Chapter 13
Does Poverty Alone Keep Children Out of School? The Case of Children Under Kinship Care in the Philippines

Joseph J. Capuno and Xylee Javier

Abstract While the importance of child education is universally recognized, there are still millions of children who are out of school in developing countries. In these countries, many children are left in the care of their kin when their parents die or work abroad. In this paper, we examine the welfare, particularly the school attendance, of the children under kinship care in the Philippines. Culled from the last seven rounds of an official national household survey, our dataset comprises 1,485 households with at least two members who are 6–12 years old, and one of them is the household head's child or grandchild and the other is the head's kin. Applying probit regression models, we find that a child under kinship care is about 3 % points less likely than the head's own child to be attending school, other things being constant. However, there are no statistically significant differences in the likelihood of school attendance between the head's own child and grandchild. While income deprivation keeps some children out of school, ensuring their schooling participation would require more transfers than are needed to lift their households out of poverty. Targeting these children through conditional cash transfer programs could mitigate the effect of the apparent parental bias toward their own brood.

Keywords Parental preference · Child schooling · Kinship care

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J.J. Capuno (✉)
School of Economics, University of the Philippines, Quezon City, Philippines
e-mail: jjcapuno@up.edu.ph

X. Javier
University of the Philippines, Quezon City, Philippines
e-mail: xyleejavier@yahoo.com

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13.1 Introduction

That the importance of child education is universally recognized needs no further proof than the fact that most countries commit to meet by 2015 the Millennium Development Goal #2: *Achieving universal primary education*. In fact, this objective is not new and has been part of the global development agenda since the previous millennium (e.g., the *Education for All* initiative started in the 1990s, now incorporated as part of the MDGs). By subscribing to the MDG #2, countries, thus, do more than affirm the intrinsic and instrumental value of child education. They also implicitly concede that it would require more than merely continuing previous efforts to hurdle the remaining, persistent obstacles before 2015.

While most of previous government efforts have concentrated on the supply and delivery of education services, increasingly the focus is now shifting toward stimulating demand. For example, the school-based management programs adopted in Bangladesh, Sri Lanka, the Philippines, Honduras, Guatemala, Senegal, and Lesotho are meant to engage parents and community-level stakeholders in the policy setting and administration of local schools. The conditional cash transfer programs now implemented in many Latin American, Asian, and African countries provide financial incentives to households to send and keep their young members in schools. While significant progress has been achieved with all the various supply-side and demand-side initiatives, the goal toward universal education remains elusive.

With barely 2 years left before the deadline, a UN report concedes that MDG #2, especially in sub-Saharan Africa, is unlikely to be met despite the huge reduction in the number of out-of-school children, from 102 million in 2000 to 57 million in 2011 (Inter-Agency and Expert Group on MDG Indicators 2013). Also, the report finds that while poverty is the biggest contributory factor that keeps children out of school, girls are likelier than boys to be out of school even in richer households. In Asia, where enrollment rates at the elementary level are already above 90 %, many children, as it were, fall through the cracks not due to poverty, but perhaps because of parental preferences, armed conflict, or other structural factors.

In addition to the gender gap, parental bias is found to manifest according to the child's work opportunities, sibship size and composition, or the spouse's relative control over family income (e.g., Glick and Sahn 2000; Quisumbing and Maluccio 2000; Lee 2007; Alderman and King 1998). 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 is 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).

However, evidence on the causes, prevalence, and consequences of kinship care is still fragmentary. According to Children on the Brink 2003 (UNAIDS et al. 2004), a vast majority of the orphans and children who lost at least one parent

to HIV/AIDS live with the surviving parent and siblings or with other relatives. It is estimated that in 2003, there were about 12.3 million of these children in sub-Saharan Africa alone. In the same year, it is estimated that Asia had about 87.6 million orphaned children, who lost either one or both parents to HIV/AIDS and other causes. The same trend is noted in Eastern Europe and Central Asia, where the number of children living in formal care grew from 1,503 per 100,000 in 2000 to about 1,738 per 1,000,000 in 2007 (UNICEF Regional Office for CEE/CIS 2010).

There is some evidence that the education of the children under kinship care tends to suffer. For example, UNAIDS, UNICEF, and USAID (2004) find that 'the orphans in sub-Saharan Africa are more likely to live in households that are female-headed, larger and have more people dependent on fewer income-earners, and are less likely to attend school than children living with their parents.' In Jamaica, children under foster care, especially boys, are less likely than their foster parents' own children to attend school (Gibbison and Paul 2005). In their study of orphan enrollment using 105 nationally representative surveys, Ainsworth and Filmer (2006) find that 'Children living with kin have a higher risk of not attending school than their peers who live with parents, although they are more likely to go to school than children living with non-kin.'

