Evaluating Longer-term Impact of Indonesia’s CCT Program: Evidence From A Randomised Control Trial

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JPAL SEA Conference on Social Protection

Jakarta, 12 January 2016
Conditional Cash Transfer (CCT) program probably is the most adopted program worldwide in the last two decades. Its inspiration started with the success of Progresa in Mexico in protecting the welfare of the poor as well as to improve the health and education-related behavior of the poor.

CCT uses double weapons to address poverty:
- Short-term: to protect the welfare of the poor through consumption support
- Long-term: to improve the education and health-related behavior of the poor through tying the up the cash with behavioral compliance

While relatively more expensive compared to UCT, its conditionality that made the program is more effective (see for example Baird et al, 2010) than other anti-poverty programs.
Why Evaluating PKH After 6 Years?

- The guideline of PKH requires that after 6 years in the program, the beneficiaries should be ‘graduated’.

- Some of program outcomes are short-term indicators, while some other are long-term ones.
  - World Bank conducted evaluation 2 years after implementation that might capture only short term impacts (World Bank 2011).
Outline

• About Indonesia’s Program Keluarga Harapan
• Evaluation Design
• Empirical Strategy
• Main Findings and Discussions
• Conclusion and Implications
Indonesia’s CCT Program
Program Keluarga Harapan
Program Keluarga Harapan

• Launched in 2007 as Pilot in 6 Provinces, become National Program in 2013.

• Target the very poor households/families with the present of the following type of family members:
  • Pregnant/lactating mother
  • Pre-schooler (under 6 years old)
  • School-age children (up to Junior Secondary School)

• As other CCT programs, PKH links the benefits to the compliance of the beneficiaries on required conditions

• Conditionality includes:
  • Pregnant/lactating mother should visit Puskesmas 4 times/as required.
  • Pre-schooler needs to be presented at Posyandu or Puskemas for growth monitoring and nutrition supplementation
  • School-age children need to have monthly attendance rate at least 85%.
## Items for PKH cash transfer

<table>
<thead>
<tr>
<th>Support scenario</th>
<th>Amount of transfer per household per year (Rupiah)</th>
</tr>
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<tbody>
<tr>
<td>Fixed cash transfer</td>
<td>200,000</td>
</tr>
<tr>
<td>Cash transfer per household with</td>
<td></td>
</tr>
<tr>
<td>a. Child aged less than 6 years</td>
<td>800,000</td>
</tr>
<tr>
<td>b. Pregnant or lactating mother</td>
<td>800,000</td>
</tr>
<tr>
<td>c. Children of primary school age</td>
<td>400,000</td>
</tr>
<tr>
<td>d. Children of secondary school age</td>
<td>800,000</td>
</tr>
<tr>
<td>Average transfer per household</td>
<td>1,390,000</td>
</tr>
<tr>
<td>Minimum transfer per household</td>
<td>600,000</td>
</tr>
<tr>
<td>Maximum transfer per household</td>
<td>2,200,000</td>
</tr>
</tbody>
</table>

*Source:* MoSA (2008)
## PKH Expansion since 2007

<table>
<thead>
<tr>
<th>YEAR</th>
<th>BUDGET (in Billion)</th>
<th>BENEFICIARIES</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PLANNED</td>
<td>REALIZATION</td>
<td>PLANNED</td>
</tr>
<tr>
<td>2007</td>
<td>843,60</td>
<td>507,97</td>
<td>500.000</td>
</tr>
<tr>
<td>2008</td>
<td>981,75</td>
<td>767,59</td>
<td>642.000</td>
</tr>
<tr>
<td>2009</td>
<td>1.100,00</td>
<td>923,94</td>
<td>720.000</td>
</tr>
<tr>
<td>2010</td>
<td>1.300,00</td>
<td>929,41</td>
<td>816.000</td>
</tr>
<tr>
<td>2011</td>
<td>1.610,00</td>
<td>1.282,20</td>
<td>1.116.000</td>
</tr>
<tr>
<td>2012</td>
<td>1.567,48</td>
<td>1.540,20</td>
<td>1.516.000</td>
</tr>
<tr>
<td>2013</td>
<td>2.951,50</td>
<td>2.938,56</td>
<td>2.400.000</td>
</tr>
</tbody>
</table>

