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Whose child is it anyway? Differential parental investments in education and children under kinship care in the Philippines

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Abstract

While education is universally held to enhance a child human development, policies must still contend with parental biases. Here, we investigate if school attendance of young household members aged 6-12 years old varies with their kinship ties to the household heads in the Philippines. Applying probit regression techniques on a dataset culled from the five rounds of the Annual Poverty Indicators Survey, we find that the probability of attending school of the head's own child is about 2.9-percentage points greater that that other relatives in the same age group, controlling for income and other factors. However, there are no differences in the likelihood of school attendance between the head's own grandchildren and other relatives. Thus, policies should target children under kinship care since household heads are unlikely to treat them like their own, even if they can afford to send these children to school.

Running title: Parental investments in the education of children and other kin

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Introduction

While education is universally held as a child's right, many parents, especially in developing countries, still manifest bias in their schooling decisions according to their child's gender, work opportunities, sibship size and composition, or relative control over family income (e.g., Glick and Sahn, 2000; Quisumbing and Maluccio, 2000; Lee, 2007). Concern is raised also about the well being of orphaned, abandoned or vulnerable children, estimated to be two million in 2009, who are placed under institutional, foster or kinship care (e.g., Foster and Williamson, 2000; UNICEF, 2009). The effect of kinship care on the child's well-being are of policy interest especially in developing countries where extended family arrangements are often seen as mutual support groups and sources of assistance in times of social or economic distress (e.g., Desai, 1992; Cox and Fafchamps, 2007).

As in other developing countries, many children in the Philippines are put under kinship care due to a large number of solo parents, broken families and parents as overseas migrant workers. So far, the evidence concerning the welfare of these children is mixed. Some case studies find the children of overseas migrant workers are not necessarily worse off in terms of education (Reyes, 2007; Arguillas and Williams, 2010). Using household survey data, Capuno et al. (2009) and Fujii (2011) report however that the child's kinship ties to the household head matters for school attendance. These two studies, however, may have biased estimates since their samples include all households, irrespective of the number of children or other kin living in them. We improve on these earlier estimates here to show evidence of parental bias for their own children and draw out the policy implications of these results.

Data and Methods

We culled our data from five rounds of the Annual Poverty Indicators Survey (APIS) of the Philippines. Undertaken by the National Statistics Office to provide poverty-related information, the APIS is a regular survey with nationally-representative household samples of about 41,000 in the 1998, 1999 and 2002 rounds, and about 51,000 in the 2004, 2007 and 2008 rounds (Ericta and Luis, 2009). From each of the last five survey rounds, we selected those households with at least two members aged 6-12 years old, with one of them as the child or grandchild and the other member as other kin of the household head. The APIS does not report whether the former are the household head's genetic or adopted children or grandchildren, while the latter lump together all of the household head's other relatives by blood or marriage (e.g., siblings, cousins, nieces/nephews, in-laws).

Our final sub-sample comprises 1,142 households or nearly four percent of all sample households with members 6-12 years old (Table 1). Belonging to these households are 3,099 young members aged 6-12 years old, of which 1,803 (58%) are the household heads' own children or grandchildren, and the rest are the household heads' other kin. By government policy, each six-year old child is expected to commence her six-year elementary education (or seven years in some private schools). About 94 percent of our sub-sample of children were attending school at the time of the survey. We excluded from the sub-sample young members who were not attending school because they were working, looking for employment, or doing housekeeping.

[Insert Table 1 around here.]

Table 2 shows the descriptive statistics of the child-level regression variables used in the analysis. The principal dependent variable is *in school* whose value is 1 if the child member is

currently attending school (during the reference period) and 0 if not. The key independent variables are the dummy variables *child* and *grandchild* that indicate whether the member is the household head's own child or grandchild, respectively. The mean values of *in school*, *child* and *grandchild* are 0.94, 0.53 and 0.05, respectively. Further, we characterize each member by gender (*child is male*), health status (*child is ill or injured*), and age in years (*age of child*). Roughly, 51 percent are male, 21 percent had illness or injury, and the average age is nine years old.

[Insert Table 2 around here.]

