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Is Health of the Aging Improved by Conditional Cash Transfer Programs? Evidence From Mexico

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Abstract Conditional cash transfer (CCT) programs link public transfers to human capital investment in the hopes of alleviating current poverty and reducing its intergenerational transmission. Whereas nearly all studies of their effects have focused on youth, CCT programs may also have an impact on aging adults by increasing household resources or inducing changes in allocations of time of household members, which may be of substantial interest, particularly given the rapid aging of most populations. This article contributes to this underresearched area by examining health and work impacts on the aging for the best-known and most influential of these programs, the Mexican *PROGRESA/Oportunidades* program. For a number of health indicators, the program appears to significantly improve health, with larger effects for recipients with a greater time receiving benefits from the program. Most of these health effects are concentrated on women.

Keywords Health · Aging · Conditional cash transfers · Mexico

Introduction

Conditional cash transfer (CCT) programs have spread widely throughout the world since they first were introduced in Brazil and Mexico in 1997, with more than 30 such programs in Latin America and the Caribbean (LAC), Asia, Africa, and North

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America (Fiszbein and Schady 2009). Most research on the effects of these programs has focused on schooling and nutritional and health status of children and adolescents or on household consumption and savings. However, these CCT programs may also have an effect on aging adults—for example, by increasing household resources or inducing changes in allocations of time of household members—that may be of substantial interest, particularly given the rapid aging of most populations.[1]

This article contributes to the underresearched area of the effect of CCT programs on aging adults by examining these effects for the best-known and most influential of these programs, the Mexican *PROGRESA/Oportunidades*[2] antipoverty and human resource investment program. This program was introduced originally in small rural communities (with populations less than 2,500) in 1997 and has since been expanded to cover more than 30 million eligible (poor) Mexicans in all but the largest urban areas. The program incorporated data collection and systematic evaluation as an integral component from the start, with an initial experimental design in rural areas with random assignment for the first approximately 1.5 years of treatment among 506 rural communities in the initial evaluation sample and a subsequent 2003 control sample selected through propensity score matching. Indeed, one of the main reasons that *PROGRESA/Oportunidades* is so well known is the centrality of efforts at serious evaluation from the start, which is in contrast to other similar (and in some cases, even larger) antipoverty and human resource investment programs (particularly in Brazil) on which little information has been collected that would permit systematic evaluation. *PROGRESA/Oportunidades* has been explicitly imitated in some important respects in a number of countries worldwide.

Most studies of PROGRESA*/Oportunidades* have focused on the effects of the transfers on improving human resources of younger Mexicans. Transfers generally are made to the mothers in the household, conditional on behaviors such as children and adolescents attending school, mothers attending sessions on nutritional and health practices, and all family members having regular checkups. Probably best known are the numerous studies on the impact of *PROGRESA/Oportunidades* on schooling, using a range of methodologies and finding significant and fairly substantial effects on indicators of completed schooling attainment.[3] There also have been a

[1] The average age of the world population is projected to increase from 28.3 years in 1995 to 32.6 years in 2020 (United Nations 1996). Among the major world regions, LAC is projected to have the greatest increase in average age (24.4–31.0), followed by Asia (25.2–30.4), Europe and North America (35.2–39.0), and finally Africa (24.7–28.2) (Behrman et al. 2003).

[2] *PROGRESA* is an acronym for the original name of the program (*Programa de Educacíon, Salud y Alimentacíon*; Program for Education, Health and Nutrition) introduced by the Zedillo government. When the Fox government came into power after the 2000 election, some aspects of the program were modified (e.g., coverage of grants at the high school level, and extension into more urban areas) and renamed "*Oportunidades*."

[3] These include a variety of approaches, such as exploiting the original experimental design to estimate enrollment effects (Schultz 2004) and transition matrices for entering, exiting, progressing, and repeating school grades (Behrman et al. 2005); using matching estimators for longer-run effects (Behrman et al. 2009, 2011); using sibling estimators to control for unobserved family background (Parker et al. 2009); and using structural models based on the baseline data and validated by the experiment to explore counterfactual policies (Attanasio et al. 2011; Todd and Wolpin 2006).

number of studies of the program effects on health and nutrition, particularly of infants and younger children, as well as on other outcomes.[4]

Although the program places a considerable emphasis on schooling and other human resource investments in children, it also potentially affects adults, including aging adults. *A priori*, the program would seem to have the potential to affect the health and health-related behaviors of aging Mexicans (50 years or older for the purposes of this study) who live in households that are *PROGRESA/Oportunidades* beneficiaries through a number of mechanisms: (1) the CCTs increase household income and the demands for health inputs, and the health outcomes of aging household members are responsive to these income increases[5]; (2) the conditionalities of having regular health checkups lead to improved health behaviors; (3) attendance at information sessions on health and nutrition leads to improved health behaviors (particularly for women, who are much more likely to attend these sessions than men); (4) the distribution of resources and bargaining power at the margin to women tends to lead to more relative emphasis on using a given level of resources for health and nutrition than for other uses; and (5) the changed incentives for time use for school-aged children result in reallocation of time uses for aging adults, among others.

Despite such possibilities, there has been but limited investigation of the effect of the program on health and health-related behaviors of older adults. Gertler and Boyce (2001) suggested that the initial (1.5-year) experimental aspect of the program in rural areas had some important positive effects on health and health-related behaviors of aging adults in the original rural communities, including reductions in self-reported sick days and increases in reported distance (in kilometers) they were able to walk without tiring. However, the results are not disaggregated by gender and refer only to the short-run effects of a fairly short-run difference (1.5 years) in exposure to the program.

In this article, we contribute new estimates of the longer-run impacts of *PROGRESA/Oportunidades* on a wider range of health and health-related behaviors of aging Mexicans in rural areas, focusing on how impacts change over time and how they differ by gender. The initial experimental evaluation began in 1998 with 506 communities being randomly assigned: 320 were assigned to receive benefits, and 186 communities were assigned to the control group. The control group began to receive benefits in 2000, so comparisons between the two groups after 2000 reflect the impact of differential time of exposure to the program. In 2003, a new comparison group that had never received benefits was added to the evaluation sample, allowing the potential effect of receiving the benefits for 5.5 years versus never receiving them to be estimated, albeit nonexperimentally. The following matrix shows

[4] For example, Behrman and Hoddinott (2005), Gertler (2004), and Rivera et al. (2004) presented estimates of the impact on early childhood growth. For summaries and reviews of many of the studies undertaken of *PROGRESA/Oportunidades*, see Behrman and Skoufias (2006), Levy (2006), Levy and Rodriguez (2004), Parker et al. (2008), and Skoufias (2004).

[5] In the longer run, aging household members also may benefit from increased income earned by younger (present or former) household members because of their enhanced human resources induced by the program. However, not enough time had passed for such effects to be observed in the data that we use for this article.

the different potential comparisons to estimate these effects; in this article, we carry out longer-run comparisons B and C.

