# GENDER-SPECIFIC EFFECTS ON TIME USE OF A CONDITIONAL CASH TRANSFER PROGRAM

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**Abstract**
Oportunidades, a targeted conditional cash transfer program in Mexico aimed at investing in health and education to combat poverty, has led to numerous positive outcomes. However, some argue that Oportunidades may have unintended, negative effects on women or may not do enough to empower them. This paper aims to estimate the effects of program participation on time use and investigates whether program effects are gender-specific using data from the Mexican Family Life Survey (MxFLS). We utilize matching methods and regression analysis to analyze program effects. We find mixed results of the program's effect on gender equity. Program participation has a negative effect on women's leisure, while men's leisure time is unaffected, and number of hours worked for both genders remains unchanged by program participation. Additionally, there is a negative effect on hours spent caring for children for both genders. Decreased leisure time is a cost borne solely by women, and this counteracts the program's goal of increasing gender equity. However, both leisure and time spent caring are converging among program women and men, with time spent in the former activity becoming roughly equal as a result of program participation.

**Keywords:** Oportunidades, Mexico, time use, gender equity

**Word count:** 8,639

# 1. INTRODUCTION

Oportunidades (formerly known as PROGRESA, *Programa de Educación, Salud y Alimentación* (Education, Health and Nutrition Program)) is a targeted conditional cash transfer program in Mexico intended to break the cycle of inter-generational poverty by investing in health, nutrition, and education. Prior studies have shown that Oportunidades/PROGRESA has led to positive outcomes such as increased school enrollment, increased nutrition, decreased labor market participation among children, increased use of prenatal care, and increased knowledge and use of family planning methods among women with their partners.[1] However, some argue that Oportunidades may have unintended, negative effects on women or may not do enough to empower them (Adato, de la Briere, Mindek, & Quisumbing, 2003; Molyneux, 2006). Whether the program has inequitable effects on leisure time and/or other time use for women but not men has implications, as the program purports to increase gender equity. This paper examines the effects of participation in Oportunidades on women's leisure and other time allocation using data from the Mexican Family Life Survey (MxFLS). We utilize propensity score and covariate matching to investigate Oportunidades' effect on time use and extend the analysis with cross-sectional, pooled, and difference-in-difference regression analysis to further isolate program effects and changes over time.

# 2. BACKGROUND

## 2.1 *Oportunidades/PROGRESA*

Oportunidades/PROGRESA was implemented to improve health, nutrition, and education among the poorest groups in Mexico. The program addresses these three areas together in an effort to combat intergenerational transmission of poverty. In doing so, the program recognizes that poverty is a multidimensional issue and that addressing all three issues simultaneously has greater social returns than addressing them each individually (Molyneux, 2006; Skoufias, 2005). The program began in 1997 in

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[1] The program has been extensively evaluated (Behrman & Hoddinott, 2005; Behrman, Sengupta, & Todd, 2005; Gomez de Leon & Parker, 2000; Hernandez-Prado, Urquieta-Salomon, Ramirez Villalobos, & Figueroa, 2005; Huerta & Hernandez, 2000; Lamadrid-Figueroa et al., 2008; Parker, Behrman, & Todd, 2005; Parker & Skoufias, 2000; Parker, Todd, & Wolpin, 2006; Schultz, 2001, 2004).

rural areas under the name PROGRESA (*Programa de Educación, Salud y Alimentación* [Education, Health and Nutrition Program]).  In 2000 the program was renamed Oportunidades and was extended to semi-urban areas in 2001 and to urban areas in 2002.  By 2005, the program included over 5 million families and 25 million people in all of Mexico's 31 federal entities.  Eligibility for participation in the program is determined according to a marginality index, which is designed to identify the poorest families within each community (Behrman et al., 2005).  Each household receives a discriminant score based on household characteristics such as  household head's age, occupation, and education; family assets; characteristics of the dwelling such as crowding, floor and wall characteristics, water access, and lavatory; number of school-age children; and number of children.  Then households are determined eligible for the program based on where their score falls relative to a cutoff on the marginality index, and cutoffs vary by region.

Bi-monthly cash transfers are disbursed to female heads-of-household, contingent on children being enrolled in school, families attending regular health visits, and women's attendance at monthly health promotion seminars. Mothers must also visit the clinics at least once a month to pick up supplements for targeted households members, and these visits are more frequent if they are pregnant or have small children (Skoufias, 2005).   Households headed by individuals without school-age children are also eligible for benefits, but these are lower as they do not include the education benefits (Skoufias, 2005).  The amount of the transfers depend on number and gender of the children, as payments are higher for girls and increase with increasing grade levels, due to higher opportunity costs of keeping older children and girls in school.  The program's cash benefits are equivalent to approximately one-fifth of households' pre-program expenditures (Skoufias, 2005).  Mothers are required to attend health educations seminars (*pláticas*) on topics such as prevention of health risks, malnutrition, immunizations, family planning, prenatal care, caring for newborns, breast and cervical cancer prevention, STI and HIV prevention, treatment during menopause, and treatment for infertility.  They are also required to take their children in for regular health check-ups.  Failure to comply with these requirements disqualifies families from receiving benefits.  These health education seminars are intended to empower individuals and

communities to have control over their own health.[2]

Rigorous evaluation, encouraged by the program through systematic data collection, has shown Oportunidades/PROGRESA to have many successes.  Contraceptive knowledge and use of family planning methods has increased among women with their partners (Hernandez-Prado et al., 2005; Huerta & Hernandez, 2000; Lamadrid-Figueroa et al., 2008), as has use of prenatal care in rural areas (Hernandez-Prado et al., 2005).  Additionally, the program has had a positive impact on children's school attendance and nutrition (Behrman et al., 2005; Gomez de Leon & Parker, 2000; Handa, Huerta, Perez, & Straffon, 2001; Parker & Skoufias, 2000; Parker et al., 2006; Schultz, 2001) and a negative effect on children's labor market participation (Parker & Skoufias, 2000).  However, Molyneaux (2006) argues that the program "exemplifies the maternalism at the heart of many of the new anti-poverty programmes being established in Latin America… and such programmes in effect reinforce the social divisions through which gender asymmetries are reproduced" (Molyneux, 2006, pp. 437-8).  Eligibility is conditional on "good motherhood" and "no effort is made to promote the principle that men and women might share responsibility for meeting project goals" (Molyneux, 2006, p. 438).  While building mothers' capacities and empowerment and gender equity are secondary goals of Oportunidades/PROGRESA, how these goals are operationalized and implemented is dependent on local authorities and therefore varies greatly.  Co-responsibility is an important factor in the program in an effort to move beyond the paternalism inherent in previous welfare systems.  In this manner, the community assumes responsibility for health and education.  However, Molyneux argues, this responsibility in practice is "devolved to mothers who are those designated as being primarily responsible for securing the Programme's outcomes" (Molyneux, 2006, p. 434).  These responsibilities include ensuring their children's school attendance, attending health workshops, and contributing work hours to the program through activities such as cleaning buildings and clearing trash.

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[2] The program is described in more detail elsewhere (Skoufias and Di Maro, 2008; Lamadrid-Figueroa, 2008; Behrman and Skoufias, 2006; Molyneaux, 2006; Skoufias, 2005; Behrman, Sengupta, and Todd, 2005; Schultz, 2004; Adato et al., 2003; Parker and Skoufias, 2000).

Though Adato et al. (2003) found evidence that Progresa had positive effects on women's bargaining power (i.e., men were less likely to report being the sole decision makers on health care, children's schooling, and household items), the authors also report that women enrolled in the program expressed an interest in learning additional skills that would empower them, such as reading and writing, which are not currently taught to adults under the program. A study that looked at another aspect of women's empowerment, the ability or willingness to dissolve unions as a result of participation in Oportunidades/PROGRESA, found that families eligible for transfers experienced a small increase in separation rates as compared to non-eligible families and that single women with low educational attainment experienced increased cohabitation rates (Bobonis, 2008). The former effect might be a result of women's greater empowerment and options outside of the current marriage, but alternatively it could be a result of increased conflict over control of benefits given to women. A Nash-bargaining model in economic theory suggests that the "threat point" or "outside option" of each individual in a marriage determines bargaining power (Doss, 2003; Gitter & Barham, 2008; Stratton, 2003). Cash transfers to women increase their outside options, assuming that they would be able to continue to receive these transfers were a marriage or union to be dissolved (and in this program they are).

In this paper, we investigate whether the costs of program participation, particularly the effects on leisure time, are shared unequally between men and women. Although increased leisure time for participants is not a goal of this anti-poverty program, if the costs of program participation (in the form of decreased leisure) are solely borne by women, then this would counteract the program's goal of increasing gender equity.

## 2.2 Definitions and importance of leisure

Leisure or free time is important for mental and physical well-being, as it provides individuals with time to relax and refresh after performing market and household work and has a positive effect on health (Bird & Fremont, 1991; Mattingly & Bianchi, 2003).

The simplest definition of leisure classifies all time not spent in marketplace employment as leisure. Alternative definitions of leisure subtract out an additional category for work in the home (Stratton, 2003), and some go even further to distinguish between leisure and "pure leisure," which refers to leisure time not contaminated by other tasks (Bittman & Wajcman, 2000; Mattingly & Bianchi, 2003). In the current analysis, we define leisure as time spent in activities such as reading, watching television, using the internet, and entertainment activities outside of the home (i.e., a sporting event, movie, or visiting friends/family).

