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IFS

BASELINE REPORT ON THE EVALUATION OF *FAMILIAS EN ACCION*

Orazio Attanasio (Director)
Claudia Benavides
Catalina Borda
Carlos Castro
Maria Elvira Carvajal
Luis Carlos Gómez (Director)
Ana Gómez
Luis Fernando Gómez
Santiago Grillo
Martha Isabel Gutiérrez
Rodolfo Heredia
Jhon Jairo Romero
Jorge Luis Alvarez
Costas Meghir
Maria Teresa Mojica
Manuel Muñoz
Mariana Muñoz
Carolina Murgueitio (Coordinator)
Marcela Patarroyo
Manuel Ramírez
Alvaro Reyes
Guillermo Rivas
Sonia Roa
Hernan Salamanca
Diego Sandoval
Murtaza Syed
Patricia Van Strahlen
Marcos Vera-Hernandez

EDePo

Centre for the Evaluation of Development Policies

THE INSTITUTE FOR FISCAL STUDIES

Introduction

This report describes the survey that was carried out in 122 communities in rural Colombia by the consortium formed by the Institute for Fiscal Studies, Econometria and SEI as the baseline for the impact evaluation of *Familias en Acción*, a programme to foster the accumulation of human capital in rural Colombia, run by the Colombian government.

In this report, we will not describe in detail the programme or the methodology of the proposed evaluation, as this was done in IFS-Econometria-SEI (2003a). The main aim of the document is to discuss the first, baseline survey that was collected for this evaluation. While the baseline survey cannot, by definition, be used to perform impact evaluation, towards the end of the report we exploit the slightly peculiar way in which the programme was started and have a first very preliminary glance at some of the impacts that the programme might have. The methodological caveats on interpreting these results should be taken very seriously.

This report does not contain an extensive 'fieldwork' report. This is included in SEI (2003). Analogously, we do not discuss extensively the operation of the programme and the evidence that emerged on related issues and on targeting. These issues are covered in IFS-Econometria-SEI (2003b, 2003c). We will be referring to some of the issues raised in those reports, however.

This report is divided into five chapters. In Chapter 1, we briefly summarise the main features of the programme and its proposed evaluation. A more detailed description of both of these aspects is contained in IFS-Econometria-SEI (2003a). Here, however, we give some details on the expansion of the programme and on the features of this expansion that allow a first and preliminary analysis of the impact of the programme. In Chapter 2, we describe the statistical methodology that will be used in the report. This includes the methodology for the data description that constitutes the largest part of the report and for the preliminary impact evaluation. Chapter 3 describes the baseline survey. This chapter is divided into several sections, each referring to a particular module. In each section, we first describe the 'treatment' population – that is, the households eligible for the programme that were living in villages targeted by the programme. We then move on to the population living in 'control' villages – that is, in villages that were not targeted by the programme and yet are, nonetheless, reasonably similar to the treatment villages. Chapter 4 presents the preliminary impact evaluation.

1. The *Familias en Acción* Programme and Its Evaluation

1.1 The Programme

The programme *Familias en Acción* is a welfare programme run by the Colombian government to foster the accumulation of human capital in rural Colombia. The programme has three main components: nutrition, health and education. The nutrition component consists of a basic monetary supplement that is given to all beneficiary families with children under 7 years of age. The health component consists of a vaccination and growth and development checks for children and of courses on nutrition, hygiene and contraception for their mothers. Participation in this part of the programme is necessary in order to receive the nutritional supplement. Probably the most important component is the education one. Mothers are given grants if they keep their children in schools for a minimum amount of time. The monthly grant is set at 12,000 pesos in 2001 and 14,000 pesos in 2002 for primary school children and at 24,000 pesos in 2001 and 28,000 pesos in 2002 for secondary school children.

It should be mentioned that the nutritional supplement, to which families with children aged between 0 and 6 are entitled, is an alternative to participation in a pre-existing programme called *Hogares Comunitarios*. Beneficiaries cannot participate in both programmes with the same children. However, families with both children below and children above 6 can choose to send the young children to a *Hogar Comunitario* and participate in *Familias en Acción* with the older children.

Familias en Acción has targeted and is being implemented in 622 'municipalities' in 26 'departments' selected by *Fondo de Inversiones para la Paz* (FIP)[1] on the basis of the following four criteria:

- the municipality had to have access to basic education and health infrastructure;
- the municipality had to have at least one bank;
- the municipality had to have fewer than 100,000 inhabitants and not be the capital of a regional district and not be in the Coffee region that received special help as a consequence of the 1995 earthquake;
- the local authority had to register the municipality to the programme and provide a number of documents, including the lists of 'SISBEN1' beneficiaries.

Within each town, all families registered with 'SISBEN1' (a basic welfare indicator more or less routinely collected for all families in Colombia, whose level determines welfare entitlements and utilities prices) in December 1999 in the targeted municipalities, and with children between 0 and 17 years of age, were potential beneficiaries of the programme. To become beneficiaries, they have to register with the programme and comply with its rules.

[1] FIP, SubPrograma Familias en Acción, Documento Estado y Avance, November 2002.

As of 31 October 2002, *Familias en Acción* registered 407,076 families as eligible and 362,403 (89%) as beneficiaries.[2]

1.2 Evaluation Methods

To evaluate the impact of the programme, it was decided to follow a quasi-experimental methodology. The municipalities were grouped according to the number of eligible families living in each one, to form the Primary Sampling Unity (PSU). Typically, a PSU coincides with a municipality. In a few cases, we grouped two small adjacent municipalities to form a single PSU. Among the targeted PSUs, we selected 50 to form a stratified random sample (see Section 1.4 for the selection process). To these 50 PSUs, we matched 50 'control' PSUs that had not been targeted by the programme and yet were reasonably similar to the 'treatment' ones. The matching was done within each stratum (defined on the basis of geographic location and an index of school and health structure availability) so as to have a control group that was similar to the treatment group in terms of population size and an index of quality of life (LQI). Most of the control municipalities were towns with basic school and health infrastructure but without a bank or, in the few cases of towns chosen to match relatively large municipalities, just over 100,000 inhabitants.

Having selected the sample of treatment and control municipalities, we selected a random sample of eligible households by the stratified random sampling method described in Section 1.4. The quasi-experimental methodology we will be using will compare outcomes of interest in treatment and control samples a year after the implementation of the programme. For this purpose, the first follow-up to the baseline survey described in this report will be crucial. As the assignment of municipalities to treatment and control groups is not random, the treatment and control samples may end up being different in some dimensions. To tackle this problem, we will be using propensity score matching in the comparison of treatment and control households.

The availability of a baseline survey, such as the one described in this report, is crucial for at least two reasons. First, the baseline provides a useful and, in this case, unique picture of the population of interest before the intervention. As a comparable database from rural Colombia did not exist, it provides an indispensable description of the background against which the programme operates. Secondly, and maybe more importantly, one can try to correct for substantive pre-programme differences between treatment and control villages using the baseline survey. That is, one can use versions of the difference-in-difference estimator combined with propensity score matching to control for pre-programme outcomes.

Propensity score matching

Propensity score matching is the process by which the distribution of observable characteristics in the control group is transformed so that it matches that of the treatment group, thereby making the two groups comparable with respect to all observable dimensions.

[2] FIP, SubPrograma Familias en Acción, Documento Estado y Avance, November 2002.

Suppose each individual has two potential outcomes, one for the programme state (Y_i^1) and one for the non-programme state (Y_i^0). Only one is observed since the individual cannot be in the programme and non-programme states at the same time. T_i=1 means that the individual is exposed to treatment, while T_i =0 means that the individual is not exposed to treatment. We observe a set of variables *X*.

For the matching process to be valid, we need to assume $E(Y_i^0 \mid X, T_i = 1) = E(Y_i^0 \mid X, T_i = 0)$, which states that the average outcome in the non-programme state for those who actually participated in the programme is the same as the observed outcome for those who did not participate, *given* the observable characteristics *X*. The meaning of the assumption is that no unobservable characteristics that can determine outcomes in the non-programme state affect the allocation to the state (selection on observables only).

Implementing this procedure is very hard if *X* includes many variables. We thus rely on a theorem by Rosenbaum and Rubin (1983), which states that the distributions of characteristics in the treatment and control, conditional on the probability of being assigned to the treatment group (i.e. the propensity score, $P(X)$), are identical. Denote the distribution of the propensity score in the treatment group as $F^1 = F^1(P(X))$. Then the effect of the programme on those who actually received it (treatment on treated) is $TT = E(Y^1 \mid T_i = 1) - E_{F^1}[E(Y_i^0 \mid P(X), T_i = 0)]$,where the term E_{F^1} signifies taking expectations (population means) of the outcome in the control group conditional on each value of the propensity score, using as weights the distribution of the propensity score in the treatment group.

The advantage of propensity score matching is that it controls for observed characteristics, allowing for the underlying impacts to differ by these, and does so without having to deal with the large dimensionality problem of *X*. Before computing the average impact *TT*, the propensity score has to be estimated; a simple probit will do for this.

As the evaluation of the programme was contracted out more or less at the same time as the launch of the programme, we had to face the problem that, when we started selecting the evaluation sample, the programme had already started in a number of (non-randomly selected) municipalities. For this reason, we decided to divide the treatment sample into two sets of 25 PSUs – one set where the programme had already started, before the 'baseline' measurement, and the other where the programme had not started (although it had been widely publicised in those areas and the registration process had begun). The first set of municipalities will be labelled 'treatment with payment' (or TCP from 'tratamiento con pago'), while the second set will be labelled 'treatment without payment' (or TSP from 'tratamiento sin pago'). The corresponding control groups will be labelled 'control with payment' (or CCP from 'control con pago'), while the second set will be labelled 'control without payment' (or CSP from 'control sin pago').

This situation obviously creates some problems in the evaluation, as we will not have a complete 'baseline' measurement for all municipalities. For this reason, in our questionnaires,

we added a number of retrospective modules for outcomes of particular interest, such as school enrolment. This information will allow us to construct 'pre-programme' measurements for a large number of variables. At the same time, the presence of a certain number of municipalities where the programme has already started affords us the possibility of a preliminary impact evaluation. This can be obtained comparing the outcomes of interest in the TCP and TSP sets. While this comparison (based on propensity score matching between households living in the TCP and TSP municipalities) is of obvious interest, its results should be taken with caution for the following reasons:

- The comparison is done on a relatively small sample – roughly half the size of the sample that was thought to be optimal for this evaluation.

- The comparison is done only a few months after the start of the programme. For some outcomes (in particular, nutrition or health), a longer period might be necessary to observe effects.

- The programme had been announced in the TSP set, so there might be anticipation effects that would tend to reduce the estimated effect; these might be particularly relevant for schooling.

- The children in TSP municipalities might be in a temporal dip as some of them might have already quit from another established program called *Hogares Comunitarios*.

- For this particular sample, there is no real baseline, even though the retrospective information can be used to construct a 'pseudo-baseline'.

These caveats should be kept in mind when one interprets the results of the evaluation.

1.3 The Target Population

According to the figures in the evaluation design, the treatment group was potentially formed by 436,589 eligible households – that is, households registered with SISBEN1 as of 31 December 1999 with children under 18 and living in the 622 municipalities where the programme operates. Moreover, the 1,325 health providers and 31,156 education institutions that were potentially linked to the programme in the treatment municipalities are also objects of the evaluation. Notice that not all of the potential beneficiaries in the treatment municipalities were actually registered in the programme; nor were all the health and education institutions in the same municipalities linked to the programme.

The potential control groups are households registered in SISBEN1 and living in 210 municipalities where the programme does not operate, and education and health institutions operating in the same towns. As the programme was not assigned randomly, the controls were chosen with an eye to the particular evaluation methodology (propensity score matching) that we want to use. For this reason, for each stratum from which we randomly drew the treatment towns, we matched similar towns from the set of control groups in that stratum. Strata were formed on the basis of geographical areas and availability of health and education infrastructure.

1.4 Probabilistic Samples

The evaluation design involved the random and stratified selection of 50 treatment and 50 control PSUs. Within these communities, we selected 10,660 treatment households and 8,347 control households. Moreover, we selected 520 schools, 207 health institutions and 1,167 *Hogar Comunitarios*. The split between treatment and controls are given in Table 1.4.1. The total number of children we interviewed is roughly in line with what was planned in the evaluation design. This is important, given the focus of the evaluation on education and child nutrition. Indeed, for ages between 7 and 17, we interviewed more children than we were expecting.

The universe of our study is the potential beneficiary families living in eligible and non-eligible municipalities. We decided to have municipalities with at least 226 eligible families as the PSUs. The restriction on the number of eligible families implied the merging of some municipalities with adjacent municipalities. The resulting universe comprised a total of 639 PSUs, of which 464 were 'treatment' and 175 were 'control' PSUs. The sample was formed of 50 treatment PSUs (covering 57 municipalities) and 50 control PSUs (covering 9 municipalities). The minimum number of beneficiary families within each municipality takes into account an expected loss of 40% of the families in the first survey, and the expected losses of families in the second and third surveys. We assumed that the rate of loss would be greater in the control sample than in the treatment one, as treatment families are expected to migrate less than control families.

1.4.1 Selection of the Primary Sample Units

To select the PSUs, we divided the total PSUs into 25 strata based on region, level of urbanisation (as measured by the size of the urban part of the municipality), number of eligible households, index of life quality (LQI) and health and school infrastructure. The PSUs in each stratum were divided into four groups (TCP, TSP, CCP and CSP) and one PSU was chosen from each group. The treatment municipalities were chosen with probability proportional to their size; the controls were chosen to match the selected treatment ones, in that they were chosen to be the most similar, in terms of population and LQI, to the selected treatment towns within the same stratum.

1.4.2 Distribution of the Secondary Sample Units in the Selected PSUs

The sampling was done by dividing the required minimum sample into equal parts, according to the number of PSUs (100). This was done not only for the eligible households, but also for *Hogares Comunitarios*, healthcare providers and schools. This sampling scheme implies that the probabilities of selection would differ across observations. Correction factors were computed to avoid the likely bias generated by the different probabilities of selection. This bias correction is computed as the inverse of the probability of selection or an equivalent factor.

1.4.3 Selection of the Secondary Sample Units within the PSUs

Households (Eligible Families)

The sample of eligible families within the PSU was formed separately for urban and rural areas but following the same procedure for each. The relative sizes of the urban and rural samples in each PSU were designed to be equal to the relative sizes of the urban and rural eligible

population across the PSUs of the group (TSP, TCP, CSP or CCP) and stratum to which the selected PSU belonged. The procedure for the selection was then as follows:

1. A secondary sample unit (SSU) is defined as a group of between 6 and 18 eligible families living in the same or contiguous neighbourhoods.

