4,812
Ages 6–14 years	Impact	0.96	0.76	1.54	1.12	1.10	1.78
	Robust p-value	0.56	0.64	0.35	0.57	0.54	0.36
	Non-Pantawid	92.90	93.26	93.58	92.68	92.90	93.53
	Number of obs.	4,292	5,264	8,242	3,491	4,404	8,242
Ages 15–20 years	Impact	0.05	0.52	1.36	0.50	0.88	1.56
	Robust p-value	0.99	0.81	0.63	0.87	0.77	0.63
	Non-Pantawid	94.76	94.54	94.26	94.54	94.46	94.22
	Number of obs.	1,568	1,953	3,029	1,834	2,167	3,029

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Sharp and fuzzy RD estimations yielded no statistically significant impact on attendance rates for children ages 3–5 and 6–11 years, regardless of program monitoring status. Estimates using the narrow bandwidths were unavailable due to the small number of monitored children ages 3–5. The attendance rate of ages 6–14 was higher for non-monitored children by 1 percentage point (sharp RD) and 2 percentage points (fuzzy RD). Results for ages 12–15 and 16–17 are contradicting. For the former, the attendance rate of non-monitored children was significantly higher statistically for Pantawid versus non-Pantawid. As for the latter, the attendance rate for non-monitored children is significantly lower statistically, while no impact was observed among monitored children. This is consistent across sharp and fuzzy models, although a higher magnitude of impact is observed for fuzzy RD.

Hypothesis 8: Pantawid Pamilya participation results in improved education outcomes of children

Table 24 presents the program impact estimates on enrollment by level of the corresponding age group. Children ages 3–5 must be enrolled in nursery up to kindergarten, ages 6–11 must be enrolled in elementary, ages 12–15 must be enrolled in junior high school, and ages 16–17 must be enrolled in senior high school. These indicators were designed to capture delays in entry and progression in schooling. Among the school levels, only enrollment in junior high school returned a positive statistically significant impact for the sharp and fuzzy RD. Using sharp RD within MSE bandwidth, the probability of Pantawid children ages 12–15 enrolling in junior high school is higher by 6 percentage points than their counterparts from non-Pantawid households (78% in non-Pantawid and 84% in Pantawid). On the other hand, fuzzy RD estimates showed an increase of 7 percentage points (78% in non-Pantawid and 85% in Pantawid). No statistically significant difference is noted in age-appropriate enrollment in daycare/kindergarten, elementary, and senior high school for both models. Consistent with the increased enrollment rates among high-school-age children, these findings suggest that more Pantawid children enter school at the prescribed age and keep progressing up the education ladder compared to their counterparts. It also indicates that the expansion of the age coverage of the program resulted in better education outcomes for older children who are at more risk of dropping out of school and engaging in child labor.

Table 24. School level enrollment

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Enrollment in daycare, nursery, preschool/kindergarten of children 3 to 5 years old	Impact	-0.71	0.15	1.40	-1.37	-0.44	1.71
	Robust p-value	0.93	0.95	0.66	0.89	0.99	0.66
	Non-Pantawid	36.42	35.49	35.02	37.04	36.02	34.97
	Number of obs.	721	862	1,357	640	775	1,357
Enrollment in preschool or kindergarten children 5 years old	Impact	0.80	0.82	-3.39	2.36	1.22	-4.17
	Robust p-value	0.86	0.80	0.73	0.83	0.87	0.74
	Non-Pantawid	53.35	53.54	56.33	52.87	53.21	56.43
	Number of obs.	425	507	781	390	468	781
Enrollment in elementary of children 6 to 11 years old	Impact	0.01	0.18	-0.59	-0.39	0.17	-0.69
	Robust p-value	0.96	0.83	0.98	0.84	0.91	0.98
	Non-Pantawid	95.24	95.02	95.16	95.54	95.09	95.18
	Number of obs.	2,735	3,409	5,663	2,427	3,071	5,663
Enrollment in junior high school for children 12 to 15 years old	Impact	5.22*	5.69**	4.03***	6.00*	6.55**	4.66***
	Robust p-value	0.06	0.03	0.00	0.07	0.04	0.00
	Non-Pantawid	78.19	78.39	80.45	78.00	78.15	80.33
	Number of obs.	2,736	3,330	5,284	2,662	3,270	5,284
Enrollment in senior high school for children 16 to 17 years old	Impact	4.57	4.48	3.06	5.71	5.41	3.58
	Robust p-value	0.47	0.45	0.24	0.50	0.54	0.24
	Non-Pantawid	46.88	47.24	50.35	46.59	46.99	50.25
	Number of obs.	927	1,102	1,641	917	1,094	1,641

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Subgroup analysis by urban and rural locations on age-appropriate education levels showed a higher program impact among children in urban than rural areas. For ages 12–15, estimates yielded a positive program impact on enrollment rates in junior high schools in urban and rural areas. Based on sharp RD within the MSE bandwidth, the impact is 7 percentage points to Pantawid children in urban and rural areas. For older children (ages 16–17), the impact in urban areas is up to 19 percentage points (sharp RD MSE bandwidth), while the impact in rural areas is lower in magnitude and statistically not significant. Among elementary-aged children, a statistically significant decrease in proportion was observed in rural areas (4 percentage points lower for Pantawid compared to non-Pantawid), while the impact in urban areas is positive (a 3-percentage-point increase in enrollment). Fuzzy RD estimates are similar but display a greater magnitude of impact compared to sharp RD. These disparities between urban and rural areas on age-appropriate enrollment are mostly consistent with the earlier finding on enrollment rates, where urban areas experienced stronger program impacts. These results can be associated with the differences in the supply of schools between urban and rural areas. As discussed earlier, a lower proportion of rural areas have secondary schools within their premises.

Analysis by sex of the child showed no statistically significant differences in program impact between male and female children except for the junior high school level in sharp and fuzzy RD models. A higher proportion of female Pantawid children ages 12–15 (by 9 percentage points) are enrolled in junior high school compared to their non-Pantawid counterparts. Aside from this, it must be noted that for all age groups (i.e., 6 to 11, 12 to 15, and 16 to 17), baseline proportions of age-appropriate enrollment in the corresponding school level are consistently higher for female than male children. This observation is consistent with national statistics that girls have better education outcomes than boys. However, the finding that the program more strongly impacts females means that additional effort should be made to improve the education outcomes of male children.

Between monitored and non-monitored, a higher program impact was noted among monitored children ages 12–15 and 16–17, consistent for both sharp and fuzzy RD estimations in impact and magnitude. For instance, the proportion of children ages 12–15 enrolled in junior high school is 10 percentage points higher (MSE bandwidth) among

monitored beneficiaries compared to non-beneficiaries. At the same time, no statistically significant impact was observed when comparing non-beneficiaries with beneficiaries who are not monitored in school. Among children ages 16–17, the impact on children monitored in school is 18 percentage points (CER bandwidth), while no impact was noted for non-monitored children.

In terms of school dropout rates, the desired program impact was observed only among children ages 6–14. In this age group, the dropout rate is 1 percent lower among Pantawid children compared to non-Pantawid children (2% versus less than 1% in Pantawid); fuzzy RD also showed comparable impact estimates. This reduction in dropout rates is not statistically significant for other age groups in the narrow bandwidths. However, comparing the magnitude of impact estimates across age groups suggests that program impact among ages 6–14 is more prominent in older children (i.e., starting at 12 years old). The reduction in the dropout rates of older children can be observed in the 12–15 and 12–17 age groups, although statistically significant only when the full sample is used for both sharp and fuzzy RD. These results are somewhat consistent with the earlier results on increased enrollment and school-level enrollment of older children. In contrast, no program impact was found on dropout rates in IE Wave 2.

Subgroup analysis by urban and rural location showed a statistically significant reduction in dropout rates of children ages 6–14 and 12–15 in rural areas. In contrast, no statistically significant impact was observed in urban areas. As for older children (ages 16–17), a statistically significant reduction in dropout rates was observed in both urban and rural areas. The estimation of impact is consistent between sharp and fuzzy models.

Regarding the sex of the child, a 4-percentage-point reduction in dropout rates was observed among female children ages 12–17 using both sharp and fuzzy models, while no statistically significant program impact was observed among their male counterparts. As for younger children (ages 6–14), a reduction in dropout rate was observed among males, while no statistically significant impact was observed among females using both models. These results suggest that the program keeps younger boys in school, but the program's impact dwindles as the children grow older. Conversely, the program has a stronger effect on keeping girls in school as they grow older. This finding captures a missed opportunity for the

program because boys are more at risk of dropping out, especially as their age increases. For all age groups, male children consistently have higher proportions of dropping out compared to female children.

As in other indicators in education, program impact on dropout rates between beneficiary children who are monitored and those who are not monitored in school was also compared. Results showed a larger decrease in dropout rates among monitored beneficiary children for all age groups in both sharp and fuzzy RD estimations. The reduction in dropout rate becomes larger as age increases, possibly due to the higher baseline proportions of dropout for older children.

Program impact on children's participation in extracurricular activities (e.g., academic, artistic, athletic, school organization membership) was also analyzed (Table 26). This was used as a composite indicator of the child's academic and athletic capabilities, willingness to participate and immerse in learning activities outside of the classroom, as well as self-esteem. Extracurricular participation among Pantawid children was higher by 5 percentage points in the sharp RD MSE bandwidth and by 8 percentage points in the fuzzy RD MSE bandwidth. There was no statistically significant impact on the number of activities participated in for either model.

Subgroup analyses using sharp and fuzzy RD models showed a positive program impact on extracurricular participation for children beneficiaries who are in rural areas, male, and monitored in the program. Based on the results, beneficiaries in rural areas are more likely to participate in extracurricular activities by 6 percentage points compared to non-Pantawid children in urban areas. A larger impact was observed using fuzzy RD, with a positive impact of 8 percentage points. By sex, the program impact was observed only among male children for both participation in any extracurricular activity and number of extracurricular activities participated in, with a larger impact using fuzzy RD. This is likely due to lower baseline proportions among male than female children. For example, among non-Pantawid children, only 42 percent of the males participate in extracurricular activities compared to 53 percent among females. Likewise, both sharp and fuzzy RD results observed an 8-percentage-point increase in participation among children beneficiaries who are monitored in school (MSE bandwidth). No impact was observed when comparing non-monitored Pantawid and non-Pantawid children.

Table 25. Dropout rate

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ages 6–11 years	Impact	-0.26	-0.38	-0.02	-0.32	-0.39	-0.02
	Robust p-value	0.72	0.61	0.46	0.72	0.69	0.46
	Non-Pantawid	1.02	0.98	0.78	1.05	1.00	0.78
	Number of obs.	2,319	2,932	5,548	2,159	2,701	5,548
Ages 12–15 years	Impact	-1.56	-1.54	-1.18*	-1.30	-1.79	-1.36*
	Robust p-value	0.23	0.22	0.08	0.44	0.26	0.08
	Non-Pantawid	3.53	3.42	3.06	3.40	3.58	3.09
	Number of obs.	1,911	2,348	3,511	1,592	1,970	3,511
Ages 16–17 years	Impact	-4.13	-2.29	-1.76	-5.03	-2.81	-2.03
	Robust p-value	0.30	0.61	0.45	0.30	0.60	0.45
	Non-Pantawid	9.17	8.36	7.52	9.43	8.51	7.59
	Number of obs.	698	852	1,436	697	851	1,436
Ages 12–17 years	Impact	-1.68	-1.53	-1.24*	-1.59	-1.90	-1.43*
	Robust p-value	0.28	0.29	0.07	0.40	0.29	0.07
	Non-Pantawid	4.87	4.85	4.30	4.65	4.94	4.34
	Number of obs.	2,167	2,698	4,947	1,797	2,287	4,947

Table 25 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ages 6–14 years	Impact	-1.03*	-1.13**	-0.44*	-1.21*	-1.33**	-0.51*
	Robust p-value	0.08	0.04	0.08	0.08	0.04	0.08
	Non-Pantawid	1.90	1.88	1.46	1.95	1.93	1.48
	Number of obs.	3,721	4,645	8,275	3,605	4,523	8,275
Ages 15–20 years	Impact	-1.24	-1.26	-0.46	-1.33	-1.68	-0.52
	Robust p-value	0.73	0.76	0.40	0.73	0.68	0.40
	Non-Pantawid	8.26	8.30	7.27	8.32	8.29	7.28
	Number of obs.	1,492	1,849	3,141	1,650	2,027	3,141

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Table 26. Participation in extracurricular activities among school-aged children

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Participation in any extracurricular activity in school	Impact	5.85**	4.09*	1.34	7.08**	5.86**	1.55
	Robust p-value	0.03	0.08	0.60	0.02	0.02	0.60
	Non-Pantawid	47.72	48.93	51.49	47.31	48.17	51.45
	Number of obs.	5,077	6,389	11,773	4,686	5,842	11,773
Count of extracurricular activities participated in school	Impact	0.04	0.05	-0.01	0.04	0.06	-0.01
	Robust p-value	0.59	0.42	0.72	0.62	0.43	0.72
	Non-Pantawid	1.10	1.10	1.18	1.10	1.10	1.18
	Number of obs.	4,425	5,581	11,773	4,330	5,469	11,773

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Hypothesis 9: The Pantawid Pamilya reduces the incidence and time spent on child labor

No statistically significant difference was observed for incidence and time spent on child labor. This result was consistently observed in both the sharp and fuzzy RD models.

The proportion of Pantawid and non-Pantawid children ages 10–14 who worked at least an hour in the past month do not significantly differ statistically within the MSE bandwidth at 5.9% and 5.0%, respectively. The IE Wave 2 also found no statistically significant impact on work incidence for this age group but noted a higher percentage (12%) of the beneficiary and non-beneficiary children engaged in labor.

On the work duration per month, non-Pantawid and Pantawid children ages 10–14 engage in paid or unpaid work for 5 days in one month. This means that the program also did not have a statistically significant impact on the duration of engagement in child labor, possibly due to the small number of observations (n=121, n=137, n=207) in the analysis. No statistically significant program impact on this outcome was also observed in the fuzzy RD estimation. In contrast, a statistically significant reduction in the number of days spent on child labor was reported in IE Wave 2 (i.e., 6 days lower).

Despite the lack of program impact on child labor indicators, the survey data showed that children engaged in economic activities also attend school, as reported by the respondents. Of the children who worked at least one day in the past 12 months, 9 of 10 were enrolled in school. This suggests that children are not dropping out of school despite concerns. A possible motivation for this behavior is to generate additional income to supplement the cash grants in covering education expenses.

The results of the subgroup analysis for urban and rural areas using both sharp and fuzzy RD models are interesting. In urban areas, a statistically significant increase was observed in the proportion of Pantawid children ages 10–14 engaged in paid and unpaid work (7 percentage points higher in sharp RD MSE and 6 percentage points higher in fuzzy RD MSE). In contrast, a statistically significant reduction was observed in the proportion of child labor in rural areas (6 percentage points lower in sharp and fuzzy RD MSE).

Table 27. Child labor among ages 10–14

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
At least 1 hour of work (with or without pay) last month	Impact	0.35	0.85	0.97	1.22	0.40	1.12
	Robust p-value	0.86	0.65	0.37	0.68	0.99	0.37
	Non-Pantawid	5.52	5.06	4.26	5.52	5.65	4.23
	Number of obs.	2,815	3,368	4,557	2,097	2,579	4,557
At least 1 hour of paid work last month	Impact	0.76	1.31	1.09	1.68	0.65	1.26
	Robust p-value	0.64	0.39	0.26	0.55	0.93	0.26
	Non-Pantawid	4.96	4.46	3.98	5.09	5.32	3.95
	Number of obs.	3,072	3,572	4,557	2,013	2,484	4,557
Number of days worked (with or without pay) last month	Impact	-0.40	-0.03	-0.05	-0.54	-0.17	-0.06
	Robust p-value	0.77	0.94	0.79	0.73	0.86	0.79
	Non-Pantawid	5.20	5.07	5.21	5.28	5.12	5.21
	Number of obs.	121	137	207	115	131	207
Worked with or without pay in the last 12 months	Impact	-0.20	-1.02	0.08	0.10	-0.83	0.10
	Robust p-value	0.85	0.53	0.85	0.93	0.61	0.85
	Non-Pantawid	8.85	8.84	6.99	8.85	8.90	6.98
	Number of obs.	2,174	2,670	4,560	1,990	2,451	4,560

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

This finding supports the earlier hypothesis that children engaged in child labor do so to supplement the cash grants, as the cost of education and cost of living are generally higher in urban compared to rural areas. No statistically significant impact on the duration of child labor was observed in urban and rural areas.

No differences in program impact were observed between male and female children and between monitored and non-monitored children.

Hypothesis 10: The Pantawid Pamilya promotes higher investments in education

Total school expenditures per child were significantly higher statistically among Pantawid children by 9 percent[17] based on sharp RD MSE bandwidth, with an average monthly spending[18] of PHP 395 in the last school year compared to non-Pantawid's PHP 361 (Table 28). This translates to PHP 340 (i.e., PHP 34 per month for 10 months) higher expenditure on education per school year for Pantawid compared to non-Pantawid children. For comparison, the reported program impact on education expenditure per school-aged child in the IE Wave 2 was only PHP 200. The mean spending on individual education components such as school materials, allowances, and uniforms was also higher for beneficiary children. However, these differences were not statistically significant except for indications of a small impact on expenditures on uniforms.

The fuzzy RD estimation also found a statistically significant increase in the monthly expenditure on the education of Pantawid compared to non-Pantawid children, but these were observed only in the full sample. Monthly expenditures on school materials and supplies are 6 percent higher for beneficiaries, while monthly expenditures on school uniforms and total average monthly expenditures are 8 percent and 7 percent higher for beneficiaries, respectively.

[17] Expenditure values were transformed to natural log values in the estimation and are shown in the tables. In the discussion, the log values of the estimated impact and predicted means of the treatment and comparison groups are transformed into nominal peso values. Percentages of increase or decrease are derived from the peso values.

[18] Data used in the estimation are from the Module C questionnaire, which asked for itemized expenditures on education per child enrolled in school year 2016–2017

Table 28. Education expenditures

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Expenditures on tuition and other fees (per month) in the last school year	Impact	-0.03	-0.03	0.01	-0.04	-0.02	0.01
	Robust p-value	0.53	0.46	0.96	0.50	0.57	0.96
	Non-Pantawid	3.27	3.29	3.28	3.28	3.29	3.28
	Number of obs.	4,551	5,694	9,138	5,447	6,551	9,138
Expenditures on school materials and supplies (per month) in the last school year	Impact	0.07	0.06	0.05*	0.08	0.08	0.06*
	Robust p-value	0.13	0.15	0.08	0.12	0.12	0.08
	Non-Pantawid	3.43	3.44	3.45	3.41	3.43	3.45
	Number of obs.	5,955	7,248	11,153	5,012	6,267	11,153
Expenditures on school uniforms (per month) in the last school year	Impact	0.05	0.06	0.07**	0.07	0.08	0.08**
	Robust p-value	0.26	0.11	0.01	0.16	0.10	0.01
	Non-Pantawid	3.81	3.81	3.80	3.80	3.81	3.79
	Number of obs.	3,566	4,464	8,714	3,998	4,961	8,714
Expenditures on school allowance (per month) last school year	Impact	0.04	0.04	0.01	0.01	0.04	0.01
	Robust p-value	0.62	0.56	0.29	0.98	0.75	0.29
	Non-Pantawid	5.42	5.42	5.43	5.45	5.43	5.43
	Number of obs.	6,941	8,246	11,234	5,308	6,624	11,234
Total school expenditures (per month) last school year	Impact	0.08*	0.09**	0.06***	0.08	0.09	0.07***
	Robust p-value	0.06	0.03	0.00	0.22	0.16	0.00
	Non-Pantawid	5.90	5.89	5.90	5.90	5.90	5.90
	Number of obs.	7,284	8,580	11,520	5,274	6,561	11,520

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Results on monthly education expenditures in rural and urban areas are comparable in sharp and fuzzy RD models. Monthly expenditures on school materials and supplies are higher among Pantawid than non-Pantawid children in rural areas. Expenditures on school uniforms are also higher for rural beneficiaries, but no statistically significant difference was observed in urban areas. No statistically significant impact was observed for other education expenditure items, such as tuition and uniforms, between urban and rural areas. Likewise, no statistically significant program impact was observed by sex.

In terms of monitoring, monthly expenditures on school materials and supplies are 12 percent higher for Pantawid-monitored children compared to non-beneficiaries. In addition, monthly expenditure on school uniforms is 11 percent higher, and average monthly total school expenditures are 13 percent higher among monitored Pantawid children. No statistically significant impact was observed for all these indicators when comparing non-monitored Pantawid children with non-Pantawid children. These results are consistent with the findings in other education indicators, showing that monitored children benefit more from the program compared to other children in Pantawid Pamilya households.

Impact on household welfare

This section presents the program impact results on measures of household welfare, including household consumption and income, dependency measures, access to government services and participation in community development activities, perception of violence against women, and outlook on their children's future.

Subgroup analyses performed include rural and urban classification of areas for most indicators, sex of household members for labor outcomes, and monitoring status of children for indicators on outlook.

Hypothesis 11: The Pantawid Pamilya increases household consumption and income

Beneficiary households have a larger share of clothing and footwear expenditures than non-beneficiary households (Table 29). Pantawid households' share of clothing and footwear expenditures is 0.3 percentage points higher than non-Pantawid households based on sharp and fuzzy RD

estimations for MSE and CER bandwidths. The results are consistently observed even for the sampling bandwidth but with a slightly lower magnitude for sharp RD at a 0.2 percentage points. Beneficiary households also have higher expenditures on clothing and footwear in the preceding evaluation.

The results of the analysis showed no statistically significant program impact on the average total per capita expenditure of households in the sample. This is consistent with the findings of the first and second evaluations. However, it is important to note that unlike in RCT evaluations, the sample of an RDD evaluation includes households that are near the threshold or relatively richer compared to the average of the poor. This means that it may be more difficult for the program to make a substantial marginal contribution to the average expenditures of the sampled households as this is expected to be higher than that of the average poor household. In addition, the amount of grants received by the beneficiaries has not substantially increased since the program pilot implementation in 2008, and the real value of the grants has been diminishing.

The positive program impact on average per capita food expenditure was observed only when using the full sample of observations in the sharp RD estimation, although the equal magnitude of the impact was estimated for all three bandwidths. The fuzzy RD estimates using the MSE and sampling bandwidths also showed a positive impact. From the fuzzy RD MSE bandwidth estimation results, the average per capita food expenditure of Pantawid beneficiaries is 7.2 percent higher than non-Pantawid households (Table 28). This translates to PHP 1,294 additional per capita food expenditure among beneficiaries. In contrast, no statistically significant impact was observed for annual per capita expenditure on nonfood items, with or without disbursements (e.g., taxes, insurance) for both sharp and fuzzy RD across all bandwidths.

