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The Impact of Cash Transfers on Child Outcomes in Rural Thailand: Evidence from a Social Pension Reform

by

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The impact of cash transfers on child outcomes in rural Thailand: Evidence from a social pension reform*

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Abstract

Unlike standard literature on the social pension policy and children's outcomes, this paper provides evidence from Thailand that an introduction of small (equivalent to 2-3 days of minimum wage) but universally covered social pension can affect educational choice and work status of children living with eligible pensioners. Such a result seems to be driven by the characteristics of newly eligible pensioners who are not as poor as the pensioners under the targeted program before the reform. Our findings also show differential effects of the social pension by genders of the children and pensioners. In particular, teenage boys living with male pensioners are more likely to enroll in the secondary school compared to children in the control group living with almost eligible seniors, while the results for teenage girls are rather inconclusive.

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1 Introduction

In many developing and transition countries population aging poses a growing challenge to societies and policy makers. Often informal employment is prevailing and people lack formal protection against poverty in the old age, relying solely on social support by their families. Out of this need, social pension schemes are becoming an increasingly popular policy that provides a basic income to the elderly. Empirical evidence suggests that such policies have been successful in terms of increasing the wellbeing of the elderly, e.g. by facilitating a reduction in labor supply at earlier ages especially for men (Carvalho Filho, 2008, Kaushal, 2014, Juárez and Pfutze, 2015, Galiani et al., 2016), and by enhancing mental health and nutritional intake (Galiani et al., 2016, Téllez-Rojo et al., 2013).In fact, the empirical literature on the impact of social pensions goes well beyond the wellbeing of the elderly. For instance, pension benefits may allow prime-age adults to migrate in order to find (better) employment (Posel et al., 2006, Ardington et al., 2009), or they may enable migrants to reduce transfers made to elderly pensioners left behind especially if households are very poor (Jensen, 2004, Maitra and Ray, 2003, Fan, 2010, Juarez, 2009).

In this study, we add to the literature by investigating the effect of a social pension scheme on child outcomes in Thailand, more precisely on school enrollment and child work. We make use of the 2009 pension reform to estimate the impact of an exogenous increase in income in the hands of the elderly. Several studies have shown that children may benefit in different ways from pension eligibility of co-residing grandparents. Duflo (2003) demonstrates for the South African social pension scheme that children may experience greater nutrition and health due to pension eligibility of co-residing elderly. However, the effect is limited to girls living with a grandmother receiving pension. Edmonds (2006) finds further evidence for the South African pension scheme to increase schooling and reduce hours worked, especially for boys in households with eligible men. The changes due to male eligibility seem to result in levels of schooling and work that are similar to those of children living with elderly women close to qualifying age. Edmonds (2006) argues that households and especially men might be credit constrained since they respond to a cash transfer that was anticipated as the pension scheme was already in place at the time the survey was conducted.

This paper is more closely related to the work by Ponczek (2011) and Carvalho Filho (2012) who analyze the impact of a social pension reform on child outcomes in Brazil. The reform expanded coverage to more than one person per household, while lowering the minimum qualifying age and scaling up benefits to the level of minimum wage. Using the same data but different empirical strategies and age cohorts, both authors show that school attendance of girls increases if they live with beneficiaries of the reform,

i.e. elderly who became eligible or receive greater transfers after the reform[1]. Although Carvalho Filho (2012) finds no evidence for differential effects with respect to gender of recipients, the estimates by Ponczek (2011) provide support for schooling to improve only for girls co-residing with male pensioners. Child work is only investigated by Carvalho Filho (2012), and he shows that when beneficiaries of the reform are female, girls tend to work less (yet there is also weak evidence for girls to work more if beneficiaries are male).

Our study differs notably from the work by Ponczek (2011) and Carvalho Filho (2012) owing to the distinct history and characteristics of the social pension system in Thailand compared to Brazil and its implications for the analyses. Unlike in Brazil, the social pension scheme in Thailand was designed to target the poorest elderly before the reform in 2009. Coverage was expanded in the wake of the reform to all elderly in the country. As households in the region of our study are generally poor, the change from targeting to universal coverage made elderly eligible who were mostly poor but not extremely so. We argue that this setting allows us to identify an effect of the social pension on child outcomes although the amount of pension guaranteed by the scheme is very small. As newly eligible beneficiaries are not too poor, it is reasonable to assume that their most basic needs are met which may allow them to invest the extra pension income in their grandchildren.

To the best of our knowledge, this is the first study to show that already a very small amount of pension can have a large and significant impact, here on child outcomes, i.e. on school enrollment and child work. Pension schemes studied so far guarantee benefits of at least moderate size, whereas some schemes are very generous. Most of the empirical literature investigating the impact of social pensions draws on data from South Africa. The South African social pension scheme has been studied at length, partly because of the highly generous benefits it guarantees which correspond to about twice the median per capita income of African households. More recently, there is a growing literature addressing pension schemes in Latin America and Asia. As mentioned above, the social pension in Brazil is another example of generous benefits, equal to the size of minimum wage[2]. In contrast, pension schemes in Mexico and Taiwan guarantee transfers of rather moderate size which correspond to about 30 % of average income of eligible individuals[3].

[1]To be precise, both authors draw on the same household data, but Ponczek (2011) uses two additional survey waves.

[2]Carvalho Filho (2012) notes that pension benefits correspond to about 16 % of total income of mature households, i.e. households with eligible or nearly eligible members.

[3]In the case of Mexico, separated pension schemes were set up in Mexico city and rural Mexico, yet both guarantee relatively similar size of benefits as a share of per capita income of eligible individuals. For additional information on the Mexican pension schemes, see Juarez (2009) and Juárez and Pfutze (2015). Fan (2010) studies the effects of social pension scheme in Taiwan. The relative size of pension

We conduct an analysis in the spirit of difference-in-differences similar to Ponczek (2011). Specifically, we compare children in newly eligible housholds (i.e. benefiting from the reform) to a control group of children in similar but unaffected households before and after the reform[4]. We then restrict our sample to households with members of three generations. Thus, we ensure that children in the control group live with at least one member who would soon qualify for pension. Our control group also includes children living with elderly eligible for the program before the reform. We cannot distinguish these children from other households in our sample because pre-reform eligibility criteria were not precise enough to identify them.