2. Urban neighbourhoods with fewer than 6 households were grouped with contiguous urban neighbourhoods so as to obtain at least 6 eligible families. The rural neighbourhoods ('veredas') were grouped using the same criteria.

3. Neighbourhoods or groups of neighbourhoods with more than 18 eligible families were divided randomly into two or more SSUs. The number of SSUs in each group of neighbourhoods was the integer part of the total number of eligible families in that group divided by 12.

4. The average size of SSUs was therefore 12 eligible families. The total number of SSUs selected in the rural and urban parts was then determined by the relative size of the urban and rural sample desired for each PSU.

5. To establish how many SSUs (if any) are selected from each neighbourhood or group of neighbourhoods, we first define for each PSU (and separately for the urban and rural areas), a sampling interval as the ratio between the actual number of SSUs in the urban (rural) area and the required number of SSUs in the urban (rural) area.

6. We draw a random number x between 1 and the urban (rural) si, and take the vector $\{x, si+x, 2si+x, 3si+x, \ldots, N\}$, where $N = \min\{NT, x+(RN-1)\times si\}$, where NT is the total number of SSUs in the urban (rural) area, RN is the required number of SSUs until we reach the total number of SSUs. We then list all neighbourhoods and cumulate the number of SSUs in each of them. The number of SSUs selected from each of the urban neighbourhoods (or groups of neighbourhoods) is then given by the number of elements of the vector above that fall within each group of neighbourhoods.

7. Having established RS_k (the number of SSU to be selected from neighbourhood k), we draw $12\times RS_k$ families randomly from neighbourhood k.

Hogares Comunitarios

After computing the required number of *Hogares Comunitarios* (HCBs) in the PSU, separately in urban and rural areas, the HCB were selected randomly from the rural and urban areas of each PSU.

Health Centres

The sample includes all the hospitals of the PSU, as well as all the 'centros' (healthcare providers, usually with a physician 24 hours a day). When there are more than five hospitals and centros, a random sample of 'centros' was taken to obtain five institutions. If there were fewer than five hospitals and 'centros', a random sample of 'puestos' (small healthcare providers) was taken to obtain five institutions.

Schools

The sample includes all the eligible urban schools and a random selection of rural ones.

Table 1.4.1 gives the universe, selected sample and sample finally surveyed in the baseline survey.

Table 1.4.1
Sample sizes

Population under study		Universe		Selected sample		Contacted sample	
		Treatment	Control	Treatment	Control	Treatment	Control
PSUs	With payment	280	175	25	25	25	25
	Without payment	184		25	25	25	25
Health institutions		1,325	523	101	106	96	97
Education establishments		31,156	6,677	271	249	270	241
Households		436,589	113,626	10,660 (minimum expected: 6,396)	8,347 (minimum expected: 5,000)	6,722[a]	4,562
Hogares Comunitarios		17,973	5,910	573	594	547	445
Children from SISBEN1 households		89,865	41,370	2,865	4,158	2,735	3,115

[a] Approximately 12% of these households are not registered with the programme.

2. Statistical Methods Used in the Baseline Report

In this chapter, we discuss the statistical issues that are relevant for the material presented in this report, which describes the baseline survey. The main goals of this report are three: (i) to provide a description of the population target of the programme; (ii) to compare the treatment and control samples; (iii) to provide a first and very preliminary impact analysis based on the comparison of outcomes of interest in TCP and TSP municipalities. Each of these three goals poses specific statistical problems that we discuss here.

2.1 Description of the Target Population

As mentioned in Chapter 1, the population target of the programme *Familias en Acción* is the households living in villages where the programme was operating, that were registered in the SISBEN1 list as of 31 December 1999 and who, at the time of the implementation of the programme, were still living in a treatment village, were still in the SISBEN1 list and had children aged 0 to 17. Our baseline survey allows us to obtain estimates of the quantities of interest that are representative of this population. For our estimates (and their estimated precision), however, we have to take into account a number of issues.

Our estimation procedure has to take into account the double stratification (first at the level of municipalities and then at the level of neighbourhoods and rural centres) used in constructing the survey. The procedure we follow is relatively standard. Each household in the survey is assigned an expansion factor that reflects the stratification procedure and allows us to report our estimates for the population of interest.

Our sample was drawn from the December 1999 SISBEN1 lists. As mentioned above, these lists do not coincide with the population of interest. A household that was in SISBEN1 in 1999 could be not part of the target population for a variety of reasons:

- it does not qualify for SISBEN1 any more;
- it does not have children in the relevant age interval;
- it has moved to a different municipality.

Moreover, starting from the sample drawn from the 1999 SISBEN1 lists, a relatively large fraction of households could not be contacted, mainly because they had moved to a different municipality.

As a consequence of these problems, to obtain estimates representative of the target population, we face two important problems. First, we have to correct for the non-response, which is clearly non-random among the original population. Secondly, we have to correct for the fact that the population used to obtain the sample does not coincide with the target population for the reasons mentioned above.

To tackle these problems, we start by dividing the original sample into three groups: (i) the group of households that could be contacted and were contacted because they are potential beneficiaries; (ii) the group of households that could be contacted but were not interviewed

because they are no longer potential beneficiaries (if, for instance, they did not have children of the relevant ages); (iii) the households that could not be contacted.

We proceed as follows. We assume that the proportion of individuals belonging to groups (i) and (ii) in the unobserved group (iii) is identical to the proportion in the observed sample. We use this assumption to adjust for the fact that the population of interest is different from the population used to draw the sample. This involves multiplying the expansion weights of each household in the sample by the probability that a given household is still a beneficiary. We then use the split between groups (i) and (ii) and group (iii) to estimate a model of non-response. In principle, we could use all the variables observed in the SISBEN1 database. In practice, we only use the nature of the area of residence (urban/rural) for each stratum. The procedure then consists of dividing the expansion weights by the probability of non response of each household included in the sample.

To be more specific: the expansion weight is given by one over the probability of being in the sample. Denote the probability derived from the stratification procedure for household i by p_i^s, the probability of non-response for that particular type of household by p_i^{nr} and the fraction of that type of households that are non-beneficiaries in the original population by p_i^{nb}; then the expansion weight will be given by

$$\frac{1-p_i^{nb}}{p_i^s(1-p_i^{nr})}.$$

Having obtained weights that reflect both the probability of non-response and the difference between the target population and the population used to draw the sample, we use them to produce estimates that are representative of the population of interest. These estimates are reported in Chapter 3 for the sample of treatment villages, including TSP and TCP.

It should be stressed that the analysis of this population is of interest on its own and gives a first snapshot of the target population which is substantially not available from the existing data source. This snapshot, in terms of education choices, health outcomes, income, consumption and welfare, constitutes the background against which the programme needs to be evaluated.

2.2 Comparison between Treatment and Control Groups

As we mentioned above, the evaluation methodology is based on the comparison between villages in which the programme operates and villages where the programme does not operate. As assignment to the programme is not random, a simple comparison between these two groups could be very misleading for two reasons. First, *ex-post* differences in outcomes could simply reflect pre-programme differences. Secondly, the effect of the programme could be a function of a number of background variables (such as availability of schools and health centres, education of the population and so on) that might be different between the control and treatment villages. These problems are tackled using the propensity score matching methodology which tries to compare treatment households to 'similar' control households, where 'similar' is defined in a precise statistical sense in terms of observable individual characteristics (including retrospective ones) and community-level variables. An important aim

of the baseline report is therefore to establish the differences between treatment and control samples in terms of background and pre-programme outcomes. The differences in the available samples will illustrate the degree of 'reweighting' that it will be necessary to do in the control sample to make it comparable to the treatment sample. The fact that the two samples are actually quite similar will ensure that it will be possible to match a large fraction of treated households to some control households for evaluation purposes.

Given the main purposes of the comparison between treatment and control municipalities we have just mentioned, we first present a comparison that does not use any weighting. However, in an attempt to obtain representative estimates of the variables of interest in the slightly different population of control municipalities which could be compared to treatment municipalities, one could also consider tests based on weighted means. In this respect, there is an additional difficulty here, as the sample of control municipalities was not drawn randomly but was chosen to match the sample of treatment municipalities. For this reason, we use the same sampling weights as used in the treatment municipalities corresponding to the relevant stratum. In the end, however, the issue is moot as the results are not much affected by whether weighting is used or not. For this reason, we only report one set of results.

In Chapter 3, after presenting the results for the treatment sample, we compare the variables measured in the treatment municipalities with those in the control municipalities. We present three types of comparison:

1. treatment vs. control (both con and sin pago);

2. treatment 'sin pago' vs. control;

3. treatment 'sin pago' vs. control 'sin pago'.

In the impact evaluation that will be performed after the first and second follow-ups, we will be interested mainly in the comparison between all controls and all treatments. That is why we are now interested in the first comparison. As the programme had already started in some of the treatment villages when the baseline survey was collected, the focus of the comparison will be on background variables (such as adult education, family size etc.) and on pre-programme outcomes, as measured by retrospective questions. In the impact evaluation, care will have to be taken to take into account the fact that, in a year, some 'treatment villages' will have been exposed to the programme for considerably longer periods than others. The group of 'TSP' villages are the only ones for which a pure baseline measurement has been possible. It is for this reason that we are also interested in the second and third comparisons.

In the three sets of comparisons, care has to be paid to the fact that households living in the same municipalities cannot be considered as independent observations as they will be affected by similar events. For this reason, in computing the standard errors of the differences, we cannot treat them as independent. We therefore use formulae that control for the presence of clusters. We experimented with two possibilities. First, we considered the municipality as a cluster. Secondly, we considered the rural and urban areas of each municipality as separate clusters. Of course, the first scheme will yield larger standard errors, while the standard errors in the second one will be smaller. It turns out that the difference is not dramatic. On average, the difference is of around 15%. We report the second set of standard errors, but the first set is available on request.

2.3 Comparison between TCP and TSP: A Preliminary Impact Evaluation with Propensity Score Matching

As mentioned above, and subject to the important caveats we listed, a first and preliminary impact evaluation can be obtained comparing the TCP and TSP municipalities. If the early start of the programme had been 'random' among the treatment municipalities, a simple comparison between the TCP and TSP municipalities would have yielded the relevant impact evaluation. Unfortunately, it is easy to find variables, both at the municipality and at the individual level, that are significant predictors of the 'con pago' vs. 'sin pago' status. For this reason, even in this preliminary evaluation, we decided to use propensity score matching techniques. The fact that the two sets of municipalities are relatively similar means that we are able to match a large fraction of the families living in the treatment ('con pago') municipalities. Moreover, the fact that we observe pre-programme variables (as measured by retrospective information) allows us to match on pre-programme outcomes, which might be particularly relevant.

The details of the propensity score matching are as follows (see also the Box in Section 1.2). The propensity score is the probability that an individual lives in a TCP community. As is usual in practice, we have estimated this propensity score using a parametric binary choice model, in particular a probit model. This probit model includes both individual and community variables.

Having computed the propensity score for each observation, for the observations in the 'control' sample (in this case, the TSP) we fit a flexible regression (using splines) of the outcome variable over the propensity score. The average impact of the programme for those eligible living in TCP communities is then computed as the average difference between the actual outcome in TCP observations and the estimated value obtained using the regression of the outcome on the propensity score in the TSP. We do not use all the TCP individuals to obtain this average, but only those that are comparable to the TSP individuals.[3] Consequently, this average impact is obtained only for those TCP individuals who are similar enough, according to the propensity score, to those individuals in the TSP. Consequently, the estimate of the impact of the programme cannot be extrapolated to all the TCP individuals. The standard error and confidence interval are estimated using bootstrap techniques with 300 replications that take into account the clustered nature of the sample.

[3] To be specific, any TCP individual used to compute this average must satisfy the following two conditions. First, there must be a TSP individual with a propensity score value smaller than the specific TCP's propensity score value. Secondly, there must be a TSP individual with a propensity score value higher than the specific TCP's propensity score value.

3. Description of the Baseline Survey

In this chapter, we describe the baseline survey. This gives us the opportunity to describe the most salient features of the target population of the *Familias en Acción* programme as well as to compare the treatment and control villages, along the lines described above. The survey was carried out between June and October 2002. Further details on the data collection process are contained in SEI (2003).

This chapter is organised in sections. In each of them, we describe a subset of variables, roughly corresponding to one of the modules in the questionnaire. As mentioned above, for each variable, we first report the descriptive statistics for the treatment sample; we then compare this sample to the control sample.

We start with a description of the main demographic features of the population. We then analyse education, income, health, consumption, the empowerment of women, and nutrition.

3.1 Demography

This section will describe the main demographic features of the population under study: the population that is the target of the programme *Familias en Acción*. We will also compare this population, which has never been studied systematically, with the SISBEN1 population in Colombia at large. For this purpose, we will utilise some additional data sources.

We look at both individual and household variables. Most of the variables we analyse are important background variables that will set the scene in which the programme operates. However, some of the variables (fertility, migration and so on) could conceivably be affected by the programme, at least in the medium run. The analysis of the baseline survey will be useful in evaluating the impact of the programme in 2004, after the first follow-up.

The data analysed in this report come from the survey carried out between June and October 2002. The survey obtained information on 68,608 people and 11,462 households. As we mentioned before, the sample was divided into four types of municipalities: TCP, TSP, CCP and CSP.

From the 57 municipalities that make up the 50 treatment PSUs (25 TSP and 25 TCP), we have:

- 6,773 households in treatment municipalities;
- 40,340 individuals;
- 7,920 children between 0 and 6 years old (target of the nutrition component);
- 12,948 children between 7 and 17 years old (target of the education component).

