Welfare Programs for Older Population: Does Frequency of Payment Matter?

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Abstract

In this study, we analyze the impact of non-contributory pension programs on the wellbeing of older population when the cash transfer is disbursed with a different frequency of payment (monthly vs bimonthly). At least 60 countries around the world, including South Africa, have introduced noncontributory pension programs for the elderly. Using a quasi-experimental approach with difference-in-differences propensity score matching estimates, we find evidence that a monthly benefit has larger impacts decreasing poverty while the bi-monthly benefit is associated with a larger increase of the consumption of durable goods. In addition, we find evidence that bi-monthly benefits may increase peer pressure on the older recipients to share resources with other family members and a deterioration of the older persons' relationship with their family. Most poverty alleviation programs in the world are disbursed bimonthly and our findings suggest this should be changed to a lower frequency of payment.

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Introduction

Various studies have documented that individuals or households with little savings do not smooth their consumption between paychecks (or social security checks). Rather, consumption tends to peak when the check arrives and then falls until the arrival of the next check. This pattern is found both for expenditures (Stephens, 2003, 2006) and for caloric intake (Shapiro, 2005; Mastrobuoni and Weinberg, 2007). From an academic viewpoint, these findings are of interest, since they seem to point toward hyperbolic discounting. From a policy viewpoint, a concern is that toward the end of the pay period people will reduce their food intake until it falls below recommended levels. For instance, Mastrobuoni and Weinberg (2007) report that in a sample of older population without savings, the probability of consuming less than the USDA recommended consumption level for total calories increased by nearly 15 percent in the final week of the pay period. Not only will it be of interest to see if similar patterns of consumption are found among older population in a very different setting than the U.S, but given that many of the persons 70 years old or older in Mexico and other developing countries suffer from food availability, reporting not having enough money to eat, making sure that the caloric intake for older population in poverty is sufficient during the whole month is of obvious importance.

Whether or not individuals are able to smooth consumption has important implications for the optimal design of public policies. When individuals are able to smooth consumption, then a cash transfer program that makes disbursement less often will be less costly and equally effective. However, when individuals are unable to save for even a few weeks, then it might be better to have frequent disbursements, even at additional cost. On the other hand, receiving funds in a single larger payment instead of spread-out may allow individuals to take on large investments, such as house improvements and durable goods purchases. A large literature on microfinance shows that poor individuals in developing countries often face difficulties in saving even for moderate goals. Also, previous literature has found that individuals are unwilling to maintain large amounts of money because family pressures may arise when a family member keeps a substantial amount of money (Dupas and Robinson, 2011). In fact, randomized-controlled trial evaluations of microcredit programs have shown that the largest impact of microcredit is to allow individuals to purchase durable goods (and reduce consumption of every-day items such as tea in India, Banerjee, et al 2009). This can be explained by a lack of financial services that allow safely accumulating wealth or by self-control problems. Thus, a potential positive aspect of lower-frequency of payments is that it may allow individuals to take on investments, some of which may be health improving.

This paper exploits the introduction of two very similar non-contributory pension programs in the State of Yucatan, Mexico, that have, as the key difference between them, the frequency of the payments: *Reconocer Urbano (monthly pension)* and 70 y Más (bi-monthly pension). *Reconocer* is a State program providing a payment of Mx\$550 pesos every-month, whereas 70 y Más is a Federal program providing roughly double that amount (MX\$1,000) every two months for individuals 70 years old or older. In order to evaluate its impacts, *Reconocer Urbano* was rolled out experimentally: first, two towns with similar characteristics were chosen; second, one of them (Valladolid) was selected to receive the program in 2008. The control town, Motul, did not receive the program in 2008. We conducted baseline surveys between August and November 2008 (Wave 1 or W1) in Valladolid and Motul before the roll-out of the monthly

pension program in Valladolid. The monthly pension program was introduced in Valladolid in December 2008. The first follow-up surveys in Valladolid and Motul were conducted between July and August 2009 (Wave 2 or W2). The Federal government began extending 70 y Más to towns with more than 20,000 inhabitants in the summer of 2009. On July 28 of 2009, households in Motul started receiving the federal government bi-monthly pensions. Thus, the roll-out of the bi-monthly benefit program overlapped with the data collection of the first follow-up survey. In the first follow-up we can observe that around 30 percent of the age eligible individuals in Motul report that they just started receiving 70 y Más. In order to understand the effects of non-contributory pension programs in terms of differences in frequency of payments, we decided to conduct a second follow-up survey in 2010 (Wave 3 or W3) in both Valladolid and Motul. By that time, all older persons in Motul were receiving the bi-monthly pensions, while the older population in Valladolid, were receiving monthly pensions. Surveys took place between June and August 2010.

We find that individuals in the bi-monthly program town, Motul, exhibited imperfect smoothing. Households receiving the bi-monthly pension from 70 y Más spend larger amounts on food and beverages in weeks soon after the payment date. This finding is consistent with the hypothesis that households are unable to smooth consumption. The cyclicality of expenditures is not observed for pension-recipients in Valladolid (monthly pension).

Analyzing the changes between Waves 1 and 3 (W1 to W3), we observe larger increases in expenditures in every-day consumption items (such as food and doctor visits) in Valladolid than in Motul, as well as a reduction of cases in which families run out of food, report being hungry, or have an emergency and are unable to go to the doctor. On the other hand, the ownership of durable goods such as cell phones and bicycles in Motul increased relative to Valladolid over the same period. We also observe changes within the shorter time lapses (W1 to W2 and W2 and W3) and confirm that the timing of the changes are consistent with the timing of the introduction of each program

We also find that both programs reduce net-transfers from family members to the older persons, but the monthly pension program did this by reducing transfers to the older population while the bi-monthly pension program increases transfers from the older population to other family members. Overall, however, the monthly program had a larger effect in reducing the net-transfers to the elder by the family. In addition, the bi-monthly pension program increases older persons' fear that their money will be taken by someone they know and reduces their satisfaction with their relationship with family members and other social contacts.

The remainder of the paper is organized as follows. In section two, we describe the monthly and bi-monthly non-contributory pension programs, the evaluation design, and the data. In section three, we explore patterns of consumption smoothing in the two towns. Section four presents the difference-in-difference estimates of the impact of the monthly and bi-monthly programs on a series of expenditure and consumption variables, within-family transfers and satisfaction measures. Section five analyzes the robustness of the difference-in-difference results using parametric and non-parametric estimators. Section six presents a discussion of remaining methodological concerns and section seven concludes.

2. Background and Experimental Design

The social security program being implemented by the State of Yucatan is called *Reconocer Urbano*, a non-contributory, universal pension program aimed at towns with more than 20,000 inhabitants. It is being implemented in phases throughout the state. The first phase started in Valladolid in December 2008 with 1,047 beneficiaries. The *Reconocer Urbano* program was designed to provide a non-contributory pension payment of MXN \$550 per month to any individual 70 or older (about US\$67 at 2011 purchasing power parity [PPP]) in urban areas in the State of Yucatan (see Aguila, Kapteyn, et al., 2013). The monthly benefit is equal to almost one third of the monthly minimum wage in Yucatan (MXN \$1,772.40 in January 2012).

The research study conducted to evaluate the impact of the pension program is called *Escuchar* and involves a series of surveys that collectively are dubbed ENCAHEY (*Encuesta de Características Socioeconómicas del Hogar en el Estado de Yucatán*- Survey of Household Socioeconomic Characteristics in the State of Yucatan). The evaluation collected individual-level data on selected biomarkers, dietary practices, self-reported health, stress, depression, food security, and household-level data on availability of food. The evaluation also collected data on smoking and alcohol consumption, health care utilization and out-of pocket expenditures, financial and in-kind transfers among beneficiaries' children and neighbors, and on the economic activity of older workers, among other topics. Furthermore, the evaluation sought to implement means-testing mechanisms for poverty programs for persons 70 years and older so as to target the cash transfer program to those in most need (see Aguila et al., forthcoming).

Motul, a town with similar characteristics to Valladolid was chosen as control group. Control groups would receive the non-contributory pension program at later stages depending on the government annual budget and the introduction of similar programs from the federal government. However, in July 2009, the control group in Motul began receiving a non-contributory pension from the federal government called *70 y Más* run by the Ministry of Social Development (Secretaría de Desarrollo Social or SEDESOL). The *70 y Más* program provides a bi-monthly cash payment equivalent to MXN \$ 500 per month (about US\$67 at 2011 purchasing power parity [PPP]). In 2012 the program *70 y Más* covered almost 80,000 localities across Mexico and more than 3.5 million beneficiaries.

Both the *Reconocer* and the *70 y Más* program disbursements occurred in a period of 2 days within each town (Valladolid and Motul) whereas the survey was conducted over a period of about two months. This resulted in variation in the time gap between the last disbursement and the date of survey. Table 1 shows the dates of these disbursements.