### 2.3 Gender differences in leisure and time allocation

We restrict our review of related literature to developing countries for the sake of brevity, but we refer the reader to Bittman and Wajcman (2000) and Mattingly and Bianchi (2003) for examples of studies of time use in developed countries. Studies from rural, agricultural regions in developing countries show that women work longer hours than men and have less leisure (Horrell & Mosley, 2008). Poor infrastructure, such as increased distance to water sources, has been found to decrease women's leisure time (Ilahi & Grimard, 2000). Another study found that 60 percent of rural women studied had no leisure time and worked from early in the morning until late at night (Kaur & Sharma, 1991). A study conducted in Medellin, Colombia found women to have more free time than men (Bolaño, 1996). However, time use for both genders was reported by women only, so the reporting of men's activities may have been biased. The study showed that 45 percent of women interviewed never engaged in any leisure activities outside of the home, and of those, reasons included household duties, lack of money, lack of time, and lack of husband's permission.

Economic policies often affect men and women differently, and ignoring gender dimensions hides costs to women (Horrell & Mosley, 2008; Sagrario Floro, 1995; Siddiqui, 2005). For example, an increase in women's employment without a simultaneous decrease in their unpaid housework necessarily decreases their leisure time. In Africa, structural adjustment and crisis have lead to variation in gender allocation of agriculture, but men have not increased time spent in domestic chores. In Uganda

6

specifically, women have become increasingly burdened with tasks and responsibilities (Horrell &

Mosley, 2008). Siddiqui (2007) investigated the effects of economic reforms on leisure time of men and

women in Pakistan. Currently in that country, men spend on average 17 percentage points more of their

daily time on leisure activities than women. Simulations representing various trade liberalization policies

such as tariff reductions on imports showed leisure increasing more for men than for women, or in cases

where leisure decreased for both sexes, it decreased less for men.

### 2.4 Oportunidades' effect on leisure work decisions, and time use

Oportunidades/PROGRESA benefits are not affected by work decisions or income levels of the

participating households (Skoufias & Di Maro, 2008). Studies have found no evidence that

PROGRESA/Oportunidades affects labor force participation decisions for adults (Parker & Skoufias,

2000; Skoufias & Di Maro, 2008).

Studies using data from the time module included in the Oportunidades Evaluation data (ENCEL)

from 1999 found no significant effects of PROGRESA on women's leisure time (Parker & Skoufias,

2000; Skoufias & Di Maro, 2008). One of these studies found leisure time of girls to have been reduced

under PROGRESA, but found no effect for boys (Parker & Skoufias, 2000). Skoufias and Di Maro

(2008) and Parker and Skoufias (2000) studied program effects on leisure time using ENCEL, which

asked about time use for only the previous day, whereas the MxFLS surveys used in the present study ask

about time use for a week prior to the interview. The former runs a higher risk of the reference period

(one day) being atypical. Additionally, the previous studies construct leisure as a residual (the difference

between 24 hours and all reported activities), while the present study constructs leisure time by summing

reported hours spent in various leisure activities. Further, data used in the previous studies is from a time

period (1997-1999) when only rural households were included in PROGRESA, while the current study

analyzes the program effects on leisure and other time allocations using more current data (2002-2005),

which includes both rural and urban households. However, the advantage that those two studies have

over the current analysis is that they utilize the experimental design of the early years of PROGRESA to

evaluate program effect. This is no longer possible, since control localities have been integrated into the program.

The analysis presented here examines the gender-specific effects of Oportunidades on leisure and other time uses in an effort to determine whether the program leads to unintended costs that may be borne more heavily by women.

## 3. METHODOLOGY

We are interested in the average impact of Oportunidades participation on each time-use category for the "treatment" group, i.e. those individuals who participate in Oportunidades. Denote $Y(1)$ the time-use outcome of individual who participates in Oportunidades and $Y(0)$ the outcome if the individual did not participate in Oportunidades. Thus, if $Y(1)$ and $Y(0)$ were both observable, we could specify the average impact of the treatment ($ATT$) on the treated as:

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\begin{aligned}
ATT \quad &= \quad E(Y(1) - Y(0) \mid X, W = 1) \\
&= \quad E\big(Y(1)|X, W = 1\big) - E\big(Y(0)|X, W = 1\big),
\end{aligned}
\tag{1}
$$

where $W = 1$ indicates program participation, $W = 0$ otherwise, and $X$ is a vector of exogenous covariates describing the household characteristics of an individual. However, $E\big(Y(0)|W = 1\big)$ is unobserved and, therefore, the matching process must create a statistical comparison group by creating a group consisting of individuals with similar characteristics to individuals in the treatment group. Households receiving Oportunidades benefits are generally poorer than the rest of the population. Because households were determined eligible for program participation based on a determinant score on the marginality index, some households fell just above the cutoff and therefore have been ineligible for benefits. We expect these households to be very similar in characteristics that determine eligibility to those just under the cutoff. Due to data constraints, we cannot perform regression discontinuity analysis (though it has been done using Evaluation Surveys of PROGRESA (ENCEL)(Buddelmeyer & Skoufias, 2004). However, the similarity between program households and some non-program households allows for creation of a reliable comparison group using propensity score matching.

8

### 3.1 Propensity score matching

Propensity score matching estimates this treatment effect by matching participants with non-participants based on the degree of similarity of likelihood of participating in the program (Smith & Todd, 2005). This likelihood is estimated using a logit equation, and the predicted probability is called the "propensity score." After the propensity score is predicted, we apply the kernel matching estimator, which uses multiple non-participants to construct the estimated counterfactual outcome.

To predict the probability of participation in Oportunidades, we estimate a logit regression. Covariates in the logit regression include household head's education, household head's age, whether any member of the household speaks an indigenous language, total number of children in the household under the age of 18, ratio of children to adults, the crowding index, material used in floor and ceiling, whether the dwelling has electricity, and whether the dwelling is in a rural area. We also include the squared term of the dependency ratio and the following interactions: crowding times household head's preparatory level of education and dirt floor times the dependency ratio. The aforementioned covariates are likely to affect both the probability of participating in the program and the time use outcomes being evaluated but are unlikely to have been greatly influenced by program participation, conditions which are necessary for the technique to be valid (Handa & Maluccio, 2010; Heckman & Navarro-Lozano, 2003; Smith & Todd, 2005). Since pre-program data on time use is not available for either group (most program participants were enrolled prior to 2002), the assumption implicit in this cross-sectional analysis is that time use of program participants before entry into the program was the same as that of the comparison group.

After running the logit regression, we predict the odds-ratio, or probability of participating, for each household. In the propensity score matching, we consider only observations that lie on the common support. To impose common support, we retain those households from both distributions (participating and non-participating households) that have propensity scores above the larger of the minimum propensity scores for the two distributions and below the smaller of the maximum propensity scores. Balancing tests are then performed to ensure that mean propensity scores and mean values of the

9

covariates are "balanced" (i.e., not statistically different) within quintiles of the propensity score between treatment and comparison group households.

We create a comparison group utilizing a kernel estimator, which gives a large weight to observations with similar propensity scores and smaller weights to those with larger deviations (Kadiyala, Quisumbing, Rogers, & Webb, 2009; Smith & Todd, 2005):

$$ATT_{PSM} = \frac{1}{N_T} \sum_{i \in T} \left[ Y_i(1) - \frac{\sum_{j \in C} Y_j(0) K\left( \frac{P_j(X) - P_i(X)}{b} \right)}{\sum_{k \in C} \left( \frac{P_k(X) - P_i(X)}{b} \right)} \right],$$

where $T$ and $N_T$ represent the treatment group and number of individuals in the treatment group, $C$ represents the comparison group (i.e. non-treated individuals that fall within the common support), $K$ represents the epanechnikov kernel function with bandwidth $b$, and $P = \Pr(W = 1 | X)$.[3]   Finally, we create standard errors of $ATT_{PSM}$ by way of bootstrapping.[4]

Critiques of propensity score matching methodology in evaluating program effects suggest that if the following conditions for the treatment and comparison groups are not met there will be bias in the estimators (Handa & Maluccio, 2010; Heckman, Ichimura, Smith, & Todd, 1998; Heckman, Ichimura, & Todd, 1997; Smith & Todd, 2005):

1) same data sources are used;
2) participants and non-participants reside in same labor market (when looking at labor outcomes);
3) data contain a rich set of variables that affect both participation and outcomes; and
4) selection into the program is entirely on observables.

In the present study, comparison and treatment groups are contained in the same dataset, the data contain a rich set of variables that affect both participation in the program and time use, and program participation

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[3] We utilize a bandwidth of 0.06 in our final results.  However, our results remain robust to minor changes in this parameter.
[4] While Abadie and Imbens (2008) show that bootstrapped standard errors for PSM using the nearest neighbor matching are invalid, Kadiyala et al. (2009) note, the kernel matching estimator is not subject to the same criticism due to the increased number of matches as the sample size increases.

is virtually universal conditional on eligibility (i.e., it is not a decision, which would entail selection based on unobservables); therefore this analysis is a good candidate for propensity score matching.

### 3.2 Covariate Matching

As an alternative matching approach, we conduct estimations based upon the nearest neighbor covariate matching estimator (Abadie, Drukker, Leber Herr, & Imbens, 2004; Abadie & Imbens, 2006).[5] The covariate matching estimator creates the missing comparison observation by using the average outcome for $M$ individuals with similar covariates as the treatment individual. More explicitly, the $m$ th nearest neighbor is the comparison individual with a vector of covariates $X_k$ that has the $m$ th smallest normalized distance from the treatment individual's vector of covariates, $X_i$, where such distance is calculated as

$$d_m = \left[ \left( X_i - X_k \right) V \left( X_i - X_k \right) \right]^{\frac{1}{2}},$$

where $V$ is the inverse variance matrix, which we utilize to address differences in the scale of covariates. Comparison observation $k$ is considered a match if it is one of the $m \leq M$ closest comparison observations to treatment observation $i$. Let the indicator $I_{ik}$ equal one if comparison observation $k$ is a match for treatment observation $i$ and zero otherwise.