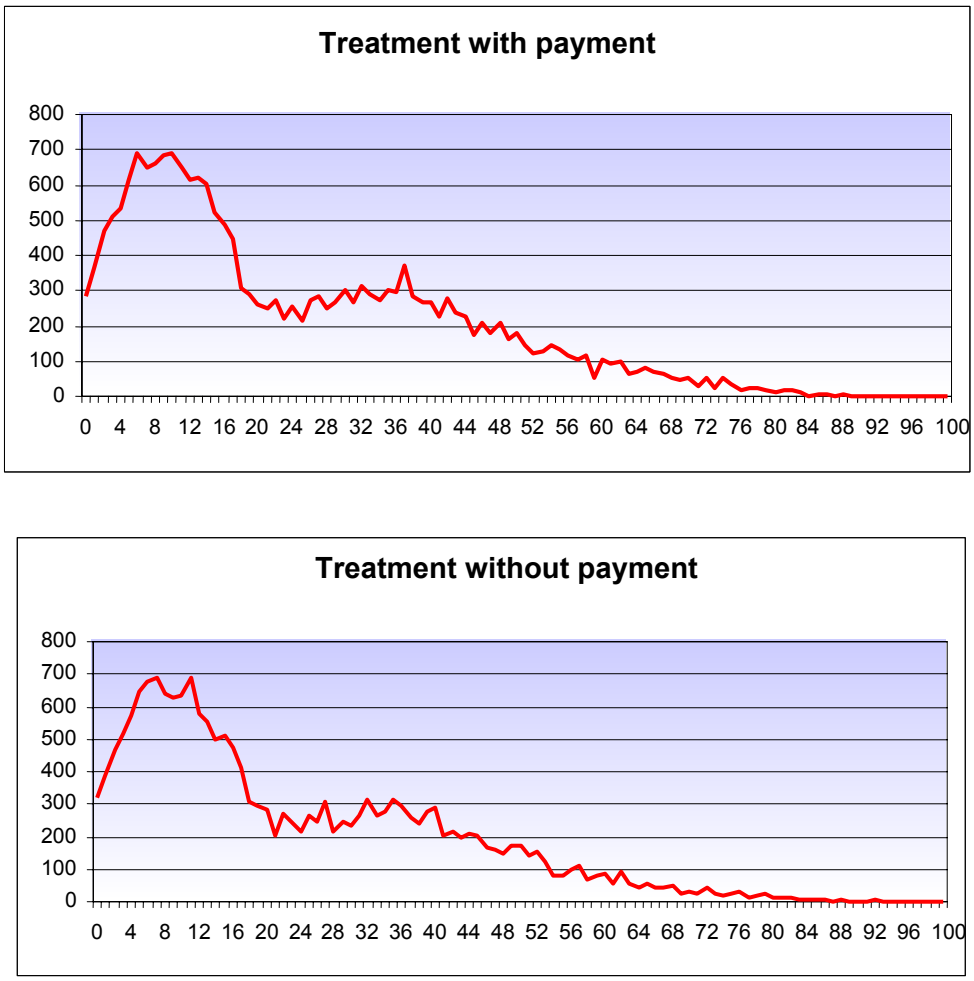
The analysis of the demographic variables will be divided in three parts: the analysis of individual-level, household-level variables, and the part related to fertility, pregnancy, mortality and migration.

3.1.1 Individual-Level Variables

Age Structure

We start our analysis by looking at the age structure of our population. Given the available evidence in Colombia and other developing countries, and given that our target population belongs to the poorest sector of the population (SISBEN1), we would expect the age structure that one would observe for a population with high fertility and high mortality: that is, a wide base for the 'age pyramid' with a relatively steep decline. The picture we get, plotted in Figure 3.1.1 for the two groups of treatment municipalities, only partly conforms to this expectation.

Figure 3.1.1
Number of people by age



Source: IFS-Econometria SA-SEI Consortium, baseline survey, October 2002

In both types of treatment municipalities, as well as in the total population (see below), we observe three main characteristics of the age structure. First, there are a relatively low number of individuals between 0 and 5 years old. Secondly, we observe a large group of people

between 6 and 18 years old. Finally, there are a remarkably low number of individuals aged between 18 and 35.[4]

Age heaping

Relative to other surveys, ours seems to have a much reduced 'age heaping' effect, as is evident in Figure 3.1.1. Especially for ages over 35, this is a remarkable result, given the evidence from other Colombian surveys and the Colombian Census. Our age questions were asked in a different way from those in these other surveys. It seems this made a substantial difference and improved the quality of the age information in our survey.

A plausible explanation of this quality improvement is the request to show an identification document to the interviewer for all individuals over 18, usually, the so-called 'cedula de ciudadanía'. This document was used to check the personal information provided by the respondents. It should be possible to check whether this explanation is the right one by checking whether we observe more 'age heaping' in situations where identification documents are less common. Comparison between rural and urban areas seems to confirm the hypothesis: there seems to be more 'age heaping' in rural areas than in urban ones.

We also checked the shape of the age curve by gender. There seems to be slightly higher age heaping for women than for men.

It seems plausible to conclude that requiring formal identification could substantially improve the quality of age information in future surveys. However, this would introduce differences in data quality between urban and rural areas.

These features could be explained by the existence of high mobility rates for this last group in the in rural areas especially out of the villages that are targeted by the programme. These in turn could be linked to the situation of political unrest and violence that prevails in most of the communities in our sample. Both sets of municipalities exhibit the same pattern, although the TSP presents a smoother shape. It would be interesting to investigate the extent to which these dramatic shifts in the age structure of these populations are linked to various phenomena, such as violence and similar problems.

These results are significant both because they indicate dramatic changes within these populations and because the two age groups that are targeted by the programme are the very young (of which there are a low number) through the nutrition component and those between 7 and 17 years old (of which there are many) through the education component.

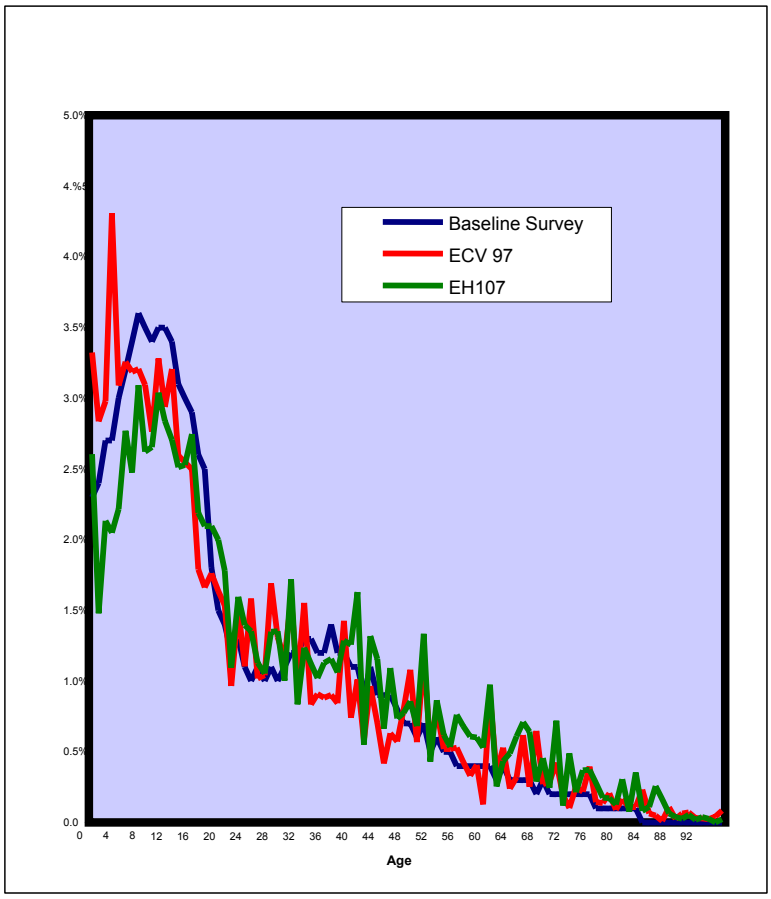
It is important to note that this pattern emerges in both the rural and the urban areas and among both men and women.

In Figure 3.1.2, we compare the data from our survey with those from two national surveys – namely, the Quality of Life Survey ('Encuesta de Calidad de Vida' – ECV97) and the National

[4] In addition, we note that for ages over 35, the decline in the curve is unexpectedly slow.

Household Survey (EH 107) We notice some differences for early ages, whereas the rest of the profile is relatively similar.

Figure 3.1.2
Comparing age distribution of Baseline survey with national surveys



Sources: IFS-Econometria SA-SEI Consortium, baseline survey, October 2002, Encuesta de Calidad de Vida EH107, and Encuesta Nacional de Hogares.

Gender Structure

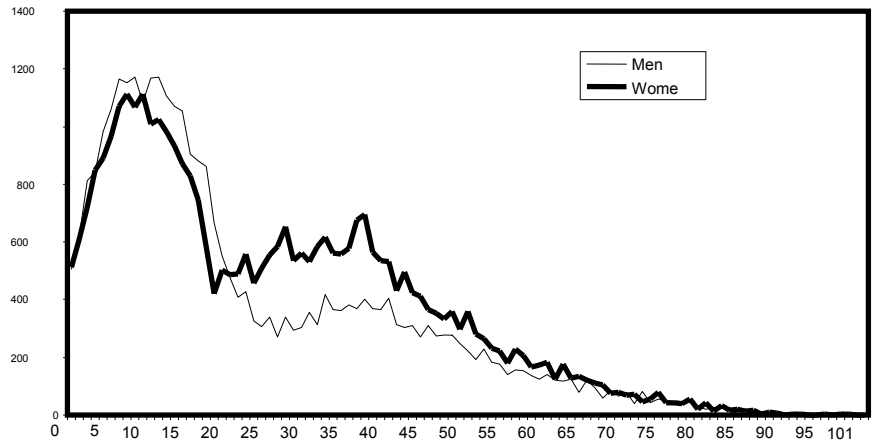
We now consider the gender structure of our population. For this purpose, we compute the ratio of men to women in the population. For most countries, this index is a number below unity, indicating a larger number of women than men. Men are more likely to be affected by violence, so we expect this ratio to be particularly low for our sample.

In Colombia, at the national level, the ratio of men to women is 0.94. In the ECV97 for the SISBEN1 population, the ratio is 1.06, while in the EH107 for SISBEN1 or SISBEN2, it is

1.01.[5] In our survey, the ratio of men to women is as low as 0.86, indicating a remarkable prevalence of women over men in our population.

The age structure by sex, plotted in Figure 3.1.3, shows a clear break-point at age 22, where the two curves diverge considerably. In Figure 3.1.4, we plot the ratio of men to women minus 1 by age. We see that the excess of women over men is present for most ages over 22.

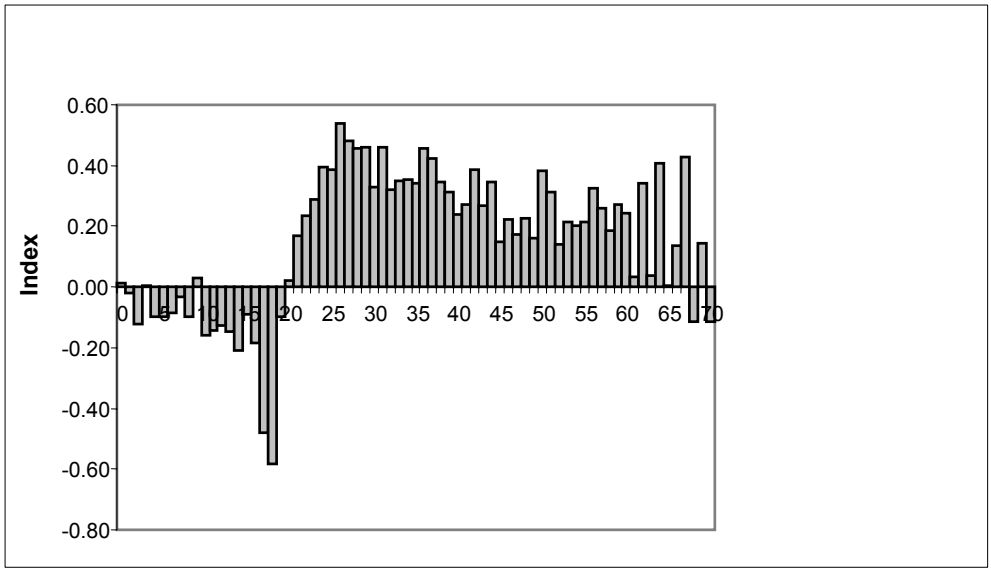
Figure 3.1.3
People by age and sex



Source: IFS-Econometria SA-SEI Consortium, baseline survey, October 2002

[5] SISBEN2 refers to the second lowest official socio-economic group.

Figure 3.1.4
Male index
(ratio of men to women minus 1)



Source: IFS-Econometria SA-SEI Consortium, baseline survey, October 2002

Average Age

Finally, the average age of our population is estimated at 22.4 years, while the urban and rural averages are 22.7 and 22.1 years respectively. These results are consistent with the evidence we presented on the age structure.

3.1.2 Household-Level Variables

Table 3.1.1 shows that most of the households we are analysing in this report are composed of only one family. However, 37% of the households have two or more families living within them. This proportion is higher in urban areas. Note that eligibility for the programme is at the 'family' rather than 'household' level. For this reason, the sample unit in our survey is the family.

Table 3.1.1
Frequencies of multi-family households (%)

Type of municipality		Number of families in household:		
		1	2	3 or more
Total treatment		72.92	20.23	6.85
TCP		73.24	20.32	6.44
TSP		72.57	20.12	7.31
TCP	Urban	70.97	20.58	8.45
	Rural	75.00	20.12	4.88
TSP	Urban	67.74	22.71	9.55
	Rural	76.62	17.95	5.43

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Types of Households

The composition of households does not vary between the two types of municipalities we are studying. As can be seen in Table 3.1.2, most families are 'single families' – that is, a couple or single parent with their children, but no other adult or family member living with them.

Table 3.1.2
Types of households (%)

Type of municipality	Couple	Couple and adults	Single woman as head of household
Total treatment	44.2	31.6	18.3
TCP	44.0	31.3	18.3
TSP	44.4	32.0	18.3

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The programme is focused on households with children. The mother, when present, receives the grant. That is why it is important to note that 18% of the families are in fact 'single woman as head of household' and that 27% of households have a woman as the head, which is a little higher than the national average.

We further classify the families in our sample to check whether couples or single families with children live with another related person or with a non-related person. Three general types of households are defined:

- *Nuclear:* household with parents, their children and no other person.
- *Extended:* household with parents, their children and other relatives.
- *Composed:* household with parents, their children, relatives and non-relatives.

From this new classification, we obtain Table 3.1.3, where we also differentiate between married and single household heads. As we saw with the previous classification, there are few households in the rural areas where the head is single.