To account for other factors, we also include indicators of the number of children aged 0-16 years old, spouse's completion of college education, and household head's characteristics (age in years, male, completion of college education, married). The heads are further classified by job status in 1999, 2002 or 2004-2008 to account for the differences in employment reference period in the different survey rounds. Differences in household socioeconomic characteristics are indicated by household's annual income per capita, amount of remittances received from abroad, and their ownership of the house and lot they occupy. Finally, dummy variables for the country's 17 administrative regions and for the survey rounds are introduced to control for unobserved region-specific and time-varying factors, respectively.

Using this dataset, we estimate the following equation using probit regression technique to tease out the differences in the probability of school attendance between the household head's direct descendants and other kin, controlling for other factors,

$$S_i = \alpha + \beta Child_i + \gamma Grandchild_i + \boldsymbol{X}_i'\boldsymbol{\delta} + \mu_i,$$

$$S_i = \begin{cases} 1 & if \ S^* > 0 \\ 0 & if \ S^* \leq 0, \end{cases}$$

where S_i is a binary indicator of school attendance of the *i*th member, the dummy variables *child* and *grandchild* denote whether or not the member is the head's own child or grandchild, respectively, $\boldsymbol{X}$ is a vector of control variables, μ is the error term, S^* is a latent variable, and α, β and $\boldsymbol{\delta}$ are regression coefficients. We estimated the above equation using in STATA 11.

Results

Instead of the regression coefficients, we present in Tables 3 the respective marginal effects of the independent variables on the probability of school attendance. The marginal effect of the *j*th explanatory variable is the change in the probability of school attendance per unit change in the same regressor, holding other explanatory variables constant (Wooldridge, 2002).

Under the column Model 1, we find that the probability of attending school of the household head's own child is greater by 2.9 percentage points than that other relatives in the same age group (6-12 years old), controlling for income and other factors. However, we do not find any statistically significant differences in the probability of school attendance between the head's own grandchild and other kin, again controlling for income and other factors.

[Insert Table 3 around here.]

Moreover, the probability of school attendance rises by a half percentage point for each year a child grows older, by 34.3 percentage points if the household head finished college, by around 5 and 8 percentage points if the head had a job or business in 1999 or 2002, respectively,

and by 2 percentage points if the family owns the house and lot it occupies. As expected, the probability of school attendance also increases, but at a diminishing rate, with household income.

When compared to children in the National Capital Region (the default region), those in the regions of Cagayan Valley, Zamboanga Peninsula, Davao Peninsula, and the Autonomous Region of Muslim Mindanao (ARMM) are less likely to attend school. Finally, the probability of school attendance in all the latter years is consistently higher than in 1999 (the default year).

Similar results are reported under the column Model 2. Here, however, the variables *child* and *grandchild* are interacted with *remittances from abroad* to account for the possibility that some of children under kinship care have parents who work abroad. If this is the case, the marginal effects of the interaction term should be negative (i.e., narrower differences in the probability of school attendance). Instead, the marginal effect of *child_remittances from abroad* is found positive and statistically significant. This suggests that the household head himself or herself is the one abroad and who provides support for his or her own children's education. In contrast, foreign remittances are found to have no statistically significant impact on the relative likelihood of school attendance of grandchildren and other kin.

Discussion and Conclusions

Controlling for income and other factors, parents (as household heads) are found to have stronger preferences in investing in the education of their own children than in other relatives living with them, but have no differential preferences between their own grandchildren and other kin. Using the estimates reported in Table 3, the predicted school participation rates of own children, grandchildren and other kin are 94.37 percent, and 92.03 percent, 92.21 percent, respectively.

The two-percentage point difference in participation rates between children and other child members appear to be largely driven by parental bias.

These results are consistent with other studies that also found stronger bonds between parents and their genetic children, perhaps because of altruism or reciprocal care (e.g., Case, Lin and McLanahan, 2000; Cox and Fafchamps, 2007). To achieve universal basic education, however, policies such as the government's conditional transfer program may need to target and provide greater support for children under kinship care in the Philippines. Since kinship care is a "circumstance" factor beyond a child's control (Roemer, 1998) social justice demands that its effect must be neutralized to give each child an equitable opportunity for her human development.