The study observed no increased spending on vice goods among Pantawid beneficiaries. The spending on products considered vices, such as tobacco and alcohol, does not significantly differ between those who do or do not receive program benefits. This result is similar to the findings of previous impact evaluations and studies on other programs

that provide conditional cash transfers, which also reported no change in spending on these types of goods.

No impact on education expenditure per school-aged child was noted based on the household-level reported expenditure, which contrasts with the estimates in Table 28. This is because the estimates presented in Table 28 are based on the school expenditures per child enrolled in the last school year, while the estimates in Table 29 are based on lump-sum expenditures for all children in the household. The average expenditure on education per school-aged child is higher for Pantawid than non-Pantawid households, but the difference between the comparison groups is not statistically significant.

Consistent with the earlier finding on the share of expenditures on clothing and footwear, the average per capita expenditure of Pantawid households on clothing and footwear is higher by 61 percent compared to non-Pantawid households based on sharp RD estimation MSE bandwidth. This is equivalent to a PHP 62 increase in spending on clothing by beneficiaries (PHP 172 for Pantawid households versus PHP 107 for non-Pantawid households). This may be due to an increase in the purchase of clothing for uniforms for children's schooling, as noted by Tutor (2014) and Adriano (2016).

An increase in average per capita expenditure on medical services and commodities was also observed, but only when using the full sample. The estimated increase is 28 percent or PHP 7 additional expenditure per capita per year based on sharp RD MSE bandwidth. This result is on top of the baseline expenditure of non-Pantawid households at PHP 23. This result may mean increases in preventive medical services and commodities like vitamins, family planning commodities, and health checkups. However, this may also mean additional expenses for curative services such as treatment for illnesses. No statistically significant difference in inpatient and outpatient expenditures was observed.

Results of the fuzzy RD are consistent with the sharp RD estimation but with slightly higher impact estimates. For example, an increase in average per capita food expenditure is estimated at 7 percent using the MSE bandwidth, while the impact on average per capita expenditure on clothing and footwear is equivalent to a 78-percent increase.

Table 29. Household expenditures: Share to total expenditures

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Share of food to total expenditures	Impact	1.36	1.31	0.35	1.70	1.65	0.43
	Robust p-value	0.18	0.15	0.21	0.21	0.20	0.21
	Non-Pantawid	63.13	63.13	63.42	63.13	63.06	63.41
	Number of obs.	2,699	3,357	5,523	2,277	2,848	5,523
Share of nonfood to total expenditures	Impact	-1.36	-1.31	-0.35	-1.70	-1.65	-0.43
	Robust p-value	0.18	0.15	0.21	0.21	0.20	0.21
	Non-Pantawid	36.87	36.87	36.58	36.87	36.94	36.59
	Number of obs.	2,699	3,357	5,523	2,281	2,848	5,523
Share of education to total expenditures	Impact	-0.03	0.03	0.14	-0.19	-0.08	0.17
	Robust p-value	0.85	0.99	0.48	0.51	0.67	0.48
	Non-Pantawid	2.36	2.35	2.29	2.42	2.38	2.29
	Number of obs.	3,026	3,670	5,523	2,252	2,819	5,523
Share of clothing and footwear to total expenditures	Impact	0.27***	0.25***	0.22***	0.32***	0.31***	0.26***
	Robust p-value	0.01	0.01	0.00	0.01	0.01	0.00
	Non-Pantawid	1.06	1.09	1.17	1.05	1.08	1.17
	Number of obs.	2,384	2,987	5,523	2,375	2,975	5,523

Table 29 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Share of health to total expenditures	Impact	0.26	0.17	0.08	0.37	0.31	0.09
	Robust p-value	0.11	0.18	0.76	0.13	0.12	0.76
	Non-Pantawid	0.88	0.90	0.91	0.85	0.87	0.91
	Number of obs.	2,957	3,578	5,523	2,396	2,995	5,523
Share of alcohol and tobacco to total expenditures	Impact	0.03	0.03	-0.18	0.05	0.03	-0.22
	Robust p-value	0.84	0.76	0.24	0.82	0.78	0.24
	Non-Pantawid	1.55	1.54	1.63	1.54	1.54	1.64
	Number of obs.	2,119	2,675	5,523	2,212	2,757	5,523

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Table 30. Household expenditures: Average per capita

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Average total per capita expenditure	Impact	0.02	0.03	0.04	0.03	0.03	0.05
	Robust p-value	0.55	0.44	0.13	0.58	0.50	0.13
	Non-Pantawid	10.28	10.28	10.28	10.28	10.28	10.28
	Number of obs.	2,643	3,284	5,523	2,346	2,953	5,523
Average per capita food expenditure	Impact	0.05	0.06	0.05**	0.06	0.07*	0.06**
	Robust p-value	0.18	0.11	0.03	0.16	0.09	0.03
	Non-Pantawid	9.80	9.79	9.80	9.80	9.79	9.80
	Number of obs.	2,723	3,392	5,680	2,744	3,415	5,680
Average per capita non-food expenditure	Impact	0.01	0.02	0.03	0.01	0.02	0.04
	Robust p-value	0.84	0.71	0.36	0.84	0.77	0.36
	Non-Pantawid	9.23	9.22	9.22	9.23	9.23	9.22
	Number of obs.	3,302	4,079	6,561	3,085	3,816	6,561
Average per capita non-food expenditure (including other disbursements)	Impact	0.01	0.02	0.04	0.02	0.02	0.04
	Robust p-value	0.77	0.64	0.30	0.75	0.76	0.30
	Non-Pantawid	9.21	9.20	9.20	9.20	9.21	9.20
	Number of obs.	3,301	4,074	6,561	2,719	3,383	6,561
Average per capita expenditure on vice goods (e.g., alcohol, tobacco)	Impact	-0.10	-0.07	-0.04	-0.16	-0.09	-0.05
	Robust p-value	0.67	0.70	0.77	0.61	0.74	0.77
	Non-Pantawid	3.19	3.18	3.24	3.21	3.18	3.24
	Number of obs.	2,752	3,400	6,087	2,457	3,073	6,087
Average per capita expenditure on inpatient care	Impact	0.16	0.10	0.06	0.25	0.17	0.07
	Robust p-value	0.19	0.27	0.66	0.14	0.23	0.66
	Non-Pantawid	0.39	0.41	0.39	0.37	0.39	0.39
	Number of obs.	3,208	3,989	6,635	2,810	3,517	6,635

Table 30 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Average per capita expenditure on outpatient care	Impact	-0.08	-0.04	0.06	-0.13	-0.09	0.07
	Robust p-value	0.37	0.50	0.49	0.31	0.37	0.49
	Non-Pantawid	0.67	0.63	0.54	0.69	0.66	0.54
	Number of obs.	3,123	3,864	6,597	2,753	3,433	6,597
Average per capita expenditure on medical services and commodities	Impact	0.24	0.22	0.28*	0.30	0.29	0.33*
	Robust p-value	0.25	0.29	0.05	0.27	0.25	0.05
	Non-Pantawid	3.17	3.17	3.14	3.17	3.15	3.13
	Number of obs.	3,307	4,098	6,766	2,918	3,628	6,766
Average per capita expenditure on education per school-age child	Impact	0.08	0.10	0.13	0.09	0.10	0.15
	Robust p-value	0.82	0.79	0.42	0.83	0.84	0.42
	Non-Pantawid	5.42	5.42	5.49	5.43	5.42	5.48
	Number of obs.	3,001	3,710	6,666	2,728	3,401	6,666
Average per capita expenditure on clothing and footwear	Impact	0.48***	0.48***	0.36***	0.59***	0.58***	0.43***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	4.64	4.67	4.79	4.58	4.62	4.78
	Number of obs.	3,383	4,160	6,580	2,711	3,376	6,580

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

In terms of location, program impact on household expenditure varies between urban and rural areas. In general, there was no statistically significant difference in spending patterns in urban areas. However, in rural areas, there was a decrease of 2.5 percentage points in nonfood spending and an increase of the same amount in food spending, based on sharp RD MSE bandwidth. In addition, a positive impact on the share of health expenditures was observed in urban areas, with a 0.5-percentage-point increase for both sharp and fuzzy RD. A positive impact on the share of clothing and footwear was seen in both urban and rural areas.

Program impact on average per capita food expenditure in rural areas was estimated at a 13-percent increase using the sharp RD MSE bandwidth. A positive impact was also observed for the fuzzy RD MSE bandwidth but with a higher estimate of increase at 14 percent. In contrast, results for urban areas showed an average per capita nonfood expenditure increase of 14 percent (sharp RD MSE bandwidth) and 17 percent (fuzzy RD MSE bandwidths). These results are consistent with the above observations on the share of food and nonfood expenses between urban and rural areas. For clothing and footwear, a positive impact was observed in both urban and rural areas, but a statistically significant increase in expenses was only observed within the sampling bandwidth. Lastly, regardless of location, the average per capita expenditure on vice goods does not differ statistically between Pantawid and non-Pantawid households.

Aside from expenditures, IE Wave 3 gathered information on household income (Table 31). Based on sharp RD results within the MSE bandwidth, household per capita income for beneficiary households is significantly higher statistically by 55 percent (or approximately PHP 4,999) when grants are included. Excluding the grants, no statistically significant difference was observed between the per capita income of non-Pantawid and Pantawid households despite the 13-percent higher income value for the latter. Pantawid households also have a higher mean per capita income from entrepreneurial activities (2%) and salaries and wages (8%), but the differences were not statistically significant. The same results were observed in the fuzzy RD in terms of the direction of impact, but at higher magnitudes.

Based on the results, the cash grants increase the income of Pantawid households by more than half the original household income per capita. Looking at the raw means, the share of the cash grants only amounts to 11 percent of the total per capita income of the treatment households. This observation indicates that the program may have a multiplier effect on the household income, aside from the additional amount added by the cash grants to the household money pool. A possible scenario is that some of the grants are used for capital formation for entrepreneurial activities and other investments that bring additional household income. It is also possible that the program or its outcomes have created shifts in the type of employment within the beneficiary households, resulting in higher pay (e.g., from informal to formal employment). In support of this hypothesis is the 13-percent higher predicted income of beneficiary than non-beneficiary households, even if the cash grants are excluded.

As in the analysis of expenditures by location, program impact on per capita income differs between rural and urban barangays. Based on the sharp RD estimation for MSE bandwidth, per capita income, including grants, is significantly higher statistically by 75 percent in urban areas (PHP 15,678 for Pantawid, PHP 8,955 for non-Pantawid) versus 68 percent in rural areas (PHP 14,764 for Pantawid, PHP 8,777 for non-Pantawid). These results are reflected in the fuzzy RD estimation and maintain statistical significance and consistent direction for the CER and sampling bandwidths. An increase in income without grants is maintained at 54 percent for urban areas, but the impact disappeared in rural areas. This finding supports the earlier observation that the program has increased the households' income, not just through grants. However, this is only true for urban but not rural areas.

There is a high estimated program impact on per capita income from salaries and wages in urban areas for both sharp and fuzzy RD models. Specifically, per capita income from salaries and wages is more than five times larger among beneficiaries compared to non-beneficiaries. This result was not observed in rural areas, explaining the persistent impact on the total per capita income even if the grants are excluded from the analysis. Meanwhile, no statistical difference in capita income from entrepreneurial activities was observed for urban and rural areas, while per capita income from other receipts (excluding grants) is significantly lower statistically in urban areas.

Table 31. Household income

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Per capita income, including grants	Impact	0.42***	0.43***	0.45***	0.50***	0.53***	0.54***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	9.15	9.11	9.15	9.14	9.10	9.13
	Number of obs.	2,783	3,460	6,617	2,721	3,393	6,617
Per capita income without grants	Impact	0.13	0.12	0.02	0.14	0.16	0.02
	Robust p-value	0.46	0.52	0.67	0.50	0.49	0.68
	Non-Pantawid	8.98	8.95	9.06	8.99	8.95	9.06
	Number of obs.	2,853	3,548	6,591	2,591	3,239	6,591
Per capita income from salaries and wages	Impact	0.11	0.08	0.02	0.20	0.12	0.02
	Robust p-value	0.74	0.85	0.77	0.64	0.79	0.77
	Non-Pantawid	6.83	6.78	6.66	6.88	6.82	6.66
	Number of obs.	3,344	4,129	6,773	2,771	3,456	6,773
Per capita income from entrepreneurial activities	Impact	0.03	0.08	-0.02	-0.01	0.04	-0.02
	Robust p-value	0.88	0.62	0.61	0.92	0.93	0.61
	Non-Pantawid	8.10	8.08	8.17	8.12	8.09	8.17
	Number of obs.	1,369	1,720	2,962	1,108	1,409	2,962
Per capita income from other receipts (excluding grants)	Impact	-0.14	-0.09	-0.08	-0.19	-0.12	-0.10
	Robust p-value	0.37	0.50	0.55	0.35	0.49	0.55
	Non-Pantawid	8.09	8.07	8.14	8.10	8.08	8.14
	Number of obs.	1,397	1,710	2,796	1,380	1,691	2,796

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Results showed that the program has a positive impact on hunger, reducing the incidence of hunger in Pantawid households by around 4 percentage points based on sharp RD MSE bandwidth and 6 percentage points based on fuzzy RD MSE bandwidth (Table 32). This result was also observed in the IE Wave 2, although a larger impact was observed at a 10-percentage-point reduction in hunger incidence. No statistically significant difference was observed in the average number of days experiencing hunger.

In terms of self-rated poverty, the study found no difference statistically in the proportion of Pantawid and non-Pantawid households that consider themselves "poor". In the IE Wave 2, the self-rated poverty status among Pantawid beneficiaries is lower by 7 percentage points compared to non-Pantawid households.

Subgroup analysis by location for both sharp and fuzzy RD showed that the program impact is concentrated in urban areas. The incidence of hunger is 8–9 percentage points lower among Pantawid than non-Pantawid households in urban areas (MSE bandwidth). A lower incidence of hunger was also observed in rural areas but in a smaller magnitude (a 2-percentage-point reduction) and not statistically significant. Moreover, the proportion of households in urban areas that consider themselves nonpoor is higher by 8–9 percentage points among beneficiaries compared to non-beneficiaries. This result was again not observed in rural areas.

The study also considered the possible boosting effect on household welfare brought by other social protection or assistance programs that use the same targeting mechanism as the Pantawid Pamilya. A critical program considered in the analysis is the Sustainable Livelihood program (SLP), also being implemented by the DSWD, which provides microenterprise development grants and "starter kits", as well as employment facilitation assistance through skills training and grants. The SLP targets those identified as poor in the Listahanan and prioritizes Pantawid Pamilya beneficiaries.

The sample households covered in the analysis were matched with the list of SLP beneficiaries that received benefits of any type (i.e., micro-enterprise development, employment facilitation) from 2011 to 2017. The matching results showed that only 5 percent (or 329 out of the 6,775 sample households) received SLP benefits in seven years.

Table 32. Hunger and self-rated poverty

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Incidence of hunger	Impact	-4.67**	-3.52*	-2.58**	-7.45**	-6.16**	-3.11**
	Robust p-value	0.04	0.09	0.04	0.02	0.03	0.04
	Non-Pantawid	17.73	17.00	15.45	19.44	18.39	15.52
	Number of obs.	4,132	4,922	6,773	2,816	3,497	6,773
Number of days experienced hunger in the past 3 months	Impact	-0.18	-0.18	-0.08	-0.14	-0.22	-0.10
	Robust p-value	0.52	0.49	0.62	0.64	0.45	0.62
	Non-Pantawid	0.96	0.93	0.79	0.96	0.97	0.79
	Number of obs.	3,362	4,159	6,758	2,819	3,512	6,758
Self-rated poverty status (poor)	Impact	-0.74	0.59	1.83	-1.74	-0.27	2.21
	Robust p-value	0.72	0.99	0.24	0.56	0.75	0.24
	Non-Pantawid	20.91	20.47	19.85	21.23	20.71	19.80
	Number of obs.	3,259	4,043	6,754	2,827	3,519	6,754
Self-rated poverty status (nonpoor)	Impact	0.95	0.95	0.91	1.15	1.22	1.09
	Robust p-value	0.70	0.72	0.62	0.70	0.68	0.62
	Non-Pantawid	12.98	12.73	12.01	12.86	12.51	11.99
	Number of obs.	3,206	3,952	6,754	3,584	4,346	6,754

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Since there are only a few SLP beneficiaries in the sample, more conventional tests for heterogeneity, such as analysis of subsets of the sample and/or use of models with interactions, were not feasible. Instead, the same models used in this section were reestimated only among Pantawid Pamilya beneficiaries who never received SLP benefits in the preceding years.

From the results, the observed impact in Tables 29 to 32 is retained when using the limited sample that does not include SLP beneficiaries.[19] This is somewhat expected as only 5 percent of the sample households are SLP beneficiaries.

Hypothesis 12: The Pantawid Pamilya does not encourage dependency

The study observed mixed results on labor market outcomes. Similar to findings in the IE Wave 2, beneficiaries and non-beneficiaries are equally likely to be in the labor market based on results for labor force participation (Table 33). Pantawid beneficiaries have a statistically significant higher number of work hours when employed and are more likely to have another job or business besides their primary occupation. Compared to non-beneficiaries, Pantawid beneficiaries work approximately 2 hours more per week (42 hours for Pantawid versus 40 hours for non-Pantawid based on MSE bandwidth). In addition, beneficiaries (7%) are more likely than non-beneficiaries (5%) to have another job or business besides their primary occupation.

Despite these good results, some findings in this evaluation differ from earlier evaluations. Program beneficiaries were observed to have a lower likelihood of being employed (by 3 percentage points), with the employment rate of Pantawid beneficiaries at 90 percent compared to 93 percent for non-Pantawid. Beneficiaries are also no longer more likely to seek additional work when unemployed, as observed in the IE Wave 2. Lastly, a lower proportion of beneficiaries were observed to be looking for work when unemployed (by 14–16 percentage points); however, this is not statistically significant and needs further investigation, as the estimates were only computed within a small sample size preventing the inclusion of municipal fixed effects.

[19] Statistical tables are excluded from the report but may be requested from the authors.

Table 33. Employment

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Labor force participation	Impact	0.10	0.79	0.69	-0.21	0.12	0.85
	Robust p-value	0.99	0.58	0.12	0.88	0.99	0.12
	Non-Pantawid	57.97	57.62	57.50	58.18	57.97	57.48
	Number of obs.	12,564	15,143	22,315	10,172	12,549	22,315
Employment	Impact	-2.69**	-2.59***	0.08	-3.24**	-3.25***	0.10
	Robust p-value	0.01	0.01	0.75	0.02	0.01	0.75
	Non-Pantawid	92.99	92.80	91.83	93.09	92.93	91.82
	Number of obs.	4,784	6,077	12,860	4,655	5,918	12,860
Usual work hours per week in primary occupation	Impact	1.78	1.11	0.28	2.20	1.37	0.35
	Robust p-value	0.12	0.25	0.51	0.13	0.28	0.51
	Non-Pantawid	39.47	39.71	39.81	39.41	39.67	39.80
	Number of obs.	5,710	7,021	11,731	5,718	7,029	11,731
Other job or business besides primary occupation	Impact	2.81*	2.30*	0.18	3.21*	2.64	0.22
	Robust p-value	0.07	0.09	0.71	0.09	0.11	0.71
	Non-Pantawid	5.30	5.41	6.92	5.27	5.37	6.92
	Number of obs.	4,005	5,132	11,675	4,297	5,471	11,675

Table 33 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Usual work hours per week in other jobs	Impact	1.05	1.62	2.27	1.12	1.76	2.84
	Robust p-value	0.84	0.77	0.42	0.79	0.69	0.42
	Non-Pantawid	17.04	16.66	16.94	17.06	16.68	16.83
	Number of obs.	315	387	816	310	377	816
Total usual work hours per week	Impact	2.62**	1.92*	0.49	2.36*	1.58	0.60
	Robust p-value	0.03	0.07	0.38	0.08	0.18	0.38
	Non-Pantawid	40.20	40.44	40.94	40.37	40.61	40.93
	Number of obs.	5,108	6,360	11,732	6,388	7,721	11,732
Looking for additional work if employed	Impact	-0.73	-0.70	0.27	-0.85	-1.04	0.33
	Robust p-value	0.59	0.51	0.91	0.65	0.52	0.90
	Non-Pantawid	9.14	8.90	8.32	9.46	9.17	8.31
	Number of obs.	5,439	6,726	11,871	4,483	5,684	11,871
Unemployed and looking for work	Impact	-14.13	-14.02	-4.22	-16.35	-18.13	-5.10
	Robust p-value	0.19	0.14	0.19	0.24	0.14	0.20
	Non-Pantawid	36.76	36.69	30.29	37.03	37.42	30.38
	Number of obs.	502	607	1,043	469	566	1,043

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Fuzzy RD results on employment and labor force participation outcomes are consistent with the sharp RD estimation. Employment is significantly lower statistically for beneficiary households by 3.2 percentage points. A statistically significant increase in the likelihood of Pantawid members having a job or business besides their primary occupation was also observed. The fuzzy RD estimation also observed higher weekly work hours for Pantawid beneficiaries for the CER bandwidth.

These results generally indicate a positive program impact despite some surprising findings. No statistically significant difference was observed between the labor force participation of beneficiaries and non-beneficiaries, indicating that the program, on average, does not affect the willingness to work of beneficiaries. The lower employment rate of beneficiaries was observed, but this does not necessarily mean beneficiaries are discouraged from looking for work. Employment, unlike labor force participation, depends on both the demand and supply of workers. Therefore, a reduction in employment could mean a lack of available jobs for beneficiaries as much as a lack of available workers willing and able to accept the job. The results also revealed that employed beneficiaries work longer and work more types of jobs than their non-beneficiary counterpart, negating dependency concerns as this observation suggests that employed beneficiaries put more effort into earning additional income. However, the study observed a reduction in the work-seeking behavior of unemployed beneficiaries, although this is not statistically significant. To further understand the findings, subgroup analyses by age group, sex, and urban-rural location were performed.

Disaggregating by age group, results are generally consistent across sharp and fuzzy RD results. No statistically significant difference was observed between the labor force participation rates of Pantawid and non-Pantawid household members except for those 65 years old and above, where the estimate is 8–18 percentage points higher for beneficiaries in the MSE and sampling bandwidths of sharp RD and all bandwidths of fuzzy RD. The employment rate is lower for beneficiaries ages 55–64, robust across all bandwidths of sharp and fuzzy RD, while no statistically significant program impact was observed for other age groups (i.e., 15–24, 25–34, 35–44, 45–44, and 65 and above). No statistically significant difference was observed in the likelihood of having other jobs aside from the main occupation. Still, in almost all the age groups, the proportions are higher for beneficiaries than non-beneficiaries. The

number of work hours per week is higher among beneficiaries ages 25–54, but the largest impact was observed among ages 45–54, where usual working hours in the main occupation are 6–7 hours longer for beneficiaries and total working hours, including other jobs, is 7–9 hours longer for beneficiaries.