Our finding shows that an implementation of the universal pension scheme increases school enrollment and reduces child work. In line with the existing literature, we find differential effects by genders. enrollment increases among boys co-residing with newly eligible male (or male and female) pension recipients, whereas girls in households with female beneficiaries might associate with less child work. Yet due to weak IV in the girls subsample, we are cautious not to claim any causal effects for them. We further demonstrate that pension income translates into greater spending on education and this additional investment in children's education is mainly driven by male pensioners. Finally, we provide placebo analyses and show that behavioral responses of the households receiving pension before the reform were substantially different, as beneficiaries of the targeted scheme were poorer.

The remainder of this paper is structured as follows. In Section 2, we give a brief overview of the history and characteristics of the social pension scheme in Thailand. We describe our data and empirical strategy in Section 3 and Section 4 respectively. Results are presented in Section 5 with additional robustness analyses in Section 6. Concluding remarks are in Section 7.

2 The universal pension scheme

In 2009, the Government of Thailand initiated a policy reform which made public pension available to all elderly in the country. Since the implementation of the universal pension scheme in October 2009, any Thai aged 60 or older is eligible for the program - except for those who live in a public retirement home or receive any other government pension

as a share of household income is not explicitly reported by Fan (2010) but we can calculate the share based on absolute values provided.

[4]However, in contrast to Ponczek (2011), we use pension eligibility to instrument for pension receipt, as was done for instance by Duflo (2003) and Carvalho Filho (2012). Moreover, we use panel data in our analyses which differ from most of the previous studies.

(e.g. former civil servants) [5]. The system is non-contributory, yet registration is required in order to receive transfers. The size of benefits was initially set to 500 Baht which was equivalent to approximately two or three median daily wages. In October 2011, the level of benefits was further increased and set to vary by age of recipient. The minimum monthly payment was raised to 600 Baht for individuals aged 60 to 69 and transfers for individuals aged 70 to 79, 80 to 89, and 90 or above were set to 700 Baht, 800 Baht, and 1000 Baht, respectively.

The universal pension scheme replaced a means-tested system that was designed to provide financial assistance to the poorest among the elder population only. It fell short on adequately targeting the poorest elderly as coverage was perceived to be insufficient and unfair (Jitsuchon et al., 2012). Figure 1 depicts the trend in the number of beneficiaries and corresponding government expenditure before and after the reform. In 2008, the final year before the reform, approximately 1.8 million elderly were registered under the targeted system. By 2010, the first post-reform year, the number had jumped to about 5.7 million beneficiaries. Due to administrative problems, coverage of the pension scheme was still incomplete, with approximately 70 % of the eligible population having registered (Jitsuchon et al., 2012). However, by 2013 most elderly qualifying for the program were reported to receive transfers which corresponds to a further rise in the number of pension recipients to about 7.3 million.

3 Data

We use panel data from a household survey conducted in 2008, 2010 and 2013 by members of the research unit FOR 756, funded by the German Research Foundation[6]. The data used for this study is representative for the rural population of three provinces in Northeast Thailand and covers 2136 households. Our data set includes child-level information on education and work status, as well as detailed household-level information, e.g. on income, expenditures, and social security transfers. We restrict our analyses to children aged 6 to 18 in 2008 who lived in households with three generations. Thereby, our sample

[5]These restrictions, however, do not influence our analyses since the elderly in the sample usually live alone or with their families. Moreover, the share of households with elderly receiving any other kind of government pension is below 1 % in our sample.

[6]For detailed information on the survey and the sampling procedure in particular, see Hardeweg et al. (2013). We use data from 2013 since the pension reform might not have taken its full effect by 2010. Most importantly, the time span from October 2009 when the universal pension system was first in place to April 2010 when data collection started is rather short. Implementation problems seem to be less severe in the region studied since approximately 85 % of eligible elderly were covered already in 2010.

covers all children who were of official primary or secondary school age in 2008[7]. We use data on 1220 children of age 6-18 in 2008, or 748 three-generation households.

To test the effect of pension receipt on schooling, we use a binary variable which equals one for children who reported to be enrolled in school or any institution of higher education, and zero otherwise. To measure child work, we construct another binary variable based on information given about children's (main or second) occupation. It equals one if children are reported to perform any full- or part-time work, and zero otherwise[8].

Table 1 presents the trend of school enrollment and child work before and after the reform separately for children in households benefiting from the reform and those in the control group, as well as for boys and girls. Overall enrollment is decreasing over time as children drop out of school. However, the drop-out rate seems to be somewhat weaker for children in beneficiary households as well as for girls. In contrast, child work is increasing over time, and the proposition of the increase appears to be slightly less strong for children in the treatment group and for boys.

4 Methodology

To verify our hypothesis that a small amount of public pension could affect outcomes of children in the household, we follow a standard practice in the literature, (see e.g. Duflo, 2003) and restrict our sample to households with three generations, i.e. grand parents, parents and children. Since the introduction of the universal social pension policy in 2009 and the increase in amount of social pension in 2012 were exogenous policy changes beyond the influence of households, we employ an identification strategy in the spirit of difference-in-differences and formulate an empirical model for educational choice and decision to work of children as follows:

$$y_{it} = \beta_0 + \mathbf{X_{it}'}\boldsymbol{\beta_1} + \beta_2 Pension_{it} + D_t + e_{it} \tag{1}$$

where y_{it} is the dependent variable, which can be dummies for enrollment or work status of child i at time t. X_{it} is a vector of child and household characteristics. The child

[7]Officially, children in Thailand should attend primary school at ages 6 to 11 and secondary school at ages 12 to 17 (UNICEF, 2013). However, late enrollment is very common, especially in the region studied, and most children enter primary school at age 7 only.