The above matching procedure results in $G_m(i)$ matches for each treatment observation $i$.[6] Each comparison observation is used with replacement when matched to different treatment observations and, therefore, the number of times comparison observation $k$ is used is $N_k \geq 1$, where $N_k > 1$ if comparison observation $k$ is a match for more than one treatment observation. This varying impact across comparison observations requires weights in the calculation of the treatment effect. Let the

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[5] As noted earlier, nearest neighbor matching based upon propensity scores results in invalid standard errors (Abadie and Imbens 2008). Therefore, we apply the covariate matching estimator of Abadie and Imbens (2006) and Abadie et al. (2004) using the same covariates as the PSM estimation.

[6] In the case of ties between two (or more) comparison observations, we utilize both (or more) observations, such that the nearest $M + 1$ (or more) neighbors are used. In the case without ties, $G_m = N_T * M$.

number of times that comparison observation $k$ is used, weighted by the total number of matches for each $i$ be denoted as

$$H(k) = \sum_{i \in T} \frac{I_{ik}}{G_m(i)}.$$

The above matching procedure and corresponding weighting scheme can now be used to estimate the average treatment effect of the treated from (1) as:

$$ATT_{CM} = \frac{1}{N_T} \sum_{i \in T} Y_i - \frac{1}{N_T} \sum_{k \in C} H(k) Y_k. \qquad (2)$$

### 3.3 Bias-Corrected Covariant Matching

The estimator in (2) utilizes the nearest neighbor matching method of Abadie and Imbens (2006) and Abadie et al. (2004), which matches each treatment observation to the nearest $M$ observations as indicated above. However, Abadie and Imbens (2006) and Abadie et al. (2004) also note that for finite samples matching across covariates is not perfect and suggest that such differences in covariates may lead to a bias in $ATT_{CM}$. However, they suggest that the bias term can be partially removed by regression adjusting the difference of each match given the differences in their covariates. Let

$$\hat{\mu}(X) = \hat{\beta}_0 + \hat{\beta}_1 X,$$

where $\hat{\beta}_0$ and $\hat{\beta}_1$ are obtained from regressing covariates on the outcome variable using only the matched observations with weights $H(k)$. The predicted outcome variable for the comparison with treatment observation $i$ with covariates $X_i$ is now $\hat{\mu}(X_i)$, the matched outcome is

$$\hat{Y}_i(0) = \frac{1}{G_m(i)} \sum_{k \in C} I_{ik} \left[ Y_k + \hat{\mu}(X_i) - \hat{\mu}(X_k) \right],$$

12

and the estimator from (1) becomes[7]

$$ATT_{BCM} = \frac{1}{N_T} \sum_{i \in C} \left[ Y_i - \hat{Y}_i(0) \right].$$

### 3.4 OLS regressions

Next, we run ordinary least squares (OLS) regressions on the matched sample to account for any potential, additional differences due to individual characteristics, which were not already addressed in the prior matching process. We use a dummy variable for program participation and control for individual- and community-level characteristics, including child age dummies, age, marital status, whether the individual speaks an indigenous language, level of education, urbanicity, and region of residence. Standard errors are corrected for clustering at the locality level to control for unobserved community-level factors that might influence time use. We perform a robustness check, where we log hours spent in each activity and right hand-side continuous variables to address the right-skewed distributions of reported time use; 0.01 is added to all zero values of reported time use before logging.

### 3.5 Longitudinal analysis

Next, we use observations from individuals in the treatment and comparison groups who are included in both Waves I and II and perform pooled and difference-in-difference regressions. In these regressions, we use only data from individuals living in rural areas. Data on households' program participation at Wave II is not provided in the data. This is problematic for the urban sample, but not for the rural sample, as all rural households eligible for the program were incorporated prior to 2002. Urban households were incorporated between 2002 and 2005. Therefore we may make the assumption for rural households that those participating at Wave I are participating at Wave II and that those not participating will not participate at a later date. However, we cannot make the same assumption for urban households.

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[7] We refer the reader to Abadie and Imbens (2006) and Abadie et al. (2004) for the derivation of the variance of the two covariant matching estimators.

The difference-in-difference analysis takes the change over time and differences out any fixed effects due to unobserved heterogeneity between treatment and comparison groups, and the model is specified as follows:

$$T_{it}^{j} = \beta_0 + \beta_1 D_i + \beta_2 t + \beta_3 D_i * t \ + \ X_{it}\mathrm{B} + \varepsilon_{it},$$

where $T_{it}^{j}$ is time spent in activity $j$ by individual $i$, $D_i$ is equal to one if the individual participates in Oportunidades and zero otherwise, $t$ is equal to zero in 2002 and one in 2005, and $X_{it}$ is a vector of other time-varying covariates. The difference-in-difference estimate of the change in program impact is equal to $\beta_3$. Since $T_{it}^{j} = 0$ refers to a point post-enrollment, our DD estimator represents the change in the program effect, not the total program effect, as it would if $T_{it}^{j} = 0$ were pre-enrollment.

## 4. DATA

While the Oportunidades program does provide official data for evaluation purposes, the data used in this analysis comes from a separate survey, the Mexican Family Life Survey (MxFLS)[8]. Selected years from the official Oportunidades Evaluation data do have information on time use (rural datasets in 1999 and 2003 and urban datasets in 2002, 2003, and 2004). However the questions asked on time use are inconsistent across years and in urban versus rural areas. Most importantly, leisure activities are only reported in two of the aforementioned datasets (neither of which are from rural areas, where Oportunidades has a greater reach), and the leisure activities addressed are limited to watching television

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and reading.  The MxFLS data ask consistent time use questions in all areas and both waves and include additional questions on entertainment activities performed outside the home and use of the internet.  Since the MxFLS dataset has more extensive information on leisure activities and ask the same questions across regions and time, we have chosen to use this dataset for the present analysis.

The data used in this analysis are from Waves I and II of the Mexican Family Life Survey (MxFLS), which is a longitudinal, nationally, representative database initiated to better understand the social, economic, demographic and health transitions occurring in Mexico (Rubalcava & Teruel, 2006). The study is expected to continue for at least 10 years from the start date.  Wave I (MxFLS-1) was collected in 2002 and the data were made available publicly in 2004.  Wave II (MxFLS-2) was collected in 2005 and 2006 and the data were released in 2008.  The baseline survey is a stratified, multi-stage sample of dwellings in Mexico.  Approximately 8,440 households and over 35,000 individuals were interviewed at Wave I.  All household members ages 15 and above were interviewed, and proxy interviews for children under the age of 15 were conducted with their parents (Rubalcava & Teruel, 2006).  We utilize data from both available waves.  Data on whether households participate in Oportunidades is not provided at Wave II, and we assume that participation did not change between 2002 and 2005, for rural households, though we may not make this assumption for urban households, which were enrolled between 2002 and 2005.  Wave I includes information on 8,441 households.  The sample used in this analysis is limited to households with at least one child age 18 or younger at Wave I.  The sample is further limited to only households with non-missing values for all variables used in the logit regression to determine propensity scores.   At the individual level, all males and females age 15 or older with at least one child age 18 or younger living in the same household an non-missing variables for all covariates used in the analysis are included.  Our reason for limiting the sample to only those individuals with at least one of their own children in the household is that families must have school age children to qualify for Oportunidades benefits[9], and if an individual lives in a participating household but has no

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[9] There was previously a more limited program for senior citizens, which has since been discontinued.

children of his or her own, then that individual would not generally be the person responsible for fulfilling Oportunidades requirements.

Covariates in this analysis include household- and individual-level variables. Household variables include household head's highest completed level of education (classified as none, elementary, secondary, preparatory, and college), household head's age, total number of children in the household age 18 or under, ratio of children to adults, a crowding index (total number of people in the household divided by total number of rooms used exclusively for sleeping), material used in the floor (made of dirt v. other) and ceiling (made of cardboard, bamboo, palm v. other), whether the dwelling has electricity, and whether the dwelling is in a rural area. Rural is defined as communities with populations below 2,500 for purposes of this analysis. A final household-level variable is region (Pacific North, North Central Gulf, Bajio, Central region and Mexico City, Southeast).

Individual-level variables include dummy variables indicating whether the respondent has any children in the household in the following categories: zero to five years, six to ten years, 11 to 15 years, and 16 to 18 years; age; marital status (married, consensual union, separated/divorced/widowed, single); whether the individual speaks an indigenous language; education (none, elementary, secondary, preparatory, college).

In the first set of regressions, we estimate separately for the male and female samples the likelihood of participating in Oportunidades, where the dependent variable is equal to one if the household participates and covariates include the aforementioned household-level characteristics. Next, in the propensity score matching, individuals are matched on each outcome variable separately, including weekly hours spent in leisure, cooking, cleaning, caring for children or elderly, helping with homework, collecting firewood, collecting water, and working. The only variable measured on a daily basis is sleeping. Finally, in the regression analysis, the dependent variables are number of hours spent in each activity (leisure, cooking, caring for children/elderly, helping with homework, collecting firewood, collecting water, cleaning or washing clothes, and working) per week and daily sleep. We also perform

16

robustness checks where the dependent variable is logged time use to correct for skewness in the distributions of reported hours.

## 5. RESULTS

### *5.1 Individual and Household Descriptive Statistics*

There are 5,692 households with non-missing values for all covariates used in the analysis. Of these, 4,699 did not participate in Oportunidades and 993 did participate at Wave I. Household characteristics differ between program-participating and non-participating households. For example, among those in the program, 21 percent have a household head with no education, while this is true for only eight percent in non-program households (Table 1). Program households tend to have more children under the age of 18 and higher crowding indexes and dependency ratios. They are also much more likely to have walls and floors made out of inferior materials.