In this paper, using the Philippines data, we examine the differences in the school attendance rates of young children by their affinity to the household head. Many children in the Philippines are put under kinship care due to a large number of solo parents, broken families, and parents who work overseas as migrant workers. The available evidence so far concerning the welfare of these children is mixed. Some case studies find that 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, Fujii (2011) reports that the child's kinship ties to the household head matters for school attendance. We further probe this issue in the Philippines by applying the probit regression technique on a pooled survey data from the last seven rounds of an official household survey. In particular, we find that children under kinship care are less likely than the household head's own children to be attending school, possibly due to low household income. However, it would require more transfers than is needed to get and keep the household out of poverty to ensure that all children, regardless of their affinity to the household head, are kept in school.

13.2 Differential Parental Investments in Their Children

Since parents or adult household members normally decide on the investments in their children's education, their preferences and control over resources count for a lot in explaining the differences in the schooling participation and completion of the children. The exact reasons or motives for the differential investments,

however, are not easily discerned from observational data. But understanding the investment motives is important since they have varying policy implications.

The motives can be broadly classified as biological or economic (Bergstrom 1997; Case et al. 2000; Plug and Vijverberg 2005). The biological argument posits that parents invest in their children to propagate their genetic line. The implication is that parents are likely to invest more in their genetic children than in their foster or adoptive children. By extension, they are likely to invest more in their own children or grandchildren, with whom they share more genes, than in their other relatives. If this is true, education policies should be targeted at households with children of varying degrees of affinity to the household head (or the spouse) to equalize the education opportunities for all children. This approach is especially pertinent in many developing countries where many households include multiple families or extended family members.

The economic motives come in two strands. The first strand posits that even altruistic parents faced with resource constraints may discriminate on the basis of their children's differences in IQ, drive, or motivation. Therefore, parents invest more in the high-ability or highly driven child since it would yield the highest payoff for the family. The second strand assumes that parents expect their children to take care of them in old age. Thus, depending on their expectations, which are also partly conditioned by social norms, parents may invest more in the education of, say, their male or elder children. Which of these motivations dominate clearly has implications on the design of not only gender-sensitive education policies but also social security programs.

Teasing out the relative contributions of these motives in observed differences in schooling participation or completion using observational data, however, is not easy due to possible endogeneity or simultaneity problems. The common approach is to use the variations in the genetic affinity to the parents (or family decision makers) of the children in the same family on whom the parents presumably have the same economic attachments. Employing this approach, Case et al. (2000) find that parents in the USA and South Africa exhibit greater preference (as manifested in differential food consumption) for their biological children than for their stepchildren. To minimize omitted variable bias, Sacerdote (2004) used data from the random assignment of Korean infants to American families that adopted them and found the health, income, and education transmissions from parents to children to be higher for non-adoptees than for adoptees. Also, using data of families with mixed children, Plug and Vijverberg (2005) found evidence that family income is a good predictor of education outcome for adopted children. Interestingly, Gibson (2009), also using data on families with both adopted and genetic children, finds no support for the biological motive; instead, she finds that parents provide more for their adopted children.

Parental investment in child education is presumed to be motivated by strong family orientation among Filipino households. This is taken to mean that parents and children are expected to take turns in caring for each other and that relatives can be counted on in times of need. However, validating these long-held assumptions is constrained by lack of suitable data. The next section describes the household

survey dataset that contains information on the children's affinity to the household head that we used here to estimate an apparent bias against children under kinship care.

13.3 Household Survey Data

We culled our data from the last seven rounds of the Annual Poverty Indicators Survey (APIS) of the Philippines. Undertaken by the National Statistics Office, the APIS provides poverty-related information including household demographics, income and expenditures, assets and housing amenities, access to water and sanitation facilities and to other social welfare programs, and each member's employment, educational attainment, health and schooling status, and their relationship to the household head (Ericta and Luis 2009). It is a regular survey with nationally representative, random samples of about 37,500 households in the 1999 round, 38,000 in the 2002 round, 42,800 in the 2004 round, 40,200 in the 2007 round, 40,600 in the 2008 round, 20,000 in the 2010 round, and 42,000 in the 2011 round. While most of the household samples in each round constitute nuclear families only (i.e., husband, wife, and own children), a significant proportion of them include extended family members or non-relatives. As shown in Fig. 13.1, these extended households account for about 20 % of all the samples in the first income quintile in all survey rounds. Noticeably, the proportion rises steadily with each higher income quintile in all rounds, reaching up to 45–50 % in the richest income quintile. These figures suggest that a lot of Filipino children are living with their parents and adult kin or with their adult kin alone. Further, the children in richer households are likelier to live with other kin (and with or without their parents). This dataset, therefore, allows us to investigate the possible links between a child's school attendance and his or her relationship with the household head.