[8]We define children to be working if they are reported to be engaged in own agriculture or related activities (e.g. fishing), to run a (family-owned) business, to be engaged in any (casual or permanent) off-farm agriculture or non-agriculture, to be a housewife or to serve in the army. Since housewives in our sample are typically married, the decision to work might be very different in that particular case. However, whether we include housewives to our definition of work does not change our results.

characteristics are age, age-squared, and gender while the household characteristics are number of members in gender-age groups[9], household income, size of land owned by the household in 2008, and years of education of the head of household. $Pension_{it}$ is a dummy for pension status which is equal to 1 if child i stayed in a household reporting to receive public pension in period t. Lastly, D_t are time dummies for two post-reform periods (2010 and 2013) and e_{it} are the error terms.

However, enrollment and work status of children in households who receive public pension could be influenced by different unobservable characteristics from households who do not. For example, they might be highly motivated, less prone to procrastination, have better networking skills, or have higher cognitive capacity. These characteristics of grandparents could simultaneously affect schooling and work decisions for children in the household. To circumvent this endogeneity concern, we exploit a policy change in 2009 that made everyone older than 60 eligible to claim for the pension regardless of their level of income. We then replace the dummy variable for actual pension status in Equation 1 with a dummy variable based on age of members in the household after the reform (PenAge) and specify the following model:

$$\begin{aligned} y_{it} = \delta_0 + \mathbf{X'_{it}}\boldsymbol{\delta_1} + \delta_2 PenAge_{it} + \delta_3 PenAge70_{it} \\ + \delta_4 PenAge80_{it} + \delta_5 PenAge90_{it} + D_t + \epsilon_{it} \end{aligned} \tag{2}$$

Specifically, $PenAge_{it}$ is equal to one if child i lives in a household in which at least one member is 60 years old or older in the wave 2010 or 2013, respectively, and zero otherwise. In addition, we account for the increase in pension subsidy in 2013 by including additional dummy variables for households with members' age 70-79 ($PenAge70_{it}$), 80-89 ($PenAge80_{it}$) and 90 and older ($PenAge90_{it}$). Our model controls for the number of household members in different age-groups by gender (particularly, those who were almost eligible for pension, 55-59, and those who just became eligible, 60-64 years old) as well as the common time effects for each period after the reform. Hence, the estimated coefficient of $PenAge_{it}$ would capture an *intent-to-treat* effect of the universal pension scheme on children's by comparing households with eligible members (treatment) and households with *almost* eligible members (control).

Another specification in this paper is based on instrumental variable regressions using $PenAge_{it}$, $PenAge70_{it}$, $PenAge80_{it}$ and $PenAge90_{it}$ as instruments for Pension status

[9]The gender-age groups are categorized by gender and age group for each five-year interval starting from 0-4, 5-9, ... , 55-59, 60-64 to 65-69, then with ten-year interval for 70-79 and 80-89 and finally 90 years old onwards.

($Pension_{it}$). Thus, the regression in Equation 2 is a reduced form of the IV estimation whereas Equation 1 is the second stage. Then the first stage regression is the following:

$$\begin{aligned} Pension_{it} = \alpha_0 + \mathbf{X'_{it}}\boldsymbol{\alpha_1} + \alpha_2 PenAge_{it} + \alpha_3 PenAge70_{it} \\ + \alpha_4 PenAge80_{it} + \alpha_5 PenAge90_{it} + D_t + u_t \end{aligned} \tag{3}$$

Lastly, the impact of the social pension could be diverse between gender of children and pensioners in the household due to differential preference of grandmothers and grandfathers towards girls and boys or unequal bargaining power among pensioners within the same household (Ponczek, 2011). Hence, we add gender-specific pension variables to the model in Equation 1 – $PenF$ (a dummy variable equal to one if the household has female pensioner(s) and $PenMF$ (for households with female and male pensioners). We then estimate the model in separate regressions by gender of children in the household. Our new second stage regression is modeled as follows:

$$y_{it} = \theta_0 + \mathbf{X'_{it}}\boldsymbol{\theta_1} + \theta_2 Pension_{it} + \theta_3 PenF_{it} + \theta_4 PenMF_{it} + D_t + \nu_{it} \tag{4}$$

where y_{it}, X_{it}, D_t are the same as in Equation 1 and ν_{it} are the error terms. As for the first stage of this specification, we generate two dummy variables for households with newly-eligible female, or male and female members, i.e. members who were at least 60 years old in 2010 or 2013 and use them as instrumental variables for $PenF$ and $PenMF$ respectively. $PenF$ and $PenMF$ estimate the differential effects of the universal pension policy on children's outcomes when there are female or both male and female pensioners in the same household. In addition, we classify the pension dummy ($Pension$) into three categories in order to capture individual effects (in constrast to additional effects described above) of each group of pensioners, i.e. we generate two dummy varibles that are equal to one if the household has "only" female or "only" male pensioner(s), respectively, and another binary variable for households with "both" female and male pensioners. We use these dummy variables as our instruments in Equation 4 and estimate the model accordingly. We then provide estimates of individual effects of the universal pension policy on children's outcomes separated by genders of pensioners in the household and for households with both male and female pensioners. Standard errors of all regressions in this paper are clustered at village level.[10]

[10]Although these clustered standard errors allow for autocorrelation within the same village, our main specification does not include any supply side factors such as school availability in the locality. Therefore, we also incorporate sub-district fixed effects in our model and the results are very similar and available upon request.

5 Results

5.1 School enrollment

Table 2 presents the effects of social pension on school enrollment based on the reduced form in Equation 2 and Two-Stage Least Squares (2SLS) in Equation 1 and 3. Columns (1)-(3) and (4)-(6) report estimates of the reduced form and Two-Stage Least Squares (2SLS), respectively, for children who were 6-18, 6-11 and 12-18 years old in 2008.In both specifications, households' pension status (eligibility) seems to have no effect on school enrollment of children between 6 and 18 years old. The coefficients of pension eligibility and receipt in columns (1) and (4) are positive but statistically insignificant. This is not surprising because most children among the 6-11 cohort in 2013 were still younger than the school leaving age in Thailand,which are either 15 years old or finishing grade 9. In our sample, enrollment of those children was almost complete even before the reform. Therefore, we find no significant relationship between pension and school enrollment when restricting our sample to younger children in columns (2) and (5).