Table 3.1.3
Types of households (%)

Type of municipality		Nuclear		Extended		Composed	
		Single	Couple	Single	Couple	Single	Couple
Total treatment		8.93	49.55	11.99	27.03	0.55	1.95
TCP		9.59	48.78	12.31	26.88	0.52	1.91
TSP		8.77	50.05	12.15	26.58	0.44	2.02
TCP	Urban	12.19	43.29	15.74	26.31	0.90	1.55
	Rural	7.17	53.44	9.46	27.44	0.35	2.14
TSP	Urban	11.19	41.47	16.78	28.03	0.48	2.04
	Rural	6.17	57.54	7.55	26.35	0.51	1.88

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.1.4, we report the average number of individuals and of children aged 0 to 6 and 7 to 17 in ECV97 and in EH107 The average number of individuals per household in our sample, reported in Table 3.1.5, is higher than the national average for the same type of population. This difference can be partly explained by the fact that our reference population is made up of families with children under 18. We are therefore excluding single people and other childless households.

Table 3.1.4
National average household size and number of children

Area	People per household		Children 0–6		Children 7–17	
	ECV97*	ENH107	ECV97	ENH107	ECV97	ENH107
National average	5.1	4.8	1.2	0.8	1.5	1.4
4 metropolitan areas	6.3	5.2	1.9	0.8	1.9	1.5
Urban	4.9	4.9	1.1	0.7	1.5	1.5
Rural	5.2	4.7	1.2	0.8	1.5	1.3

Sources: ECV97 – 'Encuesta de Calidad de Vida- 1997', the Quality of Life Survey.
ENH107 – 'Encuesta nacional de Hogares', National Household Survey, March 2001.

Table 3.1.5
Household size and number of children

Type of municipality		People	Children 0–6	Children 7–17
		Mean (Std dev)	Mean (Std dev)	Mean (Std dev)
Total treatment		6.90 (0.087)	1.41 (0.031)	2.38 (0.035)
TCP		6.82 (0.130)	1.34 (0.044)	2.34 (0.056)
TSP		6.98 (0.111)	1.49 (0.040)	2.42 (0.043)
TCP	Urban	6.89 (0.258)	1.35 (0.066)	2.30 (0.105)
	Rural	6.76 (0.118)	1.34 (0.058)	2.38 (0.056)
TSP	Urban	6.89 (0.163)	1.43 (0.043)	2.28 (0.039)
	Rural	7.06 (0.158)	1.53 (0.064)	2.54 (0.064)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

On average, we have 6.9 individuals per household. Surprisingly, when we look at average household size by area, we do not find any substantial difference between rural and urban areas. For rural areas, average household size is 6.95, while in urban areas it is 6.89. Neither do we find any significant difference between TCPs and TSPs in the number of people living in a household.

Heads of households

The characteristics of household heads that we look at in this section are gender and age. In about 20% of households, the head is a woman. In most of these households, the man is absent.

In Table 3.1.6, we see that the average age of household heads is 45 (44 for men and 46 for women; this slight difference could presumably be explained by higher mortality rates among men).

Table 3.1.6
Head of household: average age by sex and type of municipality (years)

	With payment		Without payment		Total
	Control	Treatment	Control	Treatment	
Men	44.53	44.37	45.04	44.01	44
Women	47.22	46.62	47.32	44.40	46
Total	45.11	44.86	45.42	44.09	44.73

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.1.3 Fertility, Pregnancy, Mortality and Migration

In this subsection, we consider the pattern of fertility, pregnancy and migration.

Fertility

In our sample, we register 1,410 births in the previous 12 months, of which 51.3% were boys and 48.7% girls. This gives us a ratio of males to females of 1.05; the ratios are roughly the same in the rural and the urban areas.

Of these births, 94.6% are related to the head of household directly, and just 4.5% are sons or daughters of other relatives. This proportion of children within the nuclear family is higher in the rural households (97.1%) than in the urban ones (92.6%). The gap gets bigger when we consider only the children and not the grandchildren of the head: 65% of the births are children of the household head in rural areas and 52% in urban ones.

To characterise reproductive behaviour, we consider three fertility indicators: the gross fertility rate (GFR), the general fertility rate (GeFR) and the children/women ratio.[6] They are given in Table 3.1.7. We briefly analyse the possible changes in reproductive behaviour during the last five years. Study of these indicators, in addition to providing information on the demographic structure of the target population, might be informative about the peculiarities in the age structure we observed above.

Table 3.1.7
Fertility indicators by type of municipality

	Gross fertility rate (%)	General fertility rate (%)	Children/women	%P(0-14)
CCP	25.8	102.5	4.6	43
TCP	17.5	69.0	4.3	42
CSP	19.2	67.1	3.2	39
TSP	21.3	75.6	3.9	43

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

It is important to notice that, under the assumption of similar age structures between our populations, the lowest GFR is found in the TCPs, which are those municipalities already receiving the subsidies. This difference is confirmed by the GeFR, since, even if it isn't the lowest one, it is different from the other types of municipalities. Note that the control municipalities have the highest fertility rates.

Pregnancy

The number of pregnant women declared in the survey is 753, which is about half the number of births in the previous 12 months. This might indicate under-reporting of pregnancies or a

[6] Gross fertility rate is the ratio between the total number of births and total population. The General fertility rate is the ratio between the total number of births and the number of women between 15 and 49 years old.

decline in fertility in later months. The ratio of pregnancies to births is very similar in rural and urban areas and across types of municipalities.

Some differences across types of municipalities, however, emerge when we consider the relationship to the household head. As we pointed out above, the percentage of births directly related to the first nuclear family in the household is over 94%; however, the proportion of pregnancies that are in that family is 85% for TCPs and 77.5% for CSPs. Pregnancy of relatives and non-relatives within the household is about 15%, whereas their fertility rates are less than 5%.

Even if fertility rates are within the range of what is observed in other studies, we cannot say the same about levels of pregnancy, since these rates are very much lower. The comparison of fertility and pregnancy rates shows a potential problem in our database. It will be interesting to check whether more children are born in the year before the follow-up than implied by the pregnancy rates registered in the baseline.

Mortality

Our surveyed population report 384 deaths in the previous 12 months, of which 185 were in urban areas and 199 in rural ones. This means that mortality rates are very similar in urban and rural areas, as indicated in Table 3.1.8. However, we observe differences in mortality rates among different types of municipalities.

Table 3.1.8
Mortality rates (%)

Total	5.59
Urban	5.50
Rural	5.67
CCP	5.01
TCP	6.26
CSP	4.89
TSP	5.84

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

As can be seen from Table 3.1.8, the mortality rate is roughly similar in all types of municipalities, and lower than the one obtained for the whole country. As expected, mortality is higher in rural parts than in urban ones. Nevertheless, when we observe the results at the municipality level, it is surprising to see that TCPs have a higher rate than the others, at 6.26%.

Migration

The last variable relevant to demographic growth is the migration rate. There were a total of 870 people arriving in the households, which means that 7.6% of households received at least one new member in the previous 12 months. Analysis of the relation to the household head of

individuals recently arrived in households leads us to conclude that they were young families with children returning home:

- 24% of the new people were children of the head of household.
- 13% were the spouse or the children in law.
- 22% were grandchildren.

The households receiving new individuals registered at most two new people, both in urban and rural areas. However, most of the incoming people live in treatment municipalities, which might indicate that the programme has an effect on migration.

On the other hand, 61% of people leaving the household were children, mainly between 7 and 30 years old.

The proportion of households that reported out-migration is higher than that of those reporting new arrivals. In our sample, 11.2% of households report that at least one person left in the previous 12 months. This percentage is very similar in rural and urban areas.

Table 3.1.9 shows the migration rates. The immigration rates are not particularly higher in TCP, nor are the emigration rates particularly low in TCP. This seems to indicate that the program has not influenced the migration patterns.

The household members most likely to leave are the same as those arriving – that is, the spouse, children and grandchildren. This is true in both urban and rural areas and for the four types of municipalities.

Table 3.1.9
Migration rates by type of municipality

	Immigration rate (%)	Emigration rate (%)
Total	22.6	26.5
Urban	24.2	26.8
Rural	21.2	26.7
CCP	22.0	27.9
TCP	21.9	26.3
CSP	22.9	23.4
TSP	24.0	28.2

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

We compute net migration rates from the number of immigrants minus the number of emigrants and report them in Table 3.1.10. Notice that for every type of municipality, we observe net out-migration, indicating an outflow of individuals (at least for the poorest sector of the population) from the municipalities. People leaving might be moving to bigger or more

developed municipalities. It will be interesting, in the follow-up, to check whether this effect is reduced by the treatment.

Table 3.1.10
Migration balance by type of municipality (thousands)

	Migration balance
Total	–3.9
Urban	–2.7
Rural	–5.5
CCP	–5.9
TCP	–4.4
CSP	–0.5
TSP	-4.2

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.2 Education

In this section, we analyse the variables related to the demand and supply of education services. This set of variables is clearly crucial, as one of the main aims of the programme is to foster education. While in what follows we analyse some of the main outcome variables and some likely determinants, we do not describe in detail all the information contained in the survey. This large body of information, however, will be crucial to a good evaluation as it will allow us to control for a number of background factors that are likely to affect education outcomes. It is likely that the degree of success of the programme will depend on several background factors that are likely to be different across municipalities. The impact evaluation will try to identify these factors and quantify their importance.

The analysis will be divided into two parts: the analysis of demand (household-level) variables and the analysis of supply (school- and municipality-level) variables. It is clear that the success or otherwise of the programme will depend on the interaction between the two. We present the analysis of household variables in the next subsection. In the following subsection, we will focus on the analysis of the education institutions in the treatment municipalities, with a description of the schools infrastructure and characteristics of their students.

3.2.1 Household-Level Variables

Treatment Sample

The most important variable we focus on is the enrolment of children into school. As we have already mentioned several times, the programme had already started in some of the treatment municipalities. Fortunately, our survey collected information on both current and previous (last two years') enrolment. This last piece of information can be used to construct a genuine 'pre-programme' (baseline) analysis. In what follows, we report results on both current and previous year's enrolment.

The enrolment rate of children aged between 7 and 17 is obviously defined as

$$\text{Enrolment rate} = \frac{\text{Number of children aged 7 to 17 attending school}}{\text{Total number of children aged 7 to 17}}.$$

Enrolment rates obviously vary in several important dimensions. Therefore, in addition to the overall enrolment rate, we present evidence on enrolment rates by age, sex, area of residence (urban/rural) and parental education. We also analyse the age at which children entered school and the number of years of delay (because of late entry and/or repeated years) for enrolled children.

As with previous variables, we start our analysis by trying to compare our population with the whole population of Colombia and with the all of SISBEN1 families in Colombia. The only source available for this purpose for education is the 'Encuesta de Calidad de Vida' collected in 1997 (ECV97). In Table 3.2.1, we compare enrolment rates in our treatment sample (for children between 7 and 17) with those in the ECV97. In evaluating this comparison, it should be kept in mind that part of our sample could have been influenced by the programme already. This could be true not only of the TCP municipalities but also of the TSP municipalities, if there are any anticipation effects.

Table 3.2.1
National enrolment rates

	Treatment sample	ECV97	
		SISBEN1	Total
Total	0.835	0.693	0.840
Urban	0.877	0.806	0.894
Rural	0.808	0.684	0.721
Boys	0.809	0.685	0.822
Girls	0.864	0.702	0.857

Sources: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.
ECV97 – 'Encuesta de Calidad de Vida- 1997', the Quality of Life Survey.

As has been mentioned before in this report, the population we are studying differs from the populations of national surveys done so far. By most of our indicators (see the analysis in the demography, nutrition, consumption and poverty sections), the target population of *Familias en Acción* is much poorer than the rest of rural Colombia. The striking feature of the table, however, is that enrolment rates seem to be much higher than the ones reported in the ECV97, and especially so at the rural level. One possible explanation of this dramatic difference, of course, is the fact that the ECV97 survey was carried out more than five years earlier than our survey, over which period enrolment rates might have improved in rural areas. Another possibility is that one of the two surveys is affected by severe measurement error, which, in the case of our survey, might be linked to the perception that answers to the survey were somehow linked to eligibility into the programme. However, from the feedback related by our interviewers, we have no reasons to believe that this was a serious problem. Moreover, as we will see below, we do not find such large differences between treatment and control villages, where the programme had not arrived (and will not arrive) at all.

In Table 3.2.2, we report enrolment rates by type of treatment (TCP and TSP) by area (urban/rural) and report information on both current and last year's enrolments. It should be stressed that the comparison of current enrolment rates should not be interpreted in any way as measuring the impact of the programme, at this stage, as it does not control for any differences in background and pre-programme variables. The preliminary impact evaluation is reported in Chapter 4. The average current enrolment rate for the treatment villages is 83.5%, and no statistically significant differences have so far been observed between TSP and TCP.

Table 3.2.2
Average enrolment rates

Type of municipality		Enrolment rate, 2002	Enrolment rate, 2001
		Mean (Std error)	Mean (Std error)
Total treatment		0.835 (0.009)	0.818 (0.010)
TCP		0.836 (0.013)	0.831 (0.015)
TSP		0.832 (0.012)	0.797 (0.012)
TCP	Urban	0.890 (0.014)	0.895 (0.013)
	Rural	0.806 (0.016)	0.796 (0.018)
TSP	Urban	0.862 (0.015)	0.828 (0.019)
	Rural	0.811 (0.018)	0.774 (0.018)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

However, when the results are split by area (urban/rural), we notice that attendance at school in urban areas is higher in the TCP municipalities than in the TSPs; meanwhile, the rural areas show, if anything, greater rate for TSPs than for TCPs. When examining the previous year's enrolment rate, the urban areas as well as the total treatment sample show some differences between TCP and TSP.

These differences could be due either to different compositions or, possibly, differences in other background variables, such as costs or supply. Either way, when doing the preliminary impact evaluation, it will be crucial to control for them to avoid interpreting pre-programme differences as an effect of the programme. In Table 3.2.3, we test whether these differences in means are statistically significant. As can be seen, none of them is at the standard significance levels.

Table 3.2.3
Comparison between TSP and TCP municipalities: enrolment rates

		TSP vs. TCP	TSP vs. TCP	
			Urban	Rural
Present enrolment rate	Difference (Standard error) P-value	-0.004 (0.019) 0.848	-0.028 (0.021) 0.189	0.005 (0.026) 0.210
Previous enrolment rate	Difference (Standard error) P-value	–0.034 (0.020) 0.089	–0.067 (0.024) 0.007	-0.021 (0.026) 0.411

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.2.4, we consider boys and girls separately. The evidence indicates that girls are more likely to go to school than boys in the total treatment sample in both urban and rural areas. This contrasts with the evidence from other countries, such as Mexico, where higher drop-out rates for girls constituted the motivation for larger subsidies given to girls.