[Table 1 approximately here]

In the individual-level analysis, which composes the majority of the results presented here, we limit our sample for analysis to individuals with non-missing values for all of the time use activities and covariates used in this analysis (n=5,290 for women and n=3,746 for men). For the longitudinal analysis, we limit our sample to comparison (i.e., matched) and treatment individuals with information at both waves (n=2,434 for women and n=1,588 for men).

Female characteristics vary across the samples (Table 2, Part A). As we move right in Table 3A, we see that the matched sample (Column 4) resembles the treatment group (Column 5) more closely than the non-matched sample (Columns 2 and 3). For example12 percent of the comparison group and 18 percent of Oportunidades women have no education; this compares to only five percent of the unmatched sample. Age and marital status are similar across the columns. One covariate that stands out as being different between the treatment and comparison groups is whether the person speaks an indigenous language (25% and 8%, respectively).

For men, characteristics among the treatment and comparison groups are also similar as compared to the non-matched sample (Table 2, Part B). Similarly to the female sample, speaking an indigenous language stands out as the most dissimilar covariate between the treatment and comparison groups (27% and 13%, respectively).

[Table 2 approximately here]

Time use also varies across samples. In the overall sample, females spend on average most of their time caring for children/elderly (21.42 hours) and in leisure activities (13.59 hours), while males spend the most time working (43.62 hours) and in leisure activities (13.00 hours) (Table 3). However, in the comparison and treatment groups, women spent more time cooking (12.89 and 13.16 hours, respectively) and cleaning (13.01 and 13.60 hours, respectively) than they did in leisure activities (12.27 and 9.17 hours, respectively). As for males, paid work and leisure were the main activities in all groups. In general, men spend the least amount of their time in activities such as collecting firewood and water, helping with homework, cooking, and cleaning. Females spend the least amount of their time helping with homework and collecting water and firewood.

[Table 3 approximately here]

## 5.2 Matching

### 5.2.1 Primary Matching Results

The results for the propensity score and covariate matching for females and males are presented, respectively, in Parts A and B of Table 4.[10] Column 1 represents the mean of the weekly number of hours spent on each category for the treatment group.[11] Columns 2 and 3 denote the average treatment effect of the treated using PSM ($ATT_{PSM}$) and the standard error, respectively. Results suggest that women

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[10] Prior to performing matching, logits were run for males and females separately predicting participation in Oportunidades. The covariates in these logits are the household-level variables described above. Covariates positively correlated with program participation include low levels of education, increasing number of children under the age of 18, increasing crowding indexes and dependency ratios, and having dirt floors in the dwellings.

[11] With the exception of sleep, which is measured daily.

participating in Oportunidades have on average 2.18 hours less leisure time than their matched

comparison group (p<.01). Furthermore, women in the treatment group allocate 3.33 hours less time

towards child and elder care. No other differences in time use for females are statistically significant.

Columns 4 through 7 show the average treatment effect of the treated and standard errors using the two

covariate matching estimators, $ATT_{CM}$ and $ATT_{BCM}$. For both methods, the difference in leisure time

remains statistically significant and similar in magnitude as compared to the PSM with values of 1.89

hours and 1.60 hours, respectively. As results in the kernel PSM also indicate, females participating in

Oportunidades spend less time caring for children and elderly.

Males that participate in Oportunidades spend less time caring for children and the elderly, but

more time collecting firewood than individuals in their matched comparison group, a finding that occurs

at mixed significance levels across the three matching methodologies (Table 7, Part B). Differences for

all other categories are insignificant. Treated males have no significant difference in their leisure time.

These results suggest that males do experience a reallocation of their time use, but this is a reallocation of

time from child and elderly care (0.71-1.20 hours) to collecting firewood (1.07-1.23 hours), which leaves

time allocated to leisure and other activities unchanged.

[Table 4 approximately here]

### 5.2.2 Robustness checks

We extend the matching analysis to include two additional matching variants, each of which we

conduct using both the covariate matching and bias adjusted covariate matching techniques. First, we

restrict the sample to those individuals with a spouse or partner in the same household for whom data is

also available. We refer to this subsample as the "paired sample." Next we restrict possible matches to

other individuals with the same urban-rural classification. Accordingly, individuals in urban areas are

only matched to individuals also residing in urban areas, etc. This approach accounts for unobserved

differences across matches that may influence the time allocation of otherwise identical individuals.

19

Table 5 shows the results of our robustness checks.  Columns 1 and 2 of Part A indicate the average treatment effect and standard error for females in the paired sample using the unadjusted method, while columns 3 and 4 indicate the values for the bias-adjusted matching method.  Columns 1 through 4 in Part B provides similar results for males.  The results in Table 5 are relatively similar in sign, significance, and magnitude to the prior covariate matching results.  The difference in leisure for females as compared with the unrestricted match increases from 1.89 to 2.01 hours in the unadjusted difference and from 1.60 to 1.85 hours in the case of the bias-adjusted results.  Similarly, the treatment effect on hours spent on child and elder care also increases for both methods.   The results for males remain relatively unchanged, with offsetting effects for collecting firewood and caring for children and elderly and no program effect on leisure.

The remaining columns of Table 5 contain the results of the exact urban/rural matching results.  As compared with the baseline results presented in Table 4, these results show that the treatment effect on female leisure mildly increases in magnitude and the time allocation of child and elder care mildly decreases in magnitude ($p<.01$).  Part B of Table 5 shows similar results for males.   Three effects are significant at the 0.05 level or better under this alternative matching scheme.  The first two effects, child and elder care and collecting firewood, are similar to baseline results.  The third significant treatment effect is on daily sleep, which suggests that the sleep of treated males declines by a small, but statistically significant amount.

[Table 5 approximately here]

*5.3 Cross-sectional analysis (Wave I only)*

*5.3.1 Full matched sample*

After controlling for additional, individual characteristics in the full, matched sample, the program effect on leisure attenuated from that seen in the PSM results, but women in Oportunidades still spent on average 1.09 hours less per week in leisure activities than women in the comparison group ($p<.05$; Table 6, Column 1).  Hours spent caring for children also remained significantly different

between program participants and the comparison group (2.48; p<.05). Differences between groups in hours spent collecting firewood was also significant. Program effects in the logged specifications were only significant for leisure (p<.10) and collecting firewood (p<.05; Table 6, Columns 3).

Other covariates negatively correlated with leisure include age, speaking an indigenous language, being in a consensual union or separated/widowed/divorced (as compared to being married), having children in four of the five age categories, and living in a rural area. Increasing levels of education had a positive effect on leisure time. Regional differences were also observed, as women in the Pacific North and North Central Gulf regions had significantly more leisure time than women in other regions (results not shown; tables available upon request).

For men, the effect of Oportunidades on time spent collecting firewood attenuated after adding additional controls (Table 6, Columns 2 and 4). Program participants spent on average 0.8 more hours per week in this activity than men in the comparison group. Program participation was negatively correlated with time spent caring for children and/or elderly (-0.77 hours). In contrast to the women's results, there was no program effect on leisure for men.

While there was no program effect, other covariates that were negatively correlated with leisure time for men include having no education and living in a rural area. The strongest negative effects of the child age dummies were for those having children ages six to ten and 16 to 18. Increasing levels of education and being single were positively correlated with leisure time. Similarly to women, men in the North Central Gulf region also had significantly more leisure time than men in other regions (results not shown; tables available upon request).

### 5.3.2 Paired sample

When restricting our analysis to only men and women with spouses or partners also in the dataset, we find a program effect on leisure similar in magnitude to that in the full sample (-0.99 v. -1.09), but the significance level increases to p<.10 (Table 6, Columns 5 and 7). The program effect on leisure in the logged specification is also p<.10. No other program effect for women is significant in the paired sample, with the exception of the hours worked regression in the log specification (-0.30; p<.10).

For men, there is a positive program effect on collecting firewood (0.92; p<.01 in the level specification and 0.45; p<.01 in the log specification) and sleeping (-0.10 in the level specification and -0.02 in the log specification; p<.10 level specification; Table 6, Columns 6 and 8).

Contrary to the full sample results, there is no effect on time spent caring for children for either men or women.

[Table 6 approximately here]

### 5.4 Pooled and difference-in-difference analysis  (Waves I and II, rural only)

### 5.4.1 Full matched sample

In the full sample, the pooled analysis continues to show a significant, though smaller in magnitude, effect of program participation on leisure among rural women (-0.91; p<.05).  This result was only significant in the level model and not the log specification (Table 7, Columns 1 and 3).  Also in the pooled analysis, program women spent less time helping children with homework than women in the comparison group (-0.35 in level specification and -0.15 in log specification; p<.10).  The only significant effect for men in the pooled analysis was on collecting firewood; participants spent approximately half an hour more than men in the comparison group collecting firewood (0.63 in level specification and 0.30 in log specification; p<.05).  For men, there continued to be no program effect on leisure.

The difference-in-difference estimates from the level model show that there is no change in the program effect on leisure between Waves I and II for women (Table 7, Columns 5 and 7).  There is a positive change in the program effect of caring for children and a negative change in the program effect on collecting firewood.  In the log specification only, there is a negative change in the program effect on cooking.  Among men, we see a negative change in the program effect on collecting firewood and a positive change in the effect on sleeping.  The former effect indicates that although men in the program spend more time collecting firewood than their matched counterparts, over time they are spending less time in this activity.

[Table 7 approximately here]

22

*5.4.2 Paired sample*

In the paired sample pooled analysis, there was again a negative effect on leisure for women which was significant in the level model (-1.01; p<.05) but not in the logged model. A negative program effect on working was again evident in the logged specification (-0.28; p<.05). Among males, only collecting firewood showed a significant program effect (0.72 and 0.32 in level and log specification, respectively; p<.01).