Results of both sharp and fuzzy RD estimations showed that the reduction in employment rate is statistically significant for male beneficiaries (lower by 3 percentage points). However, they also have a longer duration of work hours (longer by 3 hours per week) and a higher proportion of having other jobs aside from their main occupation (higher by 4–5 percentage points) compared to their non-Pantawid counterparts. No statistically significant impact was observed on work-seeking behavior for both female and male subgroups.

In terms of location, no statistically significant difference in labor force participation was observed for both urban and rural subgroups. This result means that for both sample subsets, labor force participation is the same for Pantawid and non-Pantawid individuals. A lower employment rate among beneficiaries was observed only in rural areas. Work duration is longer for employed beneficiaries than non-beneficiaries in urban (longer by 7 hours, MSE bandwidth) and rural areas (longer by 3 hours, CER bandwidth). The proportion of employed individuals who look for additional work is significantly lower statistically for Pantawid beneficiaries in urban areas (lower by 8 percentage points) compared to non-beneficiaries. However, the proportion is higher in rural areas (higher by 4 percentage points) than for non-beneficiaries. This result is understandable as employed beneficiaries in urban areas already work 46 hours per week based on the predicted values, while beneficiaries in rural areas only work 39 hours per week on average. Lastly, no statistically significant program impact was observed on the proportion of unemployed individuals looking for work. However, estimated impacts are still negative (but not statistically significant) for both urban and rural areas, indicating a possible reduction in work-seeking behavior.

Hypothesis 13: The Pantawid Pamilya increases access to social services and increases utilization of government services and benefits

Government and social service utilization results are consistent between sharp and fuzzy RD estimates. Beneficiary households have a statistically significant higher likelihood of having at least one member in the

Philippine Health Insurance Corporation's (PhilHealth) indigent program (82% for Pantawid compared to 60% for non-Pantawid based on sharp RD MSE bandwidth). This is consistent with the findings of the previous impact evaluations (Table 34). The result is expected since inclusion in the Pantawid Pamilya automatically qualifies the program grantee as a PhilHealth principal member.

Pantawid households are also more likely to have a member in the Social Security System (SSS) or PhilHealth (by 10–13 percentage points). However, the number of SSS or PhilHealth memberships is not significantly different statistically, but a higher mean is observed for Pantawid households.

Beneficiaries have a statistically significant higher likelihood of having a copy of their birth certificate (2–4 percentage points based on sharp and fuzzy RD MSE bandwidths), which is a notable achievement given the high means for both Pantawid (87–88%) and non-Pantawid groups (84–85%). In this study, having a copy of one's birth certificate is considered a proxy indicator of poor households' probability to qualify for social and government services as it is a basic documentary requirement most accessible to poor households.

No statistically significant impact was observed on the utilization of other government services, even if there are slightly more beneficiary households that have at least one member in any social protection program and PhilHealth utilization.

The results of the subgroup analysis on government service utilization by location are consistent with the main observation. Although some differential impacts were observed, these are in the same direction for both urban and rural beneficiary households, albeit the larger impact for urban beneficiaries.

Hypothesis 14: The Pantawid Pamilya promotes participation in community development activities

Expectedly, a higher proportion of Pantawid than non-Pantawid households reported ever attending any parenting session (26–32 percentage points based on sharp RD and fuzzy RD MSE bandwidths) primarily because beneficiaries are required to attend FDS monthly as part of the program conditions. Despite this, however, not all the treated households reported ever attending any parenting session in the past six months. One possible explanation is that the respondent in the survey is not the person attending the FDS, but some other household member is.

Table 34. Government and social services

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Household has at least one member in PhilHealth indigent program	Impact	22.80***	21.86***	19.07***	28.96***	28.06***	22.99***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	59.31	60.13	62.77	57.52	58.21	62.22
	Number of obs.	3,620	4,386	6,764	2,760	3,437	6,764
Number of memberships in SSS and PhilHealth	Impact	0.08	0.10	0.09	0.09	0.11	0.11
	Robust p-value	0.39	0.26	0.19	0.43	0.29	0.19
	Non-Pantawid	1.79	1.77	1.71	1.80	1.77	1.71
	Number of obs.	2,987	3,708	6,773	2,828	3,520	6,773
Household has at least one member in Philhealth or SSS	Impact	9.82***	9.46***	8.65***	13.00***	11.97***	10.43***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	83.74	83.87	84.46	83.03	83.34	84.21
	Number of obs.	3,315	4,104	6,773	2,857	3,555	6,773
Number of social protection and other programs accessed	Impact	0.04	0.05	0.04*	0.04	0.06	0.05*
	Robust p-value	0.43	0.33	0.08	0.60	0.36	0.08
	Non-Pantawid	0.41	0.40	0.41	0.42	0.40	0.41
	Number of obs.	3,315	4,105	6,773	2,808	3,485	6,773
Household has at least one beneficiary of social protection and other programs	Impact	0.68	1.21	1.15	-0.76	0.71	1.39
	Robust p-value	0.91	0.82	0.45	0.84	0.90	0.45
	Non-Pantawid	31.66	31.25	31.94	32.73	31.72	31.90
	Number of obs.	3,615	4,373	6,773	2,825	3,518	6,773

Table 34 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Count of types of government services accessed in the past 12 months	Impact	-0.01	0.02	0.02	-0.01	0.00	0.02
	Robust p-value	0.91	0.87	0.87	0.88	0.97	0.87
	Non-Pantawid	1.29	1.28	1.29	1.29	1.28	1.29
	Number of obs.	3,277	4,060	6,772	2,766	3,451	6,772
Accessed any type of government service in the past 12 months	Impact	-0.27	-0.26	-1.27	-0.28	-0.62	-1.53
	Robust p-value	0.99	0.97	0.36	1.00	0.97	0.36
	Non-Pantawid	65.28	65.32	65.68	65.27	65.41	65.72
	Number of obs.	2,967	3,686	6,773	2,765	3,447	6,773
Utilized PhilHealth during latest health facility visit	Impact	1.81	0.92	-0.26	4.73	3.23	-0.32
	Robust p-value	0.44	0.64	0.63	0.18	0.26	0.63
	Non-Pantawid	7.77	7.96	7.80	6.97	7.31	7.81
	Number of obs.	2,012	2,402	3,673	1,437	1,806	3,673
Has copy of birth certificate	Impact	2.67***	2.06**	1.15**	4.90***	4.48***	1.39**
	Robust p-value	0.00	0.01	0.01	0.00	0.00	0.01
	Non-Pantawid	84.56	84.89	85.30	83.85	83.92	85.26
	Number of obs.	19,101	23,075	34,740	11,619	14,845	34,740

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

The IE Wave 3 included questions on community participation and development to observe possible sociobehavioral effects of FDS on beneficiaries. The Pantawid Pamilya significantly improved statistically participation in community development activities.

Pantawid beneficiaries are 19 percentage points more likely than non-beneficiaries to participate in community activities. Program beneficiaries also have a higher likelihood of being members (11 percentage points higher based on sharp RD MSE bandwidth) and officers (14 percentage points higher based on sharp RD MSE bandwidth) of an organization in the community. Given this, future impact evaluations could look deeper into this phenomenon and ask more specific questions about the nature of community participation.

A positive impact was also observed on the ownership of evacuation kits. Beneficiary households are more likely than non-beneficiaries to own an evacuation or emergency kit by 11 percentage points based on sharp RD MSE bandwidth, possibly due to the inclusion of a series of sessions in the FDS dedicated to disaster preparedness and management.

The same results were observed in the fuzzy RD MSE bandwidth but with a slightly higher magnitude of impact. The proportion of beneficiaries that attend parenting sessions is 32 percentage points higher than non-beneficiaries. Community participation is 23 percentage points higher for beneficiaries, while being a member or an officer in an organization is 14 and 22 percentage points higher, respectively. Ownership of evacuation kits is 11 percentage points higher among beneficiaries.

Program impact in these indicators was still observed in the subgroup analysis by urban and rural location, but some differences in magnitude were noted. Results showed a stronger positive program impact in urban areas on attendance at parenting sessions and ownership of evacuation kits, while a higher impact in rural areas was noted for participation in community activities. For membership in organizations, the impact is almost the same for the two subgroups.

Regarding women's empowerment and attitudes toward violence against women (VAW), no statistically significant impact was observed except for one indicator (Table 36). Fewer Pantawid women think that the husband or partner is justified in hitting his/her wife if she argues with him (lower by 2 percentage points, MSE bandwidth). However, this is only statistically significant for sharp RD results.

Table 35. Family development and community participation

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ever attended any parenting session	Impact	27.12***	26.28***	31.19***	33.92***	32.11***	37.63***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	40.58	40.48	37.18	39.32	39.58	36.27
	Number of obs.	2,966	3,682	6,765	2,789	3,471	6,765
Voluntary participation in community activities in the past six months	Impact	19.06***	19.17***	14.96***	23.39***	23.49***	18.06***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	31.93	32.39	36.06	31.16	31.62	35.62
	Number of obs.	2,753	3,437	6,766	2,788	3,472	6,766
HH owns evacuation kit (seen or not seen)	Impact	10.53***	9.67***	10.15***	12.37***	11.40***	12.23***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	20.98	21.92	21.84	21.06	21.96	21.55
	Number of obs.	2,657	3,320	6,754	3,003	3,719	6,754
At least one HH member who is a member of an organization in the community	Impact	11.45***	11.33***	5.55***	14.33***	13.67***	6.70***
	Robust p-value	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Pantawid	23.49	23.32	25.77	22.49	22.46	25.61
	Number of obs.	2,120	2,717	6,753	2,991	3,710	6,753
At least one HH member who is an officer of an organization in the community	Impact	16.97***	14.18***	0.74	23.79***	21.75***	0.89
	Robust p-value	0.00	0.00	0.21	0.00	0.00	0.21
	Non-Pantawid	5.14	7.99	16.79	2.27	4.62	16.76
	Number of obs.	573	728	1,932	513	657	1,932

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Table 36. Perception of violence against women

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Husband is justified in hitting wife if she goes out without telling him	Impact	-2.39	-1.40	0.68	-2.79	-1.51	0.81
	Robust p-value	0.12	0.27	0.66	0.13	0.28	0.66
	Non-Pantawid	5.36	4.95	3.81	5.43	4.94	3.78
	Number of obs.	1,833	2,294	4,571	1,901	2,379	4,571
Husband is justified in hitting wife if she neglects the children	Impact	0.75	1.63	1.34	-0.47	1.16	1.60
	Robust p-value	0.83	0.58	0.21	0.77	0.89	0.21
	Non-Pantawid	8.93	8.13	7.61	9.68	8.72	7.56
	Number of obs.	2,258	2,783	4,555	1,894	2,369	4,555
Husband is justified in hitting wife if she argues with him	Impact	-2.74**	-2.24*	0.47	-1.97	-0.70	0.56
	Robust p-value	0.03	0.05	0.87	0.16	0.46	0.87
	Non-Pantawid	4.67	4.49	2.90	4.29	3.70	2.88
	Number of obs.	1,444	1,821	4,565	2,089	2,578	4,565
Husband is justified in hitting wife if she refuses to have sex	Impact	1.19	1.46	1.02	0.91	1.68	1.22
	Robust p-value	0.31	0.18	0.33	0.55	0.24	0.33
	Non-Pantawid	1.66	1.54	1.61	1.79	1.52	1.57
	Number of obs.	2,367	2,888	4,563	2,099	2,587	4,563

Table 36 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Husband is justified in hitting wife if she burns the food	Impact	-0.76	-0.37	-0.72	-2.09	-1.31	-0.86
	Robust p-value	0.59	0.85	0.32	0.21	0.34	0.32
	Non-Pantawid	2.98	2.85	2.98	3.50	3.18	3.01
	Number of obs.	2,627	3,165	4,586	1,888	2,352	4,586
Husband is justified in hitting wife if any of the conditions above are met	Impact	-0.30	0.71	1.08	-3.99	-1.56	1.30
	Robust p-value	0.86	0.81	0.46	0.17	0.38	0.46
	Non-Pantawid	10.70	9.95	9.34	12.79	11.41	9.30
	Number of obs.	2,888	3,465	5,138	2,042	2,553	5,138

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Moreover, it should be noted that the proportion of women in the sample who think violence against women is justified is 10 percent on average, regardless of their beneficiary status.

In the subgroup analysis, a statistically significant reduction in the proportion of women who think VAW is justified was observed only in urban areas, where there are lower proportions of beneficiary women who think VAW is justified if they go out without their partners' permission (4–5 percentage points lower), VAW is justified if they argue with their partners (4 percentage points lower), and VAW is justified if they go out without permission, neglect children, argue with husband/partner, refuse sex, or burn the food (7–9 percentage points lower). For all indicators, no program impact was noted in rural areas.

Hypothesis 15: The Pantawid Pamilya improves the household outlook of their current situation and the future of their children

Concerning household outlook and future expectations, the study did not detect a statistically significant impact on most outcomes except on children growing up healthy for the CER and sampling bandwidths (Table 37). More Pantawid parents believe their children will grow healthy (higher by 1 percentage point). However, this impact was seen only in rural areas, possibly due to generally lower baseline means for child health and nutrition outcomes. Increased knowledge of proper childcare practices may have also contributed to a more positive outlook of parents by increasing their confidence in their ability to care for their children. However, given the mixed findings on child health and nutrition, further study needs to be conducted to validate the factors that affect parents' outlook on health and whether parents' misconceptions also shape their children's health status.

In general, Pantawid and non-Pantawid parents' outlook on their children's future educational attainment are similar to IE Wave 2. However, the average outlook on elementary, high school, and college completion for both groups is higher than the results in the IE Wave 2. Impact on parents' belief that their child will have a better future was also observed in both sharp and fuzzy estimates, but only when using the full sample.

Table 37. Future expectations

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Child will finish elementary	Impact	1.19	1.25	0.49	1.30	1.49	0.57
	Robust p-value	0.19	0.13	0.24	0.27	0.20	0.24
	Non-Pantawid	97.16	97.08	97.61	97.19	97.03	97.60
	Number of obs.	3,261	4,012	6,415	3,008	3,734	6,415
Child will finish high school	Impact	-0.18	-0.28	0.58	0.17	-0.28	0.67
	Robust p-value	0.81	0.70	0.81	0.86	0.75	0.81
	Non-Pantawid	97.02	97.03	96.77	96.89	97.05	96.75
	Number of obs.	5,102	6,357	10,435	4,286	5,412	10,435
Child will finish college	Impact	0.40	0.26	2.34	0.48	0.32	2.70
	Robust p-value	0.91	0.99	0.38	0.88	0.96	0.38
	Non-Pantawid	90.76	90.76	89.87	90.75	90.76	89.81
	Number of obs.	3,607	4,540	8,150	3,523	4,430	8,150
Child will grow up healthy	Impact	0.92*	0.75	0.40*	1.14*	0.92	0.46*
	Robust p-value	0.09	0.14	0.10	0.07	0.11	0.10
	Non-Pantawid	98.23	98.28	98.51	98.18	98.24	98.50
	Number of obs.	6,199	7,451	11,512	5,850	7,178	11,512

Table 37 *(continued)*

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Child will have decent employment	Impact	-0.58	-0.45	0.40	-0.53	-0.30	0.46
	Robust p-value	0.26	0.30	0.36	0.31	0.39	0.36
	Non-Pantawid	98.44	98.32	97.94	98.34	98.20	97.93
	Number of obs.	4,166	5,232	10,498	5,290	6,503	10,498
Child will have better future	Impact	2.74	2.22	1.08**	3.19	2.60	1.26**
	Robust p-value	0.18	0.24	0.04	0.18	0.24	0.04
	Non-Pantawid	87.32	87.72	88.82	87.23	87.64	88.78
	Number of obs.	6,194	7,609	12,081	6,184	7,603	12,081

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Impact on other sociobehavioral outcomes

The IE Wave 3 also included other sociobehavioral outcomes such as grit, locus of control, and parenting style.

Results showed that Pantawid children are more likely to have grit or determination than non-beneficiaries. A statistically significant higher proportion of beneficiaries responded positively to statements on grit. Beneficiary children displayed more determination regarding school-related challenges, except when considering limited time and resources (Table 38).

Among the indicators, the strongest impact was observed for the statement "finish school work before playing or resting", with 4 percentage points higher proportion for beneficiaries than non-beneficiaries based on sharp and fuzzy RD MSE bandwidths. Interestingly, this indicator also has the lowest baseline proportion for non-Pantawid children, with a proportion of only up to 77 percent. The highest baseline proportion is "asking for help when lesson is difficult", where 9 out of 10 children in both groups responded affirmatively.

Results of the subgroup analysis revealed a stronger program impact among children in rural than urban areas. While the program's impact on asking for help in difficult lessons is positive for both urban and rural areas, the impact is slightly higher for rural areas. As for striving to get higher grades, finishing schoolwork before playing or resting, and grit index, program impact was observed only in rural but not in urban areas. In terms of sex, the results are mixed but are mostly in favor of male children. Program impact on asking for help in difficult lessons, finishing schoolwork before playing or resting, and overall grit index was observed only among male children. On the other hand, the impact of striving to get higher grades was observed only among female children.

Aside from grit, this evaluation also looked at the locus of control of WRA respondents. Locus of control indicates a person's belief that the outcomes he/she is experiencing are products of internal or external factors. In the analysis, a low score means an internal locus of control or a belief that the outcomes are mainly driven by internal factors such as one's own actions and decisions, while a high locus of control index means that these outcomes are due to other external factors beyond the control of the person.

Table 38. Grit

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Ask for help when lesson is difficult	Impact	3.03**	1.86	0.75	4.40**	3.88**	0.86
	Robust p-value	0.03	0.11	0.43	0.02	0.01	0.43
	Non-Pantawid	88.19	88.81	89.72	87.42	87.88	89.70
	Number of obs.	5,373	6,373	8,763	4,096	5,058	8,763
Strive to get higher grades	Impact	2.98**	2.68**	2.15**	3.53*	3.41*	2.48**
	Robust p-value	0.05	0.05	0.04	0.07	0.05	0.04
	Non-Pantawid	88.71	88.92	89.05	88.46	88.68	88.99
	Number of obs.	4,937	5,933	8,756	4,196	5,193	8,756
Finish school work before playing or resting	Impact	5.79**	4.38**	2.39	5.58**	4.25**	2.76
	Robust p-value	0.01	0.03	0.12	0.02	0.04	0.12
	Non-Pantawid	71.62	72.17	73.60	71.83	72.38	73.52
	Number of obs.	3,650	4,537	8,748	4,152	5,110	8,748
Finish school work despite lack of time and resources	Impact	2.23	2.95	2.99*	2.60	3.44	3.45*
	Robust p-value	0.31	0.16	0.07	0.29	0.14	0.07
	Non-Pantawid	82.01	81.76	82.09	81.90	81.65	82.00
	Number of obs.	4,146	5,111	8,762	4,182	5,178	8,762
Grit index	Impact	0.13**	0.12**	0.08**	0.16**	0.15**	0.10**
	Robust p-value	0.01	0.01	0.04	0.02	0.01	0.04
	Non-Pantawid	3.30	3.31	3.34	3.29	3.30	3.34
	Number of obs.	4,592	5,605	8,776	4,163	5,132	8,776

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

In terms of locus of control, no statistically significant program impact was observed except for a small impact on the overall score for locus of control in the fuzzy RD MSE bandwidth (Table 39). This result suggests that Pantawid and non-Pantawid mothers do not differ in their perceived control over the outcome of events in their lives. Breaking into rural and urban subgroups, results showed statistically significant program impact for women residing in rural areas under the first test statement, "What happens to me is my own doing," and the overall locus of control score, although the latter is only statistically significant in the MSE bandwidth of sharp RD and in the CER and MSE bandwidths of fuzzy RD. Statistically, women beneficiaries in rural areas have significantly higher locus of control scores than non-Pantawid women for both of these items, revealing relatively more external locus of control.

Program impact on parenting styles was also studied. Although there is no specific parenting style that the program advocates, it is interesting to know whether there have been changes in the overall parenting style of the beneficiaries. The classification used in this study was based on Hock et al. (2015), which assessed the link between parenting styles and emerging adult drug abuse in Cebu. Children ages 10–20 were asked whether they consider themselves "close" with their mother or father and whether they think their mother or father is strict. The responses were then used to categorize parenting styles. A strict parent is considered "authoritative" if the child considers him/herself close with this parent; otherwise, the parent is considered "authoritarian". A parent who is not strict is considered "permissive" if the child says he/she is close with this parent; otherwise, this parent is considered "neglectful".

Results showed a statistically significant reduction in the proportion of both parents in the household being considered authoritative (lower by 8 percentage points for sharp RD MSE and by 6 percentage points for fuzzy RD MSE bandwidth) (Table 40). A statistically significant increase in the proportion of cases where the parents are considered both permissive (higher by 5 percentage points) was also observed in both estimations. The results specific to mothers and fathers[20] showed a shifting of styles to permissive parenting among Pantawid mothers and away from authoritarian parenting among Pantawid fathers. These results indicate a reduced proportion of children who think their parents are strict.

[20] The statistical tables are excluded from the report but may be requested from the authors.

Table 39. Locus of control

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
What happens to me is my own doing	Impact	0.09	0.09	0.04	0.12	0.10	0.05
	Robust p-value	0.19	0.16	0.23	0.17	0.21	0.23
	Non-Pantawid	2.01	1.97	1.91	2.02	1.99	1.91
	Number of obs.	2,328	2,888	5,138	2,147	2,687	5,138
I am almost certain I can make my plans work	Impact	0.06	0.06	0.02	0.07	0.08	0.02
	Robust p-value	0.45	0.43	0.21	0.43	0.37	0.21
	Non-Pantawid	1.88	1.91	1.90	1.88	1.91	1.90
	Number of obs.	2,438	3,003	5,138	2,413	2,961	5,138
Getting what I want has little to do with luck	Impact	-0.06	-0.04	-0.01	-0.07	-0.03	-0.02
	Robust p-value	0.37	0.45	0.79	0.43	0.62	0.79
	Non-Pantawid	2.30	2.26	2.18	2.29	2.25	2.18
	Number of obs.	1,922	2,444	5,137	2,187	2,729	5,137
Good or bad luck does not play an important role in my life	Impact	0.09	0.07	0.03	0.11	0.10	0.03
	Robust p-value	0.19	0.20	0.42	0.23	0.17	0.42
	Non-Pantawid	2.40	2.42	2.50	2.38	2.41	2.50
	Number of obs.	2,460	3,029	5,137	2,205	2,758	5,137
Locus of control index	Impact	0.19	0.21	0.08	0.24	0.27*	0.09
	Robust p-value	0.20	0.13	0.15	0.13	0.06	0.15
	Non-Pantawid	8.96	8.92	8.95	8.93	8.90	8.95
	Number of obs.	2,254	2,808	5,138	2,528	3,117	5,138

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

Table 40. Parenting style and child-parent relationship

Outcomes		Sharp RD			Fuzzy RD		
		CER Optimal	MSE Optimal	Sample	CER Optimal	MSE Optimal	Sample
Both parents have authoritative parenting style	Impact	-6.96**	-7.50***	-0.72	-7.72***	-6.27**	-0.83
	Robust p-value	0.02	0.01	0.62	0.01	0.01	0.62
	Non-Pantawid	40.70	40.84	37.95	40.59	39.84	37.97
	Number of obs.	2,808	3,549	7,443	3,775	4,613	7,443
Both parents have authoritarian parenting style	Impact	0.37	0.47	0.10	0.35	0.50	0.12
	Robust p-value	0.33	0.21	0.49	0.45	0.29	0.49
	Non-Pantawid	0.53	0.52	0.83	0.53	0.51	0.83
	Number of obs.	3,075	3,850	7,669	2,878	3,637	7,669
Both parents have neglectful parenting style	Impact	0.07	0.26	-0.43	-0.03	0.18	-0.50
	Robust p-value	0.92	0.71	0.78	0.95	0.88	0.78
	Non-Pantawid	1.67	1.56	2.03	1.74	1.60	2.04
	Number of obs.	3,969	4,838	7,700	3,653	4,510	7,700
Both parents have permissive parenting style	Impact	3.52	5.48**	-0.95	5.81*	5.19**	-1.10
	Robust p-value	0.20	0.03	0.64	0.05	0.04	0.65
	Non-Pantawid	36.38	35.07	37.01	35.20	35.46	37.04
	Number of obs.	2,615	3,328	7,440	3,035	3,776	7,440

RD = regression discontinuity; CER = coverage error rate; MSE = mean square error; obs. = observation
Notes: Treatment and control means are calculated using predicted values from replicating the rdrobust routine using least-squares regression. The p-value presented is from the robust version of the estimation that corrects for bias. P-values are rounded off to two decimal places. Asterisks reflect level of significance of the estimates: *** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations

No statistically significant impact was observed on the proportion of authoritarian or neglectful parents, indicating that children are not close to their parents. Interestingly, baseline proportions for these parenting styles are low regardless of beneficiary status.