		Time Since Program Initiation	
		(1) Short Run	(2) Longer Run
Exposure Differential	(1) Short Differential (experimental)	A: Short-run impact of short differential exposure	B: Longer-run impact of short differential exposure (T1998 vs. T2000)
	(2) Longer Differential (nonexperimental)	N/A	C: Longer-run impact of longer differential exposure (T1998 vs. C2003 and T2000 vs. C2003)

Comparison B uses the experimental data to estimate longer-run impacts of the short differential in exposure to the program. That is, B compares the original treatment (T1998) with the original control group (T2000) about 5.5 years post program initiation. At this point, the original treatment group had received about 5.5 years of benefits versus 4.0 years for the original control group. For comparison C, we use the new comparison group added in 2003 (C2003) to produce propensity score matching estimates based on 5.5 (4.0) years of differential exposure; that is, we compare the original treatment T1998 (original control group T2000) with the new comparison group that had never received benefits to derive insights into the effects of longer-run differentials in exposure.

Thus, we use both experimental and nonexperimental estimators to provide a picture of the longer-run effects of *PROGRESA/Oportunidades* on elderly health by length of time receiving the Program. The experimental estimates are based on 1.5 years of differential exposure, whereas the nonexperimental estimates are based on 4.0 and 5.5 years of differential exposure. Note that the experimental estimator is also useful for judging the plausibility of the nonexperimental estimators. Since we expect that health may improve with more time receiving program benefits, we expect the impact estimates based on a lower differential exposure to be smaller than those based on a greater differential in program exposure.[6]

Program Description

PROGRESA/Oportunidades began operating in small rural communities in 1997. Since then, it has gradually expanded to urban areas and now covers a total of 5 million households, or about one-quarter of all households in Mexico. The program conditions cash transfers on children's enrollment and regular school attendance and on household members visiting health clinics for regular checkups. The program also includes in-kind health benefits and nutritional supplements.

[6] Most previous studies of *PROGRESA/Oportunidades* have used the experimental design and concentrated on the short-run program impacts before the experimental design ended. Diaz and Handa (2006) presented estimates informative for our study that are successful at replicating *PROGRESA/Oportunidades* short-term impacts on school and work, using nonexperimental methods (cross-sectional matching).

Table 1 shows the amounts of monetary grants. The schooling grants are given for children under 22 years of age and enrolled in school between the third grade of primary school and the third grade of high school (e.g., until the 12th grade). In the second semester of 2003 (the time of the last survey), the specific grant amounts ranged from about 10 USD (105 pesos) in the third grade of primary school to about 54 USD (580 pesos) for boys and 61 USD (660 pesos) for girls in the third year of high school.

The health care and nutritional component provides basic health care for all members of the family, with some emphasis on preventive health care (Table 2). These services are provided by Mexican public health institutions, including the Ministry of Health and the Mexican Social Security Institute. This component includes a fixed monetary transfer equal to about 16.50 USD (180 pesos) monthly, as well as nutritional supplements that are principally targeted to children between the ages of 4 months and 2 years and to pregnant and lactating women. The nutritional supplements are also given to children aged 2–4 years if any signs of malnutrition are detected. To receive the fixed health and nutrition transfer, all members of beneficiary families must adhere to a regular schedule of health clinic visits. The calendar of visits varies by the age and gender of each individual (once per year for the case of adults aged 17 and older, including the aging).

Designated beneficiaries (generally mothers) are also required to attend monthly talks at the clinics on topics such as nutrition, hygiene, infectious diseases,

Table 1 Cash benefits of *PROGRESA/Oportunidades*: Monthly pesos, 2003 second semester

	Boys	Girls
Primary School		
Grade 3	105	105
Grade 4	120	120
Grade 5	155	155
Grade 6	210	210
Junior High		
Grade 7	305	320
Grade 8	320	355
Grade 9	335	390
High School		
Grade 10	510	585
Grade 11	545	625
Grade 12	580	660
Fixed Monthly Nutrition Grant per Household	155 pesos	
Maximum Household Monthly Transfer With No Children in High School	950 pesos	
Maximum Household Monthly Transfer With Children in High School	1,610 pesos	

Note: *PROGRESA/Oportunidades* also provides in-kind benefits, including school supplies, medical consultations, and nutritional supplements. The exchange rate is 10.75 pesos = 1 USD.

Table 2 Interventions in the basic health services package: *PROGRESA/Oportunidades*

Basic hygiene
Family planning
Prenatal, childbirth, and postnatal care
Supervision of nutrition and children's growth
Vaccinations
Prevention and treatment of outbreaks of diarrhea
Antiparasite treatment
Prevention and treatment of respiratory infections
Prevention and control of tuberculosis
Prevention and control of high blood pressure and diabetes mellitus
Accident prevention and first-aid for injuries
Community training for health care self-help

Source: Oportunidades, 2004 (Program Operating Rules) (www.oportunidades.gob.mx).

immunization, family planning, and the detection and prevention of chronic diseases. Under the 2002 extension of schooling grants to the high school level, high school students are also required to attend (separate) talks on topics aimed toward adolescents.

All monetary grants are given to the mother of the family, with the exception of scholarships for high school, which can be received by the youth themselves. There is a maximum limit of monthly benefits for each family that was equivalent in 2003 to about 88 USD (950 pesos) for families with children in primary and junior high school and 150 USD (1610 pesos) for those with at least one child in high school. The maximum amount of benefits is intended to reduce any incentive that the program might provide to have additional children. Benefits are provided directly to the female beneficiary by wire transfer in offices and modules that are near the communities. The average monthly transfer during the 12-month period of 2003 was 309 pesos monthly per beneficiary family, or about 28.50 USD.[7]

Targeting and Continued Program Eligibility

The program was means-tested with an elaborate targeting mechanism. The first stage of targeting was geographic, using aggregate local indicators to select poor rural communities and urban blocks. Then, to select household-level beneficiaries in selected rural areas, *PROGRESA/Oportunidades* carried out a survey—denominated the Encuesta Nacional de Caracteristicas Socioeconomicas de los Hogares (ENCASEH)/National Survey of Household Characteristics—of socioeconomic conditions for all households in the selected communities. Discriminant analysis with these data was then used to identify eligible households from ineligible households. In essence, the program made an initial classification of poverty depending on a household's per capita income.

[7] In 2006, a pension for the elderly was added to the program, providing a monthly payment to each adult aged 70 or older who is part of a *PROGRESA/Oportunidades* family, equal in 2006 to 250 pesos monthly (about 22 USD). The data that we use and analyze were collected before the introduction of this pension.