In difference-in-difference estimates, there is no change in the program effect on leisure between Waves I and II for women (Table 8, Columns 5 and 7). The change in the program effect for women on helping with homework, cleaning and colleting firewood is negative. For men, there is also a negative change in the program effect on collecting firewood.

Similar to the cross-sectional analysis, we find no effect on time spent caring for children among either gender in the paired sample, which contrasts with findings from the full sample.

[Table 8 approximately here]

## 6. DISCUSSION

Overall, robust program effects include decreased leisure for women, increased time spent collecting firewood among men, and decreased time spent caring for children among both genders. It might be argued that the program effect on leisure for women found in this analysis was not a real program effect, but rather resulted from the fact that the matching was not sufficient and program participants were poorer than the comparison group. However, because there was a significant program effect on leisure for women, but no effect for men, this suggests that the finding is due to time requirements imposed by Oportunidades on women. If the effect were simply a result of poorer program participants consuming less leisure, then we would expect to see a result for both men and women participating in Oportunidades.

The results presented here provide mixed evidence for the effect of Oportunidades on gender equity. It appears that costs of program participation are borne mostly by women. Although women

23

spend less time caring for children, they lose out on leisure time. While it is impossible to determine from the data where this lost time is now being spent, a plausible explanation is that the time is being taken up with program requirements, such as health chats, waiting in line for cash benefits, and community service requirements. Changes in men's time allocation are offset; they spend less time caring for children and more time collecting firewood, but in virtually equal amounts. Women's time allocation was more dramatically changed. Though leisure only decreased by roughly an hour on average, women in the program and comparison groups averaged only nine to 12 hours of leisure per week, and the overall decrease is approximately a tenth of this. Furthermore, the amount of women's time spent caring for children and elderly decreased by 2.5 hours on average.

Despite the fact that costs (in the form of decreased leisure) appear to be borne by women only, our results provide some evidence for increasing gender equity in time use allocation. While program women spend fewer hours in leisure activities than their non-program counterparts, they spend on average more time in leisure activities than program men (9.17 v. 8.94 hours). Conversely, females and males in the matched sample spend 12.27 and 10.88 hours, respectively, in leisure activities. The effect of program participation is thus a convergence of time spent in leisure activities between the genders. Further evidence of the convergence of time allocation can be seen in the amount of time spent caring for children. While the program effect for both men and women is less time spent caring for children, the effect for women is much larger, again suggesting a convergence. However, time allocation in this category remains heavily skewed toward women, who spend on average 18.5 hours per week caring for children and elderly, as compared to only 1.66 hours for men (among program participants). Further evidence of increasing equity is seen in results from the paired analysis, which shows a significant program effect of approximately one hour of time reallocation per week for both men and women. Women lose one hour of leisure time, while men add one hour of collecting firewood.

Estimates in the difference-in-difference analysis suggest that, over time, allocation of time use might be reverting back to original distributions. That is to say, although women spend less time caring

24

for children as a result of the program and men spend more time collecting firewood, the changes in these program effects over time among rural individuals are positive and negative, respectively (the former is only significant in the full matched sample). This suggests an attenuating program effect over time. However, we found no significant changes in the program effect on leisure for women.

We find very little evidence for a program effect on hours worked per week for men or women in either the propensity score matching analysis or the OLS regressions. This finding is supported by previous studies that found no effects of Oportunidades on labor supply (Parker & Skoufias, 2000; Skoufias & Di Maro, 2008).

Why program participants might spend significantly less time caring for children and elderly people is not able to be determined from this analysis. However, previous studies have shown the program to have a positive effect on school attendance (Schultz, 2004), so parents may be spending less time caring for children simply because their children are now spending more time in school. Additionally, women often have to travel one or two hours to sites where they receive their benefits and then may have to wait another two hours in line (Lopez Rivera, 2003). During this time, they often ask someone to watch their young children, so this may be another reason why they spend less time on average caring for their children.

The effects of program participation on time use among men were robust for two activities: collecting firewood (positive) and caring for children (negative). The magnitude of these program effects suggest that they roughly offset one another, which leaves men's leisure time statistically unchanged. It is possible that the task of collecting firewood is often delegated to children and as they spend more time in school, the task now falls to fathers. For all other outcomes, there were no effects of program participation, suggesting that Oportunidades has a limited effect on men's daily lives. Conversely, while women are able to spend fewer hours caring for children and the elderly, they still have less leisure time, so some other activity is taking up this time.

Oportunidades lists increasing gender equity as one of its secondary goals. While the primary purpose of giving the transfers to women as opposed to men is because payments received by women

tend to have greater effects on improving children's health and schooling (Gitter & Barham, 2008; Haddad, Alderman, & Hoddinott, 1997; Schultz, 1990; Thomas, 1990), it is seen as an added benefit that this scheme should also empower women. However, the structure of program requirements reinforces the stereotype that women are the caregivers and are primarily responsible for children's care. Therefore while increasing women's well-being in one way (i.e., increased household decision-making relative to males through control over cash transfers), the program may hinder future advancements in gender equity and does nothing to change attitudes toward gender roles for adults currently in the program. In fact, it may promote the idea that a woman's role is to care for her family and does not recognize that she has individual needs of her own (Tepichín Valle, 2005).

There may however be long term advances in gender equality for children currently enrolled in the program, as this may occur naturally with their increased educational attainment. As girls achieve higher levels of education, their future options for work will increase. Higher educational attainment may also increase participating females' marriage options and should increase their bargaining power within marriage.

### 6.1 Limitations

The weekly measurement of time use in this study is superior to studies that measure time use for only one day because it reduces the probability that the reporting period was atypical. However, all time use survey instruments have limitations. In this study, respondents were asked to summarize their time spent in a list of activities over the previous week. Some domestic activities are performed while socializing or listening to the radio, so a strict demarcation between work and leisure may not exist (Sagrario Floro, 1995). Multitasking decreases the ability of quantitative surveys to fully capture individuals' time use, but the effect is greater for women than men because women spend more time in childcare and other activities where multitasking is more common (Bittman & Wajcman, 2000; Mattingly & Bianchi, 2003). Additionally, all time use is self-reported, which is subject to recall bias. However, studies have shown that recall can be highly inaccurate, even for events in the past two days (Engle &

Lumpkin, 1992; Klumb & Perrez, 2004). Individuals may also misreport information based on social

desirability and expectations about gender roles (i.e., men may underreport unpaid work) (Klumb &

Perrez, 2004; Press & Townley, 1998). Furthermore, the categories under which individuals were

allowed to classify their time in the MxFLS survey may have been biased toward one gender. For

example, several of the categories might be viewed by some as predominantly within the female domain,

including cooking, cleaning, and caring for children/elderly. Categories for other important daily

activities such as eating and grooming were not included in the survey instrument. This omission should

lead to underreporting of total time use, and indeed we do find underreporting; the average woman in the

overall sample accounted for 152 hours of her time and the average man accounted for 123 hours in a

week, which is made up of 168 total hours. However, we have no reason to believe that these omissions

would bias the reported time use for categories analyzed here.

Previous studies looking at the effects of Oportunidades/PROGRESA on time use have exploited

the experimental design of the early years of PROGRESA (1997-1999) (Parker & Skoufias, 2000;

Skoufias & Di Maro, 2008). The present study relies on the methods of propensity score and covariate

matching to construct a comparison group, since an experimental design with control groups does not

exist for more recent years. Another important limitation that arises from using MxFLS data instead of

the official ENCEL data from Oportunidades/PROGRESA to study program effects is that in MxFLS

only contemporaneous measures of household wealth are available to perform matching, whereas studies

using ENCEL data can assess a household's wealth before PROGRESA began in 1997. If program

participation has had significant effects on the variables used in matching participating and non-

participating households, then the underlying assumption in this analysis (i.e., that time use of program

participants before entry into the program was the same as that of the comparison group) may be invalid.

However, many of the variables used in matching are unlikely to have changed due to participation in the

program.[12] Therefore, the use of the MxFLS data permits a more current analysis of the time-use effects

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[12] While these limitations are recognized, the data used for matching minimize these problems. Such variables include
household head's education, household head's age, female household head, and dwelling characteristics. One variable used in

of Oportunidades which includes urban areas, uses a longer reporting period, and a measure of leisure that is reported instead of calculated as a residual.

### *6.2 Implications for future program iterations*

Oportunidades is an innovative program that works on a large scale to combat poverty in the short- and long-terms. Its commitment to external evaluation is commendable, and the program has progressed toward several of its goals. However, this analysis provides mixed evidence of its progress toward the secondary goal of gender equity. Policymakers may believe a two hour per week loss in leisure time for women is an acceptable cost for a program that has proven benefits in a range of human capital outcomes such as health, nutrition, and education. However, this loss of leisure is approximately one-tenth of total leisure time prior to program participation. While secondary objectives of the program include building mothers' capacities and empowerment and gender equity, program costs not shared equally with men exacerbate gender inequity, in direct opposition to the program's stated goals. Despite this inequitable effect on leisure, results do show some convergence of time use allocation between the genders.

Future iterations of program requirements might consider including more responsibilities shared equally between men and women and provide women the opportunity to learn skills such as reading and writing, in an effort to recognize their own needs and empower them beyond household financial decisions about children's health and schooling. In addition, efforts could be made to save women's time by encouraging the use of bank accounts in women's names and directly depositing the transfers, as long as it can be ensured that women will control the deposits.

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matching, the total number of children under 18 could potentially change if increased income causes families to demand more children. However, previous research found no evidence that Oportunidades has lead to increased fertility (Todd and Wolpin, 2006).