For older children, the estimates in columns (3) and (6) indicate that pension eligibility and receiving pension increase schooling. Particularly, our 2SLS estimates suggest that children aged 12-18 (in 2008) living with a pension recipient who became eligible after the reform are almost 20 percentage points more likely to enroll in school than children in households with either no pension recipient or with recipients already eligible before the reform. Thus, it seems that children in the older cohort benefit from the pension reform such that they drop out of school at an older age on average. Our instruments are not weak predictors of pension receipt. The F-statistics of the first-stage regressions are much larger than the critical value suggested by Stock and Yogo (2005).

5.2 Child work

Table 3 presents estimated coefficients based on Equation 1 and 2 with child work as a dependent variable. The reduced form and 2SLS are shown in columns (1)-(3) and (4)-(6) respectively with separated analyses for children aged 6-18, 6-11 and 12-18 in 2008. Pension eligibility and receipt are associated with a reduction in child work for all children and especially older children in our sample. Overall, the incidence of children work is reduced by almost 15 percentage points in households with pension recipient(s) who were eligible after the reform. This effect seems to be mainly due to a reduction in the probability of working of older children in our sample by almost 23 percentage points. Our finding can be inferred some children either stop working, particularly in the case of

part-time labor, or that they are less likely to start to work. Similar to school enrollment, younger children experience no significant change in their work status as a result of social pension reform. In 2013, most children in the younger cohort were still at the age where full- or part-time work was very uncommon even before the reform.

5.3 Gender analyses

Further, we investigate whether male or female pensioners would favor either boys or girls in the household, and hence affecting the schooling or work decisions. Differential effects of social pension on child outcomes across genders may indicate different preferences or bargaining power within the household, as demonstrated by for example Ponczek (2011). We therefore perform further analyses separately for boys and girls in our sample and include gender-specific dummy variables to the first- and second-stage regressions indicating if male or female member(s) of the household are eligible for or currently receive pension, as described in Section 4.

School enrollment. Results for school enrollment are given in Tabel 4 in odd and even columns for boys and girls, respectively. As before, we run regressions for all boys and girls aged 6 to 18 in columns (1) and (2), sub-samples restricted to younger cohorts in columns (3) and (4), and older boys and girls in columns (5) and (6). In Table 2, pension status has no effect on school enrollment of boys and girls in the overall and younger sud-sample regardless of whether men or women received the pension. As for boys aged 12 to 18 (in 2008), our estimates provide evidence of a significant increase in school enrollment due to male pension recipients. The probability of enrollment among boys in the older cohort living with a newly eligible male pensioner is 40 percentage points higher than the control group of boys in households with no pension recipient or with those eligible before the reform. Results are similar for older boys in households with both male and female pensioners, i.e. their probability of being enrolled increases by 27 percentage points relative to boys in the control group. Yet when only female beneficiaries were present, the effect is insignificantly different from the control group. As for girls in the older cohort, pension receipt by either gender is associated with greater enrollment but coefficients are all insignificant. Since enrollment rates of girls were generally higher before the reform compared to boys in our sample (i.e. girls seem to drop out of school at later ages), our findings might be consistent with male beneficiaries supporting boys in catching up with girls in schooling.

Child work. Table 5 reports results of the gender-specific analyses described above with child work as a dependent variable. Boys do not seem to experience any significant change in their work status in response to social pension received by either men or women.

The association between pension receipt and boys' involvement in work is negative but insignificant in both young and old cohorts. Although the probability of working for girls seems to be negatively associated with having new female beneficiaries,especially in the older cohort, the first stage F-statistics from the girls sub-samples are very small. Thus, we cannot confirm any causal effects of social pension on child work due to a concern on weak IV.

5.4 Expenditure analyses

To substantiate our previous findings, we analyze how households adjust their education expenditure in response to pension receipt after the reform. We apply similar model as in Section 4 with the household-level data of our sample. 2SLS estimates of the overall effect and separated by gender of recipients are reported in columns (1)-(2) and (3)-(4) of Table 6 respectively. Education expenditure is measured using the natural logarithm and the share of total expenditure. Overall, our results provide some (albeit weak) evidence that households with newly-eligible pension recipient(s) spent more on education.

Pension receipt is associated with a rise in a proportion of education expenditure to the total expenditure. Yet it is significant only at 10% level (see column (1) and (2)). Households raise the share spent on education relative to total expenditure by 3 percentage points owing to social pension. As for school enrollment, spending on education seems to be driven by elder males receiving pension after the reform. Households with newly-eligible men spent significantly more on education but only at 10% level, as shown in column (3). This increase in financial resources invested in education corresponds to an increase in a share of education expenditure by almost 5 percentage points.

Finally, we use the same model to perform further analyses with other expenditure categories: food, non-food and health, as well as the total expenditure. Table 7 presents these results. None of the coefficients of pension receipt (neither the natural logarithm and nor the share) is statistically significant at the conventional level. Social pension does not seem to affect any other expenditure items except for the education spending.

6 Robustness Analyses

6.1 Alternative outcome variables

As part of our robustness analyses, we run further regressions to demonstrate that our findings remain largely unchanged when using alternative measures of schooling and child

work: a binary variable that indicates whether child i is a student[11], and two binary variables which were constructed excluding either domestic chores from our definition of child work, or domestic chores and work in the family farm or business (i.e. off-farm employment only). Table 8 provides results separately for all children in our sample and for the younger and older cohort. Each cell presents the estimate from a separate regression of *Pension* on the dependent variable listed in the first column. Neither the size nor the significance of coefficients changes much when using any of the alternative variables for schooling and child work.

6.2 Alternative sample definition

Since the effect of pension receipt on child outcomes is most pronounced for children aged 12 to 18 in 2008, we show that our findings are robust to alternative specifications of the older cohort. Specifically, we estimate Equation 1 for children aged 12 to 17 and 12 to 19 in 2008 and for both dependent variables – school enrollment and child work. Results are presented in column (1) and (2) of Table 9 and again, each cell presents the estimate from a separate regression. The results do not change much in terms of the size and significance of the coefficients. Finally, we conduct further analyses where we restrict our sample to households with oldest members aged 50 to 70. Thereby, we compare children in pension and non-pension households which are even more similar. Results are given by cohort in columns (3)-(5) of Table 9. The effect of pension receipt is only marginally significant, but the coefficients are of similar size compared to our main analyses in Table 2 and 3.