Source: Bappenas and Ministry of Social Affairs
Evaluation Design
Impact Evaluation Design

• Baseline survey (2007) was designed as randomized control trial (RCT) at sub-district level (World Bank, 2011)
• Selection of eligible sub-districts was based on characteristics including prevalence of malnutrition, poverty rate, school drop-out, and availability of health and education facilities.
• From the list, two sets of sub-districts was randomly selected to be assigned to treatment and control groups.
• Within each sample sub-districts, households were sampled randomly based on PKH beneficiaries criteria
• Midline evaluation by World Bank in 2009 finds that there has been contamination in the sample
  • 1 treatment sub-districts never received program, 39 out of 180 control sub-districts received program.
Endline Survey

• After midline evaluation by the World Bank (2011), endline survey was conducted by TNP2K to identify longer-term impact of the program.

• Endline survey revisits all sub-districts and reinterviews households in baseline sample including split households and new household members: 6 provinces, 360 original sub-districts.

• Further conversion from control to treatment sub-districts found.
Sampled Sub-Districts in 2013

PKH treatment areas randomly selected
769 sub-districts

Treatment areas sample randomly selected (stratified by urban/rural)
180 sub-districts

PKH control areas randomly selected
316 sub-districts

Control areas sample randomly selected (stratified by urban/rural)
180 sub-districts

Treatment Area 1
PKH not implemented (as of 2013):
1 sub-districts

Treatment Area 2
PKH implementation started in 2007/2009:
179 sub-districts

Control Area 1
PKH was not implemented:
110 sub-districts

Control Area 2
Converted into PKH treatment area:
70 sub-districts
Endline Survey Sample Size

<table>
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<tr>
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<tbody>
<tr>
<td></td>
<td>T</td>
<td>C</td>
<td>Total</td>
</tr>
<tr>
<td>Sub districts</td>
<td>180</td>
<td>180</td>
<td>360</td>
</tr>
<tr>
<td>Villages</td>
<td>1,354</td>
<td>1,369</td>
<td>2,723</td>
</tr>
<tr>
<td>Households</td>
<td>7,195</td>
<td>7,131</td>
<td>14,326</td>
</tr>
<tr>
<td>Individuals</td>
<td>19,894</td>
<td>19,993</td>
<td>39,887</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children age 0-3 years</td>
<td>3,077</td>
<td>3,077</td>
<td>6,154</td>
</tr>
<tr>
<td>Children age 6-15 years</td>
<td>9,409</td>
<td>9,551</td>
<td>18,960</td>
</tr>
<tr>
<td>Women age 16-49</td>
<td>7,408</td>
<td>7,365</td>
<td>14,773</td>
</tr>
</tbody>
</table>

Source: SPKP (2007 & 2013)
Empirical Strategy
Empirical Strategy

• We would like to see the impact of PKH on important outcomes, such as
  • Household expenditures/consumptions
  • Health outcomes: pre- and post-natal visits, assisted delivery, children immunisation, stunting.
  • Education outcomes: enrolment at primary and secondary school, transition from primary to secondary school, and child labor.
Estimation Strategy

• While RCT in ideal situation only call for the use of DiD, contamination requires additional effort to address endogeneity of conversion.