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Table 1. Number and distribution of households with members 6-12 years old, 1999-2008

Sample	1999	2002	2004	2007	2008	Total
Households with members aged 6-12 years old	6,085	6,068	6,313	6,041	5,935	30,442
Of which, households with 6-12 year old child or grandchild and at least one other relative of the household head	240 (3.9%)	222 (3.7%)	246 (3.9%)	204 (3.4%)	230 (3.9%)	1,142 (3.8%)
All children aged 6-12 years	662	644	664	533	596	3,099
Of which: child or grandchild of the household head	382 (58%)	374 (58%)	389 (59%)	318 (60%)	340 (57%)	1,803 (58%)
Number of 6-12 year old children who were currently attending school	602 (91%)	616 (96%)	609 (92%)	513 (96%)	580 (97%)	2,920 (94%)

Source of raw data: Annual Poverty Indicators Survey (various years). Authors' own calculations.

Table 2. Summary statistics

Variable	Definition	Obs	Mean	Std. Dev.	Min	Max
In school	1 if child is currently attending school, 0 otherwise	3099	0.94	0.23	0	1
Child	1 if child of household head, 0 otherwise	3099	0.53	0.50	0	1
Grandchild	1 if grandchild of household head, 0 otherwiseIf	3099	0.05	0.22	0	1
Child_remittances from abroad	Interation of child and remittances from abroad	3099	5402.86	26882.54	0	395,400
Grandchild_remittances from abroad	Interaction of grandchild and remittances from abroad	3099	546.37	6095.19	0	153,000
Child is male	1 if child is male, 0 otherwise	3099	0.51	0.50	0	1
Age of child	Age of child in years	3099	9	2	6	12
Child is ill or injured	1 if child is ill or injured, 0 otherwise	3099	0.21	0.41	0	1
Number of children	Number of children aged 0-16 years old	3099	5	2	2	11
Household head is male	1 if household head is male, 0 otherwise	3099	0.84	0.36	0	1
Age of household head	Age of household head in years	3099	43	11	21	87
Household head with college	1 if household head finished college, 0 otherwise	3099	0.30	0.46	0	1
Spouse with college	1 if spouse finished college, 0 otherwise	3099	0.14	0.35	0	1
Household head is married	1 if household head is married, 0 otherwise	3099	0.88	0.33	0	1
Household head had job in 1999	1 if household head had a job or business in 1999, 0 otherwise	3099	0.19	0.39	0	1
Household head had job in 2002	1 if household head had a job or business in 2002, 0 otherwise	3099	0.17	0.37	0	1
Household head had job in 2004, 2007 or 2008	1 if household head had a job or business in 2004, 2007 or 2008, 0 otherwise	3099	0.53	0.50	0	1
Per capita income	Household annual income per capita	3099	12,084	1 4,468	727	286,920
Per capita income squared	Square of household annual income per capita	3099	3.55e+08	2.31e+09	5.29e+05	8.23e+10
Remittance from abroad	Amount of remittance received from abroad	3099	10,995	37,007	0	95,400
Family owns house and lot	1 if family owns house and lot it resides in, 0 otherwise	3099	0.66	0.47	0	1
National Capital Region	1 if National Capital Region, 0 otherwise	3099	0.10	0.30	0	1
Ilocos	1 if Ilocos Region, 0 otherwise	3099	0.03	0.18	0	1
Cagayan Valley	1 if Cagayan Valley Region, 0 otherwise	3099	0.03	0.18	0	1
Central Luzon	1 if Central Luzon Region, 0 otherwise	3099	0.08	0.27	0	1
Southern Tagalog	1 if Southern Tagalog Region, 0 otherwise	3099	0.12	0.32	0	1
Bicol	1 if Bicol region, 0 otherwise	3099	0.07	0.25	0	1
Western Visayas	1 if Western Visayas Region, 0 otherwise	3099	0.05	0.22	0	1
Central Visayas	1 if Central Visayas Region, 0 otherwise	3099	0.06	0.25	0	1
Eastern Visayas	1 if Eastern Visayas Region, 0 otherwise	3099	0.08	0.28	0	1
Zamboanga Peninsula	1 if Zamboanga Peninsula Region, 0 otherwise	3099	0.06	0.24	0	1
Northern Mindanao	1 if Northern Mindanao Region, 0 otherwise	3099	0.05	0.22	0	1
Davao	1 if Davao Region, 0 otherwise	3099	0.07	0.25	0	1
SOCCSKSARGEN	1 if SOCCSKSARGEN Region, 0 otherwise	3099	0.05	0.22	0	1
Cordillera Administrative Region	1 if Cordillera Administrative Region, 0 otherwise	3099	0.04	0.19	0	1
ARMM	1 if Autonomous Region of Muslim Mindanao, 0 otherwise	3099	0.02	0.15	0	1
CARAGA	1 if CARAGA Region, 0 otherwise	3099	0.07	0.26	0	1
Year1999	1 if year is 1999, 0 otherwise	3099	0.21	0.41	0	1
Year2002	1 if year is 2002, 0 otherwise	3099	0.21	0.41	0	1
Year2004	1 if year is 2004, 0 otherwise	3099	0.21	0.41	0	1
Year2007	1 if year is 2007, 0 otherwise	3099	0.17	0.38	0	1
Year2008	1 if year is 2008, 0 otherwise	3099	0.19	0.39	0	1