6.3 Placebo analyses

In the final step, we show that the above changes in schooling and child work in response to pension receipt of newly eligible elderly result from an introduction of universal public pension. In particular, we show that as a result of the targeted policy, households with pension recipients before the reform were poorer and responded differently to the transfers compared to beneficiaries after the reform.

Households with pension recipients before the reform were indeed significantly poorer compared to all other households, i.e. it seems that targeting of poor elderly before the reform was successful (at least to some extent). Median annual per capita income of households receiving pension was 784 US$ PPP compared to 1021 US$ PPP for all other households in 2008.

[11] As for children's work status, we use information reported on children's main or second occupation in order to construct the variable.

In order to investigate the response to pension receipt for the targeted policy, we conduct several placebo analyses using only pre-reform data collected in 2007 and 2008. We replicate the 2SLS estimations for school enrollment and child work, as well as those for household expenditures[12]. Results for enrollment and child work are presented in columns (1)-(3) and (4)-(6) of Table 10. Again, we provide separate estimates by age cohorts. Neither school enrollment nor children's work status was affected by pension receipt before the reform and this holds for all ages. The coefficient of pension receipt in column (5) is statistically significant, however the F-Stat is only 0.18, i.e. jointly the coefficients of the model are not significant.

Table 11 presents estimates for the pre-reform impact of pension receipt on household expenditure. The results seem to be in line with the those in Table 10. In particular, we find no evidence for households with pension income to increase expenditure on education. Moreover, households seem to adjust none of the expediture items analyzed except for health. Pre-reform pension receipt translates into an increase in health expenditure by more than 100 percentage points. This finding seems to fit into the interpretation of targeted households being poorer and therefore investing the extra pension income in more basic needs.

7 Conclusion

The reform of the social pension scheme in Thailand made public pension available to all elderly in the country. The expansion from targeting to universal coverage allows us to investigate the impact of an exogenous cash transfer on grandchildren of moderately poor elderly recipients. Our estimates suggest that children benefit to a great extent from pension received by their grandparents, yet there are considerable differences with respect to gender of the child and recipient. For boys, the probability of being enrolled in school increases significantly when living with a newly eligible male (or male and female) recipient(s). In contrast, girls are less likely to work full- or part-time when beneficiaries are female. Our estimates provide no support for pension receipt to have an effect on schooling of girls and work status of boys. Hence, in line with previous studies (e.g. see Ponczek (2011)), we find substantial evidence for differences in preferences or bargaining power of men and women within the household.

Although we argue that our findings are due to the history and characteristics of the pension system in Thailand, the implications are of general importance and they are

[12]We cannot identiy eligible individuals in the placebo analyses because pre-reform qualification criteria were not very precise. Yet age is a reasonable approximation as demonstrated by the size of the first-stage F-statistics reported below.

highly relevant for the design of pension policies (or even cash transfers in general). More precisely, we contribute to the trade-off between policies targeted to specific individuals (households) and universal programs. For instance, targeted policies might be more difficult to implement, as individuals (households) must be identified and reached – the latter might be particularly difficult to achieve in rural and remote areas (i.e. especially when targeting the poor). On the other hand, targeting might be more efficient as it may allow for smaller financial budgets compared to universal programs (e.g. for the social pension, the budget increased dramatically from 10.6 billion in 2008 (targeted) to 58.3 billion (universal)). However, as we show in this study, such an argument might ignore important effects that may occur beyond the target group itself. Such effects could be easily overlooked in particular if they were not part of a program's initial intention or primary objective. Further research is needed in order to get a more comprehensive understanding of the trade-off between targeted and universal policies.

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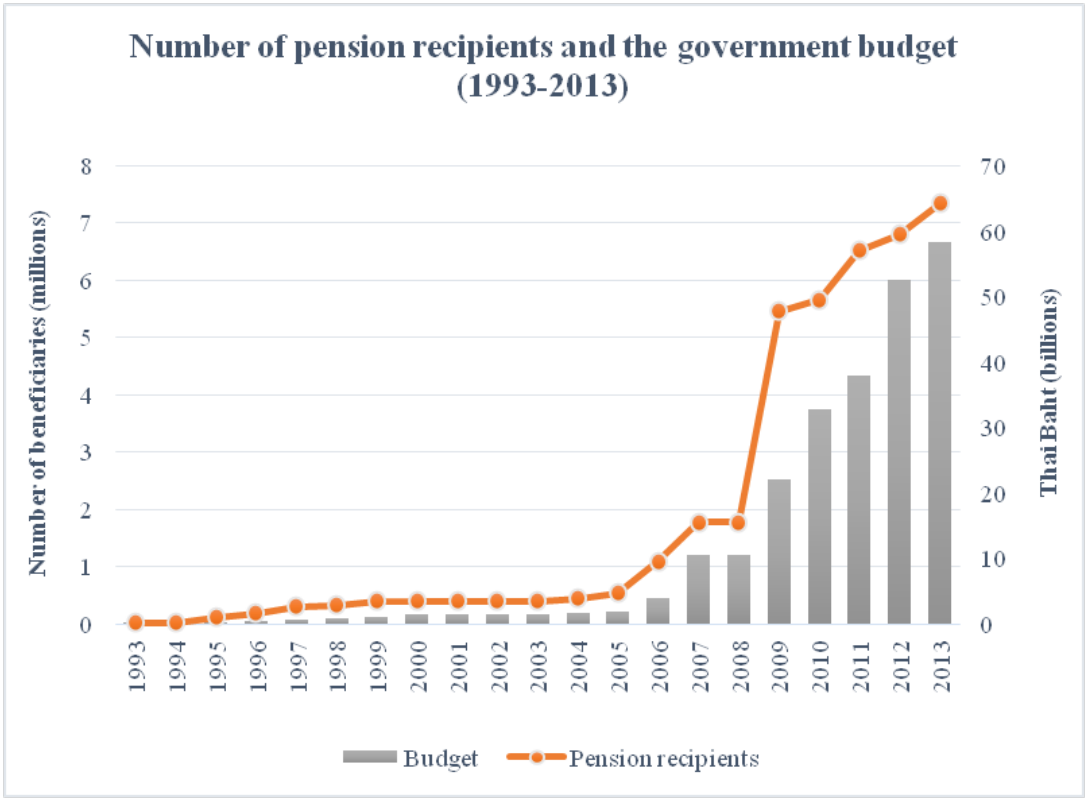

FIGURE 1: Number of beneficiaries of the social pension scheme and corresponding size of government budget in Thailand, 1993-2013 (Source: National Economic and Social Development Board of Thailand).