Discriminant analysis related this initial classification to a number of other household characteristics including dwelling characteristics; dependency ratios; ownership of durable goods, animals, and land; and the presence of disabled individuals. According to the predicted scores, a final classification of households as poor (eligible) or nonpoor (ineligible) was made. Individuals signed their acceptance as program beneficiaries and received registration forms for schools and the family clinic. Nearly all selected families enrolled in the program in rural areas; thus, self-selection into program participation is not a significant evaluation issue for the rural sample.

The majority of those aging in rural households eligible for *PROGRESA/Oportunidades* live in extended families. Pre-program, about 75 % of aging individuals lived in households with children under the age of 15. In the large majority of these cases, the aging are the grandparents of children receiving *PROGRESA/Oportunidades* educational grants. These aging individuals are unlikely to be the direct recipients of the transfers because the designated beneficiary is generally the mother of the children receiving educational grants. The payments would typically be received by the daughter or daughter in-law of the aging living in the household. However, for a minority of cases, the aging live on their own, and the female elderly would likely be the direct recipient of the *PROGRESA/Oportunidades* transfers. About 15 % of aging individuals in our sample live in households composed only of individuals aged 50 and older.

The effects of the program on health may differ depending on whether the recipient of the transfer is an aging member or a daughter/daughter-in-law (or another female member). Households where the aging live with children eligible to receive educational subsidies are likely to have higher total transfers from *PROGRESA/Oportunidades* because these households are eligible for both payments conditional on health clinic visits and payments conditional on school enrollment and attendance. Additionally, who receives the transfer (the aging person or a younger female) may affect the distribution of expenditure in a way that affects aging health.[8] In the upcoming analysis, we test for impact differences between beneficiary households where the aging directly receive transfers and households in which they do not.

Evaluation Design and Data

The original experimental evaluation design for *PROGRESA/Oportunidades* consisted of randomly assigning 506 communities into either a treatment (320 communities) or a control group (186 communities). The eligible households in the original treatment localities (T1998) began receiving program benefits in the spring of 1998, and the eligible households in the control group (T2000) began receiving benefits at the end of 1999. Between 1998 and 2000, evaluation surveys (ENCELs) with detailed information on demographics, education, health, income, and expenditures were administered every six months to households in both the T1998 and T2000

[8] Rubalcava et al. (2009) suggested that providing transfers to women in the *PROGRESA/Oportunidades* program shifts the distribution of household expenditure toward investment in the future, but we are unaware of any evidence on how transfers to elderly females versus younger females may affect household spending.

groups. All households in the 506 communities in the evaluation sample, including both eligible and ineligible households, were interviewed.

In 2003, there was a new follow-up round of the rural evaluation survey (ENCEL2003). The sampling frame was augmented to include a new subsample of households from other communities that had not received the program by 2003. These communities (C2003) were selected to be similar to the communities in the original experiment through a matching procedure that matched the experimental communities to comparison group communities based on locality characteristics, such as geographic location and the availability of schools and health clinics. As in the original 506 evaluation communities, all households in the selected communities were interviewed.

The data used in this article are from the baseline Survey of Household Socioeconomic Characteristics (ENCASEH97) and the follow-up 2003 Evaluation Survey of *PROGRESA/Oportunidades* (ENCEL2003). The ENCASEH97 serves as a baseline survey for the evaluation and is the survey that was originally used to select households in the eligible communities for participation in *PROGRESA/Oportunidades.* We link the ENCASEH97 to the ENCEL2003 in order to have longitudinal data on individual household members who were aged 50 or older in 1997 (pre-program) and therefore aged 56 or older in 2003. For the new comparison group households, we use recall data on their 1997 characteristics to characterize their eligibility status in 1997. Linking data between 2003 and 1997 leads to data on about 8,500 program-eligible men and women who were aged 50 or older pre-program, distributed among the three groups of our sample. Our sample of elderly is 3,134 in the original treatment group, 1,914 in the original control group, and 3,506 in the new comparison group.

Methodology

As described earlier, we present three sets of longer-term estimates that differ in terms of the length of exposure to the program. First, we present those based on the experimental comparison between the original randomized treatment (T1998) and control (T2000) groups, which had both been incorporated into the program by 2003 but which differ by 1.5 years in program exposure time. Because T2000 households began to receive benefits in the year 2000, comparing these two groups provides information on the effect of *differential* exposure time to the program—in this case, 1.5 years (comparison B in the matrix).

Next, we estimate nonexperimental longer-term program effects against the benchmark of no program. Here, we compare the original treatment group (T1998) and the original control group (T2000) with the new comparison group (C2003) that was drawn from rural areas that had not yet been incorporated into the program in 2003, reflecting having received benefits for 5.5 and 4.0 years versus never having received benefits (comparison C in the matrix).

We thus have three sets of estimates, based on 1.5, 4.0, and 5.5 years of differential exposure. We expect indicators of health to be *cumulative*: with a greater differential time in the program, we expect larger impacts on health status to be observed. Thus, we expect the largest impacts to be observed for

the (nonexperimental) comparison T1998 versus C2003, smaller effects for T2000 versus C2003, and the smallest impacts for the (experimental) comparison of T1998 versus T2000.[9]

For the experimental T1998 versus T2000 comparison, we estimate a linear regression of the outcome variable on an indicator of whether each program-eligible individual resided in an original treatment or original control locality. To increase precision, we include additional covariates not affected by the program (age; adult schooling attainment; indigenous status; and pre-program household characteristics, including number of rooms, electricity, type of floor, and water/sewage system).

One possible concern in evaluating longer-term impacts of the 1.5-year difference in program exposure is sample attrition of the original evaluation ENCEL sample. For the purpose of this study, we are concerned with sample attrition of individuals who were in the baseline sample in 1997 but not in the 2003 follow-up sample. About 26 % of the individuals aged 50 and older in 1997 were not interviewed six years later. There are, however, no statistically significant differences at the 10 % level in overall attrition between the T1998 and T2000 samples, by gender and by age group (Table 3).[10] We also estimate the probability of being lost to follow-up for individuals in 1997 in eligible households from the T1998 and T2000 groups. We find that only a couple pre-program individual and housing characteristics interact significantly with treatment (i.e., being in the T1998 group; results not shown). Nevertheless, to account for possible attrition biases, we employ a weighting method that is equivalent to a matching-on-observables approach. We estimate regressions in which we weight both the T1998 and T2000 group observations to adjust for differences in the distribution of control variable characteristics arising over time because of attrition. Details and derivations are provided in Behrman et al. (2009). In practice, these estimations are similar to those based on both OLS and matching.

For the nonexperimental estimators, we use individual-level nearest-neighbor matching estimators that take into account differences in observed characteristics between the treatment (T1998 and T2000) and comparison (C2003) samples[11] (Heckman et al. 1998). The approach is analogous to the standard regression estimator but does not impose functional form restrictions in estimating the conditional expectation of the outcome variable and reweights the observations according to the weighting functions

[9] The comparison T1998 versus T2000 is slightly different than the other two comparisons in that it is based on comparing two groups receiving the program, with one receiving benefits for a longer time than the other, whereas the other two comparisons are with respect to a comparison group that has never received benefits. Thus, smaller impacts in the T1998 versus T2000 comparison might be expected both because of a smaller differential in time receiving the program and because receiving the program may allow the T2000 group to "catch up" to the T1998 group.