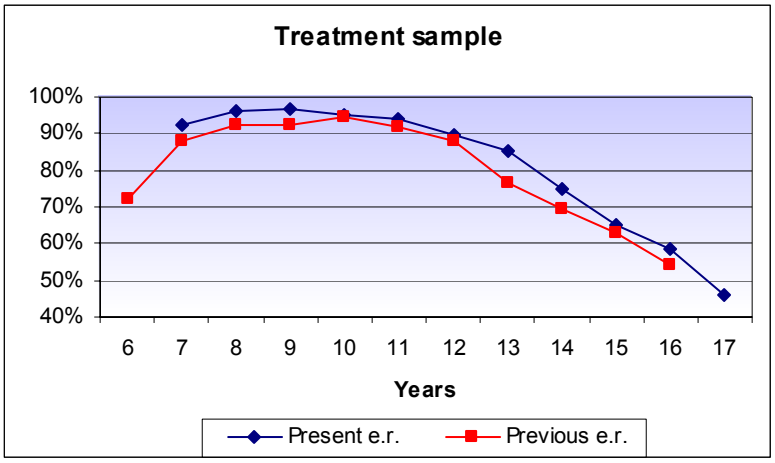
Table 3.2.4
Enrolment rates: boys and girls

Type of municipality		Boys Mean (Std error)	Girls Mean (Std error)
Total treatment		0.811 (0.015)	0.865 (0.013)
TCP		0.805 (0.014)	0.865 (0.013)
TSP		0.805 (0.014)	0.863 (0.013)
TCP	Urban	0.873 (0.016)	0.909 (0.013)
	Rural	0.776 (0.017)	0.840 (0.018)
TSP	Urban	0.839 (0.019)	0.888 (0.013)
	Rural	0.781 (0.018)	0.844 (0.022)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

We now turn to the analysis of enrolment rates by age. The evidence that emerges from this picture will be important for evaluating the effects of the programme, as we will be able to see for which age range intervention is more necessary. Rather than presenting large tables, we summarise the information on current and previous enrolment rates by age in Figure 3.2.1. Notice that lagged enrolment rates start at age 6, as the question is asked of children aged 7 to 17 *at the time of the interview*, so that they were 6 to 16 the previous year.

Figure 3.2.1
Present and previous enrolment rates by age

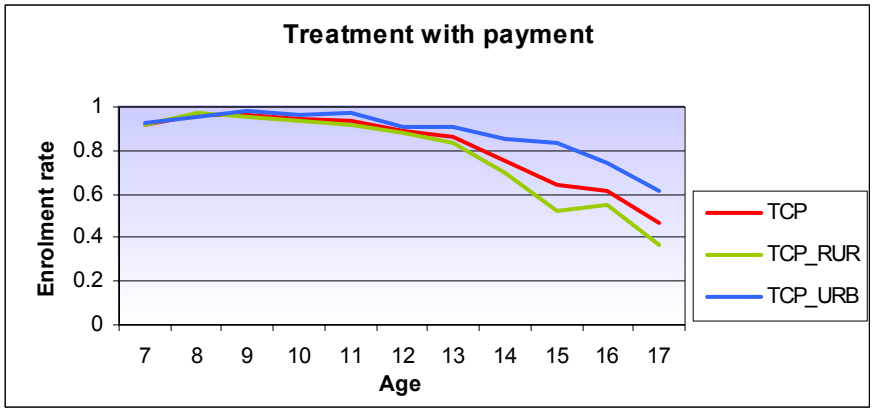


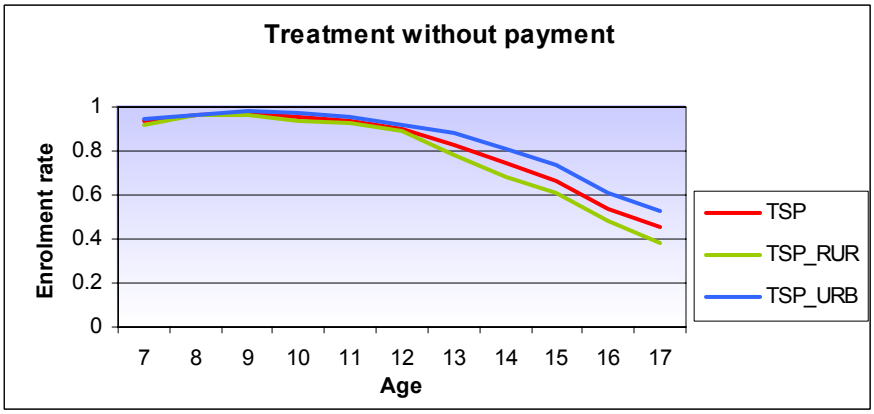
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Four features emerge. First, current and last year's enrolment rates are extremely high up to age 12. It is difficult to imagine that the programme might have a strong effect in raising these rates for these age groups. Secondly, enrolment rates drop dramatically after age 13 and are at about 60% by age 16. Thirdly, the two lines are very close to each other until age 13, when current enrolment drops more slowly. This might be suggestive of an early effect of the programme, which will be investigated rigorously in Chapter 4. Fourthly, enrolment rates at age 6 are relatively low, indicating that many children start school relatively late.

In Figure 3.2.2, we divide the sample not only by age, but also by area of residence and by type of municipality (TCP vs. TSP). As expected, rural children drop out of school earlier than urban children. Urban children in TCPs seem to stay considerably longer. This is another indication of an early effect of the programme which we will analyse later in detail.

Figure 3.2.2
Enrolment rates by age and area





Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

One of the variables that might affect enrolment rates is the education of the parents. Table 3.2.5 presents the relationship between the enrolment rate and the level of education of the head of household and the spouse (97% of whom are women). We observe a positive relationship between enrolment rates and the level of parental education for both the head of household and the spouse.

Table 3.2.5
Enrolment rates by level of parental education

Type of municipality		Parent	Level of parental education				
			None	Incomplete primary	Complete primary	Incomplete secondary	Secondary complete or more
			Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		Head	0.80 (0.02)	0.83 (0.01)	0.87 (0.01)	0.91 (0.01)	0.94 (0.02)
		Spouse	0.79 (0.01)	0.82 (0.01)	0.89 (0.01)	0.90 (0.02)	0.95 (0.01)
TCP		Head	0.79 (0.03)	0.83 (0.02)	0.87 (0.02)	0.90 (0.02)	0.92 (0.03)
		Spouse	0.81 (0.02)	0.81 (0.02)	0.90 (0.02)	0.90 (0.03)	0.93 (0.02)
TSP		Head	0.80 (0.02)	0.82 (0.01)	0.86 (0.02)	0.93 (0.02)	0.97 (0.01)
		Spouse	0.77 (0.03)	0.83 (0.02)	0.88 (0.02)	0.90 (0.02)	0.98 (0.01)
TCP	Urban	Head	0.88 (0.02)	0.87 (0.02)	0.92 (0.02)	0.90 (0.03)	0.94 (0.03)
		Spouse	0.84 (0.03)	0.89 (0.02)	0.92 (0.01)	0.94 (0.02)	0.95 (0.02)
	Rural	Head	0.76 (0.03)	0.81 (0.02)	0.83 (0.03)	0.89 (0.03)	0.85 (0.08)
		Spouse	0.80 (0.02)	0.79 (0.03)	0.88 (0.03)	0.85 (0.06)	0.90 (0.04)
TSP	Urban	Head	0.83 (0.02)	0.85 (0.02)	0.87 (0.03)	0.93 (0.02)	0.97 (0.02)
		Spouse	0.79 (0.04)	0.87 (0.02)	0.89 (0.03)	0.89 (0.04)	0.98 (0.01)
	Rural	Head	0.78 (0.03)	0.80 (0.02)	0.85 (0.03)	0.93 (0.03)	0.98 (0.02)
		Spouse	0.76 (0.04)	0.81 (0.02)	0.88 (0.02)	0.94 (0.03)	0.96 (0.03)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Having analysed enrolment rates, we now move on to the average age at which children start school. The age of entry into the school system is correlated with enrolment rates and the patterns we observe are going to be similar to the ones observed for enrolment rates above.

In Table 3.2.6, we report the average age of starting school by type of municipality, area of residence and gender. The average age of entry into the school system is 6.8 years for boys and 6.6 years for girls in the treatment municipalities. For the TCPs, the average is a little lower, but the difference between the two types of municipalities is not statistically significant.

Table 3.2.6
Age of entry into the school system (years)

Type of municipality		Boys Mean (Std error)	Girls Mean (Std error)
Total treatment		6.812 (0.049)	6.634 (0.048)
TCP		6.796 (0.066)	6.606 (0.062)
TSP		6.835 (0.075)	6.676 (0.075)
TCP	Urban	6.598 (0.060)	6.380 (0.047)
	Rural	6.921 (0.097)	6.747 (0.083)
TSP	Urban	6.736 (0.114)	6.407 (0.059)
	Rural	6.913 (0.107)	6.884 (0.104)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The average age of entrance is higher in the rural areas than in the urban ones, both in TCPs and in TSPs. In all cases, girls enter at a younger average age, but the differences between the genders are greater for the urban areas in both types of municipality than for the rural areas.

Like enrolment rates, the age of entry into the school system presents a positive relationship with the level of parental education. In Table 3.2.7, we report the average age of starting school by the head of household's level of education.

Table 3.2.7
Average age of entry into the school system by head of household's level of education (years)

Type of municipality		Household head's level of education				
		None	Incomplete primary	Complete primary	Incomplete secondary	Complete Secondary or more
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		7.05 (0.07)	6.78 (0.05)	6.44 (0.05)	6.27 (0.07)	6.19 (0.10)
TCP		7.00 (0.09)	6.78 (0.07)	6.43 (0.06)	6.22 (0.07)	6.01 (0.10)
TSP		7.12 (0.10)	6.78 (0.09)	6.47 (0.07)	6.34 (0.14)	6.36 (0.14)
TCP	Urban	6.62 (0.09)	6.69 (0.05)	6.35 (0.09)	6.20 (0.09)	5.95 (0.09)
	Rural	7.22 (0.11)	6.81 (0.10)	6.50 (0.07)	6.25 (0.09)	6.23 (0.22)
TSP	Urban	7.04 (0.14)	6.52 (0.10)	6.44 (0.10)	6.28 (0.09)	6.15 (0.20)
	Rural	7.18 (0.16)	6.94 (0.12)	6.48 (0.10)	6.46 (0.37)	6.65 (0.15)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

We now turn to the analysis of education achievements. The modal level of education for children aged 7 to 17 is 'incomplete primary' as can be seen from Table 3.2.8. Less than 1% has no education at all, and the rest, which is 28.6%, have achieved higher than incomplete primary. As expected, in rural areas, there is a larger proportion of children who have not yet completed primary education. Moving to the comparison between TCP and TSP, we notice that, even though the general patterns are similar, there are a higher proportion of children with 'incomplete secondary' education in TSP municipalities than in TCP municipalities.

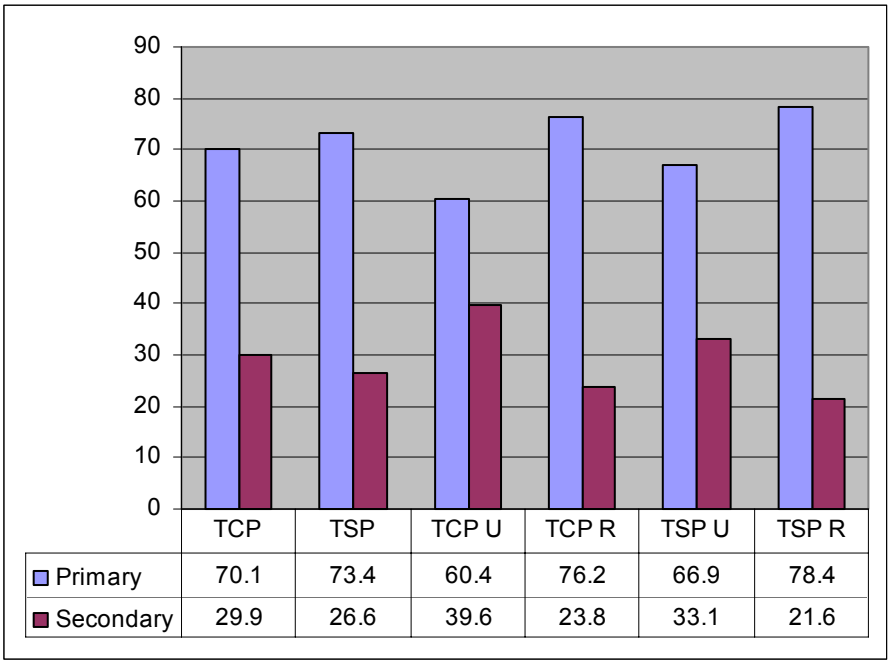
Table 3.2.8
Frequency of children between 7 and 17 by level of education (%)

Type of municipality		None	Incomplete primary	Complete primary	Incomplete secondary
Total treatment		0.93	70.51	2.36	26.20
TCP		0.72	69.40	2.10	27.78
TSP		1.24	72.15	2.73	23.87
TCP	Urban	0.82	59.55	2.29	37.34
	Rural	0.66	75.56	1.99	21.79
TSP	Urban	0.73	66.17	2.84	30.26
	Rural	1.63	76.8	2.65	18.91

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Recall that the subsidy offered by *Familias en Acción* doubles in secondary school. The figures in Table 3.2.8 indicate that more than 70% of children receiving the grant attend primary grades and just 28.5% go to secondary school. However this proportion fluctuates by area and type of municipality as we can see in Figure 3.2.3.

Figure 3.2.3
Percentage of children attending school



	TCP	TSP	TCP U	TCP R	TSP U	TSP R
Primary	70.1	73.4	60.4	76.2	66.9	78.4
Secondary	29.9	26.6	39.6	23.8	33.1	21.6

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.2.9, we consider children's 'education gaps', measured in two different ways. In the first column, we compute the current age minus the age at which school was started, minus the current grade. For children who have not repeated grades, this will give zero. We see that both in rural and in urban areas, the average repetition is over one year per student. In the second column, we substitute the age at which the child started school by 6. This second column adds a late start to the 'gap'. It is noticeable that this gap is considerably higher in rural areas than in urban ones.

Table 3.2.9
'Education gaps' (years)

Type of municipality		Average repetition	Average repetition + later entrance
		Mean (Std error)	Mean (Std error)
Total treatment		1.32 (0.03)	2.05 (0.05)
TCP		1.28 (0.03)	1.99 (0.07)
TSP		1.38 (0.04)	2.13 (0.07)
TCP	Urban	1.22 (0.06)	1.75 (0.06)
	Rural	1.31 (0.04)	2.14 (0.09)
TSP	Urban	1.35 (0.07)	1.94 (0.07)
	Rural	1.40 (0.07)	2.28 (0.11)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.2.10 looks at the education level of household heads and spouses. Once again, this table confirms the extreme poverty of our sample. About 75% of the household heads and spouses in our sample have less than completed primary education.