Table 1: School enrollment and child work (in %)

	Before reform	After reform	
	2008	2010	2013
Panel A: enrollment			
Children with newly eligible elderly	81.6	82.3	64.2
Children in control group	79.1	76.6	57.6
All boys	78.8	76.0	58.1
All girls	81.5	81.8	62.5
Panel B: Work status			
Children with newly eligible elderly	9.2	13.5	28.4
Children in control group	10.1	20.0	34.9
All boys	11.2	19.8	35.3
All girls	8.2	14.8	29.1

Note: School enrollment and work status of children aged 6 to 18 in 2008.

Table 2: The effect of the social pension on school enrollment: OLS and 2SLS

	Reduced form			2SLS		
	6-18	6-11	12-18	6-18	6-11	12-18
	(1)	(2)	(3)	(4)	(5)	(6)
Eligible HH	0.021	-0.014	0.086**	-	-	-
	(0.024)	(0.027)	(0.035)			
Pension HH	-	-	-	0.041	-0.025	0.181**
				(0.052)	(0.058)	(0.076)
Girl	0.044**	0.027	0.056*	0.044**	0.027	0.053*
	(0.019)	(0.021)	(0.030)	(0.019)	(0.021)	(0.029)
Age	0.213***	0.343***	-0.084**	0.212***	0.343***	-0.081**
	(0.013)	(0.074)	(0.034)	(0.013)	(0.073)	(0.035)
Age^2	-0.009***	-0.013***	-0.000	-0.009***	-0.013***	-0.000
	(0.000)	(0.004)	(0.001)	(0.000)	(0.003)	(0.001)
Total HH income	0.035***	0.008	0.052***	0.035***	0.008	0.054***
	(0.009)	(0.009)	(0.013)	(0.008)	(0.009)	(0.012)
Land area in 2008	0.004**	0.000	0.008***	0.004**	0.000	0.008***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
Education of HH head	0.006*	0.004	0.009*	0.006*	0.003	0.012**
	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.006)
F-statistic 1^{st} stage	-	-	-	47.65	39.73	33.93
R^2	0.355	0.293	0.362	0.353	0.293	0.345
Observations	3400	1573	1827	3400	1573	1827
Control variables						
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes	Yes	Yes

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.

Note: The sample is limited to children living in households where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 5-9 ... 65-69,70-79, 80-89 and 90+. *Pension HH* indicates whether a household member receives the pension after becoming eligible due to the reform.

Table 3: The effect of the social pension on child work: OLS and 2SLS

	Reduced form			2SLS		
	6-18	6-11	12-18	6-18	6-11	12-18
	(1)	(2)	(3)	(4)	(5)	(6)
Eligible HH	-0.063***	-0.027	-0.102***	-	-	-
	(0.023)	(0.022)	(0.035)			
Pension HH	-	-	-	-0.135***	-0.051	-0.220***
				(0.051)	(0.049)	(0.075)
Girl	-0.040***	-0.025**	-0.049*	-0.041***	-0.025**	-0.046*
	(0.015)	(0.013)	(0.027)	(0.015)	(0.012)	(0.027)
Age	-0.090***	-0.031***	0.034	-0.089***	-0.030***	0.030
	(0.008)	(0.010)	(0.035)	(0.008)	(0.010)	(0.035)
Age^2	0.005***	0.002***	0.002*	0.005***	0.002***	0.002*
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Total HH income	-0.028***	-0.017***	-0.031**	-0.028***	-0.016***	-0.033***
	(0.008)	(0.006)	(0.012)	(0.008)	(0.006)	(0.012)
Land area in 2008	-0.002	0.003*	-0.006*	-0.001	0.003*	-0.005*
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
Education of HH head	-0.005	-0.002	-0.009*	-0.007**	-0.003	-0.012**
	(0.003)	(0.002)	(0.005)	(0.003)	(0.002)	(0.006)
F-statistic 1^{st} stage	-	-	-	47.65	39.73	33.93
R^2	0.378	0.077	0.340	0.360	0.062	0.308
Observations	3400	1573	1827	3400	1573	1827
Control variables						
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes	Yes	Yes

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.

Note: The sample is limited to children living in households where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 5-9 ... 65-69,70-79, 80-89 and 90+. *Pension HH* indicates whether a household member receives the pension after becoming eligible due to the reform.

Table 4: The effect of the social pension on school enrollment by gender: 2SLS

	6-18		6-11		12-18	
	Boys (1)	Girls (2)	Boys (3)	Girls (4)	Boys (5)	Girls (6)
Male Recipient	0.164	0.021	-0.052	-0.119	0.401**	0.183
	(0.131)	(0.143)	(0.164)	(0.157)	(0.170)	(0.247)
$\Delta FemaleRecipient$	-0.146	0.020	0.001	0.106	-0.271	-0.051
	(0.168)	(0.163)	(0.179)	(0.205)	(0.241)	(0.262)
$\Delta Male + FemaleRecipient$	0.093	-0.087	0.019	-0.061	0.150	-0.090
	(0.106)	(0.094)	(0.125)	(0.122)	(0.145)	(0.140)
F-statistic 1st stage	18.34	6.81	3.95	5.21	13.42	4.01
R^2	0.354	0.367	0.388	0.324	0.317	0.380
Observations	1669	1729	793	778	876	951
Control variables						
Child and family variables	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes	Yes	Yes
Female Recipient	0.015	0.041	-0.051	-0.011	0.124	0.132
	(0.104)	(0.069)	(0.100)	(0.086)	(0.161)	(0.097)
Male + Female Recipient	0.108	-0.046	-0.031	-0.072	0.274*	0.043
	(0.109)	(0.087)	(0.137)	(0.095)	(0.148)	(0.135)

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.