[10] Attrition is the result of both migration and mortality. Comparing T1998 versus T2000, we estimate the impact of the program on mortality for the population aged 50 and older at baseline and find that although the T1998 group has slightly lower mortality levels, these differences are not statistically significant. We cannot do the same for the C2003 sample because we do not have good information on who in the C2003 sample was in the household in 1997 and thus cannot construct measures of mortality and attrition for the C2003 sample.

[11] The localities that were included in the sampling frame for C2003 were initially selected by matching on locality characteristics. This first matching procedure to determine the comparison group localities from which households were sampled is distinct from the finer matching that we perform to obtain our estimates, which uses both household- and individual-level data in selecting the matches.

Table 3 Attrition: Percentage of sample lost between baseline 1997 and 2003 among those aged 50 and older

	Females			Males		
Age Group	T1998	T2000	Sig. Difference (p value)	T1998	T2000	Sig. Difference (p value)
All	26.7	27.5	.58	25.1	26.2	.47
50–59	18.1	17.4	.77	17.9	19.3	.48
60–69	24.9	27.6	.37	24.2	21.0	.66
70+	42.4	42.5	.97	43.1	41.9	.95

Notes: T1998 are program-eligible individuals in communities treated beginning in 1998; T2000 are program-eligible individuals in communities treated beginning in 2000.

implied by the matching estimators. These propensity score matching estimators have two stages. In the first stage, the propensity score is estimated using a logistic model and a set X consisting of pre-program (1997) individual and household-level characteristics. The second stage uses nearest-neighbor matching and local-linear regressions to construct matched no-treatment outcomes for each treated individual.

The analysis here is restricted to aging adults aged 50 and older in 1997 who are in the sample in both 1997 and 2003. For most of our health indicators, pre-program information was not available; thus, we use primarily after-program-initiation difference matching. For labor force participation, for which we do have pre-program information, we use difference-in-difference estimators. Difference-in-difference estimators have the advantage of allowing for selectivity into the program to be based on unobserved fixed attributes (analogous to fixed effects).

Table 4 presents means and standard deviations of basic descriptive statistics for the three groups, based on pre-program data from 1997. As expected, the majority of variables from the original treatment (T1998) and control groups (T2000) show no pre-program significant differences. However, a significant minority (13 of 35) show some significant differences, most of which are small. Behrman and Todd (1999), in their analysis of the quality of the randomization of the *PROGRESA/Oportunidades* evaluation, noted a larger than expected number of significant differences between pre-program variables when the analysis was carried out at the individual level, rather than at the community level. Small differences at the individual level may lead to more than expected significant differences because of the much larger number of observations at the individual level than at the community level (Behrman and Todd 1999).

Comparisons of C2003 with T1998, on the other hand, show large significant differences for the majority of variables. On average, T1998 households appear to be somewhat poorer than those in the C2003 group along many dimensions, including income, durable goods, and household living conditions. The matching methodology we use aims to control for these differences by using only those individuals with similar characteristics pre-program for each treatment observation. We carry out both difference-matching estimates based on after-program data and difference-in-difference–matching estimates based on pre-program and after-program-initiation data. The identifying assumption of the difference-in-difference estimators (for labor

Table 4 Pre-program differences between treatment and comparison groups: Men and women aged 50 and older at baseline (1997)

	T1998		T2000		C2003		Sig. Difference (p value)	
	Mean	SD	Mean	SD	Mean	SD	T98vsT00	T98vsC03
Individual Characteristics								
Age	60.90	11.20	61.00	11.90	62.10	10.30	.74	.00
Male	0.51	0.50	0.51	0.50	0.51	0.50	.77	.96
Indigenous	0.48	0.50	0.51	0.50	0.31	0.46	.06	.00
Indigenous and Spanish-speaking	0.34	0.47	0.34	0.47	0.23	0.42	.73	.00
Years of schooling	0.88	1.55	0.93	1.64	1.29	1.91	.28	.00
Labor force participation	0.51	0.50	0.48	0.50	0.57	0.50	.22	.00
Demographics								
Married	0.66	0.47	0.67	0.47	0.70	0.46	.24	.01
Children 0–5	0.71	0.99	0.76	1.04	0.73	1.24	.05	.07
Children 6–12	1.05	1.17	1.18	1.18	0.57	0.92	.00	.00
Children 13–15	0.50	0.69	0.52	0.68	0.26	0.54	.28	.00
Children 16–19	0.60	0.83	0.57	0.80	0.43	0.74	.16	.00
Women 20–39	0.54	0.65	0.57	0.64	0.45	0.67	.18	.00
Women 40–59	0.58	0.52	0.60	0.52	0.55	0.52	.18	.03
Women 60+	0.43	0.54	0.44	0.56	0.55	0.63	.86	.00
Men 20–39	0.49	0.66	0.52	0.67	0.45	0.71	.24	.00
Men 40–59	0.47	0.53	0.47	0.52	0.45	0.53	.87	.09
Men 60+	0.48	0.53	0.45	0.52	0.58	0.60	.06	.00
Housing Characteristics								
Number of rooms	1.71	0.98	1.70	0.93	1.76	1.19	.89	.07
Electricity	0.53	0.50	0.58	0.49	0.70	0.46	.00	.00
Running water	0.26	0.44	0.20	0.40	0.44	0.50	.00	.00
Dirt floor	0.77	0.42	0.78	0.41	0.70	0.46	.61	.00
Own animals	0.43	0.50	0.40	0.49	0.37	0.48	.57	.00
Own land	0.72	0.45	0.72	0.45	0.62	0.49	.87	.00
Household income	917	1,026	1,018	1,283	1,946	2,927	.01	.00
Oportunidades poverty index	3.05	0.86	3.11	0.86	2.49	0.88	.02	.00
Durable Goods								
Blender	0.13	0.34	0.17	0.38	0.24	0.42	.00	.00
Refrigerator	0.04	0.20	0.04	0.19	0.10	0.30	.32	.00
Gas stove	0.11	0.31	0.13	0.34	0.25	0.43	.03	.00
Gas heater	0.01	0.11	0.02	0.13	0.02	0.15	.15	.00
Radio	0.53	0.50	0.55	0.50	0.51	0.50	.15	.31
Television	0.24	0.43	0.27	0.44	0.32	0.47	.02	.00
VCR	0.02	0.13	0.01	0.10	0.02	0.13	.04	.82
Washing machine	0.01	0.12	0.01	0.09	0.02	0.13	.06	.21
Car	0.00	0.06	0.00	0.06	0.01	0.11	.69	.00
Truck	0.01	0.11	0.01	0.10	0.03	0.17	.32	.00

Notes: T1998 are program-eligible individuals in communities treated beginning in 1998; T2000 are program-eligible individuals in communities treated beginning in 2000; C2003 are program-eligible individuals in communities not treated before 2003.

force participation) relies on changes over time in the variable studied being similar in the absence of the program in both the treatment and control group, whereas the after-program-initiation difference estimator (for health variables) relies on the stricter assumption that levels are similar in the absence of the program in the treatment and control group. To the extent the matching does not sufficiently control for all of the unobservables, which is a particular concern for the after-program-initiation difference estimators, we expect to underestimate the true effects, given that poorer individuals are likely to have worse health status in the absence of the program.