Discussion

Overall, the results of this evaluation revealed a generally positive program impact on the outcomes studied. However, some results are underwhelming and inconsistent with expected outcomes. Subgroup analyses provide supplemental information that could explain most of these inconsistencies.

This section discusses the specific themes based on the evaluation results and attempts to explain the observed behavior changes of poor households targeted by the program relative to poor households that were not targeted. Comparisons with other studies on the program and with other CCTs are also made to supplement the discussion.

At this point, it is also important to reiterate the limitation of RDD, as it only captures program impact on the sample of households around the poverty thresholds and does not represent the average program effects on poor households. As such, the impacts detected in this evaluation may be underestimated.

Discussion of results

The program increases awareness of modern family planning methods, although there is not enough evidence of sustained use of these commodities among beneficiaries.

Pantawid beneficiaries demonstrated higher awareness of modern family planning methods, possibly due to increased utilization of maternal health services, health facility visits, and attendance at FDS. Although the program does not require beneficiaries to subscribe to modern family planning methods, such information is made available to the beneficiaries through the FDS and other services offered in health facilities. In the main FDS modules, four sessions cover topics on the importance of family planning, sharing responsibilities between couples in family planning, family planning methods, and responsible parenthood. Meanwhile, the DOH has specific interventions to increase the modern contraceptive

prevalence rate and reduce the unmet need for modern family planning among WRA provided in health facilities. Following the increased use of maternal healthcare services, such as prenatal care, the probability for Pantawid women to receive these interventions also increases.

Despite the increased awareness levels and trial use of modern family planning methods, the beneficiaries failed to show sustained use of these methods. This may be due to access barriers, including the lack of supply and capacity to buy these commodities and services when these are not available in public clinics. Based on the 2017 NDHS, the public sector provides more than half of the modern contraceptives in the country. Barangay health stations supply half of these, while the rest come from government hospitals and rural health units. Regarding costs, the NDHS found that only 40 percent of women obtained their family planning method for free, while 55 percent paid for the commodities and services. Of the public sector sources, more than 20 percent reported paying for modern family planning commodities. This means that although modern family planning commodities are provided in public health facilities, utilization can still be affected by the access to health facilities in the barangay, the supply of these facilities, and the costs of these commodities.

Another factor that may explain the lack of sustained use is the experience during trial use of these methods. After studying a series of demographic health survey data, the World Health Organization identified the primary reason for discontinuation as method-related, including dissatisfaction with the method, health concerns, and side effects experienced during the trial use (Ali et al. 2012). Other factors influencing behavior include personal preferences and cultural and/or religious beliefs.

Ginson-Bautista and Yap (2017) found that more than half (56%) of Pantawid women needed their husbands' permission before availing of family planning commodities and/or services. Likewise, the 2017 NDHS noted that only 65 percent of poor couples have a consensus on the ideal family size in the household. It is therefore important that providing information on family planning is targeted to couples instead of just the women beneficiaries. The National Advisory Council Resolution 23 (s. 2014) requires the attendance of couples in sessions concerning gender sensitivity, responsible parenthood, and family planning instead of just the grantees, who are mostly females (DSWD 2015). However, it is unclear in this evaluation how many beneficiaries comply with this requirement.

In other CCTs, studies mostly found increased contraception use among beneficiaries. In a comprehensive review by Bastagli et al. (2016), 5 out of 9 studies looking into a cash transfer's impact on contraception reported increased contraceptive use. These include cash transfer programs in South Africa, Mexico, Peru, and Nicaragua. The Programa de Educacion, Salud y Alimentacion (PROGRESA) in Mexico increased the use of any modern contraceptive up to 16 percentage points higher among beneficiaries. In the Peru study (Perova and Vakis 2012), there is even an indication that contraceptive use increases with the length of exposure to the cash transfer program.

One key reproductive behavior-related issue not studied in this evaluation is whether the Pantawid Pamilya encourages families to bear more children. The CCT evaluation literature shows no evidence of increased fertility among beneficiaries. In most studies, the likelihood of pregnancy or giving birth is even lower for beneficiaries than for non-beneficiaries. For example, among the evaluations reviewed by Bastagli et al. (2016), only the study on Honduras' PRAF program (Stecklov et al. 2007) showed increased fertility due to the program design where cash grants increase for additional pregnant women or a new child born to the family. Such a design feature is not found in the Pantawid Pamilya.

The Pantawid Pamilya increases the availment of some but not all basic maternal healthcare services.

The findings showed that the program positively impacts the use of some maternal healthcare services. That Pantawid Pamilya increases the number of pregnant mothers availing of at least four prenatal care checkups is notable because this is the recommended frequency of checkups by the DOH. This result is somewhat expected since the Pantawid Pamilya requires prenatal care at least once each trimester. Nevertheless, this improvement may be influenced by both the grant incentive and the reinforcement the FDS provides through maternal health messages. The fact that there are different outcomes in the utilization of pre- and postnatal care suggests that program beneficiaries may not fully understand the importance of postnatal care compared to prenatal care, even though both are program requirements. Further examination of the FDS messages and availability of services in health facilities should be able to clarify this discrepancy in the utilization of services.

Meanwhile, SBA results indicate a shift from midwife-assisted to doctor-assisted deliveries for beneficiary mothers. The difference in urban/rural results for SBA highlights the still limited access to doctors in rural areas compared to urban areas. This also points to supply-side issues that must be addressed for the program to achieve the desired impact.

The study found only a statistically significant impact on facility-based delivery in urban areas. This result implies that perhaps this discrepancy is also influenced by the supply of health facilities. Based on the NDHS report, the top reasons for not delivering in facilities are lack or difficult transportation to the facility (32%), high costs (25%), delivering in facilities being not necessary (22%), unexpected delivery (16%), and lack of trust in the health facilities (12%). Of the top five reasons, three relate to the supply conditions (i.e., transportation, costs, and quality of services), and only one relates to lack of awareness or behavior (i.e., not necessary). The 2017 NDHS also reported that only 20 percent of those who gave birth in public health facilities availed of delivery services for free. The median delivery cost is around PHP 5,400 among those who pay. In comparison, the median cost in private sector facilities is up to PHP 26,300, while the median cost for home deliveries is around PHP 1,570.

From these pieces of information, it may be inferred that the use of maternal care services, especially SBA and FBD, is affected by the availability of health resources and access to these resources for poor women. Unfortunately, some of the study sites were found to have limited access to health resources. For example, 1 in 10 rural barangays has no nearby public health facility. The average number of doctors in the barangays is less than one, with the average catchment population of health facilities reaching more than 30,000 in urban areas. Although costs can be allayed through the automatic PhilHealth membership of beneficiaries, not all beneficiaries know they are eligible for PhilHealth benefits. At the same time, only 35 percent and 11 percent of the health facilities in urban and rural barangays, respectively, are PhilHealth accredited.[21] The percentage of PhilHealth-accredited maternity care providers is even lower at 14 percent and 8 percent of facilities in urban and rural barangays, respectively.

[21] Proportions were determined by matching the name of health facilities visited by beneficiaries and the published list of PhilHealth-accredited facilities.

In general, the results showed generally high uptake rates of maternal health services. However, given that some of these outcomes are program conditions, the expected proportions should be higher. There is room to boost demand for healthcare services through the FDS. Correspondingly, closing the supply-side gaps in health services should also occur, especially since heterogeneity in program impact suggests that supply conditions play an important part in achieving program desired outcomes.

Studies on other CCTs showed that these programs significantly increase the utilization of maternal health services. Regarding prenatal care, there have been significant findings for beneficiary mothers having at least one prenatal checkup during pregnancy, but there are mixed findings for multiple visits. Barber and Gertler (2008) found a positive impact on prenatal visits at least once during pregnancy for Oportunidades beneficiary mothers but no impact for multiple visits. However, a study on the Program Keluarga Harapan (PKH) in Indonesia observed a significant impact on prenatal visits for measures of at least one visit and multiple visits (DSWD and World Bank 2014). In the long term, however, another study on the PKH program did not find an impact on pre- and postnatal care utilization (Cahyadi et al. 2018). One possible explanation offered by the study was that the control group was able to catch up with the treatment group in the intervening years.

Lim et al. (2010) discovered that the Janani Suraksha Yojana (JSY), a CCT program introduced in India to address high maternal and child mortality rates, had a significant effect on prenatal checkups and FBD or SBA. This result was observed after at least two years of implementing the program. SBA and FBD were also significantly higher for program beneficiaries of PKH after six years of implementation (Cahyadi et al. 2018).

The Pantawid Pamilya increases access to child healthcare services, but results also showed a negative impact on stunting.

More Pantawid children ages 0–5 years visit health facilities for weight monitoring. The twice-a-year deworming rate is also higher among beneficiary children ages 6–14 years compared to non-beneficiaries. Although an increased vitamin A supplementation was observed, the program still has no impact on the complete immunization of children as in the previous rounds of evaluation. Low proportions were observed for

some outcomes required by the program, such as growth monitoring of children ages 2–5 years, immunization, health visits, and deworming twice a year. Regarding nutrition outcomes, the study found a negative program impact on the stunting of children ages 0–5 years. These mixed results warrant further study on the determinants of availment of specific child health services and factors that lead to adverse nutrition outcomes among beneficiaries. This is further nuanced by the nature of stunting being a result of accumulated nutrition deprivation from conception to the early years of life.

The result is also inconsistent with the cohort study done on the original RCT sample of the first evaluation, which found no statistically significant difference in the prevalence of stunting among program beneficiaries. The result of the RCT study suggests that timeliness in providing program interventions is crucial in arresting negative nutrition outcomes. For instance, interventions are crucial during the first 1,000 of life to prevent stunting.

The impact of cash transfers on child health and nutrition is relatively well-studied, given that it is a major focus of CCT programs. Most studies suggest that cash transfer programs improve child health and nutrition outcomes, and the negative results of this evaluation are, therefore, uncommon.

Unlike the results in this evaluation, many studies noted a significant decrease in the prevalence of stunting for beneficiary children (Bastagli et al. 2016). For example, PKH in Indonesia had a notable effect on stunting after six years of program implementation. Cahyadi et al. 2018 found substantial reductions in the incidence of stunting and severe stunting for beneficiary children and a reduction in malnourishment for boys, which were attributed to increased health-seeking behaviors and improved nutrition in earlier years. The Red de Protección Social (RPS) program in Nicaragua also resulted in a significant decline in stunting among beneficiary children under 5 years old (Maluccio and Flores 2005). Manley et al. (2013) observed higher marginal effects on stunting for countries with initially poor health indicators and a larger impact on girls than boys. At the same time, a significant number of studies also found no significant impact on stunting despite an increase in height-for-age scores (Gertler 2004; Attanasio et al. 2005; Leroy et al. 2009; Macours et al. 2012). However, none of the studies reviewed found a negative impact of cash transfers on stunting and other nutrition

outcomes in contrast to the results in this evaluation. As mentioned earlier, this result deserves in-depth analyses to unpack the likely causes and identify needed interventions.

Several studies also examined the effect of the duration of receipt of benefits vis-à-vis nutrition outcomes. In most studies, significant improvement in nutrition and health indicators of children were associated with the longer duration of receipt of program benefits (Behrman et al. 2005; Fernald et al. 2008; Fernald et al. 2009; Perova and Vakis 2012; Buser et al. 2014) and higher amount of grants (Fernald et al. 2008). Crucial information is provided by the study of Buser et al. (2014) on Ecuador's BDH program, which found detrimental effects on nutrition outcomes after benefits were discontinued while the child is still young or in utero. The study observed significantly lower weight- and height-for-age for these children, and the authors attributed this to a disruption in the households' food consumption pattern after the income loss. Overall, the results highlight the importance of the timing of benefits similar to what was observed in the analysis concerning the length of exposure done in this evaluation.

While this evaluation found no statistically significant increase in health visits, studies on other CCTs found a general improvement in the uptake of preventative health visits for children (Davis et al. 2002; Barber and Gertler 2008). A positive impact on health checkups was observed in terms of compliance (Attanasio et al. 2005) and the number of visits (Levy and Ohls 2007; Akresh et al. 2012; Evans et al. 2014). In a review of multiple studies on CCT programs in low- and middle-income countries, Lagarde et al. (2009) observed that CCTs could effectively increase the utilization of health services, specifically for free preventive services. Positive results were also observed by Cahyadi et al. (2018) on regular monitoring of beneficiary children 5 five years old under PKH in Indonesia.

Gertler (2004) examined the effects of the PROGRESA in Mexico and found that it has a significant impact on child illness rates. Newborns and children ages 0–35 months who received program benefits are less likely to become sick than those who did not. Beneficiary children ages 12–48 months are also less likely to be anemic. In this evaluation, no statistically significant impact was observed in the incidence of diarrhea, fever, cough, and VPDs.

The impact of cash transfer programs on vaccinations is inconsistent in the literature. Studies in Mexico, Honduras, and Columbia observed increased vaccine coverage, such as measles, DPT, and TB. On the other hand, the findings in this evaluation have similar results as the RPS evaluation in Nicaragua, where no significant impact was noted (Lagarde et al. 2009).

Numerous studies also cited supply-side factors (i.e., availability of medicine and accessibility of health facilities) as crucial in instigating significant impacts on health outcomes. In addition, workshops on health and nutrition, comparable to FDS, were also cited as potentially influencing health behaviors and outcomes (Lagarde et al. 2009).

Gaps in the monitoring of young children and pregnant women contribute to inconsistent program impact on some maternal and child health outcomes.

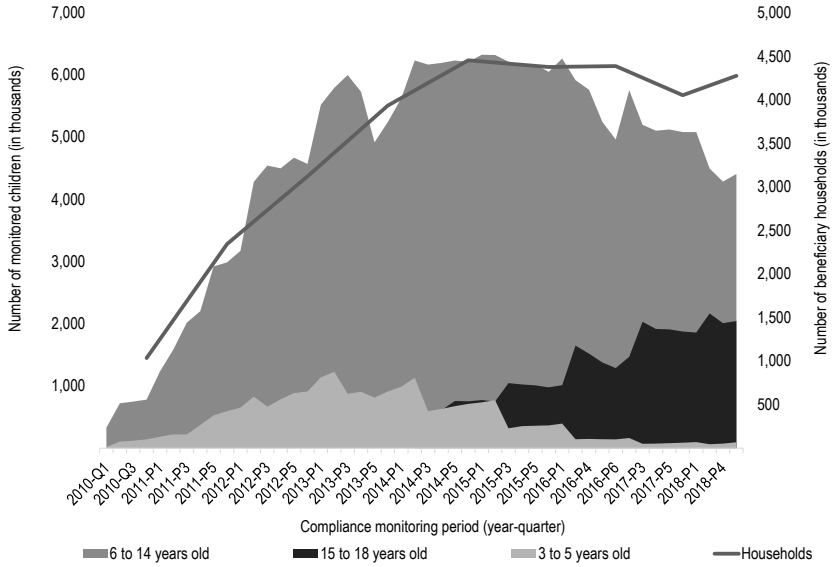
Gaps in monitoring can partially explain the mixed results in health. Very few children and pregnant women in the sample were monitored in the program as of data collection time. According to Akresh et al. (2012), Attanasio et al. (2015), and Benedetti et al. (2015), conditionalities and monitoring are crucial in achieving desired impacts on health among beneficiaries of cash transfer programs. Attanasio et al. (2015) noted a decrease in healthcare visits among new children to whom the program health conditions of Colombia's Familias en Accion no longer apply. Meanwhile, Akresh et al. (2012) studied conditionalities' effects by comparing the impact of a CCT program and an unconditional cash transfer (UCT) program on the frequency of healthcare visits of child recipients. A significant positive impact was only observed among CCT children relative to control, signifying the positive impact of the conditionalities in utilizing health services. In both studies, the effect of the conditionalities was also hypothesized to have been reinforced by monitoring compliance and enforcing the conditions (Bastagli et al. 2016). Likewise, Benedetti et al. (2015) found a significant positive effect of conditionalities and labeling of grants as conditional among children under 6 years old and pregnant women in Honduras' Bono 10,000 program. In contrast, no significant impact was noted in a similar group that did not have conditions and labeling but had double the amount of benefits.

In recent years, the number of children monitored under the Pantawid Pamilya, particularly those below 5 years old, has declined due to inadequate updates received and processed by the program information management system. By default, the information on the household roster of beneficiaries comes from the initial targeting survey done by the DSWD and the first round of the Listahanan survey conducted from 2008 to 2010. All succeeding updates in the information come from updates filed by beneficiaries. If the beneficiary has not filed any update on the household composition, particularly children born after the initial round of targeting survey, the information on the household composition would not be updated in the program database.

Figures 3 and 4 present the number of monitored children in education conditions and children and pregnant women in health conditions of the program. In both graphs, the number of monitored children ages 0–5 years for education and health conditions started declining around 2013 to 2014 despite the increasing number of households and older children covered in the program. Assuming consistent fertility behavior through the years, the number of newborn children should at least grow with the increase in the number of households in the program. However, the declining trend indicates that the program has not captured all children born into the beneficiary households. This hypothesis is further confirmed by the slow decline in the number of monitored children ages 6–14 starting in 2016, indicating that the cohort of monitored children is already "ageing" and moving to higher age groups through time. The number of children ages 0–5 being monitored for health conditionalities drastically decreased from 2 million at the beginning of 2013 to about 200,000 by the end of 2018. Similarly, the number of pregnant women being monitored has been low since the beginning and has not increased through the years. The highest number of monitored pregnant women was in early 2013, at approximately 32,000. As of November 2018, the program monitors only around 5,500 pregnant women out of its 4 million beneficiary households.

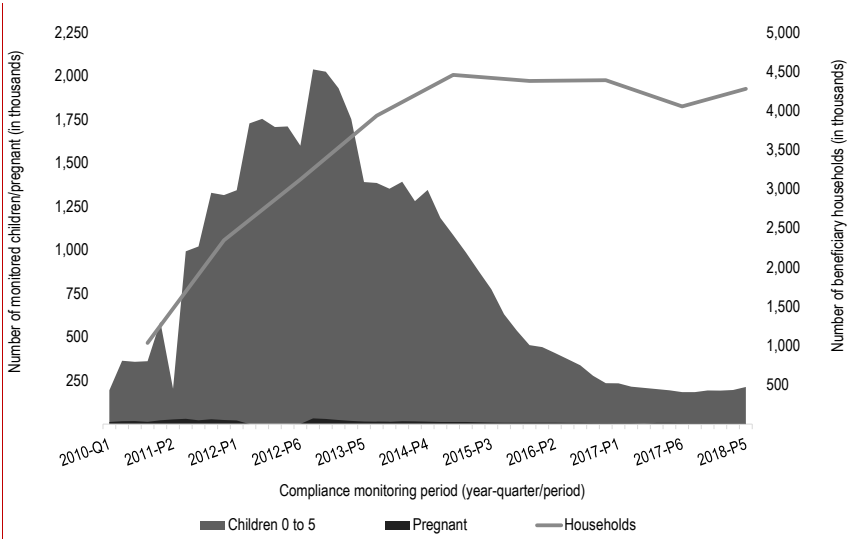
Given the declining trend in the number of young children and pregnant women monitored in the program, it is almost expected to have mixed or underwhelming impacts on health outcomes. As shown by several studies, the imposition of conditionalities and effective monitoring and enforcement of these conditions result in increased takeup of healthcare services among children and pregnant women.

Figure 3. Number of monitored children in education conditions by age group, 2010–2018



Source of basic data: Compliance rates monitored for 2010–2019 by DSWD via personal communication with the authors on March 1, 2019.

Figure 4. Number of monitored children and pregnant women in health conditions, 2010–2018



Source of basic data: Compliance rates monitored for 2010–2019 by DSWD via personal communication with the authors on March 1, 2019.

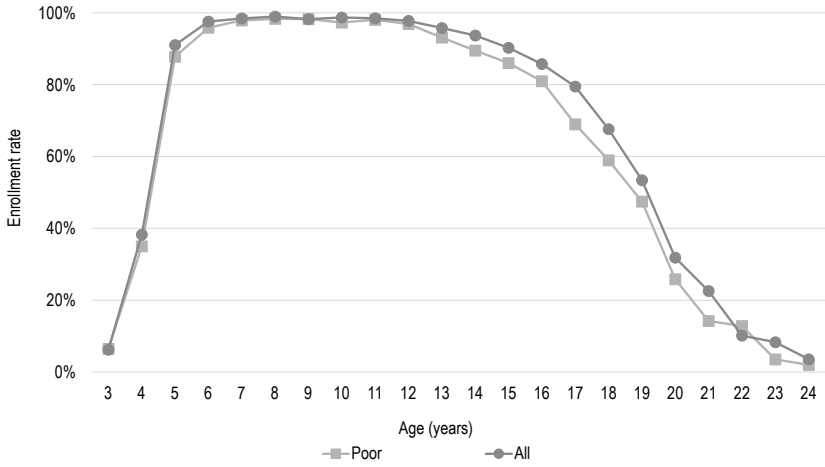
The monitoring gap stems from the update system design, which relies on the beneficiaries to submit update forms proactively. Filing of updates requires effort from the beneficiaries in filling out forms and securing documentary requirements for these updates to be approved and entered into the program information system. For instance, beneficiaries must submit birth certificates or health facility registration certifications for newly born children to consider the updates valid and accepted by the DSWD. Although this is a safeguard against abuse and misrepresentation, it also requires effort from the beneficiaries. This poses a challenge because program beneficiaries do not have a significant financial motivation to update their information, as the health grants are set at a fixed amount per household regardless of the number of program participants being monitored, and the education component is limited to three children per household. In addition, the update system design assumes that all beneficiaries are aware that these updates should be filed, but program spot-check reports indicate that not all beneficiaries know that updates for newborn children and pregnant members should be filed.