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**Table 1. Household characteristics**

| Variable | Full sample (n=5692) Mean | S.D. | Non-oportunidades (n=4699) Mean | S.D. | Oportunidades (n=993) Mean | S.D. |
|---|---|---|---|---|---|---|
| Household head's education | | | | | | |
| None | 0.10 | | 0.08 | | 0.21 | |
| Elementary | 0.46 | | 0.42 | | 0.64 | |
| Secondary | 0.23 | | 0.26 | | 0.11 | |
| Preparatory | 0.11 | | 0.13 | | 0.03 | |
| College | 0.09 | | 0.11 | | 0.01 | |
| Household head's age | 42.63 | 12.64 | 42.29 | 12.64 | 44.24 | 12.51 |
| Female household head | 0.17 | | 0.17 | | 0.18 | |
| Total number of children under 18 | 2.49 | 1.40 | 2.32 | 1.26 | 3.28 | 1.72 |
| Dependency ratio | 1.21 | 0.85 | 1.13 | 0.78 | 1.59 | 1.05 |
| Crowding index | 2.76 | 1.46 | 2.59 | 1.29 | 3.53 | 1.90 |
| Dirt floor | 0.13 | | 0.09 | | 0.31 | |
| Ceiling (cardboard, bamboo, palm) | 0.10 | | 0.08 | | 0.21 | |
| Piped water | 1.00 | | 1.00 | | 0.99 | |
| Electricity | 0.99 | | 0.99 | | 0.97 | |
| Rural | 0.41 | | 0.31 | | 0.87 | |

**Table 2A. Descriptive statistics, females**

| | (1) | | (2) | | (3) | | (4) | | (5) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Full sample (N=5290) | | Non-Oportunidades, non-matched (N=3316) | | Non-Oportunidades, non-matched, bottom 30% wealth dist. (N=624) | | Non-Oportunidades, matched (N=999) | | Oportunidades (N=975) | |
| Variable | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. |
| Has children aged: | | | | | | | | | | |
| 0-5 years | 0.46 | | 0.45 | | 0.53 | | 0.50 | | 0.47 | |
| 6-10 years | 0.51 | | 0.47 | | 0.55 | | 0.53 | | 0.62 | |
| 11-15 years | 0.48 | | 0.44 | | 0.53 | | 0.49 | | 0.60 | |
| 16-18 years | 0.28 | | 0.27 | | 0.28 | | 0.29 | | 0.32 | |
| Age | 38.40 | 11.57 | 37.97 | 11.64 | 39.85 | 12.56 | 38.32 | 11.34 | 39.96 | 11.45 |
| Marital status | | | | | | | | | | |
| Married | 0.71 | | 0.70 | | 0.63 | | 0.71 | | 0.72 | |
| Consual union | 0.15 | | 0.14 | | 0.19 | | 0.16 | | 0.16 | |
| Separated, widowed, divorced | 0.09 | | 0.09 | | 0.10 | | 0.08 | | 0.08 | |
| Single | 0.06 | | 0.07 | | 0.09 | | 0.04 | | 0.04 | |
| Speaks indigenous language | 0.09 | | 0.03 | | 0.07 | | 0.12 | | 0.25 | |
| Education | | | | | | | | | | |
| No education | 0.08 | | 0.05 | | 0.11 | | 0.12 | | 0.18 | |
| Elementary | 0.46 | | 0.39 | | 0.54 | | 0.57 | | 0.62 | |
| Seconday | 0.29 | | 0.34 | | 0.26 | | 0.25 | | 0.16 | |
| Preparatory | 0.10 | | 0.14 | | 0.07 | | 0.05 | | 0.03 | |
| College | 0.06 | | 0.09 | | 0.02 | | 0.02 | | 0.01 | |
| Rural | 0.42 | | 0.19 | | 0.28 | | 0.76 | | 0.86 | |
| Region | | | | | | | | | | |
| Pacific North | 0.20 | | 0.22 | | 0.16 | | 0.19 | | 0.17 | |
| N. Central Gulf | 0.20 | | 0.22 | | 0.20 | | 0.23 | | 0.12 | |
| Bajio | 0.20 | | 0.27 | | 0.23 | | 0.21 | | 0.20 | |
| Central and Mexico City | 0.28 | | 0.20 | | 0.33 | | 0.27 | | 0.33 | |
| Southeast | 0.11 | | 0.10 | | 0.08 | | 0.11 | | 0.18 | |

Note: Columns 2, 4, and 5 sum to the total in Column 1.

**Table 2B. Descriptive statistics, males**

| | (1) | | (2) | | (3) | | (4) | | (5) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Full sample (N=3746) | | Non-Oportunidades, non-matched (N=2311) | | Non-Oportunidades, non-matched, bottom 30% wealth (N=400) | | Non-Oportunidades, matched (N=742) | | Oportunidades (N=693) | |
| Variable | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. | Mean/ Proportion | S.D. |
| Has children aged: | | | | | | | | | | |
| 0-5 years | 0.47 | | 0.45 | | 0.51 | | 0.51 | | 0.46 | |
| 6-10 years | 0.51 | | 0.47 | | 0.56 | | 0.55 | | 0.63 | |
| 11-15 years | 0.48 | | 0.43 | | 0.52 | | 0.50 | | 0.63 | |
| 16-18 years | 0.28 | | 0.26 | | 0.29 | | 0.30 | | 0.33 | |
| Age | 38.03 | 11.28 | 37.44 | 11.39 | 39.76 | 12.86 | 38.52 | 11.13 | 39.49 | 10.93 |
| Marital status | | | | | | | | | | |
| Married | 0.82 | | 0.83 | | 0.78 | | 0.81 | | 0.81 | |
| Consual union | 0.16 | | 0.15 | | 0.21 | | 0.18 | | 0.17 | |
| Separated, widowed, divorced | 0.01 | | 0.02 | | 0.01 | | 0.01 | | 0.01 | |
| Single | 0.00 | | 0.00 | | 0.01 | | 0.00 | | 0.00 | |
| Speaks indigenous language | 0.10 | | 0.04 | | 0.07 | | 0.13 | | 0.27 | |
| Education | | | | | | | | | | |
| No education | 0.07 | | 0.03 | | 0.07 | | 0.10 | | 0.15 | |
| Elementary | 0.44 | | 0.33 | | 0.51 | | 0.20 | | 0.66 | |
| Seconday | 0.26 | | 0.32 | | 0.29 | | 0.06 | | 0.15 | |
| Preparatory | 0.12 | | 0.17 | | 0.08 | | 0.03 | | 0.03 | |
| College | 0.10 | | 0.16 | | 0.06 | | 0.78 | | 0.01 | |
| Rural | 0.43 | | 0.18 | | 0.28 | | | | | |
| Region | | | | | | | | | 0.88 | |
| Pacific North | 0.20 | | 0.21 | | 0.13 | | 0.20 | | 0.19 | |
| N. Centrla Gulf | 0.20 | | 0.23 | | 0.23 | | 0.22 | | 0.11 | |
| Bajio | 0.19 | | 0.19 | | 0.23 | | 0.17 | | 0.20 | |
| Central and Mexico City | 0.29 | | 0.27 | | 0.33 | | 0.30 | | 0.34 | |
| Southeast | 0.11 | | 0.10 | | 0.08 | | 0.11 | | 0.16 | |

Note: Columns 2, 4, and 5 sum to the total in Column 1.

## Table 3. Weekly Time Use

Part A. Weekly Time Use of Females

| | (1) | | (2) | | (3) | | (4) | | (5) | |
| | Full sample (N=5290) | | Non-Oportunidades, non-matched (N=3316) | | Non-Oportunidades, non-matched, bottom 30% wealth dist. (N=624) | | Non-Oportunidades, matched (N=999) | | Oportunidades (N=975) | |
| Activity | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. |
|---|---|---|---|---|---|---|---|---|---|---|
| Leisure | 13.59 | 11.77 | 15.29 | 12.07 | 12.45 | 10.79 | 12.27 | 11.57 | 9.17 | 9.35 |
| Cooking | 12.58 | 8.67 | 12.27 | 8.51 | 12.07 | 7.97 | 13.01 | 9.06 | 13.16 | 8.78 |
| Cleaning | 12.76 | 10.19 | 12.57 | 10.48 | 12.16 | 9.76 | 13.38 | 9.87 | 12.78 | 9.45 |
| Caring for children/elderly | 21.42 | 25.29 | 21.83 | 25.65 | 21.02 | 24.19 | 22.88 | 26.39 | 18.51 | 22.53 |
| Helping with homework | 2.51 | 4.98 | 2.80 | 5.31 | 2.35 | 5.55 | 2.20 | 4.81 | 1.85 | 3.74 |
| Collecting firewood | 0.48 | 2.40 | 0.10 | 1.03 | 0.25 | 1.62 | 0.63 | 2.65 | 1.61 | 4.32 |
| Collecting water | 0.37 | 2.27 | 0.11 | 1.05 | 0.28 | 1.93 | 0.59 | 2.64 | 1.04 | 4.06 |
| Sleeping (daily) | 7.72 | 1.28 | 7.62 | 1.27 | 7.77 | 1.28 | 7.86 | 1.30 | 7.92 | 1.28 |
| Working | 12.74 | 20.75 | 15.06 | 21.74 | 11.65 | 20.47 | 9.60 | 18.71 | 8.09 | 17.88 |
| Total reported hours | 152.29 | 59.05 | 155.32 | 59.55 | 147.73 | 56.16 | 153.17 | 61.41 | 141.04 | 53.32 |