• We use Instrumental Variable (IV) technique as standard approach to deal with the issue:

\[ y_{it} = \beta_0 + \delta_0 t_{it} + \beta_1 PKH_{it}^K + \delta_1 t_{it} \times PKH_{it}^K + X_{it}'\gamma + \varepsilon_{it} \]

• As IV we use original lottery status of sampled sub-districts
Estimation Strategy: Participation Effect

PKH treatment areas randomly selected
769 sub-districts

PKH control areas randomly selected
316 sub-districts

Treatment areas sample randomly selected (stratified by urban/rural)
180 sub-districts

Control areas sample randomly selected (stratified by urban/rural)
180 sub-districts

Treatment Area 1
PKH not implemented (as of 2013):
1 sub-districts
50 HHs

Treatment Area 2
PKH implementation started in 2007/2009:
179 sub-districts

Control Area 1
PKH was not implemented:
110 sub-districts
4,744 HHs

Control Area 2
Converted into PKH treatment area:
70 sub-districts
842 + 2,225 HHs

Group A
PKH beneficiaries in treatment areas:
3,175 HHs

Group B
Non-beneficiaries in treatment areas:
4,670 HHs
Qualitative Study to Complement RCT

- Sampled villages was selected from among endline survey sample including: 22 villages in 6 PKH districts (cohort 2007) from 6 provinces PKH pilot.
- From control sub-districts was selected 2 villages in respectively 2 sampled sub-districts from 2 districts.
- Criteria for sampled households – information on welfare beneficiaries were obtained from recertification survey (2013):
  - Beneficiaries who remain poor
  - Better off beneficiaries
  - Worse off beneficiaries
- Used *Most Significance Change* (MSC) and *In-depth interview*. 
Some Findings and Discussions
## Per-capita Consumption (%)

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Estimated Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>0.048*** (0.017)</td>
</tr>
<tr>
<td><strong>Non-food</strong></td>
<td>0.122*** (0.025)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>0.154** (0.063)</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td>-0.100 (0.069)</td>
</tr>
<tr>
<td><strong>Food</strong></td>
<td>0.015 (0.018)</td>
</tr>
<tr>
<td><strong>Alcoholic bev</strong></td>
<td>-0.143 (0.192)</td>
</tr>
<tr>
<td><strong>Tobacco</strong></td>
<td>0.024 (0.040)</td>
</tr>
</tbody>
</table>

- PKH increase total PCE of the beneficiaries on average by 4.8%
- Increase in PCE is mainly explained by increase in per-capita non-food consumption and education expenditure
- We have little evidence on PKH impact on per-capita expenditure on health and food-related items
- Mixed consistencies compared to results from midline evaluation.

Note: Robust standard errors are in parentheses.
International Comparison of CCT Impact on Total PCE

PER-CAPITA EXPENDITURE

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pengeluaran Total Per Kapita Per Bulan</td>
<td>4.8%</td>
<td>3%</td>
<td>9.0%</td>
<td>18%</td>
<td>15.0%</td>
<td>14.5%</td>
</tr>
</tbody>
</table>
PROPORTION OF PC EDUCATION SPENDING ON TOTAL PCE

<table>
<thead>
<tr>
<th>Program</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKH</td>
<td>15.4%</td>
</tr>
<tr>
<td>Pantawid Pamilyang</td>
<td>33.0%</td>
</tr>
</tbody>
</table>
## Health-related Outcomes

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Estimated Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-natal visits</td>
<td>0.071** (0.031)</td>
</tr>
<tr>
<td>Assisted Delivery</td>
<td>0.068 (0.043)</td>
</tr>
<tr>
<td>Delivery at facility</td>
<td>0.039 (0.044)</td>
</tr>
<tr>
<td>Post-natal visits (1-40 days)</td>
<td>-0.053 (0.054)</td>
</tr>
<tr>
<td>Completed Immunization by schedule &amp; age</td>
<td>0.077** (0.038)</td>
</tr>
<tr>
<td>Severe Stunting</td>
<td>-0.027** (0.013)</td>
</tr>
</tbody>
</table>

Note: Robust standard errors are in parentheses

- On health-related outcomes, impact PKH can be observed in improving pre-natal visits and completed immunization by schedule for age, as well as on reduction of severe
- However we do not see significant impact of PKH on assisted delivery, delivery at facility and post-natal visits.
- Compared to midline evaluation some results are consistent, some are not.
International Comparison of CCT Impact on Pre-natal Visit