Table 3.2.10
Frequency of household heads and spouses by education level (%)

Type of municipality		Education level of household head			
		None	Incomplete primary	Complete primary	Incomplete secondary
Total treatment		27.0	48.4	14.3	7.9
TCP		25.6	50.9	13.8	7.8
TSP		29.1	44.8	15.1	8.0
TCP	Urban	23.6	39.7	18.0	14.6
	Rural	26.7	57.1	11.5	4.0
TSP	Urban	28.0	38.9	15.4	13.4
	Rural	29.9	49.0	14.9	4.2

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Type of municipality		Education level of spouse			
		None	Incomplete primary	Complete primary	Incomplete secondary
Total treatment		23.1	51.6	15.4	7.0
TCP		22.2	53.3	14.7	6.7
TSP		24.4	49.0	16.5	7.3
TCP	Urban	17.4	43.4	19.9	13.4
	Rural	24.3	57.9	12.4	3.7
TSP	Urban	19.4	44.2	18.6	12.3
	Rural	27.3	51.9	15.2	4.3

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Comparison between Treatment and Control Samples

Following the description of the treatment sample, we analyse differences in the means of three variables between treatment and control groups. The variables we consider are present and previous enrolment rate and age of entry into the school system.

Table 3.2.11
Comparisons between treatment and control groups

Variable		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Present enrolment rate	Difference (Standard error) P-value	0.07** (0.020) 0.001	0.07** (0.022) 0.003	0.06* (0.029) 0.039
Previous enrolment rate	Difference (Standard error) P-value	0.03 (0.021) 0.111	0.01 (0.023) 0.555	0.00 (0.031) 0.883
Age of entry into school	Difference (Standard error) P-value	–0.09 (0.079) 0.242	–0.05 (0.093) 0.581	–0.03 (0.112) 0.8

** Significant at 99%.
* Significant at 95%.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.2.11, we notice that the differences between our control and treatment households do not appear significant for the previous enrolment rate or for the age of entry into school. This is comforting, as these are genuine pre-programme variables. For the present enrolment rate, the differences are all significant for our three comparisons, and in particular for the comparisons including the TCP group.

The results are similar when taking into account the differences is taken between urban or rural areas. In Table 3.2.12, differences are significant at the 95% for all three comparisons only for the present enrolment rate, whereas the previous enrolment rate remains similar between treatment and control groups for all types of municipalities. Some of the differences may be

driven by anticipation effects, since the treatment sample is expecting the programme and reacts in advance.

Table 3.2.12

Age an entry into school. Comparisons between treatment and control groups by area

Variable		All treatments vs. All controls		Treatments without payment vs. All controls		Treatments without payment vs. Controls without payment	
		Urban	Rural	Urban	Rural	Urban	Rural
Present enrolment rate	Difference (Standard error) P-value	0.040** (0.011) 0.000	0.031* (0.015) 0.041	0.037** (0.012) 0.002	0.042* (0.016) 0.010	0.029* (0.013) 0.033	0.051** (0.016) 0.001
Previous enrolment rate	Difference (Standard error) P-value	0.029* (0.011) 0.011	0.015 (0.012) 0.193	0.018 (0.014) 0.209	0.017 (0.013) 0.198	0.017 (0.016) 0.306	0.021 (0.013) 0.124

** Significant at 99%.
* Significant at 95%.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Tables 3.2.13a and 3.2.13b, we consider differences for different age groups. We see that the estimated differences in current enrolment rates are bigger for the older children. As expected, the differences for the previous enrolment rate are not significant, which reinforces the conclusion that we do have reasonably similar populations prior to the start of the programme.

Table 3.2.13a
Comparisons between treatment and control groups by area: children aged 7 to 12

Variable		All treatments vs. All controls		Treatments without payment vs. All controls		Treatments without payment vs. Controls without payment	
		Urban	Rural	Urban	Rural	Urban	Rural
Present enrolment rate	Difference (Standard error) P-value	0.051* (0.022) 0.022	0.066** (0.016) 0.000	0.052 (0.256) 0.045	0.067** (0.021) 0.002	0.050 (0.040) 0.217	0.054* (0.024) 0.026
Previous enrolment rate	Difference (Standard error) P-value	0.045 (0.027) 0.100	0.044 (0.027) 0.111	0.023 (0.031) 0.459	0.033 (0.031) 0.286	0.020 (0.043) 0.646	0.007 (0.038) 0.859

** Significant at 99%.
* Significant at 95%.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.2.13b
Comparisons between treatment and control groups by area: children aged 13 to 17

Variable		All treatments vs. All controls		Treatments without payment vs. All controls		Treatments without payment vs. Controls without payment	
		Urban	Rural	Urban	Rural	Urban	Rural
Present enrolment rate	Difference (Standard error) P-value	0.128** (0.041) 0.002**	0.097* (0.041) 0.022*	0.083 (0.047) 0.086	0.090 (0.045) 0.052	0.064 (0.067) 0.344	0.086 (0.047) 0.073
Previous enrolment rate	Difference (Standard error) P-value	0.071 (0.043) 0.102	0.025 (0.045) 0.591	0.010 (0.047) 0.824	0.000 (0.053) 0.994	0.006 (0.066) 0.925	–0.012 (0.060) 0.844

** Significant at 99%.
* Significant at 95%.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Before moving to the study of supply factors, we present a simple analysis of the relationship between enrolment rates and various variables. We do this by running two simple probit regressions, whose results are reported in Table 3.2.14. The first probit is for current enrolment and the second is for past enrolment. The dependent variable is 1 if the child is in school. The explanatory variables include individual-, household- and municipality-level variables. We use all observations from our survey, including those from control areas. Among the explanatory variables, we include a dummy for the type of municipality. The excluded group is the TCP municipalities.

Table 3.2.14
Probit for present and previous enrolment

Variable	Present enrolment			Previous enrolment		
	Coefficient	Std error	t	Coefficient	Std error	t
CCP	–0.42417	0.078	–5.44	–0.26344	0.07947	–3.31
CSP	–0.33608	0.09173	–3.66	–0.21967	0.079716	–2.76
TSP	–0.00097	0.079632	–0.01	–0.12543	0.065354	–1.92
Children age	–0.00824	0.000302	–27.31	–0.00384	0.000309	–12.45
Sex	0.22519	0.02776	8.11	–0.19657	0.025629	–7.67
Head age	–0.0017	0.002819	–0.6	–0.00124	0.002136	–0.58
Spouse age	0.00615	0.00287	2.14	0.005401	0.002559	2.11
Single parent	–0.0023	0.052362	–0.04	–0.02359	0.049463	–0.48
Head primary incomplete	0.070357	0.058382	1.21	0.065722	0.046739	1.41
Head primary complete	0.184271	0.069389	2.66	0.207008	0.053097	3.9
Head secondary incomplete	0.453665	0.112073	4.05	0.364007	0.075771	4.8
Head secondary complete	0.448862	0.15016	2.99	0.38981	0.126867	3.07
Spouse primary incomplete	0.120904	0.05003	2.42	0.170018	0.04559	3.73
Spouse primary complete	0.387663	0.055003	7.05	0.454187	0.060264	7.54
Spouse secondary incomplete	0.507915	0.087638	5.8	0.50502	0.068598	7.36
Spouse secondary complete	0.835015	0.116235	7.18	0.809766	0.11392	7.11
Two families	–0.04065	0.121017	–0.34	–0.12363	0.115008	–1.07
Three or more families	–0.08235	0.235006	–0.35	–0.01479	0.218452	–0.07
Number of urban schools	0.013119	0.008385	1.56	0.019716	0.007524	2.62
Number of rural schools	–0.00571	0.001564	–3.65	–0.00428	0.001034	–4.14
QLI93	–0.01048	0.003895	–2.69	–0.01296	0.003389	–3.82
Population in the urban part	–2.25E–06	4.11E–06	–0.55	–3.13E–06	3.62E–06	–0.86
Rest of population	2.65E–06	3.60E–06	0.74	1.71E–06	2.95E–06	0.58
Dummy for	–0.12086	0.104066	–1.16	–0.09861	0.078411	–1.26

hospital						
Number of Centros	–0.12911	0.087468	–1.48	–0.13299	0.057863	–2.3
Number of Puestos	0.023074	0.021289	1.08	0.001756	0.020593	0.09
Dummy for desertion in health care providers	–0.03164	0.093661	–0.34	0.023521	0.088179	0.27
Dummy for strikes in health care providers	0.16649	0.063324	2.63	0.209261	0.051626	4.05
_cons	2.363335	0.288755	8.18	2.014834	0.221511	9.1

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

We notice first that the dummies for control municipalities are statistically significant. Enrolment rates seem to be significantly lower in these municipalities. Children are more likely to go to school the more educated their parents are. Having more than one family in the household does not affect the decision to go to school, and older children are less likely to go to school. Surprisingly, the number of schools in rural areas has the wrong sign, while the number of schools in urban areas is not very statistically significant. Estimating the same model for lagged enrolment rates gives very similar results.

3.2.2 Education Supply

The programme *Familias en Acción* does not include direct interventions on schools. However, it is likely that the effect of the programme depends on the availability of resources to satisfy the possible increase in demand for education services. Moreover, it is possible that education supply might change with the introduction of the programme, as a result of the increased demand for education.

The analysis in this subsection is focused on the following:

- quantifying the level and quality of education supply in the municipalities part in the survey.
- analysing the performance of students, particularly those enrolled in the programme.

For these purposes, we ran a small survey of schools in the treatment and control municipalities. This survey collected information on school size, the grades of the students and the availability of some types of resources, such as libraries and the like.

The information gathered in the survey will be complemented with the Ministry of Education's National Survey (C-100 and C-600). This survey is carried out every year in all schools in Colombia. It will also be possible to use information from the National Household Survey (ENH), which collects basic background information on children and characteristics about education history.

This subsection is divided into two parts. The first presents a description of the variables that are most likely to affect the provision of educational services. These are mainly variables characterising the infrastructure of the schools. In the second part, we consider the proportion of children enrolled in the programme within the schools and their attendance rate for two arbitrarily selected grades (third and ninth), the availability of books for common use within the class and the existence of other subsidies from *Familias en Acción*.

It is important to recall that this baseline report does not claim to analyse in detail all the variables concerning the schools, as we are not yet using the data collected from the national surveys. In the first follow-up, we will be able to look more deeply into the complete data-set.

Description of the Education Institutions

Education institutions in the treatment sample are located mostly in rural areas. Table 3.2.15 shows that this pattern is slightly stronger in TSP than in TCP municipalities.

Table 3.2.15
Treatment sample education institutions

Type of municipality	Urban	Rural
TCP	29.50%	70.50%
TSP	26.70%	73.30%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Despite the number of schools found in rural areas, not all of them offer secondary education. Most of them offer only primary education, while those located in urban parts are mainly secondary schools (see Table 3.2.16).

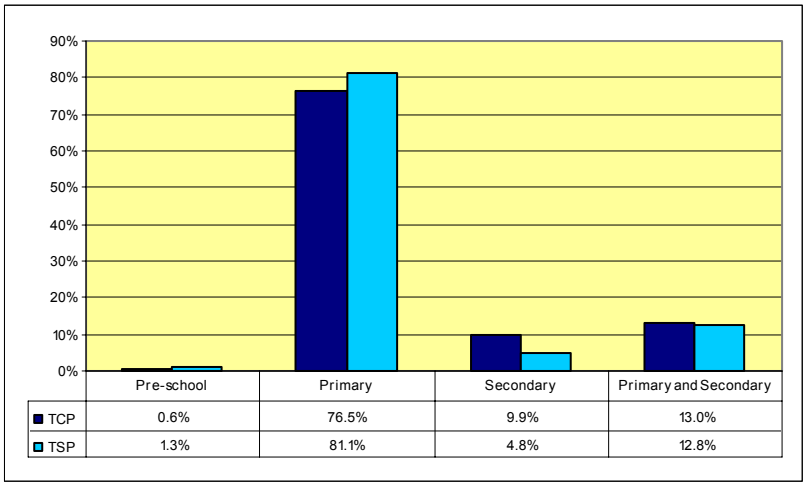
Table 3.2.16
Types of schools in the treatment sample

Type of school	Urban	Rural
Pre-school	95.2%	4.8%
Primary	23.9%	76.1%
Secondary	60.0%	40.0%
Primary and secondary	33.4%	66.6%
Total	28.6%	71.4%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

About 80% of the schools have only primary grades, about 13% offer both primary and secondary education and the rest only secondary. Figure 3.2.4 illustrates that there are some small differences between the TSP and TCP municipalities in this respect.

Figure 3.2.4
Types of schools by type of municipality



Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

As a measure of school size, we take the number of students currently enrolled. Obviously, a large part of the variability is explained by the type of education the schools provide, as illustrated in Table 3.2.17. However, most schools have 100 or fewer students and 76% have 200 or fewer.

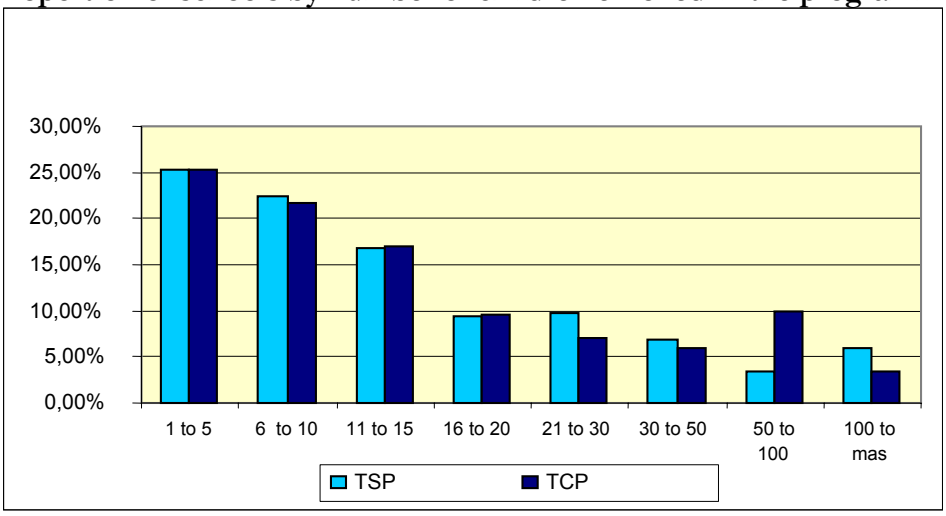
Table 3.2.17
Number of pupils by type of school

Type of institution	Number of pupils				
	1–25	26–50	51–100	101–200	> 200
Pre-school	13%	30%	15%	29%	13%
Primary	24%	24%	21%	17%	15%
Secondary	15%		4%	22%	60%
Primary and secondary			12%	21%	67%
Total	20%	19%	18%	18%	24%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Every school included in the treatment sample should have children enrolled in the programme. However, the number and proportion of children differ from one to another. In Figure 3.2.5, we show how the proportion of children enrolled in the programme changes across type of municipality. A quarter of the institutions have between 1 and 5 children in the programme, around 40% have between 6 and 15 children and the rest have more than 16 children, some up to more than 100.