The development of the baseline survey instrument started in the fall of 2007. In developing the baseline survey, we included survey measures that have been validated and tested in other surveys in both English and Spanish. Items included in the survey instrument were taken or adapted from existing surveys used in other longitudinal studies

¹ 1 The PPP exchange from Mexican pesos to U.S. dollars in 2011 was 8.18 (from Organisation for Economic Co-operation and Development [OECD], undated [a]).

including the Mexican Health and Aging Study, the US Health and Retirement Study, the New Immigrant Study, Oportunidades, as well as from various family life surveys.

The survey instruments used as part of *Escuchar* collect detailed community, household, and individual-level data at baseline (before the program is announced or implemented) and in two follow up interviews in both treatment and control groups. In those cases where eligible adults could not be interviewed, due to health issues or language difficulties, the interview was conducted with a proxy respondent within the same household. ² Both baseline and follow up surveys collect self-reported data on health, depression, chronic conditions, activities of daily living (ADLs), instrumental activities of daily living (IADLs), physical functioning, anthropometric measurements and a number of biomarkers. Anthropometric measurements include height, weight, waist circumference, arm circumference, arm length, and height to knee. We also collect blood pressure, lung capacity, grip strength and a series of balance tests and a timed walk. Where appropriate, respondents are asked for continuous answers (e.g., when asked for monetary quantities). If the respondent is unable to answer, unfolding brackets are used to reduce the number of missing responses. This mimics the current practice in the HRS.

To build the sampling frame for this study, we first carried out a complete listing of all households in a town and screened them in order to identify households with age-eligible adults. We established a collaborative agreement with INEGI, the National Institute for Statistics and Geography (the federal agency in Mexico responsible for conducting the population census in addition to many other surveys) whereby they provided us with maps of the communities selected for each phase of *Reconocer Urbano*, while updating these maps as necessary (a cartographer accompanied our data collection team and updated the maps as households were being listed).

The census of Valladolid and Motul was conducted during June and July of 2008. This created the sampling frame for the baseline survey of the evaluation study (*Escuchar*). We compared the sample information (total number of households, number of households with age-eligible individuals and age-eligible individuals in the households) collected during the listing in Valladolid and Motul with the information of the Mexican Census 2005. Overall, the number of observations is very similar between the two surveys with small differences, mainly as a result of the different years of collection (2005 vs. 2008) (Aguila, et al., forthcoming). The baseline data collection started in August of 2008. After the collection of baseline data, *Reconocer Urbano* was implemented in Valladolid in December 2008. The first follow-up in June and July 2010.

The second follow-up survey in Valladolid and Motul was conducted 1.5 years after Valladolid started receiving the treatment from *Reconocer* and approximately one year after Motul started receiving a treatment from the federal government program (70 y Más). Table 2 shows descriptive statistics for the samples in Valladolid and Motul.

² The questionnaire used for proxy respondents is a selection of the full survey and it did not include any of the physical or anthropometric measurements. The interviews completed by proxy respondents were counted in the total, but not used for the response rate calculations.

Valladolid, a total of 1,114 interviews were completed in the first follow-up for a re-interview rate of 80.4 percent. Seventy-two of those surveyed passed away between the first and second follow-up interview and 104 refused to participate in the second follow-up interview. In Motul, 923 first follow-up interviews were completed for a re-interview rate of 79.4 percent. Fifty-eight participants passed away between the first and second interviews (5.2 percent) and 85 refused to participate in the follow-up interview. The response rates for Valladolid and Motul are shown in Table 3.

3. Imperfect Consumption Smoothing

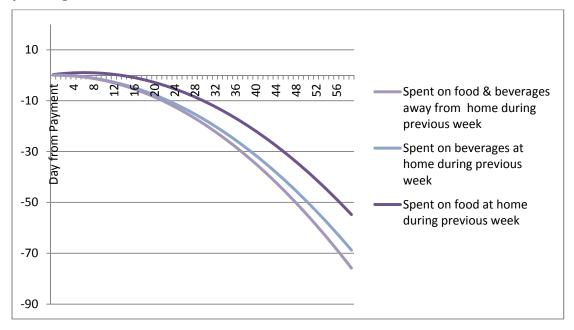
The frequency of payment can affect outcomes when older beneficiaries are unable to smooth consumption. We study consumption smoothing by analyzing whether consumption declines with the time elapsed since the most recent benefit payment.

As described in the previous section, the length of the survey instruments resulted in the survey team staying in each town over an extended time period. Thus the dates of the interviews vary substantially and hence for different respondents the time elapsed since the most recent benefit receipt varies as well. Thus, we can study whether expenditures vary depending on how long ago a respondent received a benefit. In particular, the survey asks about expenditures on food and drinks, expenditures on food and drinks at home and outside of home.

We estimate a regression of these expenditure variables on a variable that measures the number of days since the last disbursement using the second and third follow-ups (W2 and W3). We find that in Motul, each day that passes is statistically significantly associated with about 1.5 fewer pesos spent on food (see Table 4). In Valladolid, on the other hand, there is no statistically significant association among these variables.

A negative relationship is also observed for total expenditures by the household on beverages at home and on food and beverages outside of home. The sign of the relationship is robust to the set of controls included in the specification, although the magnitude of the effect does vary somewhat depending on the exact specification. It is worth noting that the relationship is not necessarily linear. We tested for higher order terms and found the quadratic term to be statistically significant (in some cases), but not a third order term (See Table 4). Figure 1 shows the implied time paths of food expenditures for the estimated higher order specification. The graphs show a monotonic decrease in expenditures with time elapsed since disbursement as implied by the estimated model.

Figure 1. Expenditures in Motul as a function of time elapsed since disbursement date. Polynomial Model of 2^{nd} Degree.



These results are consistent with studies such as Stephens (2003) and Stephens (2006) showing that expenditures peak after receipt of social-security benefits in the US and the UK, and decline there-after. Other studies (Shapiro, 2005; Mastruoboni and Weinberg, 2007) find this cyclicality not only in expenditures but also in consumption. Unfortunately, we cannot directly test the cyclicality of consumption since we do not have variables of daily consumption. Consumption questions refer to longer periods than a day. Examples of questions asked are "How often do you eat tortillas, bread, crackers or other cereals?: At least once a day; At least once a week; Several times a month; Once in a while; Never" and "How often in the past 3 months, were (you or other adults in your household) hungry but didn't eat because you couldn't afford enough food?: Never; Sometimes; Usually; Always"

Most variables collected in the surveys refer to items that change only slowly, for example health outcomes. However, the fact that we don't expect these variables to vary within the disbursement period does not mean they are not affected in the medium or long run. We may expect outcomes such as health to be affected in the medium or long run if at the end of each disbursement period, recipients consume too little. In the next section, we examine the impact of the monthly and the bi-monthly pension programs on a variety of outcome measures.

4. Difference-in-Differences Estimates of the Effects of the Monthly and Bi-monthly Pension Programs

The analysis we present aims to determine the effects of the monthly and bi-monthly programs. First of all, we analyze the difference in the overall change between Waves 1 and Wave 3 between the two towns. The latter is shown in the last column of Tables 5.1 to 5.5, which corresponds to the difference-in-differences estimates from Wave 1 and

Wave 3 (W3-W1). The comparison is subject to the caveat that by W3 the monthly program had operated for longer because the monthly program started in 2008 and the bi-monthly program started in 2009. To the extent that recipients take a long time to adapt behavior, the W1-W3 comparison will tend to overestimate the impact of the monthly program in comparison to the bi-monthly program.

We also compare the changes in outcomes that occurred after the introduction of the monthly pension program with the changes caused by the introduction of the bi-monthly pension program, that is, we compare the changes in outcomes between Wave 1 and Wave 2. By comparing Wave 1 and Wave 2, we analyze short-term changes as a result of the introduction of the monthly pension program. We also analyze changes between Wave 2 and Wave 3 to examine short-term changes as a result of the introduction of the bi-monthly program. Given that the two locations are in the same geographic region of the State of Yucatan, they share similar socioeconomic and demographic characteristics; we would expect the introduction of the pension programs to have similar effects when the programs are the same. Therefore, we attribute the differences in the outcome variables to the difference in the design of these two programs which is the periodicity of the payments; one program is disbursed monthly in Valladolid and the other program is disbursed bi-monthly in Motul.