From each survey round, we selected household samples with extended family members. Specifically, we chose only those households with at least two members

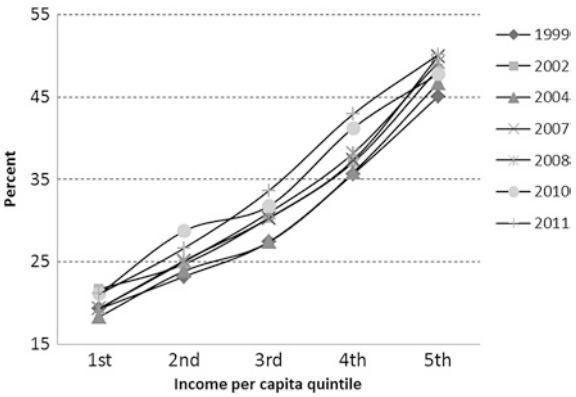

Fig. 13.1 Proportion of extended households by income per capita quintile, 1999–2011. *Source of raw data* Annual Poverty Indicator Survey (various years). Authors' calculations

Table 13.1 Number and distribution of households with members 6–12 years old, 1999–2008

Sample	1999	2002	2004	2007	2008	2010	2011	Total
Households with members aged 6–12 years old	6,085	6,068	6,313	6,041	5,935	4,348	9,044	43,834
Of which: households with 6- to 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 %)	107 (2.5 %)	236 (2.6 %)	1,485 (3.4 %)
All children aged 6–12 years	664	644	669	533	596	292	628	4,026
Of which: child or grandchild of the household head	382 (58 %)	374 (58 %)	389 (58 %)	318 (60 %)	340 (57 %)	158 (54 %)	340 (54 %)	2,301 (57 %)
Number of 6- to 12-year-old children who are currently attending school	602 (91 %)	616 (96 %)	609 (91 %)	513 (96 %)	580 (97 %)	282 (97 %)	566 (90 %)	3,768 (94 %)

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

who are 6–12 years old, one of whom is the household head's child or grandchild, while the other is the head's 'other relative.' The latter may be the head's own sibling, cousin, niece or nephew, or in-law. The APIS does not distinguish whether the reported child or grandchild is the household head's biological or adopted progeny. Also, it does not distinguish the exact relationships between and among the head's other relatives in the household. Thus, it is possible that the child reported to be the head's other relative and the child's own parent(s) live in the same household. So, in this paper, a child under kinship care is defined simply as a 6- to 12-year-old kid who lives in a household whose head is the child's kin, but not parent or grandparent.

Accounting for about 3.4 % of the total APIS samples, our subsample consists of 1,485 households with 4,026 members who are 6–12 years old (Table 13.1). Of these school-age members, 2,301 (57 %) are the household head's own children or grandchildren and the rest are the head's other kin. Since our subsample is limited to extended households, most of them (99.8 %) have adult members who are the head's other relatives, and some of them are possibly the parents of the child under kinship care.

By government policy, each 6-year-old child is expected to commence the then required 6-year elementary education (or 7 years in some private schools). A huge majority of our sample children (91–97 %) were reported to be attending school at the time of the surveys. We exploit the variations in the child's schooling status, affinity to the head, and the household's socioeconomic status to determine if low income alone prevents households from investing in their children's education.

13.4 Empirical Framework

13.4.1 Estimating Equation

Using the aforementioned dataset, we estimate a probit regression model to tease out the differences in the probability of school attendance between the household head's own children, grandchildren, and other kin, controlling for household income and other factors (Wooldridge 2002). Specifically, our estimating equation is

$$S_i = \alpha + \beta\,\text{grandchild}_i + \gamma\,\text{other kin}_i + \delta\,\log\text{income}_i + \varphi\,\text{remittance} + \sigma\,\text{adult relatives} + \boldsymbol{X}_i'\boldsymbol{\theta} + \varepsilon_i,$$

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

where S_i is the observed binary indicator of school attendance of the ith child member (aged 6–12 years old), the dummy variable *grandchild* indicates whether the member is the head's own grandchild, *other kin* indicates whether the member is the head's other relation (e.g., sibling, cousin, nephew/niece, in-law), *log income* is

the natural logarithm of household income per capita, *remittance* indicates whether the household receives transfers from abroad, *adult relatives* is the number of adult relatives of the household head who are not the head's spouse or own children, $\boldsymbol{X}$ is a vector of control variables, ε is the error term, the terms α, β, δ, φ, and $\boldsymbol{\theta}$ are regression coefficients, and S^* is a latent variable. In the equation above, the member is the head's own child if she is neither the head's grandchild nor other kin.