Program impact on education is more pronounced among older children, but education outcomes for younger children remain satisfactory.
The program has improved education outcomes for older children, possibly due to the extension of age coverage in 2014 that included children ages 15–18 years and provided higher grants for high school students. Specifically, the program has increased school enrollment of children ages 12–17, improved age-appropriate enrollment in junior high school, and lowered drop-out rates. Although minimal program impact was observed among younger children, elementary-aged children's enrollment and attendance rates are high for both beneficiaries and non-beneficiaries. The minimal impact on elementary-age children is possibly due to high enrollment rates regardless of beneficiary status. In a review of 20 studies examining the impact of cash transfer programs on education, Bastagli et al. (2016) noted that the marginal effects of programs are highest when baseline rates are lower.

The results provide motivation to shift incentives to older children, as younger children already have high enrollment and attendance rates. On the other hand, older children are more at risk of dropping out of school for various reasons. As shown in Figure 5, enrollment rates start

to decline at age 12 among the poor. The positive impact among older children means that the program can arrest this trend and keep children in school at least until they finish high school.

Figure 5. Average enrollment rate by age, 2017



Note: "Poor" is defined as the bottom three per capita income deciles in the Annual Poverty Indicators Survey of the Philippine Statistics Authority.
Source of basic data: PSA (2018)

In general, the positive impact of CCTs on school enrollment and attendance has been documented in numerous studies; hence, the positive findings of this study are not at all surprising. A review of studies on cash transfers and education outcomes observed that the majority found a significant increase in school attendance (Bastagli et al. 2016). Ferro et al. (2010) found that the Bolsa Escola program in Brazil increased school enrollment among beneficiaries, while Skoufias et al. (2001) observed significantly higher attendance in secondary school among beneficiary children ages 12–17 years. In an impact evaluation of the RPS in Nicaragua, Maluccio and Flores (2005) found a significant impact on school enrollment and attendance of beneficiary children.

The results of this evaluation are more consistent with the evaluation of PKH in Indonesia, which found larger program effects on older students (Cahyadi et al. 2018). Also similar are the findings by sex of child where no impact on high school completion is found for girls, but there is a

significant increase in high school completion for boys (4–7 percentage points for PKH beneficiaries). The PKH study also found impacts on enrollment for boys (9–13 percentage points), while no impact on high school enrollment was seen for girls. In this evaluation of the Pantawid Pamilya, male children ages 6–14 years showed a statistically significant increase in enrollment rates despite no statistically significant impact on the overall indicator for both sexes and no statistically significant impact among girls. This result can be due to the almost universal enrollment rates and generally better performance in girls' education outcomes than boys in the sample. Findings are consistent with other studies that also reported gender disparities in basic education in the Philippines, with lower enrollment rates for boys compared to girls (David and Albert 2015; Paqueo and Orbeta 2019). David et al. (2018) noted higher out-of-school children rates among boys for both primary- and high-school-aged cohorts, with sharper differences for older age cohorts.

Table 41. Out-of-school children (OOSC) rate, including senior high school (in %), by sex: Philippines 2017

Age	OOSC Rate		
	Boys	Girls	Both Sexes
5	9.1	8.9	9.0
6–11	5.4	3.4	4.5
12–15	8.0	3.1	5.6
16–17	22.3	11.6	17.4
Philippines (5–17)	10.7	5.7	8.3
Philippines (5–15)[a]	6.7	3.8	5.3

[a] Attention to children ages 5–15 years is provided for comparability with previous PIDS reports on OOSC.
Source: Calculations by David et al. (2018) based on (PSA 2018)

The IE Wave 3 also found low enrollment rates among children ages 3–5, as also shown in the trend in Figure 5. A common reason for this trend is the perception among parents that children within this age group are too young to attend school. Unfortunately, there is limited information on the effect of cash transfer programs on school enrollment and attendance of children under 5 years of age.

The evaluation did not investigate the program's long-term impact on educational attainment and high school completion because the extension of age coverage and increase of benefits in high school have been in effect only for 3 years as of data collection. With the recent rollout of the K-12 education system, the additional 2 years of high school education also limited the data on beneficiaries who completed high school. Nevertheless, the positive impact on age-appropriate enrollment for junior high school and increased enrollment rates for children ages 12–17 suggest that the program may also improve completion rates in high school. In the literature, multiple studies have already shown that CCT beneficiaries are more likely to complete high school (Baez and Camacho 2011; Cahyadi et al. 2018; Parker and Vogl 2018; Araujo et al. 2018). Parker and Vogl (2018) identified the length of exposure as a factor in increasing high school graduation. In Mexico, a 10- to 15-percentage increase in the likelihood of completing high school is found for Progresa beneficiaries of both sexes who started benefiting from the program at an early age.

This evaluation could not check the Pantawid Pamilya's effect on learning outcomes because DepEd data on National Achievement Test (NAT) scores were unavailable during the analysis. In the evaluation literature, there is limited impact of CCTs on achievement test scores and cognitive outcomes due to the influence of other factors such as program design and background characteristics of beneficiaries (Bastagli et al. 2016). Few studies have looked at test scores and cognitive outcomes, and many did not observe a significant impact for reasons such as moderating and contextual factors (Behrman et al. 2005; Bastagli et al. 2016).

Program impact is concentrated among monitored children.

This evaluation found that positive program impacts are mostly concentrated among children monitored in the program for their school attendance. This result confirms what other studies found regarding the importance of conditionalities and labeling in achieving the desired impacts of cash transfer programs. Akresh et al. (2012) did an experiment that compared the program impact of a CCT and UCT in Burkina Faso on school enrollment and attendance. They found a significantly larger impact of CCT in the enrollment of at-risk children relative to the UCT program. Baird et al. (2011) also did a similar experiment comparing UCT

and CCT in Malawi. They found that the conditionalities increased the cash grants' effectiveness in keeping adolescent children in school.

Interestingly, a study by Benhassine et al. (2015) found that a "labeled" cash transfer (LCT) program performs as well as a regular CCT. In the study, an unconditional cash transfer program was strongly labeled, making parents perceive the program's goal with regard to the accumulation of human capital and its intention of increasing the enrollment of children. The results showed that the LCT performed as well, or even better than the CCT, in improving education outcomes. In this evaluation of the Pantawid Pamilya, monitoring status was based on the administrative data of the program. Therefore, further analysis can be done concerning the perceived monitoring status of the children beneficiaries and explore whether the same "labeling effect" can be observed.

The Pantawid Pamilya no longer affects child labor either in terms of incidence or duration.

Unlike in the previous evaluation, the study finds no program impact on the incidence and the number of days spent by children ages 10–14 in paid and unpaid labor. Further examination of the data showed that 9 in 10 children engaged in work are also enrolled in school, implying that children beneficiaries do not drop out of school, nor do they entirely substitute schooling for engaging in work. This finding is consistent with de Hoop et al. (2017) study, which used data from the follow-up survey of the first impact evaluation of the Pantawid Pamilya in 2012. Their study found no reduction in the incidence of child labor among beneficiaries. Specifically, beneficiary children ages 10–14 are 6 percentage points more likely to work while attending school than non-beneficiary children. Further, their study found that although Pantawid children have higher attendance rates, they also have a higher probability of engaging in paid work outside the household. The authors attribute this result to the need for additional income to supplement schooling expenses, as the grant provided by the program does not cover the full cost of education.

This finding contradicts common findings in the literature on child labor wherein CCTs have successfully reduced child labor in various contexts. Beneficiary children have a lower probability of working, which coincides with increased schooling, especially for boys (Skoufias et al. 2001; Behrman et al. 2011; Cahyadi et al. 2018). Ferro et al. (2010)

found a lower incidence of child labor for Bolsa Escola beneficiaries in Brazil, while Maluccio and Flores (2005) observed the same for the RPS program in Nicaragua.

This evaluation also showed no statistically significant impact on child labor, even if the sample is disaggregated by sex. In contrast, Skoufias et al. (2001) found that the Progresa in Mexico significantly lowered participation in work activities for boys ages 8–11 and boys and girls ages 12–17, alongside an increase in school enrollment. Behrman et al. (2011) noted similar findings for younger boys (ages 9–10). These differences were attributed to different propensities to work between the beneficiaries and different kinds of work undertaken (i.e., wage labor for boys, domestic labor for girls).

However, the findings on the number of work hours for beneficiary children are mixed. Some studies observed reduced work hours for beneficiary children, but others did not find a significant impact despite a lower incidence of child labor under the program (Skoufias et al. 2001; Ferro et al. 2010).

Household welfare generally improved, but mixed results were observed in some indicators.

The current study asked questions on income from salaries, wages, entrepreneurial activities, and other receipts for the first time. Results showed that cash grants, on average, increase the income of CCT recipients as expected. However, the observed higher income did not necessarily translate to higher overall consumption for beneficiaries than non-beneficiaries.

While no statistically significant impact on total consumption or expenditure was observed, specific items such as total school expenditures and share of an average per capita expenditure on clothing and footwear have been affected positively. These reflect the reinforcing effect of the program conditionality on prioritizing children's schooling needs, which has been consistently shown since the IE Wave 1. Although small, the impact on health expenditure is also positive and statistically significant. This could mean they spend more on preventive (e.g., checkups, vitamins) or curative health needs (either the treatment for their illness is costlier or they get sick more often). This should be investigated further using other health-related data and in connection with PhilHealth benefits usage.

The impact on food expenditure can almost be said to be significantly positive (except that the impact vanishes under a more precise estimate) and could explain why a lower proportion of CCT households report experiencing hunger. Spending on vice goods is still negligible and less compared to non-beneficiaries, which means that CCT households are rational in spending priorities as they allocate more for essential needs such as education, health, and food.

In the literature, CCT programs have significantly impacted household consumption, particularly food consumption. Generally, the share of food to total expenditures is higher for CCT beneficiary households (Fiszbein et al. 2009) as they invest in better quality and nutrient-rich food such as meat, eggs, and vegetables. Attanasio and Mesnard (2006) found that CCTs increase beneficiary households' total and food consumption of Familias en Acción in Colombia. No significant impact was observed for expenditures on goods such as alcohol, tobacco, and adult clothing. On the other hand, Cahyadi et al. (2018) did not observe a significant program impact of PKH on overall per capita consumption, food expenditures, health and education expenditures, and spending on vice goods. The authors explained this finding as reflecting the program's intention to solve poverty in the next generation but not in the short term.

Fiszbein et al. (2009) identified the size of cash transfers as a major determinant of household consumption, with larger transfers resulting in larger household consumption. Other factors affecting household consumption were program priorities (i.e., intergenerational versus short-term poverty) and program impact on child labor.

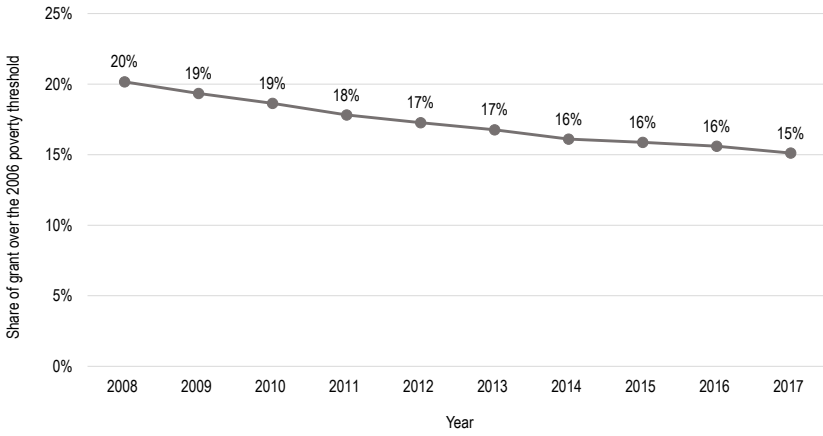
It is important to emphasize that the Pantawid Pamilya cash grants have not retained their relative value since the pilot implementation in 2008 (Figure 6). At the start of implementation, a household with three beneficiary children in elementary and compliant with all program conditions can receive up to PHP 15,000 per year. In 2008, this comprised 20 percent of the projected 2006 poverty threshold in 2008. The denominator corresponds to the minimum amount of money a household of five members needs to equal the poverty line in 2006. From a 20-percent share, this was reduced to only 15 percent in 2017 due to the erosion of real value following yearly inflation rates since 2008.

Fernandez and Olfindo (2011) noted that at the start of the program implementation, the original amount of the grants was comparable to the CCTs in Latin American countries, with the transfer size of Oportunidades

in Mexico and RPS in Nicaragua making up 21 percent and 17 percent of total annual household expenditures, respectively. Now, this is not true, given the reduced value of grants. The maximum amount of PHP 15,000 in 2008 is now lower by 34 percent, equivalent to roughly PHP 10,000 only. This computation assumes that the household perfectly complies with program conditions and has the maximum number of children as program beneficiaries. The actual amount of grants entitled to and received by beneficiaries is lower than this, given imperfect compliance and fewer children beneficiaries.

Although the grant amounts increased for high school children, it is not certain that this can cover costs in secondary education. The rice subsidy of PHP 600 monthly, provided starting in 2017, is expected to somehow alleviate the lost value of grants in the past years.

Figure 6. Share of the real value of grants over 2006 poverty threshold by year



Note: Simulation of a household with 3 children in elementary and fully compliant with conditionalities 2006 threshold was projected to 2008 value using the consumer price index.
Source: Authors' computations

The Pantawid Pamilya does not encourage dependency.

The analysis results on labor outcomes indicate that the program does not encourage dependency. No statistically significant difference was observed between the labor force participation of beneficiaries and non-beneficiaries, indicating that the program, on average, does not affect the willingness to work of beneficiaries. Further, reducing the employment

rate of beneficiaries does not necessarily mean that beneficiaries are discouraged from looking for work. Employment, unlike labor force participation, depends on both the demand and supply for workers, and a reduction in employment could mean a lack of available jobs for beneficiaries as much as it could mean a lack of available workers willing and able to accept the available jobs. Despite the lower employment rates, the study also found that Pantawid Pamilya beneficiaries were significantly more productive among those employed than their non-beneficiaries counterparts. Beneficiaries tend to work more jobs and work for a longer duration of hours per week. Likewise, no statistically significant difference was observed in the proportion of unemployed seeking work in the Pantawid and non-Pantawid groups.

The literature on conditional cash transfers and employment supports the study's general finding that CCTs do not foster dependency. Various studies found no significant negative impact on beneficiary employment and labor force participation. Maluccio and Flores (2005) found no impact on adult labor force participation of program beneficiaries of RPS in Nicaragua. Similar results were observed by Skoufias and Di Maro (2006) for PROGRESA beneficiaries in Mexico, bolstered by their finding that the CCT program also led to a reduction in current poverty. In a study on the long-term impact of CCTs, Cahyadi et al. (2018) also observed that long-term exposure to PKH did not decrease enrollment for heads of beneficiary households. In previous impact evaluations on the Pantawid Pamilya Pilipino Program, no significant impact on employment was observed besides a positive impact on looking for additional work for employed beneficiaries. On the other hand, employment was significantly higher for both beneficiary fathers and mothers of Bolsa Escola in Brazil (Ferro et al. 2010).

In a review of Latin American CCT programs, Alzúa et al. (2013) observed small negative effects on adult labor market outcomes, but these were not statistically significant and were not interpreted to reflect dependency. In terms of the number of hours worked, a significant decrease was found for beneficiaries at the household level but not for individual adults. Decreased working hours were also observed for rural mothers and urban fathers under Bolsa Escola in Brazil (Ferro and Nicollela 2007), attributed to more time spent on child care or more leisure time afforded by beneficiaries.

A reanalysis of the six randomized controlled trials of CCT programs in six developing countries (the Philippines included) was done by Banerjee et al. (2017). They find no systematic evidence that cash transfer programs discourage either the propensity to work or the overall number of hours worked for either men or women.

In summary, no evidence of dependency or work disincentives was observed in studies on conditional cash transfer programs. In general, CCTs were found to have no significant impact on labor force participation and employment. More nuanced effects, however, were observed for some programs, such as Progresa, on other labor market outcomes, such as the number of hours worked.

The Pantawid increases access to social services and improves the utilization of government services.

This evaluation shows that one unintended consequence of being a Pantawid household is that more of them tend to have copies of their birth certificate, which is one of the basic documentary requirements in accessing government services. This is most likely because Pantawid beneficiaries are asked to file updates on basic information, which a birth certificate should support in many cases. Though more beneficiaries have birth certificates, PhilHealth membership, and SSS membership, the data show this does not easily translate to a significantly higher rate of availing government services. For example, in the study of Quimbo et al. (2008), they identified lower utilization of PhilHealth benefits for the hospitalization of children of mothers with low educational attainment and with shorter lengths of stay in the hospital. Using NDHS 2003 data, their study identified other barriers, including low awareness of program benefits, high transaction costs, and a complicated claiming process. Succeeding evaluations and studies need to delve further into this and identify and validate potential reasons behind the underutilization of government and social services, particularly among Pantawid beneficiaries, who have relatively more access to information on these kinds of programs.

FDS messages are reflected in the attitudes and behavior observed among Pantawid Pamilya beneficiaries.

Based on the results of this evaluation, Pantawid Pamilya promotes participation in community development activities. One of the program objectives is to encourage participation in community development

activities, and for the first time, there is new evidence that this is happening among Pantawid Pamilya beneficiaries. More of them are members of and even hold officer positions in community-based organizations. They are also significantly more likely to participate in volunteer work.

In the last quarter of 2015, Pantawid Pamilya delivered FDS topics around active citizenship. In the second half of 2016, the program took a community organizing turn and attempted to encourage parent groups to self-organize and advocate for their community needs. The positive civic involvement outcomes could have resulted from these sustained efforts two years before the third impact evaluation. The fact that beneficiaries had a significantly higher rate of possessing emergency kits provides additional evidence that the FDS program can achieve more concrete outcomes in encouraging the adoption of certain practices, such as disaster preparedness. This is particularly true when the program reinforces these topics regularly.

Higher participation in community organizations and voluntary community activities among beneficiaries is observed, but it is not clear from the study the type of activities and involvement of beneficiaries. Therefore, it may be better to ask more specific questions about the community participation of beneficiaries in future studies.

On the attitudes toward violence against women, it is good to note that the female respondents hardly agree with any justification for the physical violence of their husbands. That female Pantawid Pamilya beneficiaries agree less to physical violence when they go out without notifying their husband or when they argue with their husbands could mean that they are protective of their personal freedoms (freedom of movement and freedom of expression), without necessarily affecting their performance of familial (neglecting children and burning the food) and marital duties (refusing to have sex). Although small in magnitude, this positive outcome could still be traced to and is consistent with the frequent attention given to gender empowerment in FDS. It is also worthwhile to study whether this effect is greater among female-headed households.

Pantawid Pamilya increases grit of children.

The program has little impact on the outlook or expectations of parents regarding their children's future. On the other hand, the findings show that Pantawid children are more determined compared to their counterparts.

The program should take advantage of the results on grit as it has been identified in the literature and other socio-emotional skills to have a big impact on children's future when they become part of the labor force. Heckman and Kautz (2012) noted that soft skills—particularly grit and related traits—predict outcomes later in life. Future studies should attempt to unpack these results, and the program should consider systematically developing interventions on this front.

Summary

The Pantawid Pamilya is the primary social protection strategy of the government to break intergenerational poverty by investing in the health and education of children from poor households.

The program has improved education outcomes, such as school enrollment and attendance, and increased access to key maternal and child healthcare services among beneficiary households. However, some findings and observations need to be looked at more closely, such as the lack of impact on mean per capita consumption, childhood immunization coverage, and the persistent incidence of child labor among the beneficiary households. In addition, the findings of the RCT cohort analysis have shown mixed results in terms of the program outcomes measured.

The results of the evaluation showed that:

- ***The Pantawid Pamilya raises awareness and use of modern family planning methods among program beneficiaries.*** Program beneficiaries have a higher awareness of modern family planning methods. Moreover, a larger proportion of beneficiaries reported having used a modern family planning method at least once, although there is not enough evidence of sustained use of these commodities among beneficiaries. Increased awareness of modern family planning methods among beneficiaries may be due to attendance at FDS and family planning counseling in health facilities. Supply conditions, previous experience in the use of family planning methods, decisionmaking between husband and wife, and other factors may explain the discontinued use of these methods and should be studied.

- ***The Pantawid Pamilya increases the availment of prenatal care services and SBA.*** Availment of prenatal care services at least 4 times during pregnancy is higher among Pantawid than non-Pantawid mothers. However, the program does not impact the availment of postnatal care services within 72 hours, postnatal care from a skilled professional, and in a health facility. This suggests that beneficiary women do not give equal importance to prenatal and postnatal care, which is concerning, given that these are both program conditionalities. This finding needs to be investigated further by qualitative studies. The program increased deliveries of Pantawid beneficiaries assisted by a doctor or nurse in urban areas and midwife-assisted deliveries in rural areas. The program also increased facility-based deliveries in urban areas. These results suggest that availability and access to health facilities and resources influence the usage of maternal healthcare services.
- ***The Pantawid Pamilya increases access to child healthcare services but shows mixed impacts on nutrient supplementation and nutrition outcomes.*** Provision of deworming pills at least twice is higher among beneficiary children ages 6–14 years. The program has also increased vitamin A supplementation, but similar to previous evaluations, the program still does not have any impact on the complete immunization of children. More Pantawid children ages 0–5 years visit health facilities for weight monitoring. These mixed results on child health service utilization may be due to supply-side factors (e.g., the absence of health facilities in certain areas or lack of medical supplies) or gaps in updating household composition and compliance monitoring. These need to be validated by further qualitative studies. Regarding nutrition outcomes, the study finds a negative program impact on the prevalence of stunting in children ages 0–5 years. This result is inconsistent with the findings of the IE Wave 3 RCT cohort study, which observed that receipt of program benefits during the first 1,000 days of life results in improved nutrition outcomes. It is possible that the negative impact on nutrition is not due to current childcare and dietary practices but due to past practices and other factors

accumulated starting from conception. Mixed results in health can also be explained by the ineffective enforcement of program conditions and insufficient monitoring of young children and pregnant women due to gaps in updating. These nuances must be investigated further to confirm this negative finding and understand possible contributing factors.