Impact of CCT on Pre-natal Visit

PKH: 7.1%
Progres: 8%

0% 2% 4% 6% 8% 10%
## Education-related Outcomes

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Estimated Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross enrollment primary school (7-12 yo)</strong></td>
<td>0.018* (0.011)</td>
</tr>
<tr>
<td><strong>Attendance primary school &gt; 85% (7-12 yo)</strong></td>
<td>0.013 (0.012)</td>
</tr>
<tr>
<td><strong>Drop-out rate primary school</strong></td>
<td>-0.009 (0.008)</td>
</tr>
<tr>
<td><strong>Gross enrolment secondary school (13-15 yo)</strong></td>
<td>0.095 *** (0.029)</td>
</tr>
<tr>
<td><strong>Attend. secondary school &gt; 85% (13-15 yo)</strong></td>
<td>0.008 (0.020)</td>
</tr>
<tr>
<td><strong>Transition rates (13-15 yo)</strong></td>
<td>0.178 *** (0.066)</td>
</tr>
<tr>
<td><strong>Drop-out rate secondary school</strong></td>
<td>-0.007 (0.016)</td>
</tr>
<tr>
<td><strong>Transition rates all (7-15 yo)</strong></td>
<td>0.088 ** (0.045)</td>
</tr>
</tbody>
</table>

Note: Robust standard errors are in parentheses

- On midline evaluation, impact of PKH on most, if not all, of education outcomes were insignificant.
- On endline evaluation, impact PKH can be observed on gross enrollment for primary and secondary school and particularly on transition from 6<sup>th</sup> to 7<sup>th</sup> grade.
- We do not though find PKH impact insignificant on attendance both at primary and secondary school.
International Comparison of CCT Impact on Enrolment

**PRIMARY SCHOOL ENROLMENT**

- PKH Indonesia: 1.8
- Pantawid Filipina: 4.5
- Familias en Acción Colombia: 2
- Progresa Mexico: 1.8

**JUNIOR SECONDARY ENROLMENT**

- PKH Indonesia: 9.5
- Pantawid Filipina: 3.9
- Familias en Acción Colombia: 5

*percentage points*
## Child Labor

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Estimated Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage work during last month (7-12)</td>
<td>-0.014* (0.007)</td>
</tr>
<tr>
<td>Wage work during last month (13-15)</td>
<td>-0.026 (0.021)</td>
</tr>
<tr>
<td>Wage work (13-15) more than 20 hours a month</td>
<td>-0.051* (0.023)</td>
</tr>
</tbody>
</table>

Note: Robust standard errors are in parentheses

- Impact of PKH on increase of school enrolment seems to be consistent with impact PKH on reduction of child labor
- We find that PKH has significant impact on reduction of wage work during last months for age group 7-12 yo and wage work more than 20 hours per month for age group 13-15 yo
- On midline, as for education outcome, PKH seems have little impact on child labor
Some Discussions and Possible Explanations

• Consistent but relatively lower impact on some significant outcomes. Why?
  • Weak facilitation, and weak conditionality enforcement
  • Low and Stagnant benefits size
  • Supply side issues

• Significant PCE on education-related items, but not on health-related items. Why?
  • Qualitative: facilitator emphasized that benefits should be spent on child education
  • Complementarity of PKH and JKN

• Why PKH impact on post-natal visits disappears on endline evaluation?
  • Qualitative: role of traditional birth helper
  • Reversed behavior, birth order effect
Conclusions
Conclusions

• After 6 years of implementation, PKH remains to generate significant impacts on some main indicators

• Some of these are ‘long-term’ indicators...in which program impact could not be observed during midline evaluation in 2009.

• While significant, the impacts relatively lower relative to those from midline evaluation and compared to those from CCT in other countries.

• More concerning: ‘reversed’ impacts.
Sustaining the positive impact, improve the effectiveness.....

- Increase program benefits...along with strengthening the beneficiaries facilitation
- Enforce program conditionality to improve the compliance!
- Strengthen the implementation capacity and expand organization of the managing agency
- Somehow not related with this study but important for PKH: improve supply side!
Thank You