To test if the probability of schooling for a child who is the head's relative (but not direct descendant) improves with income, receipt of transfers from abroad, or the number of adult relatives of the household head, we estimated alternative specifications of the regression equation to include serially among the regressors three interaction terms: *other kin* × *log income*, *other kin* × *remittance*, *and other kin* × *adult relatives*. The last interaction term is used to ascertain if the child under kinship care is perhaps also living with his or her parent in the same household. Then, we use the model with the statistically significant interaction term to determine the marginal effect on the likelihood of schooling of a child placed under kinship care in a household with a given income level. By setting the income at different levels, we can then determine the changes in the marginal effects of the child so placed. At some level of income where the marginal effect becomes statistically insignificant, we are then able to identify the threshold at which the likelihood of school attendance is the same for all children, regardless of their relationship to the household head. While the same tests can be applied in the case of grandchildren, this is deemed unnecessary (as will be shown in the next section) since they are found to be no more or less likely to be in school as the head's own children.

Possibly, there are unobserved factors that influence the probability of school attendance and the presence of grandchildren or other kin in the same household. Ideally, this omitted variable problem should be addressed using a family-fixed-effect panel model or instrumental variables (to account for the presence of extended family members). However, using a family-fixed-effect panel model will result in dropping off many of the household-level variables, including income, remittance, and the head's and spouse's characteristics. Without these variables, however, we cannot determine the independent effects of income and parental preferences. To partially account for the unobserved household-level factors, we obtained robust standard errors adjusted for household-level clustering of our sample children (same approach as Case et al. 2000). Further, by restricting our sample households to those with extended family members, we mitigate the selection problem and avoid the need for an instrumental variable. We note, nonetheless, our estimates and their implications apply only for a select type of households and not to the general household population.

13.4.2 Regression Variables

Table 13.2 shows the definitions and descriptive statistics of the child-level variables for the 4,026 children in our regression dataset. The dependent variable is

Table 13.2 Variable definitions and summary statistics ($N = 4{,}026$)

Variable	Definition	Mean	S.D.	Min	Max
In school	=1 if child is currently attending school, 0 otherwise	0.936	0.245	0	1
Grandchild	=1 if grandchild of household head, 0 otherwise	0.053	0.223	0	1
Other kin	=1 if child is other relative of household head, 0 otherwise	0.428	0.495	0	1
Log income	Natural logarithm of annual household income per capita	9.098	0.843	6.589	12.567
Remittance	1 = if household received remittance from abroad, 0 otherwise	0.202	0.402	0	1
Adult relatives	Number of adult relatives of the household head who are not the head's spouse or own children and who are each at least 25 years old	5.447	1.696	0	12
Child is male	=1 if child is male, 0 otherwise	0.509	0.50	0	1
Age of child	Age of child in years	9.17	2.00	6	12
Age of child squared	Square of the child's age in years	88.09	36.47	36	144
Child is ill or injured	=1 if child is ill or injured, 0 otherwise	0.197	0.398	0	1
Head is male	=1 if household head is male, 0 otherwise	0.844	0.362	0	1
Age of head	Age of household head in years	42.98	10.75	21	87
Head has job (1999)	=1 if household head (in 1999) has a job, 0 otherwise	0.144	0.351	0	1
Head has job (2002)	=1 if household head (in 2002) has a job, 0 otherwise	0.129	0.336	0	1
Head has job (2004–2011)	=1 if household head (in 2004, 2007, 2008, 2010, or 2011) has a job, 0 otherwise	0.618	0.486	0	1
Head attended college	=1 if household head has some college education, 0 otherwise	0.258	0.438	0	1
Spouse has job	=1 if spouse has a job, 0 otherwise	0.474	0.499	0	1
Spouse attended college	=1 if spouse has some college education, 0 otherwise	0.127	0.333	0	1
Head in union	=1 if household head is married or living together with partner, 0 otherwise, 0 otherwise	0.884	0.320	0	1
Owner	=1 if household owns house and lot currently living in, 0 otherwise	0.656	0.475	0	1
Ilocos	=1 if Ilocos region, 0 otherwise	0.034	0.181	0	1
Cagayan	=1 if Cagayan region, 0 otherwise	0.032	0.177	0	1
Central Luzon	=1 if Central Luzon region, 0 otherwise	0.072	0.259	0	1
Southern Tagalog	=1 if Southern Luzon region, 0 otherwise	0.131	0.337	0	1
Bicol	=1 if Bicol region, 0 otherwise	0.069	0.254	0	1
Western Visayas	=1 if Western Visayas region, 0 otherwise	0.051	0.219	0	1