Figure 3.2.5
Proportion of schools by number of children enrolled in the programme



Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

When we look more carefully at this proportion by type of area in the TCP municipalities (Table 3.2.18), we observe how the percentage of children enrolled in the programme increases for schools located in rural rather than urban areas. We can see that 54% of schools in urban areas have 15% or fewer children on the programme and only 7% have more than 45% of children participating in it. In rural areas, this last proportion is larger.

Table 3.2.18.Percentage of schools by percentage of children enrolled in the programme

Number of children enrolled in the programme / Total number of children in the school	TCP – Urban %	TCP – Urban Cumulative %	TCP – Rural %	TCP – Rural Cumulative %
1–5%	27.5%	27.5%	8.8%	8.8%
6–15%	27.0%	54.5%	25.5%	34.3%
16–30%	24.1%	78.6%	26.2%	60.5%
31–45%	14.9%	93.5%	24.9%	85.4%
46–60%	5.1%	98.6%	11.5%	96.9%
> 60%	1.4%	100.0%	3.1%	100.0%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The proportion of children enrolled in the programme also changes when we consider primary and secondary schools separately. In TCP municipalities, two-thirds of primary schools have more than 15% of children enrolled in the programme while three-fifths of secondary schools have 15% or less children enrolled into it. Table 3.2.19 underlines the relative importance of the programme within the primary schools in the TCP municipalities and the secondary schools in the TSP municipalities.

Table 3.2.19
Percentage of students enrolled in the programme by type of school

Type of municipality	Percentage of students enrolled in the programme	Type of school		
		Primary	Secondary	Primary and secondary
TCP	Less than 15%	33.7%	57.6%	61.0%
	16% to 45%	51.4%	40.9%	32.3%
	More than 45%	15.0%	1.6%	6.7%
TSP	Less than 15%	42.3%	0.0%	52.5%
	16% to 45%	26.2%	54.3%	22.0%
	More than 45%	31.5%	45.8%	25.6%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.2.20, we report information on attendance of students in the third and ninth grades, measured as the total number of students in the classroom on the day of the survey over the total number of students on the roll for that particular classroom. We compute this attendance rate both for all students and for the students enrolled into *Familias en Acción*. We notice a high level of attendance for both general and programme students.

Table 3.2.20
Average attendance at school for students in the third and ninth grades

Type of municipality		Ninth grade		Third grade	
		Total attendance	Attendance of those enrolled in programme	Total attendance	Attendance of those enrolled in programme
TCP	Mean	0.915	0.912	0.875	0.881
	Std deviation	0.179	0.472	0.225	0.270
TSP	Mean	0.956	0.963	0.865	0.897
	Std deviation	0.095	0.121	0.238	0.271

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

To measure the availability of textbooks, the survey asked whether students owned the mathematics and literature textbooks or whether these were shared among the students in the classroom. Table 3.2.21 most of the students in the third grade do not own the math book. Moreover, only in about 25% of the schools there is one student per book. Although in the ninth grade more students own their books, there is still a high proportion of students sharing a book in the classroom for both types of municipalities.

Table 3.2.21
Proportion of students sharing maths books

Type of municipality	Own the maths book	Number of students per maths book in the classroom			
		1	1 to 1.5	1.5 to 3	More than 3
Third grade					
TCP	4.3%	22.7%	35.2%	19.7%	18.1%
TSP	1.0%	27.9%	41.1%	18.9%	11.0%
Ninth grade					
TCP	23.1%	4.7%	0.0%	33.6%	38.60
TSP	18.5%	22.5%	33.4%	12.8%	12.9%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

A library is present in only 58% of schools from our treatment sample. This proportion is higher in urban areas. As expected, bigger schools and schools providing secondary education are more likely to have a library (Table 3.2.22).

Table 3.2.22
Percentage of schools with libraries by size and level of education of the schools

School size	Percentage of schools with libraries
1–25	42.8%
26–50	60.2%
51–100	40.8%
101–200	63.3%
> 200	77.1%

Type of school	Percentage of schools with libraries
Pre-schooler	59.7%
Primary	51.1%
Secondary	75.7%
Primary and secondary	92.3%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The average number of students per book in the classroom increases with the size of the school and with the grade. Table 3.2.23 shows these proportions.

Table 3.2.23
Average number of students sharing books by size of school

School size		Average number of students sharing maths books in the third grade	Average number of students sharing maths books in the ninth grade	Average number of students sharing literary books in the school
1–25	Mean Std deviation	0.977 0.701		0.278 0.189
26–50	Mean Std deviation	1.957 2.205		0.482 0.422
51–100	Mean Std deviation	2.072 2.207		0.527 0.315
101–200	Mean Std deviation	2.710 2.916	2.438 1.819	0.942 0.976
> 200	Mean Std deviation	2.468 3.246	4.490 6.984	1.124 1.169
Total	Mean Std deviation	1.956 2.385	3.856 6.450	0.759 0.890

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.2.24 looks at this proportion for rural and urban areas separately. The evidence shows that the number of students per book to share is higher in urban areas. This could be explained by the greater size of schools in these areas and by the level of education they supply.

Table 3.2.24
Average number of students sharing books by area

Area of school location		Average number of students sharing maths books in the third grade	Average number of students sharing maths books in the ninth grade	Average number of students sharing literary books in the school
Urban	Mean Std deviation	2.477 3.449	5.112 7.794	0.843 1.001
Rural	Mean Std deviation	1.838 2.054	2.839 4.880	0.719 0.829
Total	Mean Std deviation	1.956 2.385	3.856 6.450	0.759 0.890

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.2.25 repeats the exercise once more, but separating schools according to the type of service they offer. Schools that offer both secondary and primary education seem to have fewer books per student than those specialising in one level of education, probably because their budgets are more stretched. This is true both for the third- and ninth-grade students.

Table 3.2.25
Average number of students sharing books by level of education offered

Type of school		Average number of students sharing maths books in the third grade	Average number of students sharing maths books in the ninth grade	Average number of students sharing literary books in the school
Pre-school	Mean Std deviation			0.427 0.340
Primary	Mean Std deviation	1.808 2.081		0.751 0.915
Secondary	Mean Std deviation		2.456 1.396	0.385 0.461
Primary and secondary	Mean Std deviation	3.814 4.347	4.915 8.337	0.964 0.897
Total	Mean Std deviation	1.956 2.385	3.856 6.450	0.759 0.890

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The survey also collected information on whether there were students in the establishment receiving subsidies other than the *Familias en Acción* one. In this category, we include help received as food, school materials, monetary grants or any other subsidy that could be received.

Table 3.2.26 shows that in TCPs municipalities, 49% of the schools have at least 91% of students receiving support from a source other than *Familias en Acción*. This proportion is slightly smaller in the TSPs, where 39% of the schools have at least 91% of their students receiving subsidies.

Table 3.2.26
Frequency of schools with students receiving another subsidy

Type of municipality	Proportion of students receiving another subsidy			
	1–30%	31–60%	61–90%	91–100%
TCP	17.2%	12.4%	21.5%	48.9%
TSP	16.7%	21.0%	23.3%	39.0%

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Conclusions

The main points that emerge from our analysis of the supply of education services are as follows:

- The schools surveyed in the treatment municipalities are located mostly in rural areas.
- About 80% of the schools are primary schools.
- Around 40% of the schools have 50 or fewer students and only about 25% have more than 200 students. The smaller schools are mainly primary schools.

- The number of 'programme students' as a proportion of the total number of students in the school is very small. In around 40% of the schools, the 'programme students' are 15% or less of the students and only in 35% of the schools is this proportion greater than 30%. This suggests that the programme could create 'excess' demand for education in only very few areas.

- The rates of attendance in the third and ninth grades are high. There seem to be no differences between 'programme students' and other students.

- The proportion of schools where none of the students owns their maths book is high (as high as 90% in the third grade and slightly lower in the ninth grade).

- More than a half of the schools have a library. The proportion is higher for secondary schools. The number of students per library book is higher the bigger the school, but it is lower in secondary schools.' (Tables 3.2.23 and 3.2.25.)

- We have to take into account that in many schools, most of the students are already receiving other subsidies.

3.3 Labour Supply, Income and Wealth

In this section, we consider labour supply decisions and income outcomes in our survey population. We analyse various linkages with the labour market, including participation rates, amount of labour supplied, and rates and duration of unemployment. The survey also collects retrospective information on labour history covering the period 1999–2001. Moreover, we have information on earnings, other non-labour components of household income (including private and institutional transfers), asset ownership and wealth, and past shocks to household income. An additional feature of our survey is a module on time use and, for our purposes, it is especially interesting to document and study the time allocation decisions of school-age children and how these may have been affected by the programme.

As with other parts of this report, we first present a series of tables describing various features of our treatment sample. We then assess the quality of our controls by looking at the similarity between our treatment and control samples along some of the dimensions that we used in our description.

3.3.1 Description of Treatment Sample

Labour Supply Decisions

In Table 3.3.1, we begin our analysis of labour supply decisions by examining the percentage of people aged 10 or over in our treatment sample who report having engaged in remunerated work at some point in their lives. At this level, our figures suggest that about 60% of people of these ages have participated in the labour market at least once. This percentage is slightly higher for urban areas. Overall, women tend to report slightly lower percentages, though this is not so in urban areas. The proportion of men who have worked at some time in their lives is greater in rural areas than in urban ones, but for women the proportion is greater in urban areas. There is very little difference between our TCP and TSP samples.

Table 3.3.1
People aged 10 years or over who have engaged in remunerated work at some point in their lives (%)

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Urban			
Male	63.39 (0.81)	61.83 (1.14)	64.92 (1.01)
Female	64.95 (0.83)	65.61 (0.96)	64.27 (1.29)
Urban total	**64.28 (0.66)**	**64.01 (0.88)**	**64.55 (0.99)**
Rural			
Male	65.67 (0.73)	66.13 (1.09)	65.15 (1.03)
Female	50.08 (1.78)	51.82 (2.07)	48.14 (2.90)
Rural total	**57.74 (1.13)**	**58.90 (1.43)**	**56.43 (1.76)**
Overall			
Male	64.81 (0.59)	64.65 (0.86)	65.06 (0.68)
Female	56.80 (1.29)	57.49 (1.66)	55.76 (2.18)
Overall total	**60.54 (0.78)**	**60.85 (0.99)**	**60.06 (1.26)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.3.2, we study the age at which individuals tend to join the labour force. The average entrant tends to be very young, at under age 15 Entrants tend to be younger in rural areas, and females tend to join about 3 years later than men. Again, there are only minor differences between our two groups within the treatment sample.

Table 3.3.2
Age at first job (years)

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Urban			
Male	13.44 (0.17)	13.74 (0.21)	13.17 (0.24)
Female	16.45 (0.24)	16.77 (0.29)	16.10 (0.36)
Urban total	**15.19 (0.19)**	**15.55 (0.24)**	**14.83 (0.26)**
Rural			
Male	13.31 (0.18)	13.44 (0.26)	13.16 (0.25)
Female	16.15 (0.24)	16.26 (0.31)	16.02 (0.36)
Rural total	**14.58 (0.17)**	**14.72 (0.22)**	**14.42 (0.25)**
Overall			
Male	13.39 (0.13)	13.54 (0.18)	13.17 (0.15)
Female	16.33 (0.16)	16.51 (0.21)	16.07 (0.24)
Overall total	**14.88 (0.12)**	**15.05 (0.17)**	**14.62 (0.17)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.3.3 looks at labour force participation rates during the week prior to our survey. Nearly two-thirds of people aged 10 or over were participating in the labour market, either as employed individuals or as unemployed and actively seeking work. This figure is broadly in line with the percentage of people who reported having worked at some point in their lives in Table 3.3.1. There is very little difference between overall participation rates in urban areas and in rural areas. However, men in rural areas tend to report a higher rate of participation than those in urban areas. In contrast, the participation rate is markedly lower for women in rural areas than for those in urban areas, possibly reflecting greater differences in intensity of household duties and range of labour market options. Individuals in the 10 to 17 age bracket tend to have lower participation rates, consistent with there being other demands on their time, such as school attendance. Individuals in the 18 to 44 age bracket display the highest rates of participation, while those in higher age brackets tend to participate less, consistent with typical participation patterns over individual life cycles.