We analyze the following outcomes presented with three categories including: 1) basic needs: health care and food consumption, 2) Expenditure on durable and luxury goods, 3) private transfers: family and friends transfers, and 4) a measure of self-reported satisfaction:

Basic needs: Health care/Food consumption	Expenditure on Durable and luxury goods	Private transfers: family and other social network transfers	Satisfaction
Health: Visited a Doctor, number of doctor visits, had a serious health problem but did not visit a doctor because of money, did not buy medicines because they were too expensive	Equipment and investment goods: owning refrigerator, telephone, owning a cell phone, owning a bicycle; owns no piece of equipment; how many chicken, how many pigs, how many turkeys	In-Transfers to the elder: "Received money dummy", "Total Money Received", "Out of Pocket Expenses paid by elder", Family or friends pays for expenses (not true to always true); received in kind, total in kind received; "received free food", "received food from charity"	Income: "satisfied with family income"
Food (basic): sometimes does not have enough to eat, often runs out of food, respondent or someone in hhd skipped or cut meals, often eats less than should, Often hungry because cannot afford food, Often in last 3months someone in the hhd did not eat for 1 day, ate cereal daily	"Luxury" goods: how often does one eat food items (noncereal): meet, fruit, eggs, diary; how much spent on beverages, how much spent on food and beverages away from home	Out-Transfer from the elder to the rest of the family: "give money", "total money given", "give in kind", "total given in kind"	Family and Social Relationships: satisfied with relation family members, satisfied with social contacts, "are you abused"

We present our empirical results in Tables 5.1 to 5.5 containing the outcomes in the broad categories described above. The tables show the average values of the outcome variables in Valladolid and Motul for Wave 1, Wave 2, and Wave 3, the difference-in-differences estimates of the monthly pension program comparing Wave 1 and Wave 2, that is the difference between Wave 2 and Wave 1 surveys in Valladolid minus the same difference in Motul ([V2-V1]-[M2-M1]), and the difference-in-differences estimates of the impact of the bi-monthly pension program comparing Wave 3 and Wave 2, that is the difference between the Wave 3 and Wave 2 surveys in the outcome variables in Motul minus the same difference in Valladolid ([M3-M2]-([V3-V2]). In the next section, we present a similar analysis with alternative specifications controlling for family and individual characteristics.

Program Incidence

The monthly and bi-monthly pension programs are universal and voluntary. Though none of the programs achieved 100 percent coverage, Table 5.1, shows that both programs significantly increased the proportion of older persons receiving any support. The survey questions included a series of questions about program receipt. 86 percent of Valladolid respondents in Wave 2 reported receiving the monthly pension, thus almost 14 percent of eligible older persons chose not to receive the benefit.

In all waves, a negligible number of respondents in Valladolid report receiving benefits from the bi-monthly pension program. These answers most likely reflect measurement error as this program has not been implemented in Valladolid. A negligible number of respondents also report receiving the bi-monthly pension in the baseline survey in Motul, increasing to 30 percent in Wave 2 and 84 percent in Wave 3.

One possible concern is that the access to other public programs might have changed as a result of the introduction of the monthly or the bi-monthly pension programs, causing a "crowding-out" effect of other existing public programs. We do in fact find a slight reduction in Wave 2 and Wave 3 in the proportion of older persons reporting receiving other public programs. For example, the percentage of older persons in Valladolid who reported receiving *Oportunidades*³ decreased by 2.45 percentage points more than the pensioners in Motul between Wave 1 and Wave 2 (see column 7 in Table 5.1). Similarly, between Wave 2 and Wave 3 the percentage that reported receiving *Oportunidades* in Motul decreased by 4.6 percentage points more than in Valladolid (column 9). Similar but smaller effects can be observed for the program *Procampo*.⁴

Those effects are small compared with the direct changes in the proportion of older persons who started receiving the pension programs. The percentage of individuals receiving support from any_program increased by 55

³ Oportunidades offers a cash transfer and a food assistance transfer for elderly adults living in eligible households, conditional on attending nutrition and health training sessions.

⁴ PROCAMPO is an agricultural support program with the aim of improving the wellbeing of growers by increasing and stabilizing their income. The program provides flat-rate payments to help farmers overcome financial constraints.

percentage points more in Valladolid than in Motul between Wave 1 and Wave 2, and by 37 percentage points more in Motul than Valladolid between Wave 2 and Wave 3.

Expenditure on basic needs

We would expect both the monthly and bi-monthly programs to affect expenditures on basic goods. However, one might expect the impact of the monthly pension program to be larger when high-frequency payments lead to more consumption smoothing while receiving less-frequent payments but higher accumulated sums may lead to expenditures on larger investment goods or splurging.

We find evidence consistent with these hypotheses. First of all, we note that the effect of the monthly pension program seems to be larger for many of the basic expenditures. For example, the indicator variable for having visited a doctor increased in the monthly pension town, Valladolid, from slightly over 40 percent in Wave 1 to over 50 percent in Wave 2 and Wave 3; while it remained fairly constant over the period in Motul. Overall, there's a 0.11 increase in the probability between Wave 1 and Wave 3 in in Valladolid relative to Motul of having visited a doctor (see last column in Table 5.2). The change was mostly concentrated between Wave 1 and Wave 2 (0.067 – see column 7), but continued between Wave 2 and Wave 3 (0.038 – column 8). Similarly, the average total number of doctor visits increased between Wave 1 and Wave 3 by 0.293 in Valladolid relative to Motul.

Several other basic expenditure items were purchased more between Wave 1 and Wave 3 in Valladolid relative to Motul; the number of interviewees who responded they had health problems bud did not go to the doctor because of lack of money was reduced between Wave 1 and Wave 3 in Valladolid relative to Motul by almost 10 percent.

Compared to Motul, the frequency reported by respondents in Valladolid with which they run out of food decreased by 0.151 on a 1 to 4 scale, where 1 is never and 4 is always. Similarly, the frequency with which Valladolid respondents reported to be hungry because they could not afford food declined by .268 in comparison to Motul and the proportion of individuals reporting receiving food from charity also declined more in Valladolid than Motul. The effect on several variables including "sometimes we do not have enough to eat"; "how often hungry because can't afford food"; "how often someone in the household does not eat for 1 day"; "how frequently received food from charity" had a larger positive effect in all specifications for the monthly pension program than for the bi-monthly pension program. This can be seen in Column 8, where the sign of these difference-in-differences estimates is negative (indicating a lower frequency of the events). All of these variables are on subjective scales (never to always) and therefore is not necessarily surprising that there considerable variation across waves (i.e. some of these are decreased from Wave 1 to Wave 2 and then increased from Wave 2 to Wave 3) as there can be differences in how respondents are responding to these questions across waves. This highlights the importance of using difference-in-differences instead of only looking at time trends.

Both programs seem to have reduced the incidence of hunger in the families' households. The variable "how often someone in the household has to skip or cut a meal" was reduced between Wave 1 and Wave 2 in Valladolid

relative to Motul, and between Wave 2 and Wave 3 in Motul relative to Valladolid, suggesting that both programs had an immediate impact on that variable.

Durable and Luxury Good Expenditures

The increased income as a result of the monthly and bimonthly pension programs should allow older persons and their households to buy durable goods and perhaps also consume more of non-basic or "luxury" consumption goods. The surveys contained questions on household ownership of items: telephone, cell-phone, refrigerator, bicycle, etc. In addition, we created one variable: "no-equipment" which is an indicator of the household owning none of the listed durables. Though we expect both programs to have an impact on the durable and luxury good variables, one could expect the effect of the bi-monthly pension program to be larger, as the recipients might have difficulty saving from the high-frequency-low amount pension in order to buy these goods.

Table 5.3 shows indeed an increase in the ownership of several goods in Motul relative to Valladolid. For some of the goods, we observe a statistically significant increase from Wave 1 to Wave 3 in Motul relative to Valladolid, despite the fact that the bi-monthly program was rolled out later. For example, there is an increase in Motul in the percentage of older persons owing a cell phone from 14.1 percent to 23.9 percent, while the ownership rate decreased in Valladolid from 18.4 percent to 14.4 percent. The ownership of bicycles decreased in Valladolid from 20.2 percent to 13.5 percent, while it stayed flat in Motul. The percentage of households without any of these durables stays flat in Valladolid and decreases from 22.5 percent to 19.3 percent.

The changes in aggregate rates are the result of some households reducing their ownership of certain goods and other households buying these goods. For instance, 17.4 percent of those in Motul who reported not owning a cell phone in Wave 2 obtained one in Wave 3; compared to 9.8 percent of those who did not own one in Valladolid.

Similarly, 16 percent of those who did not own a bicycle in Wave 2 had got one by Wave 3 in the bimonthly city, while only 5.5 percent of those who did not own one in the monthly pension benefit city in Wave 2 had got one by Wave3.

Neither of the programs seems to have had a significant effect on the number of livestock owned. The reported frequency with which pensioners eat non-cereal food items increased in both towns, but the bi-monthly pension program has the largest effect. Compared to tortilla, and other cereals, the consumption of these other food-types can be considered as luxury goods. The difference-in-differences coefficients in Column 9 of Table 5.3 are positive (indicating a larger increase in Motul) for the consumption of non-cereal food-items (dairy, eggs, meat, and fruit). Valladolid did not see a relative increase between Wave 1 and Wave 2 (coefficients in Column 7 are not statistically significant), whereas there was an increase in Motul relative to Valladolid between Wave 1 and Wave 2, and overall between Wave 1 and Wave 3. Similarly, there was an increase in expenditures on beverages in Motul relative to Valladolid, again suggesting that the bi-monthly program had a larger effect on the consumption of non-necessities.

The Impact of the Pension Programs on Transfers To and From the Population 70 Years Old or Older

One may expect that the increase of income of the older population may reduce the net-transfers they receive from family members and friends. A "crowding-out" effect of private transfers as a result of the introduction of a non-contributory pension program has been documented by Jensen (2004) for the South African case and by Juarez (2009) for Mexico City.