(continued)

Table 13.2 (continued)

Variable	Definition	Mean	S.D.	Min	Max
Central Visayas	=1 if Central Visayas region, 0 otherwise	0.063	0.242	0	1
Eastern Visayas	=1 if Eastern Visayas region, 0 otherwise	0.079	0.271	0	1
Zamboanga Peninsula	=1 if Zamboanga Peninsula region, 0 otherwise	0.061	0.240	0	1
Northern Mindanao	=1 if Northern Mindanao region, 0 otherwise	0.054	0.226	0	1
Davao	=1 if Davao region, 0 otherwise	0.070	0.254	0	1
Soccsksargen	=1 if region of South Cotabato, Sultan Kudarat, Sarangani, and General Santos City, 0 otherwise	0.053	0.224	0	1
Cordillera	=1 if Cordillera Administrative Region, 0 otherwise	0.038	0.191	0	1
ARMM	=1 if Autonomous Region of Muslim Mindanao, 0 otherwise	0.025	0.156	0	1
Caraga	=1 if Caraga region, 0 otherwise	0.073	0.260	0	1
Year 2002	=1 if year is 2002, 0 otherwise	0.160	0.367	0	1
Year 2004	=1 if year is 2004, 0 otherwise	0.166	0.372	0	1
Year 2007	=1 if year is 2007, 0 otherwise	0.132	0.339	0	1
Year 2008	=1 if year 2008, 0 otherwise	0.148	0.355	0	1
Year 2010	=1 if year is 2010, 0 otherwise	0.073	0.259	0	1
Year 2011	=1 if year is 2011, 0 otherwise	0.156	0.363	0	1

in school whose value is 1 if the child member is currently attending school (during the survey reference period) and 0 if not. Its mean value and standard deviation are 0.936 and 0.245, respectively. The main independent variables are the binary indicators *grandchild* and *other kin* that denote whether the member is the household head's own grandchild and other relation, respectively. Their respective mean values are 0.053 and 0.428. The other principal independent variables are natural logarithm of annual household income per capita (*log income*) and a binary indicator of whether the household receives transfers from abroad (*remittance*). The respective mean values of these variables are 9.098 and 0.202. We also include the number of adult relatives of the household head (*adult relatives*) who are neither the head's spouse nor own children and are each at least 25 years old. On the average, there are about 5.5 adult relatives living in the same household.

Further, we characterize each child member by gender (*child is male*), health status (*child is ill or injured*), and age in years (*age of child*). Roughly, 51 % are male, 20 % had illness or injury, and the average age is 9 years old. To see if older children are more likely to drop out from school as is commonly noted in the Philippines, we also include the squared value of the child's age in years (*age of child squared*).

To account for parental preferences, we include indicators of the head's and spouse's characteristics, such as gender (*head is male*), age (*age of head*),

employment status (*head has job* and *spouse has job*), level of education (*head attended college*, *spouse attended college*), and civil status (*head in union*). Note that the head's employment status is tagged to a survey round to account for the different reference periods used in the 1999, 2002, and 2004–2011 rounds. Of the total child samples, about 84 % live in households headed by males, and less than 15 % have household heads with a job in 1999 or in 2002, although 61 % have household heads that were employed during each of the later survey years. About a fourth (26 %) live in households with heads that had at least some college education. A huge majority (89 %) has household heads who were either married or living together with a partner. Nearly half (47.4 %) belong to households where the spouse of the head had a job. However, only around 13 % live in households where the spouse had at least some college education. Around 66 % live in family-owned houses and lots.

To account for other unobserved location-specific or year-specific factors, we included dummy variables for the country's 17 administrative regions and for the seven survey years. For instance, the regional dummy variables should account for, among other things, the spatial variations in prices or costs of living, and the relative accessibility and quality of local public and private school facilities. The year dummy variables would partly account for the differences in the policies and provisions of education services of the past four Philippine Presidents (Ramos, Estrada, Macapagal-Arroyo, Aquino) and the global economic trends (and crises) that affected the Philippines economy during the 1997–2011 period. The default region is the National Capital Region (Metro Manila) and the base year is 1999.