Note: The sample is limited to children living in households where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for individual and household characteristics reported in Tables 2 and 3, as well as for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 5-9 ... 65-69,70-79, 80-89 and 90+. *Male (Female / Male + Female) Recipient* indicates whether a male (female / male and female) household member receives the pension after becoming eligible due to the reform. $\Delta Female(Male+Female)Recipient$ measures the additional effect if a women (men and women) receives the pension after becoming eligible due to the reform compared to a men (the individual effects of a men and woman).

Table 5: The effect of the social pension on child work by gender: 2SLS

	6-18		6-11		12-18	
	Boys (1)	Girls (2)	Boys (3)	Girls (4)	Boys (5)	Girls (6)
Male Recipient	-0.136	-0.074	-0.126	0.066	-0.213	-0.191
	(0.111)	(0.144)	(0.121)	(0.129)	(0.152)	(0.249)
$\Delta FemaleRecipient$	0.009	-0.113	0.047	-0.153	0.018	-0.072
	(0.141)	(0.168)	(0.135)	(0.165)	(0.212)	(0.282)
$\Delta Male + FemaleRecipient$	0.012	0.068	-0.088	0.017	0.039	0.110
	(0.094)	(0.085)	(0.095)	(0.083)	(0.138)	(0.138)
F-statistic 1st stage	18.34	6.81	3.95	5.21	13.42	4.01
R^2	0.389	0.336	0.080	0.070	0.335	0.301
Observations	1669	1729	793	778	876	951
Control variables						
Child and family variables	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes	Yes	Yes
Female Recipient	-0.126	-0.186***	-0.078	-0.088	-0.192	-0.263***
	(0.104)	(0.068)	(0.103)	(0.073)	(0.157)	(0.096)
Male + Female Recipient	-0.113	-0.118*	-0.164	-0.071	-0.153	-0.152
	(0.101)	(0.071)	(0.112)	(0.059)	(0.145)	(0.118)

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.

Note: The sample is limited to children living in households where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for individual and household characteristics reported in Tables 2 and 3, as well as for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 5-9 ... 65-69,70-79, 80-89 and 90+. *Male (Female / Male + Female) Recipient* indicates whether a male (female / male and female) household member receives the pension after becoming eligible due to the reform. $\Delta Female(Male + Female)Recipient$ measures the additional effect if a women (men and women) receives the pension after becoming eligible due to the reform compared to a men (the individual effects of a men and woman).

Table 6: The effect of the social pension on education expenditure: overall and by gender of recipient

	Log (1)	Share (2)	Log (3)	Share (4)
Pension HH	0.585	0.028*	-	-
	(0.393)	(0.017)		
Male Recipient	-	-	1.184	0.048*
			(0.735)	(0.028)
HH income (lagged)	0.283***	0.001	0.270***	0.001
	(0.088)	(0.003)	(0.088)	(0.003)
Land area in 2008	0.050***	0.000	0.051***	0.001
	(0.012)	(0.001)	(0.012)	(0.001)
Education of HH head	0.076**	0.002**	0.075**	0.002**
	(0.030)	(0.001)	(0.030)	(0.001)
$\Delta FemaleRecipient$	-	-	-1.014	-0.033
			(0.862)	(0.033)
$\Delta Male + FemaleRecipient$	-	-	0.159	0.011
			(0.520)	(0.019)
F-statistic 1st stage	67.18	67.18	25.74	25.74
R^2	0.165	0.082	0.165	0.081
Observations	2121	2121	2120	2120
Control variables				
Year dummies	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes
Female Recipient			0.162	0.014
			(0.472)	(0.020)
Male + Female Recipient			0.314	0.025
			(0.527)	(0.022)

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.
Note: The sample is limited to households with children aged 6 to 18 where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 20-24 ... 65-69,70-79, 80-89 and 90+ and binary variables indicating the presence of a child of age 5, 6 ... 18 and 19 separately for boys and girls. *Male (Female / Male + Female) Recipient* indicates whether a male (female / male and female) household member receives the pension after becoming eligible due to the reform. $\Delta Female(Male + Female)Recipient$ measures the additional effect if a women (men and women) receives the pension after becoming eligible due to the reform compared to a men (the individual effects of a men and woman).

Table 7: The effect of the social pension on other expenditures

	Total (Log) (1)	Food (Log) (2)	Food (Share) (3)	Non food (Log) (4)	Non food (Share) (5)	Health (Log) (6)	Health(Share) (7)
Pension HH	-0.129	-0.089	0.010	-0.201	-0.040	-0.356	-0.004
	(0.101)	(0.100)	(0.028)	(0.139)	(0.028)	(0.372)	(0.005)
HH income (lagged)	0.196***	0.159***	-0.019***	0.254***	0.020***	0.074	-0.000
	(0.019)	(0.019)	(0.006)	(0.026)	(0.005)	(0.079)	(0.001)
Land area in 2008	0.021***	0.017**	-0.002	0.025***	0.001	0.019	-0.000
	(0.007)	(0.007)	(0.001)	(0.007)	(0.001)	(0.015)	(0.000)
Education of HH head	0.039***	0.025***	-0.006***	0.049***	0.004*	0.054**	0.000
	(0.006)	(0.006)	(0.002)	(0.009)	(0.002)	(0.023)	(0.000)
F-statistic 1st stage	67.18	67.18	67.18	67.18	67.18	67.18	67.18
R^2	0.251	0.258	0.143	0.175	0.076	0.039	0.033
Observations	2121	2121	2121	2121	2121	2121	2121
Control variables							
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes	Yes	Yes	Yes

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.
Note: The sample is limited to households with children aged 6 to 18 where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 20-24 ... 65-69,70-79, 80-89 and 90+ and binary variables indicating the presence of a child of age 5, 6 ... 18 and 19 separately for boys and girls. *Pension HH* indicates whether a household member receives the pension after becoming eligible due to the reform).