Table 3. Marginal effects of the determinants of the probability of school attendance

Independent variables	Model 1		Model 2	
	Marginal probabilities	Robust Standard Error	Marginal probabilities	Robust Standard Error
Child	0.029**	0.012	0.022*	0.012
Grandchild	-0.019	0.026	-0.013	0.027
Child_remittances from abroad			0.00002***	0.000
Grandchild_remittances from abroad			-7.54e-07	0.000
Child is male	-0.013	0.011	-0.014	0.011
Age of child	0.005*	0.003	0.005*	0.003
Child is ill or injured	0.012	0.014	0.012	0.014
Number of children	-0.005	0.003	-0.005	0.003
Household head is male	-0.032	0.036	-0.030	0.039
Age of household head	-0.001	0.001	-0.001	0.001
Household head with college	0.343***	0.046	0.341***	0.046
Spouse with college	0.056	0.038	0.054	0.039
Household head is married	0.032	0.035	0.028	0.038
Household head had job in year 1999	0.047*	0.027	0.045	0.027
Household head has job in year 2002	0.075*	0.041	0.075*	0.042
Household head has job in year 2004, 2007 or 2008	-0.028	0.031	-0.034	0.034
Per capita income	4.62e-06***	0.000	4.53e-06***	0.000
Per capita income squared	-1.52e-11***	0.000	-1.47e-11***	0.000
Remittances from abroad	1.91e-07	0.000	-1.33e-07	0.000
Family owns house and lot	0.023*	0.013	0.023*	0.013
Ilocos Region	-0.059	0.037	-0.058	0.038
Cagayan Valley	-0.083**	0.041	-0.081*	0.041
Central Luzon	0.053	0.042	0.054	0.042
Southern Tagalog	0.0003	0.031	0.0002	0.031
Bicol	-0.055	0.035	-0.054	0.035
Western Visayas	0.005	0.039	0.010	0.039
Central Visayas	-0.028	0.032	-0.027	0.033
Eastern Visayas	-0.019	0.031	-0.018	0.031
Zamboanga Peninsula	-0.063**	0.030	-0.060**	0.030
Northern Mindanao	-0.023	0.037	-0.022	0.038
Davao	-0.056*	0.030	-0.056*	0.030
SOCCSKSARGEN	-0.025	0.035	-0.026	0.036
Cordillera Administrative Region	-0.020	0.040	-0.017	0.040
ARMM	-0.098***	0.036	-0.094***	0.036
CARAGA	-0.025	0.031	-0.023	0.031
Year 2002	0.371***	0.071	0.365***	0.070
Year 2004	0.407***	0.066	0.410***	0.067
Year 2007	0.450***	0.070	0.454***	0.071
Year 2008	0.461***	0.072	0.463***	0.073
Number of observations	3099		3099	
Pseudo *R*-squared	0.1675		0.1758	

*** $p<0.01$, ** $p<0.05$, * $p<0.10$.