13.5 Analysis of Results

13.5.1 Likelihood of School Attendance of Children, Grandchildren, and Other Kin

Table 13.3 presents four sets of probit regression results. Not including any interaction term among the regressors, our base model simply tests for the independent effects of grandchild, other kin, log of income per capita, remittance, and the number of adult relatives on the likelihood of school attendance. The next three models further test if our key independent variables have also indirect or joint effects on the same. The estimated joint effect will indicate the extent to which an increase in income, a receipt of transfers from abroad, or the number of adult relatives can together improve the schooling status of the other kin relative to that of the head's own child.

Consistently in all four models, the grandchild is found to be negative, but not statistically significant. This implies that the head's own child and grandchild of the same age cohort (6–12 years) are equally likely to be attending school, other things being the same. Put differently, households do not systematically discriminate between the head's direct descendants in their schooling decisions.

Table 13.3 Marginal effects: determinants of school attendance [a]

Explanatory variables	Model 1 (no interaction)		Model 2 (other kin × log income)		Model 3 (other kin × remittance)		Model 4 (other kin × adult relatives)	
	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors
Grandchild	−0.025	0.020	−0.024	0.020	−0.023	0.019	−0.025	0.020
Other kin	−0.029***	0.007	−0.031***	0.008	−0.030***	0.007	−0.030***	0.007
Log income	0.014**	0.007	0.014**	0.007	0.014**	0.007	0.014**	0.007
Remittance	−0.011	0.013	−0.011	0.013	−0.012	0.014	−0.011	0.013
Adult relatives	0.006***	0.003	0.006*	0.003	0.006**	0.003	0.006**	0.003
Child is male	−0.024***	0.007	−0.024***	0.007	−0.024***	0.007	−0.024***	0.007
Age of child	0.160***	0.019	−0.016***	0.019	0.161***	0.019	0.160***	0.019
Age of child squared	−0.009***	0.001	−0.009***	0.001	−0.009***	0.001	−0.009***	0.001
Child is ill or injured	−0.006	0.010	−0.006	0.010	−0.006	0.010	−0.006	0.010
Head is male	0.023	0.019	0.023	0.019	0.023	0.019	0.023	0.019
Age of head	−9.11e−06	0.0004	−0.00002	0.0004	−0.00001	0.0004	−0.00001	0.0004
Head has job (1999)	0.027	0.035	0.027	0.035	0.027	0.035	0.027	0.035
Head has job (2002)	0.026	0.026	0.026	0.026	0.027	0.023	0.026	0.026
Head has job (2004–2011)	−0.006	0.020	−0.006	0.020	−0.006	0.020	−0.006	0.020
Head attended college	−0.018	0.018	−0.019	0.018	−0.019	0.018	−0.019	0.018

(continued)

Table 13.3 (continued)

Explanatory variables	Model 1 (no interaction)		Model 2 (other kin × log income)		Model 3 (other kin × remittance)		Model 4 (other kin × adult relatives)	
	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors
Spouse has job	−0.017*	0.010	−0.017*	0.010	−0.018*	0.010	−0.017*	0.010
Spouse attended college	0.012	0.015	0.012	0.015	0.011	0.015	0.012	0.015
Head in union	−0.014	0.021	−0.014	0.021	−0.014	0.021	−0.014	0.021
Owner	0.005	0.010	0.004	0.010	0.005	0.010	0.005	0.010
Ilocos	−0.017	0.030	−0.017	0.030	−0.017	0.030	−0.017	0.030
Cagayan	−0.028	0.029	−0.028	0.029	−0.028	0.029	−0.028	0.029
Central Luzon	0.031	0.027	0.031	0.027	0.031	0.027	0.031	0.027
Southern Tagalog	−0.007	0.021	−0.006	0.021	−0.006	0.021	−0.007	0.021
Bicol	0.0004	0.025	0.0005	0.024	0.0005	0.024	0.0004	0.025
Western Visayas	0.030	0.029	0.030	0.029	0.030	0.029	0.030	0.029
Central Visayas	0.001	0.027	0.001	0.027	0.002	0.026	0.001	0.027
Eastern Visayas	−0.009	0.023	−0.009	0.024	−0.009	0.023	−0.009	0.023
Zamboanga Peninsula	−0.007***	0.026	−0.071***	0.026	−0.071***	0.026	−0.071***	0.026
Northern Mindanao	−0.016	0.024	−0.016	0.024	−0.016	0.024	−0.016	0.024
Davao	−0.030	0.023	−0.030	0.023	−0.029	0.023	−0.029	0.023
SOCCSKARGEN	−0.004	0.024	−0.004	0.024	−0.004	0.025	−0.004	0.025
Cordillera	−0.019	0.032	−0.018	0.032	−0.018	0.032	−0.019	0.032
ARMM	−0.071**	0.031	−0.071**	0.031	−0.071**	0.031	−0.071**	0.031
CARAGA	−0.011	0.023	−0.011	0.024	−0.011	0.023	−0.011	0.024