Propensity Score Matching

The pre-program (and thus unaffected by the program) variables used for the matching are an individual's age, gender, indigenous status, schooling, and marital status, as well as demographic characteristics of the households in 1997, a number of household characteristics and consumer and production durables in 1997, the *PROGRESA/Oportunidades*' eligibility index (described earlier) score for program eligibility in 1997, income in 1997, and state of residence in 1997. To avoid matching aging adults of different ages and genders, in addition to the individual's propensity score, we use exact matching on age and gender.

We implemented several variants of balancing tests as an aid in specifying an appropriate propensity score specification. These tests examine whether the distribution of the covariates included in the propensity score model is independent of program participation conditional on the estimated propensity score, as it should be if the propensity score model is correctly specified and the estimator is consistent. First, we implemented a procedure used previously by Dehejia and Wahba (2002) that stratifies treatment and control observations based on the estimated propensity score (in quintiles) and then tests for significant differences between the covariates within each stratum. The vast majority of the covariates showed no significant differences by quintile. We also carried out an alternative balancing test, summarized in Todd and Smith (2005) and proposed by Rosenbaum and Rubin (1983), that calculates standardized differences for each covariate between the treatment and matched comparison group. Less than 6 % of the covariates have standardized differences above the value of 20 %, which is typically considered to be within an acceptable range.

Table 5 shows results from the estimated propensity score model for the comparison of T1998 versus C2003, for which the variables are jointly significant at the 0.1 % level (according to a chi-square test) and which has fairly good predictive power. Figure 1 shows the distribution of propensity scores in the original T1998 treatment group and the distribution of propensity scores in the C2003 comparison group. The distributions between the two groups are clearly different, although there are no gaps in support. We carry out matching with replacement, where control individuals may be used more than once as potential matches. A question, however, given the graph, is whether there are sufficient numbers of individuals in C2003 with high propensity scores (e.g., greater than 0.8) to match with the large number of individuals in T1998 with high propensity scores. The relatively large size of our sample is helpful in ensuring sufficient adequate matches: in particular, there are 166 elderly individuals in the C2003 with an estimated propensity score greater than 0.8, to be matched with 920 in the T1998 group. However, we also carry out estimations restricting the sample to those with propensity scores that

Table 5 Logit model for probability of participating in rural *PROGRESA/Oportunidades*[a]

Variable (all pre-program 1997)	Coef.	SE	Variable (all pre-program 1997)	Coef.	SE
Age	−0.01	0.00	Total Household Income	0.00***	0.00
Gender	0.00	0.07	Total Household Income, Squared	0.00***	0.00
Speaks Indigenous Language	0.57***	0.11	Blender	−0.11	0.11
Speaks Spanish and Indigenous Language	0.09	0.11	Refrigerator	−0.09	0.17
Grades of Schooling	−0.08	0.02	Gas Stove	0.57***	0.13
Married	−0.27***	0.07	Gas Heater	−0.08	0.26
Children 0–5	−0.43***	0.04	Radio	0.30***	0.07
Children 6–12	0.07	0.06	Television	0.13	0.09
Children 13–15	0.46***	0.06	Video	0.64*	0.26
Children 16–19	0.33***	0.05	Washing machine	0.78**	0.27
Women 20–39	0.22***	0.05	Car	−0.52	0.41
Women 40–59	−0.21**	0.08	Truck	0.51*	0.25
Women 60+	−0.32***	0.07	State 1	0.33†	0.17
Men 20–39	0.23***	0.05	State 2	0.68***	0.16
Men 40–59	−0.20*	0.08	State 3	0.04	0.16
Men 60+	−0.37***	0.07	State 4	−0.03	0.15
Number of Rooms	0.26***	0.04	State 5	0.17	0.15
Electricity in Household	−0.51***	0.07	State 6	−1.11***	0.15
Water in Household	−0.77***	0.07	Missing Own Land	0.86	1.16
Dirt Floor	−0.53***	0.09	Missing Electricity	−1.72	1.12
Room Material (inferior)	0.41***	0.08	Missing Animals	−3.08**	1.10
Wall Material (inferior)	0.21**	0.08	Missing Water	0.24	0.76
Own Animals	0.11	0.07	Constant	−3.28***	0.45
Own Land	0.38***	0.07			
Score	2.19***	0.22			
Score, Squared	−0.19***	0.03			
Number of Observations	6,420		Pseudo-R^2	.273	
Likelihood Ratio Chi-Square (48)	2,425		Log-Likelihood	−3,231	

[a] Dependent variable = 1: program-eligible individuals in communities treated beginning in 1998 (T1998), and = 0: program-eligible individuals in communities not treated before 2003 (C2003).

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

are less than 0.8 where there are a larger number of potential matches for the T1998 group (see Table 9 in the appendix).

We carry out both nearest-neighbor matching, varying the number of neighbors (one, two, and three) and local-linear matching. Results using each method are quite similar; we present in the main text results based on nearest-neighbor matching with two neighbors and present the remaining results in Table 9 in the appendix. Similarly, for the T2000 versus the C2003, we carry out a