Although we would expect both the monthly and bimonthly pension programs to affect net-transfers, we may also expect some differences in the effects of each program. If recipients are able to smooth consumption, the frequency of payment of the pension program would not necessarily affect intrafamily and social network allocation of monetary resources. The inability to smooth consumption under a low-frequency pension program could result in pension recipients in Motul ending the period without cash and in need of assistance from family, friends and/or charity. The receipt of a large pot of money in the bi-monthly pension program could also increase transfers from the recipient to family and friends right after the receipt of payment, because it may be more difficult to deny sharing the cash from the pension while receiving a large amount. If the bi-monthly pension is partly transferred to others, then later in the two-month period just before receiving the next pension payment, the older person may require a transfer to smooth consumption. Thus, we would expect the monthly pension program to reduce or eliminate the transfers to the older population, while the bi-monthly pension program could be less successful in doing so and possibly increase the transfers from the recipients to family and friends, while necessitating higher transfers later back to the older persons.

We find evidence for these mechanisms in the results presented in Table 5.4. The monthly pension program significantly reduces both the percentage of the older population receiving money from others and the total amount of money received by them. At baseline, 31 percent of individuals 70+ in Valladolid received money, while only 23 percent did so at the second follow-up. The percentage who received money in Motul was reduced only from 22 to 19 percent. Relative to Motul, the reduction between waves 1 and 3 in the number of recipients who received funds in Valladolid is 5.3 percentage points (or about 17 percent). The reduction in Valladolid mainly occurred between Wave 1 and Wave 2, but it continued between Waves 2 and 3. Similarly, Valladolid showed a reduction, relative to Motul, in the total amount of money received, the frequency with which family or friends pay for expenses, the percentage of the older population receiving in-kind transfers, and total in-kind transfers received. The bi-monthly pension program increases the percentage of the older population giving money to family or friends and increases the total amounts given by them. However, the percentage of older persons giving money is very small in both towns.

The Impact of the Pension Programs on Satisfaction with Relationships and Income

Table 5 shows that between Waves 1 and 3 satisfaction with income changed in both towns by about the same proportion so that the difference in the changes is indistinguishable from zero (from 2.568 to 2.289 in Valladolid, and from 2.577 to 2.281 in Motul, on a five point scale where 1 is very satisfied and 5 is not satisfied). However, satisfaction with income improved (-0.061) in Valladolid relative to Motul from Wave 1 to Wave 2, and in Motul relative to Valladolid (-0.095) in Motul relative to Valladolid from Wave 2 to Wave 3, coinciding with the times in which each town's programs were introduced.

That satisfaction with income improves after the introduction of a pension program is no surprise. However, the sporadic possession of relatively large sums of money by the older persons could create tensions within the family that a higher-frequency pension might avoid. In fact, one of the often cited obstacles for savings is the pressure by family members to get access to those funds (cites). In view of this and the effects on the direction of transfers observed in the previous subsection, it is possible that the lower-frequency pension program has some detrimental effects on the relationship of the pensioner with family members and other social contacts.

Satisfaction with relationships with family members and satisfaction with social contacts both improved significantly more in Valladolid than in Motul. Both types of satisfaction improved marginally in Motul, but quite substantially in Valladolid. This is consistent with the hypothesis that holding sums of disposable income creates stress in relationships, especially so when the sum of the pension is large (which may counteract an overall positive impact on relationships of having more money)⁵. Two other facts are consistent with that hypothesis: 1) the average reported frequency with which respondents fear that their money will be taken away by someone close increased in Motul relative to Valladolid over the period; and 2) the frequency with which respondents feel abused also increased in Motul relative to Valladolid. This is the result of larger average improvements in Valladolid and lack of improvements in Motul; and suggesting that smaller sums with higher frequency may be better in terms of reducing or avoiding increased frictions with social contacts.

5. Robustness of Difference in Difference Estimates

We conduct the analog analysis to the difference in difference in means presented above but in a regression framework. The first robustness check that we present is the same difference-in-differences analysis of Section 5 but in a regression framework where we control for other conditions and individual and household characteristics. We first estimate the following equation. The equation estimated is the following using data from rounds 1 and 3:

$$y_{it} = \alpha_0 + w_t + \alpha_1 \text{Vall}_{it} + \beta \cdot 1(\text{Vall}_{it} = 1 \land t = 3) + \gamma X_{it} + \varepsilon_{it}$$
(1)

where y_{it} is the outcome of interest for observation i in wave t; w_t is the wave dummy for the last round of follow-up; the dummy variable Vall_{it} equals one if an observation is from Valladolid; the indicator variable $\operatorname{I}(\operatorname{Vall}_{it} = 1 \land t = 3)$ equals one if the observation is from Valladolid at wave 3, and zero otherwise. The parameter β measures the effect of the monthly pension program over the effect of the bi-monthly pension program; i.e. how much the outcome changed in the monthly pension benefit town over the bi-monthly pension town from Wave 1 to Wave 3. This coefficient is the regression analog to the DV-DM (W3-W1) column in Tables 5.1 to 5.5; X_{it} is a vector of individual controls.

⁵ Although on average satisfaction with relationship with family members improve in both Motul and Valladolid, there were significant proportions for which satisfaction went down. In Valladolid, only 14% of individuals reported a lower level of satisfaction with family members in Wave 3 than in Wave 1, whereas 21% of Motul expressed a lower level in the final wave. It is possible that the larger prevalence of reductions in satisfaction in Motul is due to the stresses created by large amounts of money.

We split the sample in two ways. As was discussed above, the bi-monthly program was rolled out during the second half of the two-month period in which the Wave 2 survey was conducted. Thus, some of the Motul respondents are not a good "control" for the monthly program (and not a good treatment for the bi-monthly program). In the first sample, we drop observations for those households who were surveyed in Wave 2 after the first date of disbursement for the bi-monthly program in Motul. All those who were surveyed before that date, are good controls for the monthly program (and for the bi-monthly program) because they did not change their pension receipt status between Waves 1 and 2 (and went from not receiving to very likely receiving pension from Wave 2 to Wave 3). Since the chronological order in which households were surveyed is not likely to be correlated with changes in the outcomes (or at least there is no reason to expect it should have been), the difference-in-differences estimator assumptions are still likely to hold.

We further present results for a sample that excludes only the observations for individuals who responded that they did receive 70 y Más. This allows us to retain more observations, though it has the disadvantage that we do not know the reasons why some (among those who were surveyed after the disbursements date) did not receive the pension.

We cannot know whether those who did not receive the bi-monthly pension program (among those who were eligible) were different in unobservable ways. However, we can control for observable differences and, in the last specification we match individuals in the treatments with those in the control group using Propensity Score Matching. Tables 6.1 to 6.5 show the results using a number of alternative methods.

Program Receipt

The first column shows the difference-in-differences in means between Waves 1 and 3 (Valladolid minus Motul) taken from Section 5. Column 2 presents the results from the regression framework of Equation (1). As one would expect, those columns show very similar results as those of the difference-in-differences of the means. The analyses of Column 3 exclude the observations in Motul that were surveyed in the first follow-up after the rollout of the bi-monthly pension program. Within this sample, the percentage in the first follow-up survey receiving pensions in Motul is much higher. Within this sample, the overall difference in "any program" between Waves 1 and 3 is reduced from 0.13 to 0.10. Column 4 shows the results that further restrict the sample to those in Motul who declared they did not receive support from the bi-monthly pension program in Wave 2 (not only those who were not eligible because of the date) but this distinction does not change results substantially –note that even in Wave 3 coverage was not complete. Columns 5 uses Propensity Score Matching.

Basic Expenditures ("Necessities")

Table 6.2 shows that the results that basic expenditures increased in Valladolid relative to Motul from Wave 1 to Wave 3 also holds when using a regression model with control variables; when using subsamples in Motul, and when using propensity score matching methods. For example, the probability and number of doctor visits increases in

Valladolid versus Motul (between W1 and W3) according to all of the specifications, and the magnitude of the coefficients is stable.⁶

Similarly, the effects we found about the frequency with which respondents run out of food, is consistent throughout specifications. The coefficient on the variable "Frequency with which respondents run out of food" varies between -0.118 and -0.163 but is always statistically significant. Table 6.2 shows the remainder of the results from the different specifications for the basic expenditures outcomes.

Investment and "Luxury" Good Expenditures

Although the results are not as clear as with the necessary goods, we argued in Section 5 that the Bi-Monthly program had a somewhat higher impact on investment and luxury good expenditures than the monthly program. The regression results in Table 6.3 mostly confirm this finding.

For some outcomes, there was no significant difference in the effect of the monthly and bi-monthly programs from W1 to W3. For example, in the case of refrigerator ownership, none of the specifications shows statistically significant impacts.

For some other outcomes, however, the larger impact associated with the bi-monthly program between Waves 1 and 3 is confirmed. As we have seen, cell phone ownership increased more in Motul than in Valladolid. The difference-in-difference of the means of cell phone ownership was -0.139. The coefficient in the other specification is even larger (ranging from -0.145 to -0.186). Similarly, the finding that bicycle ownership is higher under the bi-monthly program is robust to different specifications (the effect is significant in four out of the five specifications), and the timing of the effect is consistent with the introduction of the programs.