(continued)

Table 13.3 (continued)

Explanatory variables	Model 1 (no interaction)		Model 2 (other kin × log income)		Model 3 (other kin × remittance)		Model 4 (other kin × adult relatives)	
	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors	Marginal effects	Delta-method Std. errors
Year 2002	0.027	0.042	0.027	0.042	0.026	0.041	0.027	0.042
Year 2004	0.020	0.040	0.020	0.040	0.019	0.040	0.020	0.040
Year 2007	0.068	0.042	0.069	0.042	0.068	0.042	0.068	0.042
Year 2008	0.076**	0.041	0.076*	0.041	0.076*	0.041	0.076*	0.041
Year 2010	0.059	0.043	0.059	0.043	0.059	0.043	0.059	0.043
Year 2011	0.002	0.040	0.002	0.040	0.001	0.040	0.002	0.040
No. of observations	4026		4,026		4,026		4,026	
Wald χ^2 statistic	236.24		239.34		238.35		239.27	
Prob > χ^2	0.000		0.000		0.000		0.000	
Pseudo-R^2	0.1285		0.1289		0.1249		0.1286	

Note Robust standard errors adjusted for household-level clustering

[a]The marginal effects are the marginal probabilities of a unit change in one explanatory variable, holding other variables constant. The reported marginal effects of other kin, log income, remittance, and adult relatives in Models 2–3 already include the effects of the interaction variable (evaluated at means)

*Significant at 10 % level

**Significant at 5 % level

***Significant at 1 % level

Apparently, however, they tend to invest less in the education of the other type of children. Specifically, the other kin is about 3 % points less likely to be in school than the head's own child, other things held constant. Further, the lower likelihood is highly statistically significant ($p < 0.01$). This does not appear to be greatly mitigated by higher income (Model 2), remittance from abroad (Model 3), or the number of adult relatives (Model 4). The average marginal effect of other kin in Models 2–4, which already capture the interaction effects, is still around 3 % points and highly statistically significant ($p < 0.01$).

In addition to its direct impact on other kin (Model 2), income also has its own direct, independent effect (Model 1, Model 3, and Model 4). In all specifications, we find that a unit increase in log income raises by about 1.5 % points the probability of schooling. In contrast, remittance has neither a statistically significant direct effect of child schooling nor a special impact on other kin's (Model 3). These results imply that it is the size rather than the source (i.e., from abroad) of the household income that influences schooling decisions in Filipino households. Put differently, the receipt of external transfers, which may indicate that the member's parent(s) is abroad, per se does not necessarily lead to children quitting school, a finding consistent with those in Fujii (2011).

In all models, we also find the number of adult relatives to have direct, positive (0.006), and statistically significant marginal effects ($p < 0.05$). Its effect is not washed out when interacted with other kin. It could mean that these senior household members provide adult supervision on the younger members who are then encouraged to attend school or that, in fact, at least some of them provide parental care to the child under kinship care. Unfortunately, the child's relationship with the adult relatives cannot be established from the data.

13.5.2 Other Factors Affecting the Probability of School Attendance

Table 13.3 shows the other significant factors affecting school attendance. Among the child-level characteristics, a boy is found to be 2.4 % points less likely than a girl to be attending school. An older child is likelier than a younger one to be in school, but less and less so as he or she becomes older. Further, their schooling status is not adversely affected by illness or injury.

None of the head's characteristics seem to have any differential impact on a member's schooling status. Moreover, a child's school attendance does not appear to be particularly sensitive to the head's employment status, education, or marital status. Also, the household's ownership over the house and lot it currently occupies does not have a statistically significant differential impact. Further, the spouse's educational attainment also does not seem to matter. However, school attendance is less likely among children where the spouse is working, other things being constant. This suggests that the time spouses spend working outside the home may have reduced the time for parental care or adult supervision over young children.

In general, we also find that the probability of school attendance is the same across regions, except in two. Relative to the children in the National Capital Region, those in Zamboanga Peninsula or in the Autonomous Region of Muslim Mindanao (ARMM) are about 7 % points less likely to be in school. The lower school attendance in these regions is partly because of their relatively lower economic conditions and high incidence of armed conflicts (Human Development Network 2005). Finally, the likelihood of schooling is the same across years, except in 2008 when it was nearly 8 % points greater than in 1999.