Part B. Weekly Time Use of Males

| | (1) | | (2) | | (3) | | (4) | | (5) | |
| | Full sample (N=3746) | | Non-Oportunidades, non-matched (N=2311) | | Non-Oportunidades, non-matched, bottom 30% wealth dist. (N=400) | | Non-Oportunidades, matched (N=786) | | Oportunidades (N=693) | |
| Variable | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. |
|---|---|---|---|---|---|---|---|---|---|---|
| Leisure | 13.00 | 11.23 | 14.89 | 11.72 | 11.70 | 9.88 | 10.88 | 10.48 | 8.94 | 8.56 |
| Cooking | 0.83 | 2.98 | 0.98 | 3.17 | 0.63 | 2.83 | 0.63 | 2.66 | 0.53 | 2.59 |
| Cleaning | 0.77 | 2.90 | 0.94 | 3.30 | 0.37 | 1.74 | 0.50 | 1.98 | 0.47 | 2.21 |
| Caring for children/elderly | 3.34 | 8.95 | 4.04 | 10.01 | 3.00 | 8.05 | 2.74 | 7.61 | 1.66 | 5.68 |
| Helping with homework | 1.24 | 3.11 | 1.36 | 3.05 | 0.90 | 2.15 | 1.15 | 3.52 | 0.94 | 2.77 |
| Collecting firewood | 0.89 | 3.23 | 0.28 | 1.91 | 0.70 | 3.15 | 1.11 | 3.07 | 2.72 | 5.43 |
| Collecting water | 0.41 | 2.13 | 0.17 | 1.57 | 0.37 | 2.70 | 0.67 | 2.49 | 0.91 | 3.02 |
| Sleeping (daily) | 7.46 | 1.36 | 7.37 | 1.35 | 7.53 | 1.33 | 7.64 | 1.37 | 7.54 | 1.35 |
| Working | 43.62 | 20.94 | 44.07 | 20.91 | 42.52 | 21.04 | 42.67 | 21.35 | 43.13 | 20.58 |
| Total hours reported | 123.16 | 34.36 | 123.64 | 34.23 | 118.82 | 32.91 | 122.18 | 35.02 | 122.60 | 34.13 |

**Table 4 Part A Effects of Oportunidades on weekly time use of females†**

| | Mean Hours of Treatment Sample | Propensity Score Matching (Kernel) | | Covariate Matching (Not Adjusted) | | Covariate Matching (Bias Adjusted) | |
|---|---|---|---|---|---|---|---|
| | | ATT | s.e. | ATT | s.e. | ATT | s.e. |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Leisure | 9.17 | -2.18** | 0.71 | -1.89** | 0.54 | -1.60** | 0.54 |
| Cooking | 13.16 | 0.24 | 0.65 | 0.49 | 0.45 | 0.39 | 0.45 |
| Care for Children/elderly | 18.51 | -3.33* | 1.70 | -3.82** | 1.25 | -4.31** | 1.25 |
| Helping with homework | 1.85 | -0.18 | 0.36 | -0.15 | 0.20 | -0.06 | 0.20 |
| Daily sleep | 7.92 | 0.06 | 0.09 | 0.04 | 0.06 | 0.03 | 0.06 |
| Collecting firewood | 1.61 | 0.59 | 0.26 | 0.34 | 0.25 | 0.12 | 0.25 |
| Collecting water | 1.04 | 0.24 | 0.23 | -0.05 | 0.23 | -0.17 | 0.23 |
| Cleaning/washing clothes | 12.78 | -0.03 | 0.66 | 0.02 | 0.49 | 0.11 | 0.49 |
| Working | 8.09 | -1.54 | 1.23 | -1.55 | 0.93 | -1.63 | 0.93 |

†With exception of sleep, which is measured daily.
Notes: Columns 2 and 3 are Gaussian kernel (with bandwidth 0.06) matching of propensity scores for observations within common support. All standard errors are bootstrapped with 1000 repetitions. * and ** indicate, respectively, significance at the 0.05 and 0.01 levels. Columns 4-6 are nearest neighbor covariate matching (2 neighbors) for observations within common support. Standard errors are heteroskedasticity robust (Abadie et al 2004). * and ** indicate, respectively, significance at the 0.05 and 0.01 levels.


**Table 4 Part B Effects of Oportunidades on weekly time use of males†**

| | Mean Hours of Treatment Sample | Propensity Score Matching (Kernel) | | Covariate Matching (Not Adjusted) | | Covariate Matching (Bias Adjusted) | |
|---|---|---|---|---|---|---|---|
| | | ATT | s.e. | ATT | s.e. | ATT | s.e. |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Leisure | 8.94 | -0.61 | 0.67 | -0.47 | 0.48 | -0.02 | 0.48 |
| Cooking | 0.53 | -0.04 | 0.18 | -0.05 | 0.14 | 0.02 | 0.14 |
| Care for Children/elderly | 1.66 | -1.20 | 0.62 | -0.78** | 0.38 | -0.71 | 0.38 |
| Helping with homework | 0.94 | 0.06 | 0.20 | -0.11 | 0.17 | -0.03 | 0.17 |
| Daily sleep | 7.54 | -0.14 | 0.12 | -0.15 | 0.08 | -0.16 | 0.08 |
| Collecting firewood | 2.72 | 1.23 | 0.85 | 1.22*** | 0.27 | 1.07*** | 0.27 |
| Collecting water | 0.91 | -0.03 | 0.28 | -0.06 | 0.19 | -0.18 | 0.19 |
| Cleaning/washing clothes | 0.47 | -0.03 | 0.15 | 0.09 | 0.10 | 0.11 | 0.10 |
| Working | 43.13 | 1.76 | 1.76 | 1.56 | 1.25 | 1.82 | 1.25 |

†With exception of sleep, which is measured daily.
Notes: Columns 2 and 3 are Gaussian kernel (with bandwidth 0.06) matching of propensity scores for observations within common support. All standard errors are bootstrapped with 1000 repetitions. ** and *** indicate, respectively, significance at the 0.05 and 0.01 levels. Columns 4-6 are nearest neighbor covariate matching (2 neighbors) for observations within common support. Standard errors are heteroskedasticity robust (Abadie et al 2004). ** and *** indicate, respectively, significance at the 0.05 and 0.01 levels.

**Table 5 Part A Effects of Oportunidades on weekly time use: robustness checks for females†**

| | Paired Sample | | | | Exact Urban/Rural Match | | | |
|---|---|---|---|---|---|---|---|---|
| | Covariate Matching (Not Adjusted) | | Covariate Matching (Bias Adjusted) | | Covariate Matching (Not Adjusted) | | Covariate Matching (Bias Adjusted) | |
| | ATT | s.e. | ATT | s.e. | ATT | s.e. | ATT | s.e. |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Leisure | -2.01*** | 0.64 | -1.85*** | 0.64 | -1.90*** | 0.54 | -1.64*** | 0.54 |
| Cooking | -0.35 | 0.55 | -0.47 | 0.55 | 0.32 | 0.47 | 0.30 | 0.47 |
| Care for Children/elderly | -4.10*** | 1.47 | -4.62*** | 1.47 | -3.57*** | 1.28 | -4.00*** | 1.28 |
| Helping with homework | -0.12 | 0.24 | -0.06 | 0.24 | -0.22 | 0.22 | -0.19 | 0.22 |
| Daily sleep | -0.02 | 0.08 | -0.02 | 0.08 | 0.01 | 0.07 | 0.00 | 0.07 |
| Collecting firewood | 0.53** | 0.24 | 0.41 | 0.24 | 0.36 | 0.26 | 0.17 | 0.26 |
| Collecting water | 0.09 | 0.22 | -0.02 | 0.22 | -0.06 | 0.24 | -0.17 | 0.24 |
| Cleaning/washing clothes | -0.20 | 0.58 | -0.08 | 0.58 | 0.01 | 0.49 | 0.11 | 0.49 |
| Working | -1.32 | 1.04 | -1.02 | 1.04 | -1.31 | 0.95 | -1.62 | 0.95 |

†With exception of sleep, which is measured daily.

Notes: Columns 1-4 (females) and Columns 5-8 (males) are nearest neighbor covariate matching (2 neighbors) estimates and standard errors based upon matching of individuals located in towns of the same size. Standard errors are heteroskedasticity robust (Abadie et al 2004). ** and *** indicate, respectively, significance at the 0.05 and 0.01 levels.


**Table 5 Part B Effects of Oportunidades on weekly time use: robustness checks for males†**

| | Paired Sample | | | | Exact Urban/Rural Match | | | |
|---|---|---|---|---|---|---|---|---|
| | Covariate Matching (Not Adjusted) | | Covariate Matching (Bias Adjusted) | | Covariate Matching (Not Adjusted) | | Covariate Matching (Bias Adjusted) | |
| | ATT | s.e. | ATT | s.e. | ATT | s.e. | ATT | s.e. |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Leisure | -0.65 | 0.51 | -0.22 | 0.51 | -0.48 | 0.49 | -0.09 | 0.49 |
| Cooking | -0.17 | 0.14 | -0.09 | 0.14 | 0.00 | 0.13 | 0.05 | 0.13 |
| Care for Children/elderly | -0.94** | 0.44 | -0.89** | 0.44 | -0.87** | 0.37 | -0.81** | 0.37 |
| Helping with homework | -0.14 | 0.18 | -0.05 | 0.18 | -0.07 | 0.16 | -0.03 | 0.16 |
| Daily sleep | -0.18 | 0.10 | -0.18 | 0.10 | -0.17** | 0.08 | -0.19** | 0.08 |
| Collecting firewood | 1.32*** | 0.29 | 1.19*** | 0.29 | 1.13*** | 0.29 | 0.99*** | 0.29 |
| Collecting water | -0.15 | 0.19 | -0.29 | 0.19 | -0.04 | 0.20 | -0.15 | 0.20 |
| Cleaning/washing clothes | 0.05 | 0.11 | 0.07 | 0.11 | 0.10 | 0.10 | 0.11 | 0.10 |
| Working | 1.22 | 1.29 | 1.77 | 1.29 | 1.33 | 1.26 | 1.64 | 1.26 |

†With exception of sleep, which is measured daily.