We have found in Section 5 that there is some evidence that the bi-monthly program leads to higher expenditures on goods that can be considered "luxury", such as non-cereal food items and expenditures on beverages, and food outside the home. Although we do not find this effect across the board on all outcomes, for those that did have significance in the simple difference-in-differences, significance is retained in the other specifications. Fruit consumption, which is not significant in the simple differences-in-differences of means, becomes significant in other specifications such as Propensity Score Matching (column 5).

Transfers to and from the Older Population

The main findings in Section 5 were that transfers to older persons were reduced in Valladolid relative to Motul over the two-year period. Table 6.4 shows that this finding is robust to the model specification used. In all of the first five columns, the coefficient for the dummy "received money" and for the variable "total money received"; as well as for

⁶ In results not shown in the paper, we test the robustness of the W1 to W2 and W2 to W3 Difference in Differences described in the previous sections. We do the same robustness analyses that we present for the W1 to W3 changes. We find that it remains true that the timing of the increase is consistent with the introduction of the program, as it increases between Waves 1 and 2 (all coefficients are positive and statistically significant in columns 6 to 10); and remains fairly stable between W2 and W3. Results are available upon request.

"received in-kind" and "total received in-kind", remained negative and fairly stable. Similarly, the finding that transfers from the older person remained generally low but increased in Motul relative to Valladolid, remained significant. This set of results is consistent with the hypothesis that the higher frequency program allows the older person to become more independent, whereas the inability of the lower frequency pensioners to smooth consumption means that at points during the pay cycle they still need to receive transfers.

Satisfaction Outcomes

We have found that satisfaction with social and family relationship in Motul was worse relative to Valladolid during the study period. Table 6.5 confirms that, using alternative specifications, the bi-monthly program, compared to the monthly program, is associated with lower satisfaction with contacts with family members and with other social contacts. The coefficients in the first five columns of Table 6.5 on these outcomes are all negative and remain statistically significant.

6. Discussion

Although we argue that the differences in the frequency of payment are responsible for the different impacts of the programs, it is important to acknowledge that there could be alternative explanations for these differences. In particular, the bi-monthly program was introduced somewhat later so that some of the differences may reflect less than full impact of the bi-monthly program. To guard against this problem, we have limited our analysis to outcomes that we expect to be affected in the short-run, such as consumption items. The analysis of the Wave 1 to Wave 2 and Wave 2 to Wave 3 changes mostly confirms that the timing of the changes in the outcome variables was consistent with the introduction of the programs.

Another potential problem would arise if the pension affects household composition. If that were the case, the variables representing household outcomes would not be comparable. Fortunately for our purposes, however, this does not seem to be the case. Table Appendix 1 shows the estimated program impacts on household composition variables. None of the effects are even close to significant.

Conclusions

Pension recipients seem to be unable to smooth consumption across the disbursement period if this period gets longer; particularly in the longer 70 y Más cycle. Expenditures on food and beverages are significantly higher the closer the survey date was to the last receipt of the pension payment.

This lack of consumption smoothing translates into different effects of the programs. Both programs lead to an increase in expenditures on basic goods and reduce the likelihood of hunger spells in the households. However, the impact of the monthly program is higher than of the bi-monthly program. In particular, the monthly program increases doctor visits and reduces the chances that the older person does not visit a doctor due to lack of money. It appears that

the higher frequency program reduced the hunger spells more strongly while the lower frequency program increased the consumption of the more expensive non-cereal food items. In addition, the bi-monthly program increases the ownership of durable goods: in particular cell phones.

The monthly program reduces the total amount of transfers to the benefit recipient, while the bi-monthly program in addition increases total transfers from the recipient to others. Overall, the high frequency program reduced the amount of transfers within the family the most.

As expected, both pension programs increased satisfaction with income. On the other hand, the receipt of the lower frequency pension seems to have increased pressures within the family and social contacts, and thus satisfaction with the relationship with family members and social contacts was lower in Motul than in Valladolid. This might be the result of the social pressures associated with maintaining larger sums of money. Consistent with this, receiving the bimonthly instead of monthly pension increases the fear of recipients that someone will take their money and increases the frequency with which they feel verbally or physically abused.

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Table 1	
Bi-Monthly Pension Distribution and Survey M	lethods

Program Period	Disbursement Dates	Survey Period	Survey Dates
2009			
July-Aug	28-29 Jul	First Follow-up Survey	July: 1,2,3,6, 7,8,9,10,13,14,15,16,17,20,21, 22, 23, 24, 27, 28, 29, 30, 31 August: 3,4,5,6,7,10,11,12,13,14,17,18,19,20,21,24,25,26,27, 28, 31
Sept-Oct	29-30 Sept		
Nov-Dec	26-27 Nov		
2010			
Jan-Feb	4-5 Feb		
Mar-Apr	1-2 Apr		
May-Jun	27-28 May	Second Follow-up Survey	June: 14,15,16,17,18,,21,22,23,24,25,28,29,30
July-Aug	28-29 Jul		July: 1,2,5,6,7,8,9,12,13,14,15,16,19,20,21,22,23,26,27,28, 29,30
Sept-Oct Nov-Dec	29-30 Sept		August:2,3,4,5,6,9,10,11,12,13,

Table 1 (Panel B)

Monthly Pension Distribution and Survey Methods

Program Period	Disbursement Dates	Survey Period	Survey Dates
2008			
December	16-Dec		
2009			
January	22-Jan		
February	20-Feb		
March	20-Mar		
April	24-Apr		
May	25-May		
June	24-Jun		July: 7,8,9,10,13,14,15,16,17,20,21, 22, 23
July	24-Jul	First Follow-up Survey (W2)	July: 27, 28, 29, 30, 31; August: 3,4,5,6,7,10,11,12,13,14,17,18,19,20
August	21-Aug		August: 24,25,26,27; September:3,4,5,9
September	25-Sep		
October	23-Oct		
November	23-Nov		
December	15-Dec		
2010			
January	29-Jan		
February	26-Feb		
March	29-Mar		
April	28-Apr		
May	26-May		June: 15,16,17,18,,21,22,23,24,25
June	28-Jun	Second Follow-up Survey (W3)	June:28,29, 30; July:1,6,7,8,9,12,13,14,15,16,17,19,20,21,22,23,24,26 ,27,28
July	28-Jul		
August	25-Aug		
September	27-Sep		
October	27-Oct		
November	24-Nov		
December	15-Dec		

Table 2
Descriptive Statistics Baseline First Phase - age 70+

Variable	Monthly-pension	Bi-Monthly Pension	T-test
Variable	Town	Town	P value
	(Valladolid)	(Motul)	r value
Mean age	77.55	78.05	0.1402
Standard deviation.	6.07	6.60	
Male (%)	45.72	48.16	0.3572
Marital status (%)			
Single/Divorced/Separated	8.63	8.51	0.9352
Couple	53.53	49.42	0.1211
Widowed	37.84	41.97	0.1124
Missing	0.00	0.19	0.3178
Education (%)			
No schooling	42.20	30.95	0.0000
Incomplete primary	44.38	61.32	0.0000
Primary or more	12.12	6.77	0.0003
Missing	1.31	0.97	0.5329
Mean years of education	1.75	1.78	0.7846
Speaks Maya (%)	76.46	80.85	0.0402
Read and write a message in Spanish (%)	54.49	63.06	0.0009
Living alone (%)	13.08	13.73	0.7178
Mean number of household residents	3.46	3.48	0.8471
Standard deviation	2.18	2.11	
Work for pay (%)	16.49	14.53	0.3035
Monthly household income	1056.16	1200.11	0.1005
No. Observations	1,147	517	

 $source: \verb|\homer_a| Yucatan \verb|\VerD| Analytic \verb|\Phase1| NEJM \verb|\table2_final.do| \\$

Sample: same as table 3 drop rep -70+ - 30k

Dropped 321 reporting 70ymas in wave 2 Motul, treatment is only reconocer, DROPPING MOTUL AGE<70

Panel - waves 1 and 2

Table 3.

Response Rates Valladolid and Motul surveys (%)								
	Valladolid	Motul						
Cover screen	80.1	68.6						
Baseline	79.3	78.9						
1st follow-up	71	70.2						
2nd follow-up	65.4	67.4						

Source: Aguila, Carroll, et al.,

forthcoming

				1	Table 4								
			Cyclicality	of Expendit	ures in Mo	tul and Va	alladolid						
				Pane	el A. Motul								
Variables	Spent on food at home by household during previous week					Spent on beverages at home by household d			Spent on	Spent on food and beverages outside the home during previous week			
	1	2	3	4	5	6	7	8	9	10	11	12	
Number of days since last	-1.454***	-1.112***	-0.551	4.231	-0.292***	-0.226**	-0.095	-0.55	-0.154	-0.153	-0.191**	0.433	
disbursement	[0.456]	[0.422]	[0.382]	[2.880]	[0.106]	[0.104]	[0.091]	[0.722]	[0.096]	[0.096]	[0.082]	[0.673]	
Number of days squared				-0.148*				0.01				-0.016	
				[0.084]				[0.021]				[0.020]	
Number of days cubed				0.001				0				0	
				[0.001]				[0.000]				[0.000]	
Constant	271.502***	351.441	381.711***	364.89	28.267***	46.097	53.546**	47.998	20.375***	-142.057	15.574***	-143.145	
Survey Indicators	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES	NO	YES	
Background Characteristics	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	
Observations	995	993	995	993	1135	1133	1135	1133	1,144	1,142	1,144	1,142	
R-squared	0.015	0.184	0.002	0.186	0.013	0.073	0.001	0.077	0.005	0.0232	0.005	0.024	

Notes: Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1

Source: ENCAHEY Motul, 2009 and 2010.