13.5.3 Improving the School Attendance of Children Under Kinship Care

We use the results of Model 2 in Table 13.3 to estimate the increase in the probability of school attendance of a child under kinship care relative to that of the head's own child at various income levels. Put differently, we wish to find the level of income at which both types of children are equally likely to be in school, controlling for other factors.

Table 13.4 presents the predicted marginal effects of other kin at various levels of annual household income per capita. At the average level of income (8,955 pesos), the resulting marginal probability is −0.029, which is near the estimate in Model 2. Setting the income to the equivalent of the annual poverty thresholds in 2009 (16,815 pesos) or 2012 (18,770 pesos) will improve the marginal probability to −0.022 or −0.021, respectively. So, in households that are just at the threshold

Table 13.4 Marginal effects: children under kinship care on school attendance by level of annual household income per capita (in pesos)

Annual household income per capita	Remarks	Marginal effect of other kin	
		Estimate	Delta-method standard errors
8,955	Mean	−0.029**	0.007
16,815	2009 poverty threshold	−0.022**	0.009
18,770	2012 poverty threshold (est.)	−0.021**	0.009
20,744	1 std. deviation above the mean	−0.020**	0.009
28,001	Estimated threshold income[1]	−0.017	0.010
48,050	2 std. deviations above the mean	−0.012	0.012
111,302	3 std. deviations above the mean	−0.006	0.014
286,932	Maximum	−0.002	0.015

**Significant at 5 % level

[1]The lowest income level when the marginal effect becomes statistically insignificant

of being poor, a child who is the head's other kin is still less likely than the head's own to be in school.

Raising the household income further to 20,744 pesos (i.e., by one standard deviation above the mean) will only marginally improve the likelihood of schooling and not totally eliminate the relative disadvantage of children under kinship care. These children will attain parity with the head's own children only when the income reaches 28,001 pesos. In these relatively well-off households, the apparent differences in the likelihood of schooling are just random errors and not statistically significant. These results indicate that while poverty keeps children under kinship care out of school, extended households would need a big increase in income—by approximately three times the mean income per capita—to send and keep them in school.

13.6 Conclusion and Policy Implications

Controlling for household income and other factors, we find that not all school-age children in a typical extended Filipino family are equally likely to be attending school. In this paper, we find only a few factors that lead to lower probability of schooling. That only a few are significant provides some comfort: it means that, for the select households in our sample where most of the children are attending school, policies can be directed at these few factors to close the schooling gap.

First, we corroborate previous findings that the likelihood of schooling is higher for female children than male children and for younger children than for older children in Filipino households. The differential school attendance rates across gender are possible consequences of inheritance practices previously observed among rural families who prefer to bequeath their lands to male children and make their female children complete schooling (Quisumbing et al. 2004). Household poverty and the high costs of education have been cited as possible reasons for high dropout rates among older children (Capuno and Kraft 2011; Tan et al. 2011; Albert et al. 2012).

Second, and perhaps just as worrisome, we also find that children who are the head's relatives, but not as direct descendants, are on the average about 3 % points less likely than the head's own child to be attending school, a finding consistent with those found in other countries (Ainsworth and Filmer 2006; Gibbison and Paul 2005). While this apparent bias against children under kinship care can be overcome with income transfers, the high amount of required transfers suggest, however, that it is more than poverty that keeps these children out of school.

The reasons for the apparent parental bias against children under kinship care warrant further investigation. One plausible explanation is that parents invest less in their young relatives because they expect to receive less transfers from them in old age than from their own children. Another possibility is that their young relatives have less innate abilities or motivation than their own children. Still another, which is perhaps particularly pertinent in the Philippines, is that kinship care is

disguised child labor or that the child lives with a parent who lives with and works for the household head. The possibility of child labor is somewhat mitigated in our sample since children under kinship care are still young (average age is 9.5 years) to be productive. However, the second arrangement—that the child's parent works for the household head—seems more plausible, and if so, then the parent who has paid work should be able to send his or her child to school. We find a consistent, but not definitive result to support this hypothesis.

Notwithstanding our data limitations, what can be done to help these children to achieve their full human development? Since these children are not out in the streets, in foster homes or welfare institutions, it is easy to take for granted that their adult relatives will treat them like their own children. That this is not necessarily the case demands a reassessment of social welfare programs. In the Philippines, the government's conditional cash transfers program must ensure that the list of child beneficiaries includes all qualified extended members and not only the head's own. But since the required transfers will be more than the usual amount of cash transfers, the conditions must be stringent to avoid moral hazard (i.e., leaving one's child under kinship care) and prevent abuse.

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