- ***Program impact on education is more pronounced among older children, but education outcomes for elementary-aged children remain satisfactory.*** The program has improved education outcomes for older children, possibly due to the extension of age coverage in 2014 to include children ages 15–18 and provided higher grants for high school students. Specifically, the program has increased school enrollment of beneficiary children ages 12–17, improved age-appropriate junior high school enrollment, and lowered dropout rates. Although very minimal program impact was observed on younger children, enrollment and attendance rates of elementary-aged children are high for both beneficiaries and non-beneficiaries. Monitoring status also affects education outcomes, with monitored children, particularly those in older age groups, having better education outcomes. Higher expenditures on education were also observed among children beneficiaries who were enrolled in the last school year, compared to non-Pantawid children.
- ***The Pantawid Pamilya no longer affects child labor either in terms of incidence or duration.*** Unlike in the previous evaluation, the study found no program impact on the incidence and the number of days spent by children ages 10–14 in paid and unpaid labor. However, the proportion of working children among Pantawid beneficiaries has decreased since the previous evaluation. The current data shows that 90 percent of working children also attend school, indicating that children are not dropping out despite financial concerns, and additional income is used to supplement the cash grant to cover education costs.
- ***The Pantawid Pamilya improves household welfare.*** The study found that the program grants significantly increase household per capita income. Beneficiaries spend more on clothing and footwear compared to non-beneficiaries, but

no strong program impact was noted on other expenditure items. Regarding food security, fewer Pantawid households experienced hunger than non-Pantawid households. However, the frequency of food insecurity or hunger for those who experienced it is unaffected by the program. Subgroup analysis revealed that program impacts on income and other household welfare indicators are significantly larger in urban areas. The impact on income in urban areas is retained even if cash grants are excluded from the equation, which can largely be attributed to the positive program impact on per capita income from the salary and wages of urban beneficiaries.

- ***The program does not increase expenditure on vice goods.*** Consistent with earlier findings and international literature on CCTs (Evans and Popova 2017), Pantawid beneficiaries do not have higher spending on vice goods such as alcohol, tobacco, and gambling compared to non-beneficiaries. This result is true both in terms of share of expenditures on vice goods to total household expenditures and average per capita expenditures. This result also holds true for the urban/rural subgroup analysis.
- ***The program does not encourage dependency.*** Beneficiaries are equally likely to be in the labor market, although beneficiaries are less likely to be employed. However, beneficiaries work more hours and in more jobs once employed than non-beneficiaries. The study also did not find a significant difference between the proportion of unemployed looking for work among beneficiaries and non-beneficiaries of Pantawid, implying that they are equally eager to look for work when unemployed as their counterparts among non-beneficiaries. This result is consistent with the findings of a reanalysis of cash transfer programs in six developing countries that found no systematic evidence that the program discourages work (Banerjee et al. 2017).
- ***The program increases participation in the community and community development of adults but has a limited impact on locus of control and future expectations.*** More Pantawid Pamilya beneficiaries participate in community organizations and voluntary community activities. They also display better disaster preparedness, likely due to attending Family Development

Sessions on this topic. However, there is little impact of the program on the outlook or expectations of parents about their children's future and on the locus of control among Pantawid women.

- ***Beneficiary children have higher grit.*** Pantawid Pamilya children are more determined than their counterparts to complete and succeed in schoolwork despite challenges. This result opens a lot of promising implications for children's future education and labor market outcomes.

Generally, the evaluation results indicate that the program has desirable impacts on most of the target education and health outcomes of children and pregnant women. Moreover, the program has positively affected household well-being, including income and food security. It has also resulted in significant improvements in community involvement and awareness among adults about fundamental strategies to reduce vulnerabilities, such as disaster preparedness. Additionally, the program has profoundly affected children's determination or "grit". Nevertheless, some study results are also unexpected and inconsistent with previous evaluations. The results on the negative impact on nutrition, particularly on the incidence of stunting, provide strong motivation to refocus health interventions and compliance monitoring on pregnant mothers and young children during critical growth periods such as the first 1,000-day window. More studies should be done to understand the discrepancies in the utilization of health services such as immunization and iron supplementation. The program can also benefit from monitoring the type and quality of services accessed by beneficiaries to ensure they can fully maximize the utilization of the available interventions. The findings on education may also indicate the need to concentrate efforts on improving the outcomes of older children since younger children are already able to achieve satisfactory enrollment and attendance rates even without the program. The lack of impact on child labor calls for a thoughtful examination of the opportunity costs incurred by working children when they study and the corresponding adjustment in the policies or incentives that the program provides—particularly in terms of reevaluating the value of the cash grant. Interventions such as employment facilitation can be useful in increasing employment rates among working-age members of

beneficiary households. Lastly, the program and the Government should take full advantage of the positive program impacts on the behavior of children and adults as a model and/or platform for other interventions.

Recommendations

The evaluation findings generally indicate that the program can still achieve most of its short- and medium-term objectives of making children enter and stay in school and improve their health outcomes. However, some unexpected and conflicting results need further study. Likewise, the evaluation results also suggest program impacts on desirable behavioral outcomes of both children and adult members of the households.

Despite the favorable outcomes of the study regarding the program's effectiveness, there are apparent shortcomings that need to be addressed. These include the program's negative impact on nutrition, low utilization of specific child and maternal health services, minimal influence on the education of children aged 3 to 5 years, and the continued prevalence of child labor, among other concerns. Thus, the study proposes the following recommendations:

1. Strengthen program aspects that influence the first thousand days to promote better health among young children and pregnant women. In November 2018, the law on the first thousand days was passed to support the nutrition of mothers and their infants before, during, and after pregnancy. Outside the Department of Health initiatives, Pantawid Pamilya is the only other nationwide program that can influence maternal and child health, particularly among the poor. This provides a unique opportunity for DSWD and DOH to work with other agencies to promote better nutrition outcomes at that crucial stage of life. In addition, many other health- and children-focused civil society organizations should be tapped to help educate and provide the needed nutritional supplements to lactating mothers and their infants to help the government's efforts.
2. Address the gaps in updating changes in household composition, especially newborns and new pregnancies. A more updated and comprehensive roster of household members is critical in understanding the program's impact on young children and the

whole family, besides the children monitored by the program. These updates can also enable studying the program's impact on fertility, which was mentioned as one gap in this evaluation. The program implementers should take a more active role in updating the records of beneficiaries instead of relying on voluntary updates filed by beneficiaries. Pantawid Pamilya can learn from the experience of Bolsa Familia, wherein the provision of grants is also made conditional on the households' timely filing of updates.

3. Strengthen monitoring of compliance to health conditions to better capture the utilization levels of available services by beneficiaries. The program can benefit from monitoring the type and quality of services available and accessed by beneficiaries. This information will help identify service gaps and better understand the role of services on health outcomes, which continues to have mixed results. The assistance of the DOH and LGUs in this area is vital.
4. Conduct further studies on the determinants of availing of child and maternal health services to understand the reason for the lack of impact and the seemingly conflicting results. Given the mixed results, there is a need to understand the role of supply-side factors. It should be noted that supply-side covariates were already included in the estimation models. Perhaps a more qualitative study that teases out the issues on the role of providing health services and the corresponding responses or demands from the beneficiaries will be useful.
5. Undertake an in-depth study on the puzzling impact of nutrition. Most CCT programs in other countries have shown that the program leads to a decline in the prevalence of malnutrition. This reality makes the case of the Philippines of particular interest that needs to be better understood. It has been shown that the perverse impact of the program on stunting virtually disappears when one includes in the analysis only children who benefited from the program from conception. Nonetheless, it is still important to understand the mechanisms by which the program affects the nutrition status of children. Identifying the intermediate factors that drive the impacts on nutrition is as important as the impact on the final outcomes itself.

6. Consider more effective and efficient ways of using the education grant. One option is to refocus education intervention on older children where the benefits are greater and children are more at risk of dropping out. There are several ways to do this, and these should be done gradually. One way is to remove the conditionality of school attendance among elementary students and replace it with a reasonably attractive amount for grade level completion and enrollment in the next level that can be provided annually. The amount saved from not giving grants conditional on school attendance in elementary could be reallocated to increase the amount of education grants for high school children, which are still conditional on their enrollment and regular school attendance. In a study by Barrera-Osorio et al. (2008) in the CSAE program in Colombia, schemes that provide bulk cash transfer benefits at the end of each grade level and cash transfer benefits conditional to the student's graduation and subsequent enrollment in the next level returned even more substantial program impacts on education outcomes than the schemes that depend on monthly attendance. Corollary to this is the call for concentrating efforts on monitoring older children.
7. Pursue studies that will analyze the impact of the program on learning. It has been established in this and in previous evaluation rounds that the program increases school attendance except in the elementary grades because the attendance rates are already near universal. The next important education outcome of school attendance is learning. This will require having the achievement test scores of beneficiary children and their counterparts. The program should endeavor to get the student's achievement test scores from DepEd to understand the program's impact on learning. This study is important because the literature reveals that school attendance does not always translate into learning (World Bank 2018).
8. Look for solutions to reduce child labor incidence and duration. Findings show that children are still going to school despite their employment. This indicates that a big part of the problem is not driven by the behavior of beneficiaries (e.g., lack of interest) but more by the costs they incur to pursue schooling.

The program needs to reassess the grant amount and examine the opportunity costs of forgoing child labor among Pantawid children. With the declining real value of the grants, continued employment may have been resorted to by children to support their schooling and/or contribute to household income. An interesting intervention to pursue is whether increasing the amount of education grants for high school children will produce a desirable impact on the incidence and duration of child labor. A notable result by Edmonds and Theoharides (2018) shows that asset transfer that improved household welfare had increased rather than reduced child labor, and economic activity in the household increased.

9. Identify and define more clearly, make them measurable, and monitor the KAP the FDS wants beneficiaries to adopt. Findings show that FDS has been effective in promoting some messages, such as those related to civic participation and disaster preparedness. These results confirm the potential of the FDS as a platform to initiate behavioral changes among beneficiaries. However, following the recommendations from the 2014 impact evaluation, the program should still work on sharpening the delivery of key ideas and messages. In addition, it should conduct FDS in a directed manner with a short curriculum of at least six (6) months on the most important topics like maternal and child health and nutrition and parenting toward promoting child protection and health- and education-seeking behavior. This should facilitate reinforcement through the short and directed FDS curricula. This will also provide the framework and facilitate the evaluation of the impact of the FDS on these identified intermediate learning goals.
10. Do further studies on the impact of the program on labor market outcomes. However, it must be clear that the immediate labor market outcomes of the working-age members of beneficiary families are not the primary outcomes the program targets. Nonetheless, critics have used it as an argument against the program. In addition, labor market responses due to the program can also provide insights on how to facilitate the

graduation of beneficiary families from the program. For instance, the study has pointed out the heterogeneity in impact between urban and rural areas. This should be explored, especially with regard to a possible difference in employment types and skill requirements. To help increase employment rates, for instance, the DSWD can start by providing inputs on accessing and maximizing livelihood opportunities through FDS and accompany this with employment facilitation assistance through the Sustainable Livelihood Program. However, since this is not the program's primary objective, DSWD should not lose sight of improving the future employment prospects of the children still studying. It should also be noted that there should be openness to the possibility that this task can be more efficiently performed by other agencies such as DOLE, TESDA, and DTI.

11. Conduct studies aimed at enhancing the understanding of how the program may help promote or discourage socioemotional skills, taking the cue from the results on grit. The literature has identified grit and other socioemotional skills to have a big impact on children's future when they become part of the labor force (Heckman and Kautz 2012). Future studies should attempt to unpack these results and consider how to systematically identify and develop interventions to enhance socioemotional skills.

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Appendices

Appendix 1. Learning materials used in the family development sessions (FDS)

FDS Manual – "Gabay sa Pagpapaunlad ng Pamilyang Pilipino

1. Module 1: Laying the Foundation of the Pantawid Pamilyang Pilipino Program - with 9 sessions
    a. Overview of Pantawid Pamilya
    b. Guiding Principles of Pantawid Pamilya
    c. Recognition of Self as a Person, as a Family Member, and as a Partner Beneficiary
2. Module 2: Preparing and Nurturing the Filipino Family - with 4 sub-modules or 29 sessions
    a. Preparing for Family Life
    b. Responsible Parenthood and Family Planning
    c. Protecting the Child from Abuse, Violence and Exploitation
    d. Promoting the Welfare of the Filipino Family
3. Module 3: Participation of the Filipino Family in Community Development - with 9 sessions
    a. The Family and Community
    b. Maintenance and Improvement of the Community and the Environment
    c. Disaster Preparedness

List of FDS supplemental modules:

1. Appreciating Early Childhood Enrichment (Early Childhood Care and Development Manual)
2. Pagiging Mabuting Pilipino: Active Citizenship Module
3. Modyul Ukol sa Kapansanan (Module on Disabilities)
4. Gabay at Mapa para sa Listong Pamilya
5. Child Sexual Abuse Prevention (CSAP) Modules for Children and Youth, Parents and Pantawid staff
6. FDS Module on Child Labor (English and Filipino version)
7. Enhanced Module on Sanitation (Water, Sanitation and Hygiene or WASH)
8. Food and Nutrition Module

9. FDS Module on Social Preparation for Recertification
10. Session Guide on Tuberculosis Awareness
11. Regional IP (Indigenous Peoples) Modules

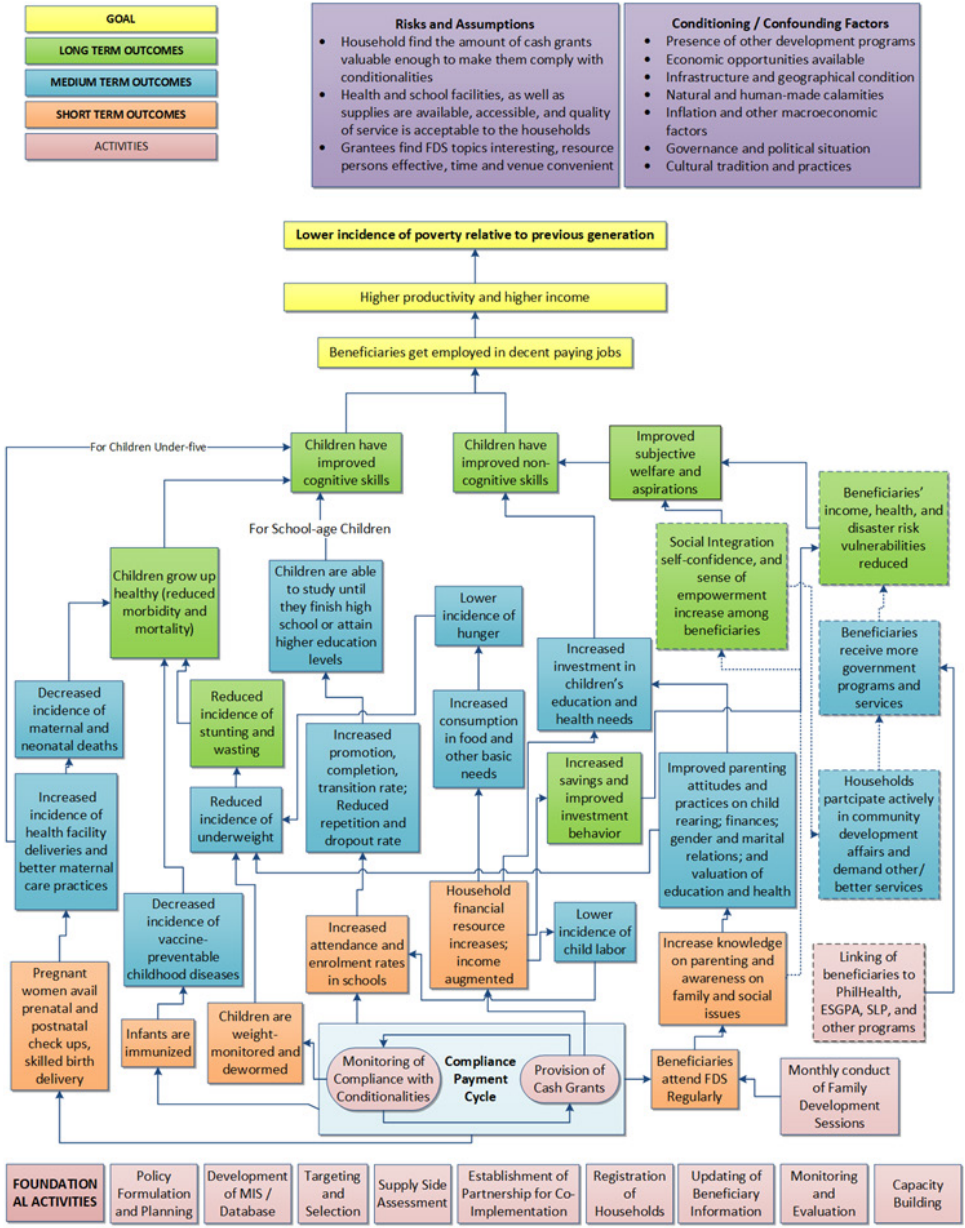
Other modules that can be used during FDS:

1. Positive Discipline Manual of Save the Children
2. Home-based Early Literacy and Numeracy Modules of Save the Children Family- and Community-Based Disaster Preparedness Module (HOME)
3. Parenting Effectiveness Sessions (PES) Modules
4. Parenting the Adolescent Manual (PAM)

Modules currently being developed:

1. WASH module for early childhood care and development
2. Drug Abuse Prevention Education Module
3. FDS Module on Health in Emergencies
4. Climate Change and Environmental Protection Module

Appendix 2. Program theory of change



Source: 4Ps Impact Evaluation Technical Working Group (2017)

Appendix 3. Sample areas

Table 1. RD sample areas by municipality

Province	Municipality	Treatment	Comparison	Total
Ilocos Sur	Tagudin	116	88	204
Pangasinan	Mangatarem	116	114	230
Pangasinan	San Nicolas	113	109	222
Nueva Vizcaya	Kasibu	115	116	231
Nueva Ecija	San Jose City	118	116	234
Camarines	Bato	115	110	225
Masbate	Baleno	116	86	202
Sorsogon	Bulan	116	118	234
Iloilo	Iloilo City (capital)	119	114	233
Iloilo	Oton	119	114	233
Negros Occidental	City of Kabangkalan	116	118	234
Guimaras	Buenavista	116	117	233
Cebu	Dalaguete	115	119	234
Cebu	Dumanjug	115	119	234
Negros Oriental	Mabinay	118	114	232
Negros Oriental	Santa Catalina	118	115	233
Leyte	Bato	119	115	234
Northern Samar	Gamay	118	115	233

Table 1 *(continued)*

Province	Municipality	Treatment	Comparison	Total
Zamboanga Del Norte	Salug	119	100	219
Zamboanga Del Sur	Zamboanga City	116	113	229
Misamis Oriental	Claveria	119	115	234
Compostela Valley	Maragusan (San Mariano)	118	116	234
Cotabato	Matalam	117	117	234
Sultan Kudarat	Senator Ninoy Aquino	116	117	233
NCR Second District	City of Mandaluyong	116	118	234
NCR Second District	Quezon City	120	114	234
Maguindanao	Datu Odin Sinsuat (Dinaig)	60	53	113
Agusan Del Norte	Butuan City (Capital)	116	118	234
Agusan Del Sur	City of Bayugan	118	111	229
Surigao Del Norte	Surigao City	117	116	233
Total		3,450	3,325	6,775

RD = regression discontinuity; NCR = National Capital Region
Source: Authors' compilation

Appendix 4. Supply-side conditions in the study areas

A total of 180 villages were surveyed in the study, with 118 villages in rural areas and 62 villages in urban areas. In addition, the study conducted surveys with (1) barangay captains or other officials and (2) heads or other staff of rural health units (RHU) and barangay health stations (BHS) that beneficiary households reported to be visiting.

These surveys were conducted to gather information about supply-side indicators in the barangay and health facilities, which can potentially explain some findings of the study.

The study was able to collect information on barangay characteristics and supply-side indicators for the 180 villages included in the study. This covers information about the barangay demographic, access to water and electricity, occurrence of natural disasters, and access to schools and health facilities.

Despite low enrollment in early childhood education observed by the study, 98 percent of the sample villages reported having a daycare center or preschool in their area. This points toward the need for future studies to investigate other factors that shape parents' decisions to send younger children to school.

Access to primary schools is comparable between urban and rural villages and almost universal (98% for daycare, 97% for elementary schools). However, there is a marked difference in the percentage of villages with secondary schools, with a lower proportion of rural villages that have high schools and senior high schools in their areas. This is reflected by the differential impact analysis findings, which observe a larger impact on enrollment and dropout rate among high school-aged beneficiary children in urban villages than in rural villages.

The study also surveyed health facilities (i.e., RHUs and BHS) to assess the availability of health services in the sample areas. A total of 22 RHUs and 139 barangay health stations and centers in 140 villages were included in the study.

The study observed differential impacts on the use of healthcare services, particularly for urban and rural mothers. A potential factor may be the lower percentage of health facilities offering complete maternal health services in rural areas than urban areas.

It was noted that there is still a small number of doctors and nurses in rural health facilities compared to urban health facilities. The number

of midwives, however, is similar. This may explain the differential impacts on skilled birth attendance, with a higher birth attendance by midwives for rural beneficiary mothers.

Other than the quantity of health facilities and health services available, the quality of health facilities, in terms of PhilHealth-accreditation status, should also be noted. The percentage of health facilities with PhilHealth accreditation is low (22%) but markedly lower for rural compared to urban facilities (11% and 35%, respectively).

This contrast in terms of access to health services may contribute to the differential impacts noted by the study. Given these findings, these gaps in the supply-side need to be addressed for the program to achieve the desired impact on maternal health outcomes.