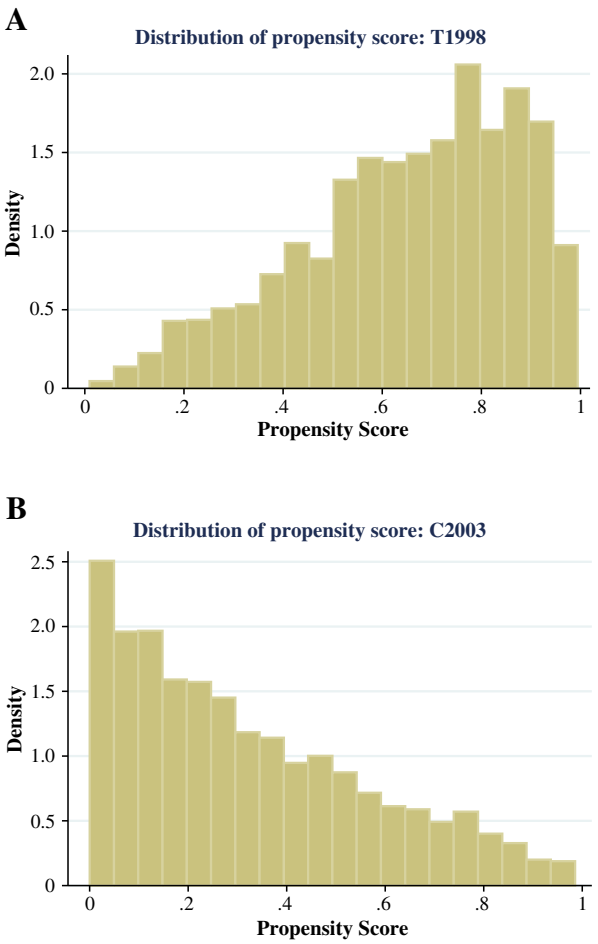

Fig. 1 Distribution of propensity score: T1998 and C2003. T1998 are program-eligible individuals in communities treated beginning in 1998; C2003 are program-eligible individuals in communities not treated before 2003

separate propensity score model, whose results are extremely similar to those of the T1998 versus C2003 comparison (available upon request).

Results

Table 6 presents the principal impact estimates based on the three periods of differential exposure for men and women on eight indicators of health and health-related behaviors separately for aging women and men (aged 50 or older pre-program in 1997). Beginning with the estimates of being exposed to 5.5 years of *PROGRESA/Oportunidades* versus never being exposed (T1998 vs. C2003), *PROGRESA/Oportunidades* significantly increased the probability of attending a health clinic in the previous 12 months by about 0.20 for both

Table 6 Estimated impacts of *PROGRESA/Oportunidades* on health and work by differential time of exposure to *PROGRESA/Oportunidades*[a] using nearest-neighbor matching[b]: Men and women aged 50 and older, pre-program

Indicator	C2003 Level	Impact (SE) by Treatment/Control Comparison		
		T1998 vs. C2003, 5.5 years	T2000 vs. C2003, 4.0 years	T1998 vs. T2000, 1.5 years
Women				
Probability of attending clinic in previous 12 months	0.360	0.225***	0.202***	0.048*
		(0.027)	(0.032)	(0.022)
Days reported sick in previous 4 weeks	3.540	−1.220**	−1.120*	−0.383
		(0.394)	(0.461)	(0.270)
Days unable to carry out normal activities in previous 4 weeks	1.650	−0.711*	−0.764*	−0.276
		(0.285)	(0.330)	(0.207)
Proportion with diabetes (self-reported)	0.123	−0.012	−0.056**	0.003
		(0.017)	(0.019)	(0.013)
Proportion with high blood pressure (self-reported)	0.328	−0.101***	−0.111***	0.000
		(0.024)	(0.029)	(0.019)
Proportion able to carry out vigorous activities, such as running or carrying heavy objects	0.690	0.064**	0.039	0.019
		(0.024)	(0.029)	(0.020)
Distance (in km) able to walk before getting tired	2.160	−0.011	−0.056	0.000
		(0.176)	(0.202)	(0.132)
Proportion working in the previous week in activity contributing to family income	0.150	0.101***	0.075**	0.047*
		(0.028)	(0.027)	(0.020)
Men				
Probability of attending clinic in previous 12 months	0.260	0.196***	0.165***	0.027
		(0.025)	(0.029)	(0.022)
Days reported sick in previous 4 weeks	2.500	−0.058	−0.591	0.000
		(0.349)	(0.371)	(0.021)

Table 6 (continued)

Indicator	C2003 Level	Impact (SE) by Treatment/Control Comparison		
		T1998 vs. C2003, 5.5 years	T2000 vs. C2003, 4.0 years	T1998 vs. T2000, 1.5 years
Days unable to carry out normal activities in previous 4 weeks	1.400	−0.064	0.047	−0.055
		(0.213)	(0.311)	(0.226)
Proportion with diabetes (self-reported)	0.076	−0.022†	−0.015	0.000
		(0.013)	(0.016)	(0.01)
Proportion with high blood pressure (self-reported)	0.145	−0.021	−0.003	0.000
		(0.018)	(0.021)	(0.016)
Proportion able to carry out vigorous activities, such as running or carrying heavy objects	0.800	0.007	0.006	0.010
		(0.02)	(0.023)	(0.02)
Distance (in km) able to walk before getting tired	3.880	0.032	−0.604**	0.213
		(0.203)	(0.202)	(0.169)
Proportion working in the previous week in activity contributing to family income	0.779	0.037†	0.044	−0.034
		(0.022)	(0.029)	(0.021)

[a] All estimates are after-program difference estimators, using information from 2003, with the exception of working, which is a double difference estimator using before-program (1997) and after-program (2003) data. T1998 are program-eligible individuals in communities treated beginning in 1998; T2000 are program-eligible individuals in communities treated beginning in 2000; C2003 are program-eligible individuals in communities not treated before 2003.

[b] Two neighbors.

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

aging women and men. This result represents a very large proportional increase, on the order of 63 % for women and 75 % for men. The larger proportional increase for men reflects the pre-program lower rate of having attended a health clinic in the previous twelve months; prior to the program, only about one-quarter of men reported having visited a health clinic in the previous twelve months versus almost 40 % of women.

With respect to the impacts on health and health-related outcomes, the results are striking because of the strong gender differences. For nearly all health indicators, women show a significant improvement in health status. More specifically, women show a significant reduction in days reported ill (1.2) and days in which they were unable to carry out their normal activities (0.7) over the past four weeks. The program also shows a significant reduction in the proportion of women reporting high blood pressure (10 percentage points) and a significant increase in the proportion (6.4 percentage points) of those reporting an ability to carry out vigorous activities, such as running or carrying heavy objects. Finally, perhaps in part because of this improvement in health, women—who in these rural communities traditionally have very low rates of labor market participation—show a significant increase in the probability of working of about 10 percentage points. In contrast, apart from a positive impact on clinic visits, the T1998 versus C2003 comparison shows almost no significant impacts on health outcomes for men, although there is a small positive effect on the probability of working for men—much smaller than the female effect at 3.7 percentage points.

We now turn to the additional impact estimators in Table 6 based on the nonexperimental comparison of 4.0 years of benefits versus never receiving benefits and the experimental differential exposure comparison of T1998 versus T2000 that estimates the impact of 5.5 years of receiving benefits versus 4.0 years of benefits. The comparison of T2000 to C2003 shows similar results to the comparison of T1998 versus C2003, with comparable or slightly smaller effects, as might be expected given the shorter time difference receiving the program. There remains the general pattern of larger and more widespread effects on women than men under these estimators as well. The experimental estimates comparing T1998 and T2000 show few significant effects of the program for both men and women. For women, significant and positive impacts of T1998 compared with T2000 are apparent for health consultations and the probability of working. For men, there are no significant impacts for any of the health or work variables, with the exception of an unexpected negative effect on days worked for men in the T2000 versus C2003 comparison. In summary, these results are also consistent with greater impacts of the program for women than for men.