Notes: Columns 1-4 (females) and Columns 5-8 (males) are nearest neighbor covariate matching (2 neighbors) estimates and standard errors based upon matching of individuals located in towns of the same size. Standard errors are heteroskedasticity robust (Abadie et al 2004). ** and *** indicate, respectively, significance at the 0.05 and 0.01 levels.

**Table 6. Coefficients on program participation from OLS regressions**

| Activity | Matched Full Sample | | | | Matched Paired Sample | | | |
|---|---|---|---|---|---|---|---|---|
| | Level | | Log | | Level | | Log | |
| | Females | Males | Females | Males | Females | Males | Females | Males |
| | (n=1974) | (n=1435) | (n=1974) | (n=1435) | (n=1272) | (n=1272) | (n=1272) | (n=1272) |
| Leisure | -1.09** | -0.37 | -0.17* | -0.06 | -0.99* | -0.27 | -0.21* | -0.09 |
| | (0.52) | (0.50) | (0.10) | (0.11) | (0.56) | (0.51) | (0.10) | (0.12) |
| Cooking | 0.05 | -0.05 | 0.07 | 0.01 | -0.23 | -0.13 | 0.00 | 0.01 |
| | (0.41) | (0.14) | (0.05) | (0.07) | (0.57) | (0.15) | (0.06) | (0.08) |
| Cleaning | -0.52 | 0.02 | 0.00 | -0.00 | -0.49 | 0.01 | 0.05 | -0.02 |
| | (0.53) | (0.15) | (0.06) | (0.07) | (0.67) | (0.16) | (0.07) | (0.08) |
| Caring for children/elderly | -2.48** | -0.77* | -0.05 | -0.20* | -1.70 | -0.65 | 0.03 | -0.16 |
| | (1.01) | (0.46) | (0.11) | (0.10) | (1.28) | (0.46) | (0.13) | (0.11) |
| Helping with homework | -0.12 | -0.13 | -0.03 | 0.00 | 0.14 | -0.09 | 0.08 | 0.04 |
| | (0.21) | (0.14) | (0.09) | (0.07) | (0.21) | (0.14) | (0.10) | (0.07) |
| Collecting firewood | 0.38** | 0.80*** | 0.18** | 0.40*** | 0.25 | 0.92*** | 0.15 | 0.45*** |
| | (0.18) | (0.19) | (0.08) | (0.10) | (0.22) | (0.19) | (0.10) | (0.10) |
| Collecting water | 0.04 | -0.13 | 0.00 | -0.04 | -0.00 | -0.19 | 0.01 | -0.05 |
| | (0.17) | (0.16) | (0.07) | (0.08) | (0.13) | (0.15) | (0.06) | (0.08) |
| Sleeping (daily) | 0.03 | -0.13** | 0.01 | -0.02** | 0.04 | -0.10* | 0.01 | -0.02** |
| | (0.06) | (0.07) | (0.01) | (0.01) | (0.08) | (0.06) | (0.01) | (0.01) |
| Working | -0.91 | 0.87 | -0.24 | 0.13 | -1.29 | 0.50 | -0.30* | 0.13 |
| | (1.03) | (1.30) | (0.15) | (0.10) | (1.01) | (1.33) | (0.15) | (0.10) |

Notes: Robust standard errors in parenthesis. *p<.10; **p<.05; ***p<.01 Additional controls include child age dummies, age, marital status, whether individual speaks an indigenous language, education, rural, and region. "Paired individuals" refers to those with a spouse or partner in the household for whom data is also available.

**Table 7. Comparison of coefficient on treatment from pooled and difference-in-difference regressions, full matched sample, Waves I and II**

| Activity | Pooled regressions (β1) | | | | Difference-in-difference (β3) | | | |
|---|---|---|---|---|---|---|---|---|
| | Level | | Log | | Level | | Log | |
| | Females | Males | Females | Males | Females | Males | Females | Males |
| | (n=2434) | (n=1588) | (n=2434) | (n=1588) | (n=2434) | (n=1588) | (n=2434) | (n=1588) |
| Leisure | -0.91** | 0.22 | -0.08 | -0.15 | 0.81 | -0.27 | 0.23 | -0.03 |
| | (0.43) | (0.57) | (0.10) | (0.11) | (0.76) | (0.57) | (0.16) | (0.16) |
| Cooking | -0.28 | -0.01 | -0.04 | 0.01 | -1.08 | 0.27 | -0.24* | 0.05 |
| | (0.46) | (0.17) | (0.06) | (0.07) | (0.75) | (0.23) | (0.13) | (0.11) |
| Cleaning | -0.67 | -0.10 | -0.07 | 0.00 | -0.50 | 0.14 | -0.13 | -0.00 |
| | (0.53) | (0.14) | (0.07) | (0.07) | (0.91) | (0.16) | (0.14) | (0.10) |
| Caring for children/elderly | -0.44 | -0.07 | 0.05 | -0.02 | 4.70** | -0.15 | 0.05 | 0.00 |
| | (0.91) | (0.35) | (0.11) | (0.08) | (2.21) | (0.71) | (0.28) | (0.16) |
| Helping with homework | -0.35* | 0.07 | -0.15* | -0.03 | -0.38 | 0.06 | -0.14 | -0.09 |
| | (0.20) | (0.09) | (0.09) | (0.06) | (0.23) | (0.20) | (0.13) | (0.11) |
| Collecting firewood | 0.12 | 0.63*** | 0.10 | 0.30*** | -0.59** | -1.20*** | -0.15 | -0.41*** |
| | (0.17) | (0.20) | (0.08) | (0.09) | (0.29) | (0.39) | (0.10) | (0.13) |
| Collecting water | -0.07 | 0.04 | 0.01 | 0.02 | -0.31 | -0.03 | -0.04 | -0.05 |
| | (0.15) | (0.18) | (0.07) | (0.09) | (0.31) | (0.28) | (0.11) | (0.11) |
| Sleeping (daily) | 0.04 | 0.04 | 0.01 | -0.00 | -0.03 | 0.25** | -0.00 | 0.04** |
| | (0.06) | (0.06) | (0.01) | (0.01) | (0.08) | (0.10) | (0.01) | (0.02) |
| Working | -0.16 | -0.40 | -0.18 | 0.04 | -0.99 | 0.32 | -0.09 | -0.04 |
| | (0.90) | (1.36) | (0.14) | (0.11) | (1.21) | (2.52) | (0.15) | (0.20) |

Notes: Robust standard errors in parenthesis.  *p<.10; **p<.05; ***p<.01 Matched sample restricted to urban-rural matches. Additional controls include child age dummies, age, marital
status (in full matched sample), whether individual speaks an indigenous language, education, and region. Pooled regression coefficient reported is that
on program participation; DD regression coefficient reported is β3, or the interaction of time*treatment (change in program effect).
Pooled and difference-in-difference run only on individuals in rural areas.

**Table 8. Comparison of coefficient on treatment from pooled and difference-in-difference regressions, paired sample, Waves I and II**

| Activity | Pooled regressions (β1) | | | | Difference-in-difference (β3) | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Level | | Log | | Level | | Log | |
| | Females | Males | Females | Males | Females | Males | Females | Males |
| | (n=1664) | (n=1432) | (n=1664) | (n=1432) | (n=1664) | (n=1432) | (n=1664) | (n=1432) |
| Leisure | -1.01** | 0.18 | -0.13 | -0.17 | 0.91 | -0.36 | 0.26 | -0.02 |
| | (0.50) | (0.60) | (0.10) | (0.13) | (0.89) | (0.67) | (0.17) | (0.16) |
| Cooking | -0.39 | -0.10 | -0.08 | -0.03 | -0.82 | 0.19 | -0.21 | 0.03 |
| | (0.54) | (0.17) | (0.06) | (0.07) | (0.85) | (0.21) | (0.15) | (0.11) |
| Cleaning | -0.53 | -0.16 | -0.06 | -0.04 | -0.65 | 0.03 | -0.25* | -0.02 |
| | (0.62) | (0.13) | (0.08) | (0.07) | (0.94) | (0.14) | (0.14) | (0.11) |
| Caring for children/elderly | -0.27 | -0.15 | 0.03 | -0.02 | 2.21 | -0.66 | -0.37 | -0.10 |
| | (1.02) | (0.37) | (0.12) | (0.09) | (2.48) | (0.76) | (0.32) | (0.16) |
| Helping with homework | -0.19 | 0.04 | -0.10 | -0.03 | -0.89** | 0.03 | -0.30* | -0.07 |
| | (0.16) | (0.10) | (0.09) | (0.06) | (0.35) | (0.20) | (0.16) | (0.12) |
| Collecting firewood | 0.17 | 0.72*** | 0.12 | 0.32*** | -0.58* | -1.23*** | -0.19* | -0.44*** |
| | (0.22) | (0.19) | (0.09) | (0.10) | (0.30) | (0.41) | (0.11) | (0.14) |
| Collecting water | 0.03 | 0.00 | 0.02 | 0.00 | -0.32 | 0.13 | -0.06 | -0.02 |
| | (0.13) | (0.15) | (0.06) | (0.08) | (0.29) | (0.27) | (0.11) | (0.12) |
| Sleeping (daily) | 0.03 | 0.05 | 0.01 | 0.00 | -0.06 | 0.21** | -0.01 | 0.03* |
| | (0.07) | (0.06) | (0.01) | (0.01) | (0.11) | (0.10) | (0.02) | (0.02) |
| Working | -1.14 | -0.31 | -0.28** | 0.07 | -1.78 | -0.52 | -0.16 | -0.09 |
| | (0.75) | (1.53) | (0.13) | (0.12) | (1.17) | (2.64) | (0.16) | (0.21) |