Table 1. Barangay characteristics

Indicators	Urban	Rural	Sample
Number of villages	62	118	180
Avg. population size	27,883	3,287	11,669
Avg. number of households	6,517	682	2,660
Avg. % of IP population	14%	16%	15%
% of villages with daycare centers	100%	97%	98%
% of villages with elementary level schools	98%	97%	97%
% of villages with high schools	74%	55%	62%
% of villages with senior high schools	69%	47%	55%
% of villages with a government health facility[1]	100%	89%	93%
% of villages with a BHS	100%	86%	91%
% of villages with an RHU	44%	8%	20%
Avg. time to BHS if none in village (minutes)	–	14	14
Avg. distance to BHS if none in village (kms)	–	3	3
Avg. time to RHU if none in village (minutes)	18	21	21
Avg. distance to RHU if none in village (kms)	8	7	7
% with a traditional midwife servicing in village	55%	52%	53%
% experienced flooding in village in last five years	40%	37%	38%
% experienced earthquake in village in last five years	26%	17%	20%
% experienced drought in village in last five years	21%	36%	31%

Avg = average; IP = indigenous peoples; BHS = barangay health stations; RHU = rural health units
[1] (BHS, RHU, or hospital)
Source: Authors' compilation

Table 2. Health facility characteristics

Indicators	Urban (N=71)	Rural (N=90)	Sample (N=161)
Number of BHS[1]	58	78	136
Number of RHU	13	9	22
% Accredited by PhilHealth	35%	11%	22%
% PhilHealth-accredited maternity care provider	14%	8%	11%
Average number of doctors	0.7	0.4	0.6
Average number of nurses	2.2	1.5	1.8
Average of midwives	2.7	2.6	2.6
% of HF providing complete child health services[2]	65%	68%	66%
% of HF providing complete maternal health services[3]	54%	39%	45%
HF offers weight measurement	99%	98%	98%
HF offers deworming	99%	99%	99%
Average number of villages in catchment area	5.3	4.4	4.8
Average population size in catchment area	32,242	9,476	19,356

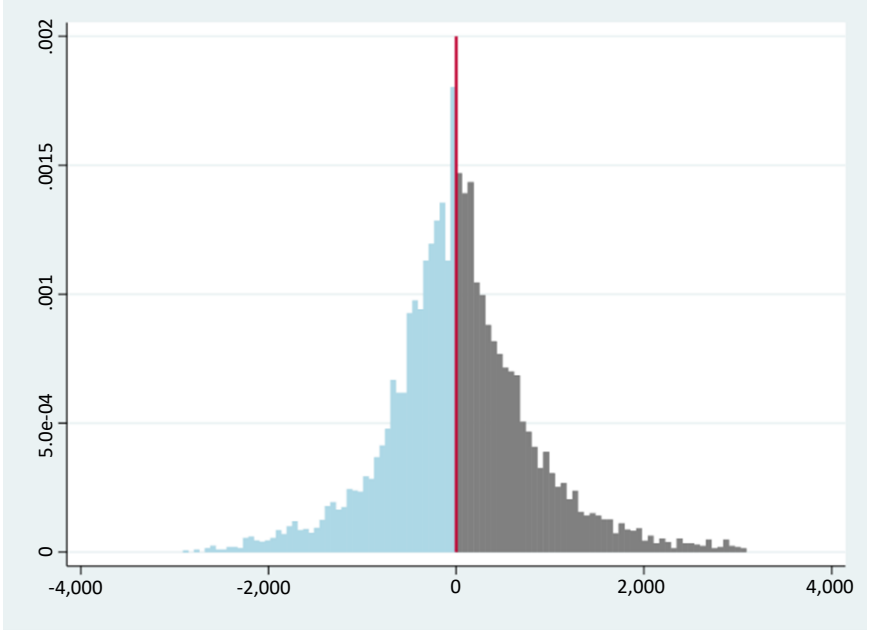
[1] 3 health facilities categorized under barangay health center
[2] Immunization, anthropometric measurement, provision of deworming pills, feeding program, vitamin supplementation
[3] Prenatal care, postnatal care, basic emergency obstetric care, weight and blood pressure monitoring of pregnant women, breastfeeding, and family planning counselling
Source: Authors' computations using data from the third impact evaluation survey of the 4Ps

Appendix 5. Validation of assumptions

Testing for discontinuity in the running variable

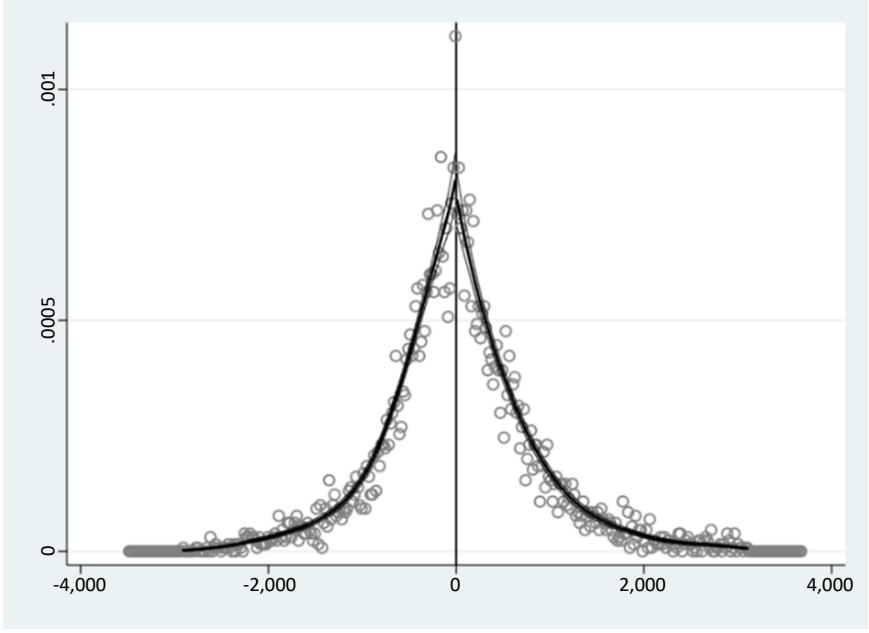
The graphs below show the distribution of households on the running variable (PMT) and the implementation of the McCrary density test (2008). From the graph, it can be observed that there is very small lumping of observations near the cutoff. However, based on the density test, this lump does not indicate manipulation of the assignment variable among households in the sample. This lump in the distribution of the households along the running variable is also small compared to that observed in the previous evaluation.

Figure 1. Distribution of the running variable



Source: Authors' computations using Listahanan 1 data of the sample households

Figure 2. McCrary density test



Source: Authors' computations using Listahanan 1 data of the sample households

Testing for discontinuity in baseline covariates

The table below shows the results of discontinuity tests on relevant covariates at baseline. The variables that were tested include those included in the Proxy Means Test (PMT) model in the first round of Listahanan – the same model used in identifying eligible households for program registration.

Out of 21 covariates tested, five (5) show some discontinuity. Although minimal, these discontinuities pose potential threats to the identification of program impact. Further study should be done to determine whether these discontinuities arose from specific issues during the targeting or possible manipulation of the treatment assignment. However, it is assumed in the analysis that no manipulation of the assignment variable happened as households were unaware of the targeting model's specificities and purpose when the survey was conducted. We recommend, however, that DSWD look into the implementation of targeting in these areas and ensure that safeguards are in place to avoid such possibilities in future rounds of targeting.

Testing for discontinuity in baseline outcome indicators

Aside from baseline covariates, a test was also performed for the discontinuity of some outcome indicators at baseline. Unfortunately, only the enrollment of children among the core outcome indicators on health and education was available in the *Listahanan* data. The table below shows the results of discontinuity tests on enrollment of children 6 to 11 years old, 12 to 15 years old, and 16 to 18 years old at baseline.

Of the three outcomes tested, no discontinuity was observed using the narrower bandwidths of CER-optimal and MSE-optimal windows. There is some discontinuity observed in the enrollment of older children 12 to 15 and 16 to 18 years old if the full sample is used in the estimation. These variables were not included in the estimation as the significance may have only been due to the increase in sample size for the full sample.

Table 3. Test for discontinuity of baseline covariates

Outcomes		Bandwidths		
		CER Optimal	MSE Optimal	Sample
Natural logarithm of family size	impact	-0.06***	-0.05**	-0.03***
	se	0.02	0.02	0.01
	p-value	0.006	0.013	0.008
	non-Pantawid	1.64	1.64	1.62
	number of obs.	3,294	4,087	6,763
No. of children 0–5 years old	impact	0.03	0.04	0.01
	se	0.05	0.05	0.03
	p-value	0.665	0.466	0.326
	non-Pantawid	0.63	0.61	0.62
	number of obs.	2,881	3,590	6,763
No. of children 6–14 years old	impact	0.00	0.03	0.04
	se	0.07	0.06	0.04
	p-value	0.976	0.719	0.522
	non-Pantawid	1.12	1.09	1.14
	number of obs.	3,436	4,217	6,763
No. of children 15–18 years old	impact	-0.17***	-0.14***	-0.06***
	se	0.05	0.04	0.03
	p-value	0.001	0.003	0.005
	non-Pantawid	0.48	0.51	0.52
	number of obs.	2,663	3,333	6,763

Table 3 *(continued)*

Outcomes		Bandwidths		
		CER Optimal	MSE Optimal	Sample
No. of elderly family members	impact	-0.04	-0.05*	-0.03***
	se	0.02	0.02	0.02
	p-value	0.158	0.059	0.009
	non-Pantawid	0.23	0.24	0.22
	number of obs.	3,645	4,414	6,763
No. of family members with no education	impact	0.03	0.04	0.01
	se	0.06	0.05	0.03
	p-value	0.679	0.467	0.565
	non-Pantawid	0.67	0.64	0.62
	number of obs.	2,729	3,378	6,763
No. of family members with elementary education	impact	0.12**	0.12***	0.00
	se	0.05	0.05	0.03
	p-value	0.028	0.009	0.160
	non-Pantawid	0.33	0.29	0.41
	number of obs.	2,447	3,120	6,763
No. of family members with college education	impact	0.05	0.05	0.02
	se	0.04	0.03	0.02
	p-value	0.160	0.120	0.987
	non-Pantawid	0.79	0.78	0.71
	number of obs.	3,395	4,194	6,763

Table 3 *(continued)*

Outcomes		Bandwidths		
		CER Optimal	MSE Optimal	Sample
Agricultural household	impact	-1.93	-1.46	-0.05
	se	2.81	2.55	1.96
	p-value	0.510	0.590	0.649
	non-Pantawid	3.95	3.19	0.52
	number of obs.	3,389	4,178	6,763
Availability of domestic help at household	impact	-0.11	-0.13	-0.07
	se	0.07	0.09	0.08
	p-value	0.121	0.148	0.226
	non-Pantawid	0.05	0.08	0.39
	number of obs.	3,133	3,880	6,763
Single household	impact	1.04	0.95	1.07
	se	0.74	0.65	0.39
	p-value	0.176	0.175	0.105
	non-Pantawid	2.76	2.73	1.87
	number of obs.	3,123	3,850	6,763
Roof made of light materials	impact	-0.04	-0.84	-1.47
	se	2.50	2.35	1.65
	p-value	0.956	0.691	0.833
	non-Pantawid	15.12	14.37	14.82
	number of obs.	3,052	3,775	6,763

Table 3 *(continued)*

Outcomes		Bandwidths		
		CER Optimal	MSE Optimal	Sample
Wall made of strong materials	impact	-7.61***	-6.66***	-1.73**
	se	2.63	2.43	1.45
	p-value	0.004	0.007	0.012
	non-Pantawid	47.05	46.61	43.17
	number of obs.	2,970	3,687	6,763
Wall made of light materials	impact	-0.96	-1.16	0.33
	se	2.89	2.63	1.75
	p-value	0.756	0.692	0.796
	non-Pantawid	14.52	13.11	12.16
	number of obs.	2,935	3,651	6,763
Toilet facility = None	impact	-0.84	-1.08	-1.55
	se	2.28	2.02	1.41
	p-value	0.816	0.791	0.146
	non-Pantawid	6.06	7.49	8.02
	number of obs.	2,586	3,254	6,763
Main source of water supply = Shared, tubed/piped well	impact	-1.23	-1.57	-1.03
	se	2.34	2.15	1.70
	p-value	0.601	0.472	0.563
	non-Pantawid	5.39	5.52	4.56
	number of obs.	3,826	4,632	6,763

Table 3 *(continued)*

Outcomes		Bandwidths		
		CER Optimal	MSE Optimal	Sample
Main source of water supply = Dug well	impact	3.95	2.73	1.01
	se	2.68	2.42	1.59
	p-value	0.132	0.210	0.547
	non-Pantawid	0.37	0.50	0.72
	number of obs.	3,169	3,923	6,763
Availability of electricity	impact	-2.61	-2.05	-1.25
	se	1.88	1.68	1.30
	p-value	0.166	0.211	0.339
	non-Pantawid	97.96	97.11	97.03
	number of obs.	3,791	4,596	6,763
Refrigerator	impact	-0.89	-0.54	-1.51
	se	1.40	1.23	0.69
	p-value	0.554	0.684	0.315
	non-Pantawid	18.16	16.87	15.70
	number of obs.	3,372	4,167	6,763
Washing Machine	impact	-0.01	-0.20	-0.19
	se	1.51	1.26	0.63
	p-value	0.991	0.900	0.600
	non-Pantawid	3.87	4.60	5.62
	number of obs.	2,881	3,590	6,763

Table 3 *(continued)*

Outcomes		Bandwidths		
		CER Optimal	MSE Optimal	Sample
Own House	impact	-2.77	-2.73	-1.05
	se	2.54	2.36	1.79
	p-value	0.251	0.205	0.460
	non-Pantawid	39.67	40.13	40.00
	number of obs.	3,710	4,497	6,763
Rent House	impact	-4.21***	-3.59***	-1.46***
	se	1.13	1.02	0.65
	p-value	0.000	0.000	0.004
	non-Pantawid	4.19	4.51	3.74
	number of obs.	3,237	3,975	6,763

*** p<0.01, ** p<0.05, * p<0.10
Note: Estimated with municipal fixed effects
Source: Authors' computations using data from the third impact evaluation survey of the 4Ps

Table 4. Test for discontinuity of baseline covariates

Outcomes		Bandwidths		
		CER Optimal	MSE Optimal	Sample
Enrollment, 6 to 11 years old	impact	-2.18	-1.91	2.05
	se	3.43	2.97	1.52
	p-value	0.471	0.423	0.155
	non-Pantawid	72.86	73.96	74.87
	number of obs.	1,972	2,469	4,964
Enrollment, 12 to 15 years old	impact	-0.03	-0.04	-0.04***
	se	0.03	0.03	0.02
	p-value	0.495	0.310	0.005
	non-Pantawid	0.98	0.99	0.99
	number of obs.	1,505	1,904	3,117
Enrollment, 16 to 18 years old	impact	5.78	6.36	5.39*
	se	5.14	4.58	2.78
	p-value	0.291	0.209	0.064
	non-Pantawid	76.53	77.91	83.67
	number of obs.	1,094	1,325	2,354

*** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations using data from the third impact evaluation survey of the 4Ps

Appendix 6. Means of outcome indicators by treatment assignment

Outcome	Treatment	Comparison	Obs.	T-test p value
Awareness of any modern FP method	0.9962	0.9956	5,138	0.7229
Ever use of any modern FP method	0.7857	0.7696	5,117	0.1681
Count of modern FP methods aware of	6.6062	6.2803	5,138	0.0000***
Count of modern FP methods ever used	1.3583	1.2827	5,138	0.0122**
Current users of any modern FP method	0.4611	0.4298	5,138	0.0243**
Contraceptive prevalence rate	0.4989	0.4683	4,594	0.0378**
At least one prenatal checkup	0.9742	0.9696	3,135	0.4289
At least 4 prenatal checkups	0.8210	0.7851	3,135	0.0115**
Frequency of prenatal checkup	6.2437	6.1121	3,047	0.2691
Prenatal care provided by skilled professional	0.9499	0.9462	3,176	0.6309
Prenatal care availed in health facility	0.9592	0.9467	3,174	0.0964*
Skilled birth attendance	0.8705	0.8698	2,932	0.9540
Skilled birth attendance by a doctor	0.3992	0.3976	2,932	0.9310
Skilled birth attendance by a midwife	0.4566	0.4596	2,932	0.8705
Skilled birth attendance by a nurse	0.0774	0.0724	2,932	0.6064
Facility-based delivery	0.8374	0.8324	2,937	0.7133
Postnatal check within 72 hours	0.4889	0.4950	2,415	0.7636
Postnatal check within 72 hours by a skilled professional	0.4679	0.4671	2,413	0.9700
Postnatal check within 24 hours	0.2965	0.3131	2,413	0.3777
Postnatal check within 24 hours by a skilled health professional	0.2965	0.3131	2,413	0.3777

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Postnatal check up in a facility	0.7900	0.8029	2,929	0.3840
Experienced any pregnancy problems	0.9516	0.9445	2,175	0.4526
Count of problems experienced during pregnancy	1.6715	1.7595	2,175	0.0646*
Experienced at least one problem during delivery	0.2623	0.2833	3,178	0.1841
Regular weight monitoring for children 0 to 2 years old	0.2211	0.2231	1,124	0.9372
Regular weight monitoring for children 2 to 5 years old	0.3925	0.3286	2,716	0.0005***
Frequency of weight monitoring for children 0 to 2 years old in the past 6 months	3.1072	3.0151	1,124	0.5080
Frequency of weight monitoring for children 2 to 5 years old in the past 6 months	2.7153	2.3233	2,716	0.0001***
Vitamin A supplementation (6 months to 6 years old)	0.8390	0.7914	3,623	0.0002***
Iron supplementation (under 6 years old)	0.3317	0.3345	3,952	0.8491
Deworming (under 6 years old)	0.4899	0.4646	3,951	0.1117
Full immunization among children 1 to 5 years old	0.2715	0.2663	3,013	0.7503
Deworming at least once (6 to 14 years old)	0.8949	0.8705	8,337	0.0005***
Deworming at least twice (6 to 14 years old)	0.3257	0.2742	8,300	0.0000***
Visited a health facility or health professional in the past 8 weeks	0.2723	0.2559	3,985	0.2408
Exclusive breastfeeding for six months	0.8079	0.8090	3,078	0.9396
Dietary intake of eggs (past 7 days)	0.9180	0.8989	3,565	0.0474**
Dietary intake of fish (past 7 days)	0.9081	0.9069	3,565	0.8989

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Dietary intake of meat (past 7 days)	0.7262	0.7053	3,550	0.1666
Dietary intake of vegetables (past 7 days)	0.8463	0.8071	3,560	0.0020***
Child visited a health facility during incidence of fever in the past month	0.5497	0.5355	1,270	0.6120
Child visited a health facility during incidence of cough in the past month	0.5491	0.5416	1,392	0.7773
Child visited a health facility during incidence of fever or cough in the past month	0.5452	0.5429	1,860	0.9238
Underweight	0.2083	0.2106	3,728	0.8638
Severe underweight	0.0471	0.0550	3,728	0.2741
Wasting	0.1131	0.1033	3,240	0.3702
Severe wasting	0.0278	0.0390	3,240	0.0749*
Stunting	0.3229	0.3130	3,630	0.5232
Severe stunting	0.1165	0.0941	3,630	0.0280**
Diarrhea	0.0986	0.1090	3,982	0.2792
Fever or cough	0.4487	0.4868	3,983	0.0160**
Vaccine preventable diseases	0.1132	0.1166	3,985	0.7374
Enrollment of children 6 to 11 years old	0.9815	0.9833	5,663	0.6183
Enrollment of children 12 to 15 years old	0.9491	0.9406	3,642	0.2620
Enrollment of children 16 to 17 years old	0.8442	0.8233	1,639	0.2562
Enrollment of children 12 to 17 years old	0.9169	0.9037	5,283	0.0922*

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Enrollment of children 6 to 14 years old	0.9752	0.9715	8,468	0.2914
Enrollment of children 15 to 20 years old	0.7455	0.7546	4,039	0.5079
Attendance of at least 85% among children 6 to 11 years old	0.9524	0.9361	5,563	0.0078***
Attendance of at least 85% among children 12 to 15 years old	0.9550	0.9375	3,442	0.0220**
Attendance of at least 85% among children 16 to 17 years old	0.9545	0.9440	1,367	0.3743
Attendance of at least 85% among children 12 to 17 years old	0.9549	0.9393	4,811	0.0157**
Attendance of at least 85% among children 6 to 14 years old	0.9541	0.9367	8,243	0.0005***
Attendance of at least 85% among children 15 to 20 years old	0.9533	0.9467	3,028	0.4046
Attendance rate of children 6 to 11 years old	0.9753	0.9709	5,558	0.0210**
Attendance rate of children 12 to 15 years old	0.9800	0.9729	3,437	0.0016***
Attendance rate of children 16 to 17 years old	0.9820	0.9770	1,363	0.1482
Attendance rate of children 12 to 17 years old	0.9806	0.9741	4,802	0.0006***
Attendance rate of children 6 to 14 years old	0.9770	0.9714	8,236	0.0002***
Attendance rate of children 15 to 20 years old	0.9812	0.9783	3,019	0.2067
Enrollment of children 3 to 5 years old	0.5709	0.5537	2,138	0.4235
Attendance rate of children 3 to 5 years old	0.8777	0.8829	1,139	0.6613
Attendance of at least 85% among children 3 to 5 years old	0.7373	0.7332	1,139	0.8762
Enrollment in daycare, nursery, preschool, or kindergarten of children 3 to 5 years old	0.3698	0.3575	1,356	0.6375
Enrollment in preschool or kindergarten children 5 years old	0.5437	0.5459	780	0.9496

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Enrollment in elementary of children 6 to 11 years old	0.9469	0.9505	5,663	0.5366
Enrollment in junior high school of children 12 to 15 years old	0.8359	0.8202	5,283	0.1304
Enrollment in senior high school of children 16 to 17 years old	0.5233	0.5301	1,639	0.7820
Dropout rate among children 6 to 11 years old	0.0086	0.0065	5,548	0.3618
Dropout rate among children 12 to 15 years old	0.0188	0.0305	3,500	0.0242**
Dropout rate among children 16 to 17 years old	0.0589	0.0740	1,421	0.2536
Dropout rate among children 12 to 17 years old	0.0303	0.0432	4,923	0.0153**
Dropout rate among children 6 to 14 years old	0.0110	0.0136	8,272	0.2850
Dropout rate among children 15 to 20 years old	0.0799	0.0806	3,164	0.9480
Participation in any extracurricular activity in school	0.5224	0.5243	11,775	0.8303
Count of extracurricular activities participated in school	1.1627	1.2136	11,775	0.0927*
At least 1 hour of work (with or without pay) last month, 10–20 years old	0.1140	0.1093	8,871	0.4866
At least 1 hour of paid work last month, 10–20 years old	0.1117	0.1057	8,871	0.3697
At least 1 hour of work (with or without pay) last month, 10–14 years old	0.0488	0.0416	4,555	0.2469
At least 1 hour of paid work last month, 10–14 years old	0.0467	0.0397	4,555	0.2475
At least 1 hour of work (with or without pay) last month, 15–20 years old	0.1839	0.1797	4,314	0.7226
At least 1 hour of paid work last month, 15–20 years old	0.1812	0.1743	4,314	0.5517
of days worked with or without pay last month, 10–20 years old	7.0233	7.0011	988	0.9138

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Number of days worked (with or without pay) last month, 10–14 years old	5.1681	5.2159	205	0.9172
Number of days worked (with or without pay) last month, 15–20 years old	7.5514	7.4315	781	0.5793
Worked with or without pay in the last 12 months, 10–20 years old	0.1487	0.1531	8,874	0.5597
Worked with or without pay in the last 12 months, 10–14 years old	0.0679	0.0671	4,558	0.9067
Worked with or without pay in the last 12 months, 15–20 years old	0.2352	0.2425	4,314	0.5733
Expenditures on tuition and other fees (per month) in the last school year	58	59	9,138	0.8153
Expenditures on school materials and supplies (per month) in the last school year	40	40	11,155	0.2860
Expenditures on school uniform (per month) in the last school year	57	56	8,715	0.1089
Expenditures on school allowance (per month) last school year	393	395	11,236	0.7008
Total school expenditures (per month) last school year	503	491	11,522	0.0887*
Share of food to total expenditures	0.6398	0.6292	5,523	0.0048***
Share of non-food to total expenditures	0.3602	0.3708	5,523	0.0048***
Share of education to total expenditures	0.0245	0.0226	5,523	0.0106**
Share of clothing and footwear to total expenditures	0.0136	0.0121	5,523	0.0000***