				Panel	B. Valladoli	id							
Variables	Spent on for	Spent on food at home by household during previous week				Spent on beverages at home by household during previous week				Spent on food and beverages outside the home during previous week			
	1	2	3	4	5	6	7	8	9	10	11	12	
Number of days since last	0.355	0.330	0.008	1.451	0.33	0.025	0.024	2.880*	0.026	-0.11	-0.12	-2.397**	
disbursement	[0.673]	[0.674]	[0.614]	[7.228]	[0.674]	[0.149]	[0.146]	[1.720]	[0.149]	[0.093]	[0.095]	[1.123]	
Number of days squared				-0.133				-0.211*				0.154*	
				[0.531]				[0.127]				[0.083]	
Number of days cubed				0.003				0.004				-0.003*	
				[0.011]				[0.003]				[0.002]	
Constant	469.672***	365.012***	-110.381	-258.366	365.012***	44.659**	1.129	9.718	51.426***	1.526	-26.159	-6.778	
Survey Indicators	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES	NO	YES	
Background Characteristics	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	
Observations	1489	1489	1465	1,465	1489	1872	1826	1,826	1872	1883	1837	1,837	
R-squared	0.00474	0.000162	0.205	0.204	0.000162	0.001	0.087	0.088	0.0000164	0.001	0.011	0.013	

Notes: Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1

Source: ENCAHEY Valladolid, 2008, 2009 and 2010.

	Table 5.1											
	Program Incidence Results											
Variable	Vall W1	Vall W2	Vall W3	Mot W1	Mot W2	Mot W3	DV -DM	DV –DM	DV -DM			
variable							(W2-W1)	(W3-W2)	(W3-W1)			
Reconocer		0.856					0.856***					
1=Yes 0=No		(0.011)					(0.011)					
Oportunidades	0.120	0.088	0.081	0.205	0.197	0.144	-0.025*	0.046***	0.021			
1=Yes 0=No	(0.011)	(0.009)	(0.009)	(0.015)	(0.015)	(0.013)	(0.015)	(0.014)	(0.016)			
Atención a Adultos	0.017	0.003	0.002	0.011	0.008	0.001	-0.011*	0.0056	-0.005			
Mayores												
1=Yes 0=No	(0.004)	(0.002)	(0.002)	(0.004)	(0.003)	(0.001)	(0.007)	(0.004)	(0.006)			
Setenta y Más	0.012	0.024	0.008	0.029	0.298	0.834	-0.256***	-0.552***	-0.808***			
1=Yes 0=No	(0.004)	(0.005)	(0.003)	(0.006)	(0.017)	(0.014)	(0.019)	(0.020)	(0.015)			
Procampo	0.003	0.002	0.003	0.016	0.017	0.004	-0.002	0.0143***	0.012**			
1=Yes 0=No	(0.002)	(0.002)	(0.002)	(0.005)	(0.005)	(0.002)	(0.006)	(0.005)	(0.005)			
No Program	0.845	0.083	0.046	0.754	0.491	0.122	-0.499***	0.332***	-0.1674***			
1= Yes 0 =No	(0.012)	(0.009)	(0.007)	(0.016)	(0.018)	(0.012)	(0.024)	(0.022)	(0.023)			
Any program	0.154	0.914	0.953	0.249	0.463	0.875	0.5461***	-0.374***	0.173***			
1=Yes 0=No	(0.012)	(0.009)	(0.007)	(0.016)	(0.018)	(0.012)	(0.024)	(0.022)	(0.023)			

Note: For each variable, the 1st row indicates the coefficient, the 2nd row in parentheses indicates standard error (SE)

				Table 5	.2				
		Ne	ecessities	Consump	tion Outo	omes			
	Vall W1	Vall W2	Vall W3	Mot W1	Mot W2	Mot W3	DV –DM	DV –DM	DV -DM
Variable							(W2-W1)	(W3-W2)	(W3-W1)
	1	2	3	4	5	6	7	8	9
Visited doctor	0.414	0.529	0.533	0.477	0.523	0.490	0.067**	0.0378	0.107***
1= Yes 0 =No	(0.016)	(0.016)	(0.016)	(0.018)	(0.018)	(0.018)	(0.030)	(0.030)	(0.031)
Number of doctor visits	1.084	1.226	1.359	1.291	1.246	1.279	0.180	0.1016	0.293**
	(0.058)	(0.047)	(0.073)	(0.090)	(0.062)	(0.072)	(0.118)	(0.117)	(0.140)
Health problems but no	0.175	0.083	0.072	0.124	0.063	0.115	-0.031	-0.061***	-0.093***
1= Yes 0 =No	(0.012)	(0.009)	(0.008)	(0.012)	(0.009)	(0.012)	(0.021)	(0.019)	(0.021)
Sometimes do not have	0.305	0.268	0.162	0.362	0.355	0.238	-0.030	0.011	-0.019
1= Yes 0 =No	(0.015)	(0.014)	(0.012)	(0.018)	(0.018)	(0.016)	(0.029)	(0.028)	(0.029)
Often run out of food	1.593	1.388	1.186	1.477	1.417	1.215	-0.146***	-0.018	-0.151***
1=Never to 4=Always	(0.028)	(0.024)	(0.016)	(0.026)	(0.025)	(0.018)	(0.047)	(0.038)	(0.044)
Someone skips or cuts m	1.684	1.450	1.690	1.590	1.449	1.532	-0.101**	0.181*	-0.016
1=Never to 4=Always	(0.027)	(0.023)	(0.049)	(0.026)	(0.025)	(0.049)	(0.047)	(0.101)	(0.105)
Often Eat less than shou	1.632	1.378	1.667	1.543	1.391	1.553	-0.108**	0.124	-0.111
1=Never to 4=Always	(0.026)	(0.021)	(0.052)	(0.024)	(0.023)	(0.053)	(0.042)	(0.102)	(0.099)
Often hungry, cannot aff	1.413	1.177	1.355	1.301	1.167	1.293	-0.112***	0.051	-0.268***
1=Never to 4=Always	(0.023)	(0.015)	(0.047)	(0.021)	(0.015)	(0.044)	(0.036)	(0.081)	(0.089)
Often does not eat for 1	1.255	1.074	1.202	1.148	1.095	1.133	-0.137***	0.078	-0.304***
1=Never to 4=Always	(0.018)	(0.010)	(0.039)	(0.014)	(0.012)	(0.032)	(0.026)	(0.067)	(0.076)
Received food from char	1.091	1.039	1.039	1.047	1.055	1.036	-0.062***	0.019	-0.041**
1=Never to 4=Always	(0.012)	(0.007)	(0.007)	(0.009)	(0.010)	(0.007)	(0.018)	(0.015)	(0.018)
Eats cereal daily	0.926	0.955	0.473	0.960	0.981	0.515	0.008	-0.016	-0.008
1= Yes 0 =No	(0.009)	(0.007)	(0.016)	(0.007)	(0.005)	(0.018)	(0.014)	(0.026)	(0.026)
Work for pay	0.174	0.123	0.086	0.168	0.170	0.090	-0.052***	0.043**	-0.011
1= Yes 0 =No	(0.012)	(0.011)	(0.009)	(0.014)	(0.014)	(0.011)	(0.017)	(0.017)	(0.018)

Note: For each variable, the 1st row indicates the coefficient, the 2nd row in parentheses indicates standard error (SE)