Table 8: 2SLS estimation of the effect of the social pension on alternative outcome measures

Dependent variable	6-18 (1)	6-11 (2)	12-18 (3)
Student	0.06	-0.021	0.198***
	(0.054)	(0.058)	(0.076)
Child work	-0.125***	-0.063*	-0.192***
(Outside HH farm/business)	(0.046)	(0.038)	(0.072)
Observations	3400	1573	1827
Control variables			
Child and family variables	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Household composition	Yes	Yes	Yes

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.
Note: The sample is limited to children living in households where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for individual and household characteristics reported in **??**, as well as for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 5-9 ... 65-69,70-79, 80-89 and 90+. Each cell reports estimates of *Pension HH* in separate regressions, where *Pension HH* indicates whether a household member receives the pension after becoming eligible due to the reform.

Table 9: 2SLS estimation of the effect of the social pension on child outcomes with alternative sample

	Alternative cohort definition		HH with oldest member 50-70		
	12-17	12-19	6-18	6-11	12-18
Dependent variable	(1)	(2)	(3)	(4)	(5)
School enrollment	0.188**	0.143**	0.115	0.093	0.202*
	(0.083)	(0.071)	(0.070)	(0.090)	(0.106)
Child work	-0.228***	-0.181***	-0.125*	-0.073	-0.176*
	(0.084)	(0.071)	(0.069)	(0.073)	(0.104)
Observations	1594	2056	1931	982	949
Control variables					
Child and family variables	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes	Yes

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.
Note: The sample is limited to children living in households where three or more generations were present in 2008. Standard errors are clustered at the village level. All models control for individual and household characteristics reported in **??**, as well as for year dummies and the number of male and female household members in separate age groups 0-4, 5-9 ... 65-69,70-79, 80-89 and 90+. Each cell reports estimates of *Pension HH* in separate regressions, where *Pension HH* indicates whether a household member receives the pension after becoming eligible due to the reform.

Table 10: Placebo analyses: School enrollment and child work

	enrollment			Work status		
	6-18	6-11	12-18	6-18	6-11	12-18
	(1)	(2)	(3)	(4)	(5)	(6)
Pension HH	-0.028	-0.023	-0.013	0.066	0.047*	0.110
	(0.067)	(0.074)	(0.103)	(0.057)	(0.025)	(0.111)
Girl	0.017	-0.010	0.051	-0.018	-0.007	-0.034
	(0.023)	(0.023)	(0.041)	(0.017)	(0.007)	(0.035)
Age	0.311***	0.527***	0.288***	-0.123***	0.005	-0.281***
	(0.023)	(0.108)	(0.086)	(0.015)	(0.008)	(0.091)
Age^2	-0.013***	-0.025***	-0.012***	0.006***	-0.000	0.012***
	(0.001)	(0.006)	(0.003)	(0.001)	(0.000)	(0.003)
Total HH income	0.035***	0.007	0.052**	-0.013	0.004	-0.024
	(0.013)	(0.012)	(0.020)	(0.011)	(0.004)	(0.020)
Land area in 2007	-0.001	-0.001	-0.001	-0.001	-0.000	-0.002
	(0.002)	(0.002)	(0.004)	(0.002)	(0.000)	(0.003)
Education of HH head	0.003	0.004	0.005	-0.002	-0.001	-0.007
	(0.004)	(0.004)	(0.006)	(0.003)	(0.001)	(0.006)
F-statistic 1^{st} stage	93.76	58.63	72.40	91.78	59.17	71.48
R^2	0.340	0.360	0.369	0.330	-0.004	0.306
Observations	2093	1002	1091	2106	1022	1084

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.
Note: The sample is limited to children living in households where three or more generations were present in 2007. Standard errors are clustered at the village level. All models control for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 5-9 ... 65-69,70-79, 80-89 and 90+. *Pension HH* indicates whether a household member receives the pension after becoming eligible due to the reform.

Table 11: Placebo analyses: Expenditure items

	Total (Log) (1)	Educ. (Log) (2)	Educ. (Share) (3)	Food (Log) (4)	Food (Share) (5)	Non food (Log) (6)	Non food (Share) (7)	Health (Log) (8)	Health(Share) (9)
Pension HH	-0.032	0.201	0.015	-0.113	-0.035	-0.033	0.010	1.145**	0.016
	(0.130)	(0.576)	(0.019)	(0.136)	(0.038)	(0.184)	(0.039)	(0.571)	(0.010)
HH income	0.344***	0.345***	-0.001	0.243***	-0.037***	0.430***	0.040***	0.043	-0.005***
	(0.027)	(0.117)	(0.003)	(0.025)	(0.006)	(0.036)	(0.006)	(0.099)	(0.001)
Land area in 2007	0.012*	0.011	0.000	0.012**	-0.000	0.014	0.000	0.024	0.000
	(0.007)	(0.023)	(0.001)	(0.006)	(0.001)	(0.010)	(0.001)	(0.022)	(0.000)
Education of HH head	0.036***	0.056*	0.002	0.019***	-0.006***	0.045***	0.004**	0.069**	0.001*
	(0.007)	(0.031)	(0.001)	(0.007)	(0.002)	(0.010)	(0.002)	(0.032)	(0.001)
F-statistic 1st stage	113.9	113.9	113.9	113.9	113.9	113.9	113.9	113.9	113.9
R^2	0.324	0.233	0.123	0.195	0.105	0.267	0.093	0.028	0.034
Observations	1282	1282	1282	1282	1282	1282	1282	1282	1282
Control variables									
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household composition	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

***, ** and * indicate significance at the 1%, 5% and 10% level respectively. Standard errors are in parentheses.

Note: The sample is limited to households with children aged 6 to 18 where three or more generations were present in 2007. Standard errors are clustered at the village level. All models control for *Household composition*, i.e. the number of male and female household members in separate age groups 0-4, 20-24 ... 65-69,70-79, 80-89 and 90+ and binary variables indicating the presence of a child of age 5, 6 ... 18 and 19 separately for boys and girls. *Pension HH* indicates whether a household member receives the pension after becoming eligible due to the reform).