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Share of health to total expenditures	0.0093	0.0100	5,523	0.2032
Share of alcohol and tobacco to total expenditures	0.0150	0.0158	5,523	0.1930
Average per capita food expenditure	20,966	20,529	5,680	0.1087
Average per capita expenditure on vice goods (e.g., alcohol, tobacco)	498	510	6,087	0.5841
Average per capita non-food expenditure	12,570	12,919	6,561	0.0823*
Average per capita non-food expenditure (including other disbursements)	12,370	12,698	6,561	0.0980*
Average total per capita expenditure	32,910	32,867	5,523	0.9153
Average per capita expenditure on clothing and footwear	438	400	6,580	0.0006***
Average per capita expenditure on inpatient care	103	129	6,635	0.0938*
Average per capita expenditure on outpatient care	30	35	6,597	0.1372
Average per capita expenditure on medical services and commodities	323	337	6,766	0.4411
Average per capita expenditure on education per school-aged child	1,800	1,750	6,666	0.4194
Per capita income without grants	24,440	23,696	6,662	0.2162
Per capita income including grants	21,857	23,326	6,664	0.0147**
Per capita income from salaries and wages	15,604	17,158	6,773	0.0116**
Per capita income from entrepreneurial activities	7,483	7,464	3,264	0.9612
Per capita income from other receipts (excluding grants)	9,430	10,111	2,796	0.4576

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Incidence of hunger	0.1252	0.1480	6,773	0.0064***
Number of days experienced hunger in the past 3 months	0.7236	0.7162	6,758	0.9359
number of days in past 3 months experienced hunger - log transformed	0.1829	0.2070	6,758	0.0811*
Self-rated poverty status	0.1302	0.1195	6,754	0.1851
Labor force participation	0.5785	0.5789	22,320	0.9440
Employment	0.9211	0.9167	12,862	0.3534
Usual work hours per week in primary occupation	39.3971	40.2114	11,733	0.0545*
Has other job or business besides primary occupation	0.0748	0.0672	11,677	0.1119
Usual work hours per week in other jobs	19.7574	16.5198	814	0.0058***
Total usual work hours per week	40.8426	41.2908	11,734	0.3032
Looking for additional work if employed	0.0887	0.0806	11,873	0.1153
Unemployed and looking for work	0.2602	0.2841	1,041	0.3865
Household has at least one member of PhilHealth indigent	0.8181	0.6360	6,764	0.0000***
Number of memberships in SSS or PhilHealth	1.7765	1.7014	6,773	0.0299**
Household has at least one member in Philhealth or SSS	0.9275	0.8499	6,773	0.0000***
Number of social protection and other programs accessed	0.4638	0.4202	6,773	0.0117**
Household has at least one beneficiary of social protection and other programs	0.3417	0.3203	6,773	0.0609*
Count of type of government services accessed in the past 12 months	1.3195	1.2677	6,772	0.1047

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Accessed any type of government service in the past 12 months	0.6597	0.6385	6,773	0.0674*
Utilized PhilHealth during latest health facility visit	0.0744	0.0786	3,675	0.6355
Has copy of birth certificate	0.8628	0.8546	34,751	0.0289**
Ever attended any parenting session	0.6715	0.3845	6,765	0.0000***
Voluntary participation in community activities in the past six months	0.5189	0.3618	6,766	0.0000***
Owns evacuation kit	0.3126	0.2237	6,754	0.0000***
At least one HH member who is a member of an organization in the community	0.3128	0.2633	6,753	0.0000***
Husband is justified in hitting wife if she goes out without telling him	0.0445	0.0388	4,571	0.3385
Husband is justified in hitting wife if she neglects the children	0.0806	0.0832	4,555	0.7437
Husband is justified in hitting wife if she argues with him	0.0318	0.0308	4,565	0.8344
Husband is justified in hitting wife if she refuses to have sex	0.0251	0.0181	4,563	0.1070
Husband is justified in hitting wife if she burns the food	0.0245	0.0270	4,586	0.5880
Husband is justified in hitting wife if any of the conditions above are met	0.0967	0.0982	5,138	0.8576
Child will finish elementary	0.9779	0.9792	6,415	0.7111
Child will finish high school	0.9725	0.9686	10,435	0.2348
Child will finish college	0.9178	0.9027	8,151	0.0166**
Child will grow up healthy	0.9878	0.9859	11,514	0.3739
Child will have decent employment	0.9830	0.9788	10,500	0.1165

Appendix 6 (continued)

Outcome	Treatment	Comparison	Obs.	T-test p value
Child will have better future	0.8971	0.8911	12,082	0.2892
Grit: Ask for help when lesson is difficult	0.9024	0.9022	8,763	0.9773
Grit: Strive to get higher grades	0.9057	0.8971	8,756	0.1757
Grit: Finish school work before playing or resting	0.7618	0.7362	8,748	0.0058***
Grit: Finish school work despite lack of time and resources	0.8447	0.8305	8,762	0.0717*
Grit index	3.4073	3.3593	8,776	0.0246**
Mother is authoritative	0.4695	0.4807	8,554	0.3017
Father is authoritative	0.4433	0.4319	8,174	0.3030
Both parents are authoritative	0.3852	0.3801	7,443	0.6490
Child is close to his/her mother	0.9225	0.9154	8,632	0.2298
Child thinks his/her mother is strict	0.5031	0.5187	8,582	0.1491
Child is close to his/her father	0.8480	0.8401	8,322	0.3247
Child thinks his/her father is strict	0.5147	0.5020	8,216	0.2487
Locus of control: What happens to me is my own doing	0.7283	0.7261	5,138	0.8642
Locus of control: I am almost certain I can make my plans work	0.6372	0.6455	5,138	0.5323
Locus of control: Getting what I want has little to do with luck	0.6013	0.5982	5,138	0.8236
Locus of control: Good or bad luck does not play an important role in my life	0.5053	0.5116	5,138	0.6498
Locus of control index	2.4615	2.4579	5,138	0.8939

*** p<0.01, ** p<0.05, * p<0.10
Source: Authors' computations using data from the third impact evaluation survey of the 4Ps

Appendix 7. Table of covariates

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Aware of any modern RH method	Yes		FP counseling in barangay; Presence of BHS in barangay; Presence of RHU in barangay
Ever used any modern RH method	Yes		FP counseling in barangay; Presence of BHS in barangay; Presence of RHU in barangay
Count of modern RH method aware of	Yes		FP counseling in barangay; Presence of BHS in barangay; Presence of RHU in barangay
Count of modern RH method ever used	Yes		FP counseling in barangay; Presence of BHS in barangay; Presence of RHU in barangay
Current user of any modern RH method	Yes		FP counseling in barangay; Presence of BHS in barangay; Presence of RHU in barangay
Modern contraceptive prevalence rate (among in union)	Yes		FP counseling in barangay; Presence of BHS in barangay; Presence of RHU in barangay
At least one prenatal checkup	Yes		Presence of government health facility in barangay; Count of prenatal care services offered in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
At least 4 prenatal checkups	Yes		Presence of government health facility in barangay; Count of prenatal care services offered in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Frequency of prenatal checkup	Yes		Presence of government health facility in barangay; Count of prenatal care services offered in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Prenatal care provided by skilled professional	Yes		Presence of government health facility in barangay; Count of prenatal care services offered in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Prenatal care availed in health facility	Yes		Presence of government health facility in barangay; Count of prenatal care services offered in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Skilled birth attendance	Yes		Presence of government health facility in barangay; No. of health facilities with BEmOC in barangay; Presence of government hospital in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Skilled birth attendance by a doctor	Yes		Presence of government health facility in barangay; No. of health facilities with BEmOC in barangay; Presence of government hospital in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of doctors in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Skilled birth attendance by a midwife	Yes		Presence of government health facility in barangay; No. of health facilities with BEmOC in barangay; Presence of government hospital in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of midwives in barangay
Skilled birth attendance by a nurse	Yes		Presence of government health facility in barangay; No. of health facilities with BEmOC in barangay; Presence of government hospital in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of nurses in barangay
Facility-based delivery	Yes		Presence of government health facility in barangay; No. of health facilities with BEmOC in barangay; Presence of government hospital in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Postnatal check (any)	Yes		Presence of government health facility in barangay; No. of health facilities with postnatal care services in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled health personnel in barangay
Postnatal check within 24 hours	Yes		Presence of government health facility in barangay; No. of health facilities with postnatal care services in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled health personnel in barangay
Postnatal check within 72 hours	Yes		Presence of government health facility in barangay; No. of health facilities with postnatal care services in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled health personnel in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Postnatal check within 24 hours by a skilled health professional	Yes		Presence of government health facility in barangay; No. of health facilities with postnatal care services in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Postnatal check within 72 hours by a skilled professional	Yes		Presence of government health facility in barangay; No. of health facilities with postnatal care services in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Postnatal check up in a facility	Yes		Presence of government health facility in barangay; No. of health facilities with postnatal care services in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Experienced any pregnancy problems	Yes		Presence of government health facility in barangay; Count of maternal health services available in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Count of problems experienced during pregnancy	Yes		Presence of government health facility in barangay; Count of maternal health services available in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay
Experienced at least one problem during delivery	Yes		Presence of government health facility in barangay; Count of maternal health services available in barangay; No. of PhilHealth-accredited maternity care providers in barangay; No. of skilled birth providers in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Regular weight monitoring for children 2 to 5 years old	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities with weight measurement services
Frequency of weight monitoring for children 2 to 5 years old in the past six months	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities with weight measurement services
Vitamin A supplementation (6 months to 6 years old)	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities that provide vitamin supplementation; No. of health facilities with supply of Vitamin A
Deworming (under 6 years old)	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities in barangay with deworming pills; Count of medicines available in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Full immunization among children 1 to 5 years old	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities that provide immunization; Count of basic vaccines available in barangay
Regular weight monitoring for children 0 to 2 years old			Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities with weight measurement services
Frequency of weight monitoring for 0 to 2 years old in the past six months			Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities with weight measurement services
Iron pills/syrups/drops or ferrous sulfate among LBW children under 6 years old			Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities with weight measurement services

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Received deworming pills in the last school year at least once	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities in barangay with deworming pills; Count of medicines available in barangay
Received deworming pills in the last school year at least twice	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of health facilities in barangay with deworming pills; Count of medicines available in barangay
Visited a health facility or health professional in the past 8 weeks	Yes		Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of PhilHealth-accredited health facilities in barangay; No. of doctors in barangay; Count of medicines available in barangay
Exclusively breastfed for 6 months	Yes		
Child ate eggs in the last week	Yes	Age in months squared; Age in months	
Child ate fish in the last week	Yes	Age in months squared; Age in months	

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Child ate meat in the last week	Yes	Age in months squared; Age in months	
Child ate vegetables in the last week	Yes	Age in months squared; Age in months	
Dietary diversity score (1 to 7)	Yes	Age in months squared; Age in months	
Child visited a health facility for incidence of fever during past month	Yes		Presence of government health facility in barangay; No. of PhilHealth-accredited health facilities in barangay;
Child visited a health facility for incidence of cough during past month	Yes		Presence of government health facility in barangay; No. of PhilHealth-accredited health facilities in barangay;
Child visited a health facility for incidence of fever or cough during the past	Yes		Presence of government health facility in barangay; No. of PhilHealth-accredited health facilities in barangay;
Underweight (among children 0–5 years old)	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Severe underweight (among children 0–5 years old)	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Wasting (among children 0-5 years old)	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Severe wasting (among children 0–5 years old)	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Stunting (among children 0–5 years old)	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Severe stunting (among children 0–5 years old)	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Underweight (among children 0–2 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Underweight (among children 2–5 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Severe underweight (among children 0–2 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Severe underweight (among children 2–5 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Wasting (among children 0–2 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Wasting (among children 2–5 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Severe wasting (among children 0–2 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Severe wasting (among children 2–5 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Stunting (among children 0–2 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Stunting (among children 2–5 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Severe stunting (among children 0–2 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Severe stunting (among children 2–5 years old)		Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Incidence of diarrhea during past month	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Incidence of illness with cough or fever during past month	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;
Incidence of any vaccine preventable disease	Yes	Age in months squared; Age in months	Presence of government health facility in barangay; Ratio of medical staff to catchment area population; No. of child health services available in barangay; No. of PhilHealth-accredited health facilities in barangay;

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Enrollment among 6 to 11 years old	Yes		Presence of primary/ elementary/integrated school in barangay
Enrollment among 12 to 15 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay
Enrollment among 16 to 17 years old	Yes		Presence of primary/ elementary/integrated/high school/SHS/college/TVI in barangay
Enrollment among 12 to 17 years old	Yes		Presence of primary/ elementary/integrated/high school/SHS/college/TVI in barangay
Enrollment among 6 to 14 years old	Yes		Presence of primary/ elementary/integrated/high school in barangay
Enrollment among 15 to 20 years old	Yes		Presence of primary/ elementary/integrated/high school/SHS/college/TVI in barangay
Attended 85% of school days among 6 to 11 years old	Yes		Presence of primary/ elementary/integrated school in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Attended 85% of school days among 12 to 15 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay
Attended 85% of school days among 16 to 17 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Attended 85% of school days among 12 to 17 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Attended 85% of school days among 6 to 14 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay
Attended 85% of school days among 15 to 20 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Attendance rate among 6 to 11 years old	Yes		Presence of primary/ elementary/integrated school in barangay
Attendance rate among 12 to 15 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Attendance rate among 16 to 17 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Attendance rate among 12 to 17 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Attendance rate among 6 to 14 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay
Attendance rate among 15 to 20 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Enrollment of children 3 to 5 years old	Yes		Presence of daycare/ preschool in barangay
Attendance rate of children 3 to 5 years old	Yes		Presence of daycare/ preschool in barangay
Attendance of at least 85% among children 3 to 5 years old	Yes		Presence of daycare/ preschool in barangay
Enrollment in daycare, nursery, preschool, or kindergarten of children 3 to 5 years old	Yes		Presence of daycare/ preschool in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Enrollment in preschool or kindergarten of children 5 years old			Presence of daycare/ preschool in barangay
Enrollment in elementary of children 6 to 11 years old	Yes		Presence of primary/ elementary/integrated school in barangay
Enrollment in junior high school of children 12 to 15 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay
Enrollment in senior high school of children 16 to 17 years old	Yes		Presence of senior high school in barangay
Dropout rate among children 6 to 11 years old	Yes		Presence of primary/ elementary/integrated school in barangay
Dropout rate among children 12 to 15 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay
Dropout rate among children 16 to 17 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Dropout rate among children 12 to 17 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Dropout rate among children 6 to 14 years old	Yes		Presence of primary/ elementary/integrated/ high school in barangay
Dropout rate among children 15 to 20 years old	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Participation in any extracurricular activity in school	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Count of extracurricular activities participated in school	Yes		Presence of primary/ elementary/integrated/ high school/SHS/college/ TVI in barangay
Worked at least 1 hour with or without pay last month, 10–20 years old	Yes		None
Worked at least 1 hour with pay last month, 10–20 years old	Yes		None
Worked at least 1 hour with or without pay last month, 10–14 years old	Yes		None
Worked at least 1 hour with pay last month, 10–14 years old	Yes		None
Worked at least 1 hour with or without pay last month, 15–20 years old	Yes		None

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Worked at least 1 hour with pay last month, 15–20 years old	Yes	None	
Worked with or without pay in the last 12 months, 10–20 years old	Yes		None
Worked with or without pay in the last 12 months, 10–14 years old	Yes		None
Worked with or without pay in the last 12 months, 15–20 years old	Yes		None
Number of days worked with or without pay last month, 10–20 years old			None
Number of days worked with or without pay last month, 10–14 years old			None
Number of days worked with or without pay last month, 15–20 years old			None
Expenditures on tuition and other fees (per month) in the last school year	Yes		None
Expenditures on school materials and supplies (per month) in the last school year	Yes		None
Expenditures on school uniform (per month) in the last school year	Yes		None
Expenditures on school allowance (per month) last school year	Yes		None

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Total school expenditures (per month) last school year	Yes		None
Share of food to total expenditures	Yes		None
Share of non-food to total expenditures	Yes		None
Share of education to total expenditures	Yes		None
Share of clothing and footwear to total expenditures	Yes		None
Share of health to total expenditures	Yes		None
Share of alcohol and tobacco to total expenditures	Yes		None
Average per capita food expenditure (real, log transformed)	Yes		None
Average per capita alcohol and tobacco expenditure (real, log transformed)	Yes		None
Average per capita nonfood exp excluding other disbursements (real, log transformed)	Yes		None
Average per capita nonfood exp including other disbursements (real, log transformed)	Yes		None
Average per capita total expenditure (real, log transformed)	Yes		None
Average per capita clothing and footwear expenditure (real, log transformed)	Yes		None

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Average per capita inpatient/hospital care expenditure (real, log transformed)	Yes		None
Average per capita outpatient expenditure (real, log transformed)	Yes		None
Average per capita total health expenditure (real, log transformed)	Yes		None
Per school-age child education expenditure (real, log transformed)	Yes		None
Average per capita income (real, log transformed)	Yes		None
Average per capita income + grants (real, log transformed)	Yes		None
Average per capita income from salaries and wages (real, log transformed)	Yes		None
Average per capita income from entrepreneurial activities (real, log transformed)	Yes		None
Average per capita income from other receipts (real, log transformed)	Yes		None
Incidence of hunger	Yes		None
Number of days experienced hunger in the past 3 months	Yes		None
Number of days experienced hunger in the past 3 months (log-transformed)	Yes		None

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Self-rated poverty status is not poor	Yes		None
Self-rated poverty status is poor	Yes		None
Labor force participation	Yes		None
Employment rate	Yes		None
Usual work hours per week in primary job	Yes		None
Other job or business besides primary occupation	Yes		None
Total usual work hours per week	Yes		None
Looking for additional work if employed	Yes		None
Usual work hours per week in other jobs			None
Unemployed and looking for work			None
Household has at least one member of PhilHealth indigent	Yes		None
Number of memberships in SSS or PhilHealth	Yes		None
Household has one member in PhilHealth or SSS	Yes		None
Number of social protection and other programs accessed	Yes		None
Household has at least one beneficiary of social protection and other programs	Yes		None
Count of type of government services accessed in the past 12 months	Yes		None

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Accessed any type of government service in the past 12 months	Yes		None
Utilized PhilHealth during latest health facility visit	Yes		None
Has copy of birth certificate	Yes		None
Ever attended any parenting session	Yes		None
Voluntary participation in community activities in the past six months	Yes		None
HH owns evacuation kit - seen or not seen	Yes		None
At least one HH member who is a member of an organization in the community	Yes		None
At least one HH member who is an officer of an organization in the community	Yes		None
Husband is justified in hitting wife if she goes out without telling him	Yes		None
Husband is justified in hitting wife if she neglects the children	Yes		None
Husband is justified in hitting wife if she argues with him	Yes		None
Husband is justified in hitting wife if she refuses to have sex	Yes		None

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Husband is justified in hitting wife if she burns the food	Yes		None
Husband is justified in hitting wife if any of the conditions above are met	Yes		None
Child will finish elementary	Yes		None
Child will finish high school	Yes		None
Child will finish college	Yes		None
Child will grow up healthy	Yes		None
Child will have decent employment	Yes		None
Child will have better future	Yes		None
Mother's parenting style is authoritative	Yes		None
Mother's parenting style is authoritarian	Yes		None
Mother's parenting style is permissive	Yes		None
Mother's parenting style is neglectful	Yes		None
Father's parenting style is authoritative	Yes		None
Father's parenting style is authoritarian	Yes		None
Father's parenting style is permissive	Yes		None
Father's parenting style is neglectful	Yes		None
Both parents are authoritative	Yes		None
Both parents are authoritarian	Yes		None

Appendix 7 (continued)

Outcome	Municipal Dummies Included?	Demographic Covariates	Supply Covariates
Both parents are neglectful	Yes		None
Both parents are permissive	Yes		None
Locus of control: What happens to me is my own doing	Yes		None
Locus of control: I am almost certain I can make my plans work	Yes		None
Locus of control: Getting what I want has little to do with luck	Yes		None
Locus of control: Good or bad luck does not play an important role in my life	Yes		None
Locus of control index	Yes		None

Note: Baseline covariates are included in the estimation for all outcomes. This includes the following: No. of children 0–5 years old; No. of children 15–18 years old; No. of children 6–14 years old
Source: Authors' compilation based on estimation models used in the study

The Authors

Aniceto C. Orbeta Jr. is the president of PIDS. He has a PhD in Economics from the University of the Philippines (UP) and did postdoctoral studies at Harvard University. He is an economist specializing in applied economic modeling, impact evaluation, social sector issues, demographic economics, and information and communications technologies

Kris Ann M. Melad is a supervising research specialist at PIDS. She has a masters degree in Development Economics from the UP School of Economics. She is a monitoring and evaluation professional and policy researcher with research interests in program evaluations, poverty, social protection, human capital development, education, and health financing.

Nina Victoria V. Araos was a research analyst at PIDS. She is a socioeconomic and development researcher with background in impact evaluation and policy research. She has a masters degree in International Relations from Waseda University. Her research specializations include gender and development, education and labor market issues, and social protection. She currently serves as a data analyst for Lunas Collective, a volunteer-powered online helpline and care space for people seeking support related to gender-based violence and reproductive health.

The *Pantawid Pamilyang Pilipino* Program is the government's primary social protection strategy to break intergenerational poverty by supporting poor households and investing in children's health and education. Previous impact evaluations demonstrated the program's success in keeping children healthy and in school. This third impact evaluation seeks to reevaluate the program's impact on short-term and intermediate outcomes related to health, education, household welfare, and other sociobehavioral domains. The evaluation employs regression discontinuity design to compare the program's impact on treatment households (Pantawid beneficiaries) and comparison households (non-Pantawid beneficiaries) within specific bandwidths of distance from the poverty threshold that determines program eligibility. Results indicate that the program still positively impacts most of the target education and health outcomes of children and pregnant women. In addition, the program positively impacts household welfare, community participation, awareness of basic means to mitigate vulnerabilities, and children's grit or determination. However, some results are inconsistent with previous evaluations, such as the negative impact on some nutrition outcomes, maternal healthcare service usage variations, and an insignificant reduction in child labor incidence. The study recommends improving program monitoring, strengthening enforcement of health conditions, and further researching the factors driving some of the unexpected results. It also suggests adjusting program policies or incentives, particularly in terms of reevaluating the cash grant value and using the program's positive impacts on the behavior of children and adults as a model for other interventions.

PIDS Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

18th Floor, Three Cyberpod Centris - North Tower
EDSA corner Quezon Avenue, Quezon City, Philippines
Tel.: (+632) 8877-4000
Email: publications@pids.gov.ph
Website: https://www.pids.gov.ph

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