				Table 5.3					
		Investm	ent and Lu	xury Consu	mption Ou	tcomes			
Variable	Vall W1	Vall W2	Vall W3	Mot W1	Mot W2	Mot W3	DV -DM	DV –DM	DV -DM
variable							(W2-W1)	(W3-W2)	(W3-W1)
refrigerator	0.620	0.649	0.652	0.654	0.660	0.660	0.024	0.003	
1= Yes 0 =No	(0.016)	(0.016)	(0.015)	(0.017)	(0.017)	(0.017)	(0.021)	(0.021)	(0.022)
telephone	0.185	0.177	0.181	0.189	0.166	0.180	0.014	-0.009	0.005
1= Yes 0 =No	(0.013)	(0.012)	(0.013)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.015)
cellphone	0.184	0.191	0.144	0.141	0.210	0.239	-0.063***	-0.076***	
1= Yes 0 =No	(0.013)	(0.013)	(0.011)	(0.013)	(0.015)	(0.016)	(0.023)	(0.023)	(0.023)
bicycle	0.202	0.177	0.135	0.334	0.336	0.336	-0.028	-0.042**	-0.070***
1= Yes 0 =No	(0.013)	(0.012)	(0.011)	(0.017)	(0.017)	(0.017)	(0.020)	(0.020)	(0.021)
no_equipment	0.291	0.256	0.289	0.225	0.211	0.193	-0.022	0.052**	0.030
1= Yes 0 =No	(0.015)	(0.014)	(0.015)	(0.015)	(0.015)	(0.014)	(0.022)	(0.021)	(0.022)
How many chickens do you own?	2.820	2.300	2.122	2.379	2.041	1.955	-0.183	-0.092	-0.274
	(0.203)	(0.183)	(0.178)	(0.196)	(0.144)	(0.144)	(0.274)	(0.250)	(0.289)
How many pigs do you own?	0.058	0.042	0.026	0.039	0.032	0.020	-0.009	-0.004	-0.013
	(0.012)	(0.015)	(0.009)	(0.010)	(0.009)	(0.009)	(0.018)	(0.021)	(0.020)
How many turkeys do you own?	0.337	0.339	0.226	0.641	0.524	0.380	0.119	0.031	0.150
	(0.044)	(0.061)	(0.037)	(0.147)	(0.078)	(0.056)	(0.170)	(0.095)	(0.156)
How ofted do you eat meat?	2.516	2.452	2.196	2.467	2.473	2.065	-0.068	0.153***	0.079
1=once a day to 5=never	(0.035)	(0.031)	(0.017)	(0.037)	(0.035)	(0.017)	(0.063)	(0.049)	(0.054)
How often do you eat eggs?	-	2.115	2.234	2.172	2.283	2.252	-0.057	0.148***	0.091
1=once a day to 5=never	(0.034)	(0.029)	(0.021)	(0.035)	(0.033)	(0.023)	(0.062)	(0.050)	(0.055)
How often do you eat dairy?	2.873	2.697	2.257	3.079	2.936	2.228	-0.027	0.264***	0.232***
1=once a day to 5=never	(0.046)	(0.045)	(0.035)	(0.051)	(0.051)	(0.036)	(0.077)	(0.068)	(0.069)
How often do you eat fruit?		2.296	1.999	2.364	2.322	1.872	-0.068	0.151***	0.085
1=once a day to 5=never	(0.039)	(0.034)	(0.020)	(0.043)	(0.040)	(0.022)	(0.069)	(0.055)	(0.060)
How much spent on	54.5	53.7	50.0	48.9	43.5	53.0	3.6	-12.8***	-9.4***
beverages at home?				<u> </u>			<u> </u>		
	(1.843)	(1.807)	(1.680)	(1.803)	(1.766)	(1.871)	(3.357)	(3.205)	(3.319)
How much spent on food and beverages out of home?	14.2	5.9	4.3	14.0	13.4	7.5	-7.8**	4.2	-2.7
nome.	(1.941)	(1.085)	(1.081)	(2.091)	(2.024)	(1.461)	(3.674)	(2.791)	(3.376)
	\~ ++/	(1.000)	(=.00=/	(=.00±/	\	(=: .0=)	(3.077)	\ - ., J + j	1,3.3.3

Note: For each variable, the 1st row indicates the coefficient, the 2nd row in parentheses indicates standard error (SE)

Table 5.4									
In-and-Out Transfer Outcomes									
Variable	Vall W1	Vall W2	Vall W3	Mot W1	Mot W2	Mot W3	DV –DM	DV –DM	DV -DM
variable							(W2-W1)	(W3-W2)	(W3-W1)
Received Money	0.309	0.248	0.231	0.218	0.207	0.192	-0.053**	-0.005	-0.053**
1= Yes 0 =No	(0.015)	(0.014)	(0.014)	(0.015)	(0.015)	(0.014)	(0.025)	(0.024)	(0.025)
Total money received	258.2	186.4	113.8	148.5	183.8	154.0	-107.1*	-42.80	-149.9***
	(48.245)	(21.057)	(11.704)	(21.902)	(33.126)	(16.983)	(63.059)	(40.228)	(54.888)
Out of Pocket expenses paid by a relative	0.267	0.141	0.143	0.144	0.147	0.115	-0.130***	0.036*	-0.097***
1= Yes 0 =No	(0.014)	(0.011)	(0.011)	(0.013)	(0.013)	(0.012)	(0.023)	(0.021)	(0.022)
Family of friends pays for	2.170	2.162	2.256	2.013	2.044	1.886	-0.034	0.243***	0.213***
expenses									
1 Always true to 4 never	(0.040)	(0.039)	(0.038)	(0.043)	(0.043)	(0.037)	(0.067)	(0.066)	(0.065)
true									
Received in-kind	0.187	0.124	0.074	0.093	0.107	0.067	-0.077***	-0.008	-0.087***
1= Yes 0 =No	(0.013)	(0.011)	(0.009)	(0.011)	(0.011)	(0.009)	(0.021)	(0.019)	(0.020)
Total received in-kind	(55.94)	(40.96)	(11.12)	(22.23)	(34.61)	(13.51)	-(27.36)	-8.739	-36.10***
	(9.760)	(10.379)	(2.327)	(5.529)	(10.591)	(3.099)	(18.211)	(15.301)	(11.455)
Give money	0.030	0.024	0.007	0.024	0.017	0.023	0.000	-0.022**	-0.022**
1= Yes 0 =No	(0.006)	(0.005)	(0.003)	(0.006)	(0.005)	(0.005)	(0.010)	(0.009)	(0.010)
Total money given	19.9	11.5	1.7	11.6	8.3	13.9	-5.1	-15.4**	-20.5*
	(8.119)	(3.412)	(0.798)	(4.718)	(3.806)	(5.632)	(10.562)	(7.669)	(10.952)
Given in Kind	3.5	2.1	0.1	0.5	20.6	1.6	-21.5	16.9	-4.5**
	(1.722)	(1.173)	(0.105)	(0.288)	(14.285)	(0.816)	(14.440)	(14.350)	(1.930)

Note: For each variable, the 1st row indicates the coefficient, the 2nd row in parentheses indicates standard error (SE)

			Ta	able 5.5					
Satisfaction Outcomes									
Variable	Vall W1	Vall W2	Vall W3	Mot W1	Mot W2	Mot W3	DV –DM (W2–W1)	DV –DM (W3–W2)	DV -DM (W3-W1)
Satisfied with household income	2.568	2.340	2.289	2.577	2.386	2.281	-0.061	0.095*	0.021
1=very satisfied 5=not satisfied	(0.029)	(0.025)	(0.026)	(0.032)	(0.029)	(0.025)	(0.055)	(0.052)	(0.055)
Satisfied with relationship with family members	2.098	2.094	1.904	2.121	2.030	2.065	0.0821*	-0.203***	-0.079*
1=very satisfied 5=not satisfied	(0.023)	(0.023)	(0.023)	(0.025)	(0.023)	(0.025)	(0.043)	(0.043)	(0.045)
Satisfied with relationship with social contacts	2.255	2.215	2.068	2.252	2.170	2.176	0.024	-0.137***	-0.105**
1=very satisfied 5=not satisfied	(0.024)	(0.022)	(0.019)	(0.026)	(0.025)	(0.023)	(0.046)	(0.043)	(0.044)
How often do you feel abused?	1.123	1.113	1.064	1.099	1.099	1.111	-0.004	-0.074**	-0.0791**
1=Never to 4=Always	(0.015)	(0.015)	(0.011)	(0.016)	(0.017)	(0.015)	(0.031)	(0.029)	(0.031)
How often do you fear money will be taken by someone else?	1.255	1.216	1.129	1.178	1.164	1.121	-0.008	-0.041	-0.078**
1=Never to 4=Always	(0.022)	(0.020)	(0.016)	(0.020)	(0.022)	(0.016)	(0.041)	(0.036)	(0.039)

Note: For each variable, the 1st row indicates the coefficient, the 2nd row in parentheses indicates standard error (SE)

Table 6.1

Program Incidence Results									
	Impact o	Impact of Reconocer in Valladolid versus 70 Y Mas in Motul (Wave 3 minus Wave1)							
Variable	DV -DM (W3-W1)	Iregression late Mo		тот	PSM-TOT				
Reconocer									
1=Yes 0=No									
Oportunidades	0.021	0.023	0.008	0.0269	0.045				
1=Yes 0=No	(0.016)	(0.017)	(0.020)	0.0193	(0.024)				
Atención a Adultos Mayores	-0.005	-0.005	-0.008	-0.0036	-0.001				
1=Yes 0=No	(0.006)	(0.006)	(0.007)	(0.006)	(0.396)				
Setenta y Más	-0.808***	-0.858***	-0.873***	-0.827**	-0.833**				
1=Yes 0=No	(0.015)	(0.015)	(0.022)	(0.019)	(0.000)				
Procampo	0.012**	0.013**	0.018**	0.015**	0.013				
1=Yes 0=No	(0.005)	(0.005)	(0.008)	(0.006)	(0.156)				
No Program	-0.1674***	-0.125***	-0.096***	-0.167***	-0.188***				
1= Yes 0 =No	(0.023)	(0.025)	(0.034)	(0.029)	(0.000)				
Any program	0.173***	0.131***	0.110***	0.175***	0.195**				
1=Yes 0=No	(0.023)	(0.025)	(0.034)	(0.029)	(0.000)				