Overall, it is noteworthy from Table 6 that, in fact, impact estimates are largest for the differential of 5.5 years of exposure and smallest under the experimental estimator of 1.5 years of differential exposure, in accordance with expectations. For instance, in the case of clinic visits, the T1998 versus C2003 comparison (5.5 years of benefits vs. never receiving) shows an impact for women of the program of increasing clinic visits by 0.23 after 5.5 years of benefits versus 0.20 after 4.0 years of benefits versus 0.05 for the experimental

estimate of 1.5 years of differential exposure. Similarly, the estimates show that the probability of labor market participation increased by 10.1 percentage points with 5.5 years of benefits, by 7.5 percentage points for 4.0 years of benefits, and by 4.7 percentage points for 1.5 years of differential exposure in benefits (all statistically significant). In summary, for the variables showing significant impacts, nearly all follow the pattern of larger impacts being observed with a greater difference in time receiving program benefits. All estimates also support the conclusion that the strong program impacts are mainly on women and are much lower for men.

Estimates in Table 7 show impacts disaggregated by age for the T1998 versus C2003 comparison. Again, the main picture of an important gender difference in program impacts is apparent with larger impacts for women on health indicators continuing to hold. The picture is particularly striking for the elderly—aged 70 and older—pre-program. For these females, the program reduces sick days, the days unable to carry out normal activities, the reported incidence of high blood pressure, and the reported incidence of diabetes. For men, however, there are no significant impacts on any of the health indicators in any age group, with the exception of the proportion with high blood pressure for those aged 70 and over. The disaggregation by age shows that the increase in female labor force participation observed previously occurs primarily for the age groups 50–59 and 60–69 pre-program. For men, there continue to be no significant impacts of the program on labor force participation in any age group.

Table 9 in the appendix presents robustness analysis for the matching estimators. The table repeats the T1998 to C2003 comparison for four different estimations: (1) restricting the analysis to individuals with propensity scores less than 0.8, (2) nearest-neighbor matching with one neighbor, (3) nearest-neighbor matching with three neighbors, and (4) local-linear regression analysis. All the results are quite similar to those presented in Table 6.

Finally, we return to a question posed earlier: whether impacts on health are different for the aging when an elderly female of the household directly receives the transfers versus when a younger female is the recipient of the transfers. To analyze this issue, we present in Table 8 impact results for women living in households where only the aging reside (in which the aging woman would necessarily be the recipient of the *PROGRESA/Oportunidades* grants) with women living in extended-family households. We hypothesize that resources under the control of the aging woman may have a larger effect on her own health and work than when *PROGRESA/Oportunidades* resources are under the control of other household members. Table 8, however, shows significant impacts on health and work for aging women in both types of households, with no obvious patterns of greater impacts in those households where the resources are given directly to the aging female. Although for some indicators, there are greater effects on health for women (for instance, on reducing high blood pressure) in the sample where resources are provided directly to the aging woman, for other indicators (including consultations and days reported sick) impacts are higher for the aging in extended families. Thus, these results are supportive of important effects on the health and work of aging women, regardless of whether they are the direct recipients of the *PROGRESA/Oportunidades* grants.

Table 7 Estimated impacts of *PROGRESA/Oportunidades* on health and work after 5.5 years of benefits[a] using nearest-neighbor matching[b]: Men and women by age group, T1998 vs. C2003

Indicator	Impact (SE) by Pre-program Age Group		
	50–59	60–69	70 and Older
Women			
Probability of attending clinic in previous 12 months	0.293***	0.087†	0.258***
	(0.037)	(0.051)	(0.054)
Days reported sick in previous 4 weeks	−1.000*	−0.158	−3.440***
	(0.452)	(0.689)	(0.843)
Days unable to carry out normal activities in previous 4 weeks	−0.702*	0.086	−2.170***
	(0.299)	(0.521)	(0.629)
Proportion with diabetes (self-reported)	−0.007	0.000	−0.056†
	(0.025)	(0.032)	(0.030)
Proportion with high blood pressure (self-reported)	−0.066†	−0.113**	−0.189***
	(0.036)	(0.041)	(0.049)
Proportion able to carry out vigorous activities, such as running or carrying heavy objects	0.034	0.094*	0.097†
	(0.031)	(0.046)	(0.055)
Distance (in km) able to walk before getting tired	0.131	−0.435	−0.144
	(0.262)	(0.343)	(0.137)
Proportion working in the previous week in activity contributing to family income	0.109***	0.118**	0.081*
	(0.033)	(0.041)	(0.037)
Men			
Probability of attending clinic in previous 12 months	0.210***	0.236***	0.076
	(0.036)	(0.046)	(0.054)
Days reported sick in previous 4 weeks	−0.267	−0.653	0.900
	(0.383)	(0.588)	(0.800)
Days unable to carry out normal activities in previous 4 weeks	−0.054	−0.657	0.256
	(0.282)	(0.477)	(0.694)
Proportion with diabetes (self-reported)	−0.025	−0.023	−0.014
	(0.018)	(0.027)	(0.024)
Proportion with high blood pressure (self-reported)	−0.005	−0.019	−0.064†
	(0.025)	(0.032)	(0.039)
Proportion able to carry out vigorous activities, such as running or carrying heavy objects	−0.022	0.065†	−0.003
	(0.023)	(0.039)	(0.058)
Distance (in km) able to walk before getting tired	0.000	0.046	−0.353
	(0.318)	(0.341)	(0.240)
Proportion working in the previous week in activity contributing to family income	0.039	0.013	0.059
	(0.027)	(0.045)	(0.058)

[a] All estimates are after-program difference estimators using information from 2003, with the exception of working, which is a double difference estimator using before-program (1997) and after-program (2003) data. T1998 are program-eligible individuals in communities treated beginning in 1998; C2003 are program-eligible individuals in communities not treated before 2003.

[b] Two neighbors.