Table 6.2								
Necessities Consumption Outcomes								
	Impact of Reconocer in Valladolid versus 70 Y Mas in Motul (Wave 3 minus Wave1)							
Variable	DV -DM (W3-W1)	ITT-linear regression w controls	ITT (exc. late Motul W2resps)	тот	PSM-TOT			
Visited doctor	0.107***	0.101***	0.124***	0.100***	0.122***			
1= Yes 0 =No	(0.031)	(0.033)	(0.044)	0.0368	(0.041)			
Number of doctor visits	0.293**	0.271*	0.374**	0.2291	0.290			
	(0.140)	(0.148)	(0.179)	0.1476	(0.084)			
Health problems but no doctor visits because of money	-0.093***	-0.094***	-0.071**	-0.082***	-0.082**			
1= Yes 0 =No	(0.021)	(0.023)	(0.031)	0.0256	(0.001)			
Sometimes do not have enough to eat	-0.019	-0.021	0.008	-0.0181	-0.007			
1= Yes 0 =No	(0.029)	(0.034)	(0.044)	0.0371	(0.381)			
Often run out of food	-0.151***	-0.150***	-0.163**	-0.133**	-0.118			
1=Never to 4=Always	(0.044)	(0.050)	(0.063)	0.055	(0.101)			
Someone skips or cuts meals	-0.016	0.065	0.168	0.1241	-0.033			
1=Never to 4=Always	(0.105)	(0.090)	(0.119)	0.0983	(0.424)			
Often Eat less than should	-0.111	0.014	0.076	0.0382	-0.042			
1=Never to 4=Always	(0.099)	(0.093)	(0.124)	0.1028	(0.422)			
Often hungry, cannot afford to buy food	-0.268***	-0.052	-0.005	-0.0436	-0.211			
1=Never to 4=Always	(0.089)	(0.084)	(0.092)	0.0934	(0.084)			
Often does not eat for 1 day	-0.304***	-0.036	-0.029	-0.0574	-0.264**			
1=Never to 4=Always	(0.076)	(0.064)	(0.070)	0.0726	(0.000)			
Received food from charity	-0.041**	-0.041**	-0.021	-0.0307	-0.020***			
1=Never to 4=Always	(0.018)	(0.020)	(0.025)	0.0228	(0.000)			
Eats cereal daily	-0.008	-0.015	-0.005	0.0001	0.030**			
1= Yes 0 =No	(0.026)	(0.029)	(0.037)	0.0322	(0.016)			
Work for pay	-0.011	-0.020	-0.047**	-0.0288	-0.026			
1= Yes 0 =No	(0.018)	(0.018)	(0.024)	0.0206	(0.083)			

P-value < 0.1 =*, P-value between 0.05 and 0.01=**, P-value < 0.01 =***

Note: For each variable, the 1st row indicates the coefficient, the 2nd row in parentheses indicates standard error (SE)

Table 6.3								
Investment and Luxury Consumption Outcomes								
inves	Impact of Reconocer in Valladolid versus 70 Y Mas in Motul (Wave 3 minus Wave1)							
Variable	DV -DM (W3-W1)	ITT-linear regression w controls	ITT (exc. late Motul W2resps)	тот	PSM-TOT			
refrigerator		0.027	0.022	0.0333	0.027			
1= Yes 0 =No	(0.022)	(0.026)	(0.032)	0.0274	(0.162)			
telephone	0.005	0.000	0.010	-0.0033	-0.006			
1= Yes 0 =No	(0.015)	(0.018)	(0.026)	0.0197	(0.162)			
cellphone	-0.139***	-0.145***	-0.186***	-0.161***	-0.150***			
1= Yes 0 =No	(0.023)	(0.026)	(0.038)	0.0304	(0.000)			
bicycle	-0.070***	-0.067***	-0.057	-0.067**	-0.078**			
1= Yes 0 =No	(0.021)	(0.024)	(0.035)	0.0265	(0.025)			
no_equipment	0.030	0.028	0.019	0.0228	0.037***			
1= Yes 0 =No	(0.022)	(0.025)	(0.030)	0.0272	(0.000)			
How many chickens do you own?	-0.274	-0.309	-0.392	-0.1779	-0.434			
	(0.289)	(0.338)	(0.530)	0.3978	(0.169)			
How many pigs do you own?	-0.013	-0.017	-0.047*	-0.0084	0.005			
	(0.020)	(0.022)	(0.028)	0.0253	(0.448)			
How many turkeys do you own?		0.143	-0.020	0.0653	-0.021			
	(0.156)	0.172	0.157	0.1219	0.447			
How ofted do you eat meat?	0.079	0.092	0.214***	0.158**	0.117**			
1=once a day to 5=never	(0.054)	(0.059)	(0.078)	0.0649	(0.000)			
How often do you eat eggs?	0.091	0.079	0.099	0.1059	0.113**			
1=once a day to 5=never	(0.055)	(0.058)	(0.083)	0.0674	(0.001)			
How often do you eat dairy?	0.232***	0.220***	0.251**	0.223***	0.216**			
1=once a day to 5=never	(0.069)	(0.075)	(0.110)	0.0835	(0.000)			
How often do you eat fruit?	0.085	0.101	0.203**	0.164**	0.154**			
1=once a day to 5=never	(0.060)	(0.066)	(0.089)	0.0756	(0.000)			
How much spent on beverages at home?	-9.4***	-8.302**	-7.599	-8.7**	-8.130			
	(3.319)	(3.893)	(5.339)	4.329	(0.000)			
How much spent on food and beverages out of home?	-2.7	-4.065	-9.068	-5.2779	-4.913			
	(3.376)	4.006	5.858	4.2034	0.134			
L	•	1						

P-value < 0.1 =*, P-value between 0.05 and 0.01=**, P-value < 0.01 =***

Table 6.4								
In-and-Out Transfer Outcomes								
	Impact of Reconocer in Valladolid versus 70 Y Mas in Motul (Wave 3 minus Wave1)							
Variables	DV -DM (W3-W1)		•		PSM-TOT			
Received Money	-0.053**	-0.055**	-0.062*	-0.048	-0.041***			
1= Yes 0 =No	(0.025)	(0.027)	(0.034)	0.0292	(0.000)			
Total money received	-149.9***	-151.6**	-172.8**	-174.03**	-176.6			
	(54.888)	72.04	83.69	75.8382	(0.039)			
Out of Pocket expenses paid by a relative	-0.097***	-0.101***	-0.128***	-0.125***	-0.118**			
1= Yes 0 =No	(0.022)	(0.023)	(0.029)	0.0258	(0.000)			
Family of friends pays for expenses	0.213***	0.234***	0.230**	0.296***	0.309**			
1 Always true to 4 never true	(0.065)	(0.069)	(0.095)	0.0789	(0.000)			
Received in-kind	-0.087***	-0.086***	-0.112***	-0.074***	-0.095**			
1= Yes 0 =No	(0.020)	(0.021)	(0.029)	0.0238	(0.008)			
Total received in- kind	-36.10***	-34.73***	-53.3***	-34.25***	-28.95			
	(11.455)	12.01	12.03	12.9486	(0.000)			
Give money	-0.022**	-0.020**	-0.023*	-0.020 *	-0.016***			
1= Yes 0 =No	(0.010)	(0.010)	(0.013)	0.011	(0.029)			
Total money given	-20.5*	-20.01*	-40.59**	-22.4028				
	(10.952)	11.29	16.36	13.9664				
Given in Kind	-4.5**	-4.673**	-3.372*	-3.918**				
	(1.930)	(1.965)	(2.017)	2.0446				

P-value < 0.1 =*, P-value between 0.05 and 0.01=**, P-value < 0.01 =***

Table 6.5								
Satisfaction Outcomes								
	Impact of Reconocer in Valladolid versus 70 Y Mas in Motul (Wave 3 minus Wave1)							
Variables	W3-W1) regression		ITT (exc. late Motul W2resps)	тот	PSM-TOT			
Satisfied with household income	0.021	0.034	-0.059	0.02	0.022			
1=very satisfied 5=not satisfied	(0.055)	(0.056)	(0.077)	0.0643	(0.296)			
Satisfied with relationship with family members	-0.079*	-0.139***	-0.210***	-0.164***	-0.101***			
1=very satisfied 5=not satisfied	(0.045)	(0.045)	(0.063)	0.052	(0.000)			
Satisfied with relationship with social contacts	-0.105**	-0.114**	-0.124**	-0.092*	-0.103**			
1=very satisfied 5=not satisfied	(0.044)	(0.044)	(0.060)	0.0509	(0.018)			
How often do you feel abused?	-0.0791**	-0.070**	-0.09**	-0.085**	-0.105**			
1=Never to 4=Always	(0.031)	(0.029)	(0.041)	0.0329	(0.000)			
How often do you fear money will be taken by someone else?	-0.078**	-0.081**	-0.121***	-0.091**	-0.103*			
1=Never to 4=Always	(0.039)	(0.037)	(0.045)	0.0409	(0.044)			

P-value < 0.1 =*, P-value between 0.05 and 0.01=**, P-value < 0.01 =***