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 8 Estimated impacts of *PROGRESA/Oportunidades* on health and work after 5.5 years of benefits[a] using nearest-neighbor matching[b]: Women aged 50 and older pre-program, by type of household T1998 vs. C2003

Indicator	Impact (SE) by Type of Household	
	Extended Family: In Household With Others Besides Elderly	In Household With Only Elderly
Probability of Attending Clinic in Previous 12 Months	0.255***	0.114[†]
	(0.028)	(0.061)
Days Reported Sick in Previous 4 Weeks	−1.190**	−0.266
	(0.406)	(0.947)
Days Unable to Carry Out Normal Activities in Previous 4 Weeks	−0.858**	−0.022
	(0.308)	(0.638)
Proportion With Diabetes (self-reported)	−0.008	−0.026
	(0.018)	(0.038)
Proportion With High Blood Pressure (self-reported)	−0.062*	−0.223***
	(0.025)	(0.054)
Proportion Able to Carry Out Vigorous Activities, Such as Running or Carrying Heavy Objects	0.083***	0.034
	(0.025)	(0.054)
Distance (in km) Able to Walk Before Getting Tired	−0.048	−0.264
	(0.191)	(0.326)
Proportion Working in the Previous Week in Activity Contributing to Family Income	0.107***	0.122*
	(0.024)	(0.055)

[a] All estimates are after-program difference estimators using information from 2003, with the exception of working, which is a double difference estimator using before-program (1997) and after-program (2003) data. T1998 are program-eligible individuals in communities treated beginning in 1998; C2003 are program-eligible individuals in communities not treated before 2003.

[b] Two neighbors.

[†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Conclusions

This article analyzes the impact of *PROGRESA/Oportunidades* on health and labor force participation measures of the aging—those aged 50 and older prior to the program—measured 5.5 years after the program began. We find important impacts on male and female clinic visits. Additionally, for a variety of measures of self-reported health, the program appears to improve health significantly, with impacts that are larger with a longer time receiving program benefits. Most of these health effects are concentrated on women.

Why are the impacts more prominent for women than men? We argue that several aspects to the program might generate larger impacts on female health

than on male health. First, in a number of ways, the program is oriented more to women than to men.[12] In particular, women are recipients of the monetary transfers, which likely implies that they have more control over their use. Second, although only a yearly checkup is required of elderly *PROGRESA/Oportunidades* beneficiaries and there are no gender differences in this requirement, female heads (*titulares*) of the program are required to attend monthly health talks. Many of the elderly women in our sample may attend these talks and/or accompany their daughters/grandchildren to the clinic for their more regular clinic visits requirements. This may provide the opportunity to have access to additional information on health-promoting behaviors. Additionally, because women are clearly the emphasis in *PROGRESA/Oportunidades*, by being more invested with the program, women may be more likely to follow the health measures/advice given by doctors at the health clinics.

A second issue relates to the specific mechanisms that *PROGRESA/Oportunidades* has that might lead to an improvement in health indicators for the aging. As described in the Introduction, *PROGRESA/Oportunidades* might improve health by improving income, diet, and spending on health, thus increasing knowledge and inducing time reallocations. The income increases represent about 25 % in monthly income, which is a substantial increase, and previous evaluations have documented not only an increase in spending but also a substantial improvement in the quality and diversity of diet (Hoddinott and Skoufias 2004). The conditionalities that lead to increased health clinic attendance and attendance at monthly health lectures may also lead to the adoption of healthier behavioral practices as well as improved access to medicines and other health treatments. Increased income, better diet, more and better health care, and more information about health practices would seem likely to lead to the sorts of effects observed here, such as the reduction of sick days and increased ability to carry out daily activities. It is also possible that the program might reduce stress, an important factor affecting blood pressure. Particularly for women, *PROGRESA/Oportunidades*, by providing a regular source of income under their control, might reduce the stress associated with living in conditions of extreme poverty.

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[12] In addition to women receiving the transfers, girls in school receive higher grants than boys at the postprimary school levels, and there is an important prenatal and postnatal health component.

Appendix

Table 9 Estimated impacts of *PROGRESA/Oportunidades* on health and work[a]: Men and women ages 50 and older pre-program. Robustness: Nearest-neighbor matching and local-linear regression matching. T1998 versus C2003

		Impact (SE) by Treatment/Control Comparison		
Indicator	Propensity Score < 0.8	Nearest-Neighbor, One Neighbor	Nearest-Neighbor, Three Neighbors	Local-Linear
Women				
Probability of attending clinic in previous 12 months	0.238***	0.240***	0.227***	0.209***
	(0.029)	(0.030)	(0.025)	(0.026)
Days reported sick in previous 4 weeks	−1.030**	−0.999*	−1.110**	−1.300**
	(0.430)	(0.444)	(0.375)	(0.418)
Days unable to carry out normal activities in previous 4 weeks	−0.599†	−0.665*	−0.536†	−0.733**
	(0.306)	(0.325)	(0.271)	(0.260)
Proportion with diabetes (self-reported)	−0.011	−0.003	−0.010	−0.017
	(0.018)	(0.019)	(0.016)	(0.017)
Proportion with high blood pressure (self-reported)	−0.104***	−0.091***	−0.103***	−0.086***
	(0.026)	(0.027)	(0.023)	(0.025)
Proportion able to carry out vigorous activities, such as running or carrying heavy objects	0.057*	0.076**	0.061**	0.069**
	(0.026)	(0.026)	(0.023)	(0.025)
Distance (in km) able to walk before getting tired	0.034	−0.043	−0.031	−0.077
	(0.194)	(0.179)	(0.16)	(0.164)
Proportion working in the previous week in activity contributing to family income	0.113***	0.082***	0.106***	0.092***
	(0.024)	(0.024)	(0.021)	(0.022)
Men				
Probability of attending clinic in previous 12 months	0.230***	0.205***	0.202***	0.174***
	(0.027)	(0.029)	(0.024)	(0.026)
Days reported sick in previous 4 weeks	−0.064	−0.144	−0.039	−0.014
	(0.392)	(0.416)	(0.329)	(0.302)
Days unable to carry out normal activities in previous 4 weeks	0.118	−0.127	0.084	0.045
	(0.317)	(0.334)	(0.269)	(0.253)
Proportion with diabetes (self-reported)	−0.018	−0.024	−0.022†	−0.017
	(0.014)	(0.015)	(0.012)	(0.013)
Proportion with high blood pressure (self-reported)	−0.022	−0.014	−0.022	0.002
	(0.019)	(0.020)	(0.017)	(0.016)
Proportion able to carry out vigorous activities, such as running or carrying heavy objects	0.001	0.030	0.006	0.012
	(0.022)	(0.023)	(0.019)	(0.019)
Distance (in km) able to walk before getting tired	0.036	0.037	0.107	−0.105
	(0.222)	(0.222)	(0.194)	(0.205)

Table 9 (continued)

Indicator	Propensity Score < 0.8	Impact (SE) by Treatment/Control Comparison		
		Nearest-Neighbor, One Neighbor	Nearest-Neighbor, Three Neighbors	Local-Linear
Proportion working in the previous week in activity contributing to family income	0.029 (0.025)	0.034 (0.026)	0.015 (0.021)	0.011 (0.020)

[a] All estimates are after-program difference estimators using information from 2003, with the exception of working, which is a double difference estimator using before-program (1997) and after-program (2003) information. T1998 are program-eligible individuals in communities treated beginning in 1998; C2003 are program-eligible individuals in communities not treated before 2003.

$^{\dagger}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

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