Table 3.3.3
Labour force participation rates (%)

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Urban			
Urban male	**81.28 (0.98)**	**82.90 (0.91)**	**79.75 (1.74)**
10 to 17	40.76 (2.40)	34.87 (3.19)	44.93 (3.12)
18 to 44	91.60 (0.74)	92.66 (1.03)	90.56 (1.08)
45 or over	83.95 (1.62)	86.52 (1.92)	81.43 (2.35)
Urban female	**50.71 (1.49)**	**51.37 (1.94)**	**50.03 (2.31)**
10 to 17	28.45 (3.71)	22.34 (4.05)	32.73 (5.33)
18 to 44	55.84 (1.53)	57.66 (1.81)	53.94 (2.53)
45 or over	41.82 (2.43)	40.13 (3.88)	43.73 (2.76)
Urban total	**63.63 (1.10)**	**64.27 (1.33)**	**62.99 (1.79)**
Rural			
Rural male	**85.48 (0.85)**	**86.05 (0.83)**	**84.82 (1.57)**
10 to 17	53.40 (2.55)	53.92 (2.81)	52.85 (4.37)
18 to 44	94.66 (0.62)	95.33 (0.61)	93.89 (1.16)
45 or over	86.56 (1.07)	86.34 (1.18)	86.85 (1.93)
Rural female	**36.00 (1.62)**	**35.72 (1.99)**	**36.35 (2.68)**
10 to 17	34.25 (3.29)	33.19 (3.16)	35.21 (5.56)
18 to 44	36.58 (1.70)	36.33 (2.26)	36.87 (2.59)
45 or over	35.04 (2.20)	34.91 (2.53)	35.22 (4.02)
Rural total	**63.66 (1.11)**	**63.69 (1.14)**	**63.62 (2.02)**

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Overall			
Overall male	**84.11 (0.63)**	**85.03 (0.67)**	**82.71 (1.19)**
10 to 17	48.79 (1.92)	48.32 (2.72)	49.41 (2.80)
18 to 44	93.64 (0.51)	94.39 (0.59)	92.50 (0.85)
45 or over	85.74 (0.84)	86.38 (1.01)	84.68 (1.45)
Overall female	**43.30 (1.41)**	**42.97 (1.91)**	**43.80 (2.17)**
10 to 17	31.59 (2.35)	29.40 (2.74)	34.09 (3.76)
18 to 44	46.35 (1.68)	46.45 (2.39)	46.19 (2.43)
45 or over	38.36 (1.63)	37.37 (2.16)	40.12 (2.35)
Overall total	**63.68 (0.72)**	**63.91 (0.84)**	**63.32 (1.28)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Tables 3.3.4 and 3.3.5, we report unemployment rates and durations in the week prior to our survey. It is clear that our treatment sample is characterised by very low rates of unemployment, at less than 3% overall. However, it should be pointed out that for our purposes, we define the unemployed as those seeking employment in the week prior to the survey. Our measure therefore excludes the (possibly many) people who sought employment in previous weeks. The unemployed people who we consider possibly include individuals in informal employment who seek other work periodically or would be willing to take it if they were offered it, while retaining some informal employment. Our unemployment rates, therefore, capture a weaker notion of unemployment than would perhaps be desirable. Nevertheless, we find slightly higher rates of unemployment among men and in rural areas. There is also slightly less unemployment in the TCP group. The typical duration of unemployment is in the region of 4 months, perhaps reflecting a cyclical pattern associated with agriculture and other employment sectors. This duration tends to be higher in urban areas and marginally higher in the TCP group.

Table 3.3.4
Unemployment rates (%)

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Urban			
Male	5.86 (0.74)	5.75 (1.02)	5.98 (1.08)
Female	2.16 (0.64)	1.69 (0.64)	2.68 (1.18)
Urban total	**4.16 (0.63)**	**3.83 (0.69)**	**4.50 (1.09)**
Rural			
Male	1.91 (0.43)	1.80 (0.74)	2.05 (0.33)
Female	1.75 (0.59)	1.49 (0.75)	2.06 (0.94)
Rural total	**1.87 (0.40)**	**1.72 (0.67)**	**2.05 (0.38)**
Overall			
Male	3.28 (0.46)	3.05 (0.67)	3.65 (0.56)
Female	1.94 (0.43)	1.60 (0.49)	2.46 (0.80)
Overall total	**2.82 (0.39)**	**2.56 (0.52)**	**3.24 (0.57)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.3.5
Duration of unemployment (months)

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Urban			
Male	4.81 (0.63)	4.53 (0.45)	5.02 (1.02)
Female	4.42 (0.74)	5.35 (1.24)	3.65 (0.82)
Urban total	**4.60 (0.56)**	**4.99 (0.74)**	**4.29 (0.84)**
Rural			
Male	3.21 (0.59)	3.98 (0.76)	2.75 (0.69)
Female	4.21 (0.89)	4.17 (0.90)	4.24 (1.41)
Rural total	**3.74 (0.58)**	**4.08 (0.59)**	**3.52 (0.87)**
Overall			
Male	4.28 (0.46)	4.32 (0.38)	4.24 (0.80)
Female	4.40 (0.57)	4.93 (0.85)	3.84 (0.72)
Overall total	**4.35 (0.41)**	**4.66 (0.51)**	**4.03 (0.64)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Tables 3.3.6 and 3.3.7, we document the amount of labour supplied in terms of the number of months per year and the number of hours per week worked by individuals who are reported to be working in our treatment sample. The typical individual tends to work a little under 43 hours a week and to be employed for 10 months in a year. Employment durations tend to be a little lower for women overall and in urban areas. Younger men tend to work less, both in terms of total months and hours per week. Younger women work more hours per week but they work less months in a year. Once again, there are no big discrepancies between our two treatment samples.

Table 3.3.6
Hours of work per week

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Urban			
Urban male	**46.49 (1.11)**	**46.38 (1.45)**	**46.64 (1.75)**
10 to 17	39.82 (1.91)	38.73 (2.99)	40.35 (2.44)
18 to 44	47.14 (1.11)	46.74 (1.46)	47.74 (1.71)
45 or over	47.30 (1.47)	46.99 (1.71)	47.76 (2.64)
Urban female	**40.99 (1.42)**	**40.50 (2.26)**	**41.68 (1.24)**
10 to 17	45.72 (2.59)	40.12 (3.50)	46.96 (3.09)
18 to 44	41.46 (1.59)	41.84 (2.46)	40.84 (1.35)
45 or over	38.31 (1.71)	35.82 (2.15)	41.82 (2.18)
Urban total	**43.85 (1.15)**	**43.53 (1.68)**	**44.30 (1.43)**
Rural			
Rural male	**43.04 (0.92)**	**43.29 (1.51)**	**42.72 (0.76)**
10 to 17	38.61 (1.20)	39.20 (1.92)	38.10 (1.48)
18 to 44	44.20 (1.03)	44.15 (1.68)	44.28 (0.91)
45 or over	42.43 (0.92)	42.86 (1.43)	41.79 (0.84)
Rural female	**38.07 (1.05)**	**36.40 (1.48)**	**39.83 (1.32)**
10 to 17	43.79 (1.48)	46.79 (2.65)	42.80 (1.63)
18 to 44	38.76 (1.14)	37.94 (1.59)	39.65 (1.64)
45 or over	32.89 (2.07)	30.74 (2.34)	36.91 (3.47)
Rural total	**41.75 (0.85)**	**41.62 (1.41)**	**41.91 (0.83)**

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Overall			
Overall male	**44.21 (0.80)**	**44.28 (1.14)**	**44.10 (0.89)**
10 to 17	39.00 (1.05)	39.08 (1.63)	38.91 (1.32)
18 to 44	45.18 (0.86)	45.02 (1.21)	45.49 (0.92)
45 or over	44.05 (0.88)	44.14 (1.16)	43.85 (1.21)
Overall female	**39.51 (1.00)**	**38.73 (1.46)**	**40.84 (0.92)**
10 to 17	44.51 (1.32)	44.83 (2.15)	44.38 (1.63)
18 to 44	40.31 (1.13)	40.30 (1.65)	40.32 (1.05)
45 or over	35.44 (1.39)	33.37 (1.65)	39.96 (1.94)
Overall total	**42.58 (0.75)**	**42.39 (1.07)**	**42.92 (0.82)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.3.7
Number of months worked during the previous year

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Urban			
Urban male	**9.84 (0.17)**	**10.35 (0.19)**	**9.12 (0.21)**
10 to 17	6.63 (0.47)	7.98 (0.62)	5.68 (0.57)
18 to 44	9.92 (0.16)	10.27 (0.20)	9.39 (0.20)
45 or over	10.55 (0.18)	10.99 (0.20)	9.88 (0.25)
Urban female	**9.87 (0.14)**	**9.96 (0.19)**	**9.73 (0.18)**
10 to 17	6.60 (0.52)	7.18 (0.81)	6.20 (0.68)
18 to 44	9.71 (0.18)	9.79 (0.25)	9.58 (0.23)
45 or over	10.77 (0.15)	10.76 (0.19)	10.78 (0.24)
Urban total	**9.86 (0.14)**	**10.16 (0.18)**	**9.39 (0.15)**
Rural			
Rural male	**10.39 (0.15)**	**10.62 (0.21)**	**10.08 (0.20)**
10 to 17	8.48 (0.39)	9.20 (0.40)	7.65 (0.60)
18 to 44	10.48 (0.16)	10.63 (0.24)	10.27 (0.19)
45 or over	10.85 (0.14)	11.02 (0.20)	10.61 (0.17)
Rural female	**8.99 (0.23)**	**9.43 (0.29)**	**8.38 (0.30)**
10 to 17	5.07 (0.59)	5.47 (0.82)	4.75 (0.79)
18 to 44	8.92 (0.22)	9.31 (0.26)	8.43 (0.33)
45 or over	10.51 (0.29)	10.57 (0.39)	10.39 (0.33)
Rural total	**10.05 (0.15)**	**10.33 (0.19)**	**9.67 (0.20)**

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Overall			
Overall male	**10.27 (0.13)**	**10.53 (0.16)**	**9.75 (0.17)**
10 to 17	8.14 (0.32)	8.95 (0.35)	6.97 (0.47)
18 to 44	10.32 (0.13)	10.51 (0.18)	9.96 (0.17)
45 or over	10.80 (0.12)	11.01 (0.15)	10.37 (0.15)
Overall female	9.55 (0.14)	9.74 (0.17)	9.17 (0.21)
10 to 17	5.58 (0.47)	5.92 (0.67)	5.21 (0.64)
18 to 44	9.43 (0.15)	9.60 (0.19)	9.10 (0.22)
45 or over	10.67 (0.16)	10.68 (0.21)	10.64 (0.20)
Overall total	**10.03 (0.11)**	**10.26 (0.13)**	**9.55 (0.13)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.3.8 attempts to classify employment within our treatment sample on the basis of whether it is formal or informal. Specifically, the table shows the percentage of employed people who receive social benefits from their employer. This variable can be interpreted as an indicator of the degree of formality in employment, since it implies the existence of a formal contract of work. Note that this question was only asked of those individuals who declared themselves to be employees. Therefore, it may well be the case that these figures overestimate the degree of formal employment, since we are excluding the self-employed, a large proportion of whom are known to hold informal jobs. Nevertheless, our results indicate that, on average, barely 7% of the employed in our treatment sample have formal wage-earning jobs; the remaining 93% are employed informally. In our treatment groups as a whole, the proportion of formal employment is around 11% in urban areas and a little more than 4% in rural areas; it is also noticeable that this proportion is greater everywhere for women, suggesting that even though women tend to participate less in the labour force, they are more likely to be employed formally. We also notice that those aged between 10 and 17, regardless of their sex, are almost always informally employed. This suggests that in our treatment sample, attachment to the labour market begins with informal employment, where skills are much less valuable and employment is much less stable. The degree of informal employment seems to be a little lower in our TSP sample.

Table 3.3.8
Percentage of those employed receiving social benefits from employment

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Urban			
Male	8.61 (1.66)	11.83 (2.86)	5.66 (1.32)
Female	13.18 (2.29)	12.84 (2.23)	13.64 (4.58)
Urban total	**10.91 (1.65)**	**12.39 (1.96)**	**9.25 (2.65)**
Rural			
Male	3.36 (0.61)	4.75 (0.91)	2.08 (0.63)
Female	6.10 (1.60)	5.83 (1.79)	6.40 (2.74)
Rural total	**4.11 (0.73)**	**5.07 (0.93)**	**3.19 (1.05)**
Overall			
Male	5.55 (0.85)	7.17 (1.33)	3.45 (0.74)
Female	10.29 (1.55)	10.07 (1.74)	10.68 (2.98)
Overall total	**7.36 (0.96)**	**8.35 (1.26)**	**5.93 (1.45)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Outcomes: Income and Its Components

We now examine the income profile of our treatment sample. We begin by presenting the hourly wage rate in Table 3.3.9. We notice that the wage rate is very low, at just over 1,100 pesos per hour, or about 44 US cents per hour. The wage rate tends to be higher for men and in urban areas. Older men receive higher wage offers. By contrast, the wage rate tends to be lower for very young and older women. The wage rate in the TCP municipalities tends to be systematically lower across urban and rural areas, as well as across sex and age groups. This is perhaps surprising for children aged 10 to 17, since we might a priori expect wages to be bid up in these areas as those in this age group supply less labour because they are attending school more regularly as a result of the programme.

Table 3.3.9
Wage rates (pesos per hour)

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Urban			
Urban male	**1,352.91 (67.40)**	**1,195.74 (56.25)**	**1,499.06 (100.05)**
10 to 17	1,258.69 (220.23)	621.94 (51.33)	1,583.41 (283.64)
18 to 44	1,274.28 (70.81)	1,202.64 (53.15)	1,349.49 (130.44)
45 or over	1,666.08 (212.05)	1,377.81 (150.64)	1,900.19 (338.27)
Urban female	**1,125.18 (110.83)**	**915.58 (65.94)**	**1,425.36 (228.92)**
10 to 17	1,081.72 (306.32)	619.18 (199.31)	1,399.77 (511.39)
18 to 44	1,169.53 (130.95)	943.48 (74.22)	1,515.14 (278.55)
45 or over	896.94 (88.22)	798.37 (107.13)	1,014.79 (142.18)
Urban total	**1,238.39 (84.00)**	**1,040.86 (56.76)**	**1,466.25 (145.22)**
Rural			
Rural male	**1,270.67 (60.83)**	**1,234.10 (80.50)**	**1,304.26 (90.59)**
10 to 17	1,372.10 (291.27)	887.30 (72.94)	1,683.18 (458.07)
18 to 44	1,238.13 (51.87)	1,210.64 (75.66)	1,263.78 (71.53)
45 or over	1,323.89 (117.27)	1,433.22 (208.83)	1,210.58 (91.74)
Rural female	**871.92 (66.08)**	**766.86 (79.27)**	**987.02 (93.00)**
10 to 17	626.15 (151.07)	439.21 (74.17)	763.63 (238.61)
18 to 44	902.22 (59.24)	767.61 (63.38)	1,035.48 (89.18)
45 or over	929.44 (222.86)	928.38 (299.98)	932.49 (119.01)
Rural total	**1,161.69 (50.68)**	**1,098.06 (70.94)**	**1,223.01 (69.07)**
Overall			
Overall male	**1,289.14 (45.32)**	**1,220.42 (56.12)**	**1,378.93 (71.21)**

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
10 to 17	1,264.50 (179.08)	809.61 (56.41)	1,648.85 (300.51)
18 to 44	1,244.62 (41.36)	1,206.84 (51.93)	1,296.74 (66.31)
45 or over	1,444.58 (113.01)	1,417.12 (152.62)	1,481.61 (168.51)
Overall female	**997.88 (67.66)**	**856.40 (53.07)**	**1,243.87 (144.77)**
10 to 17	724.97 (125.46)	484.83 (80.52)	971.17 (227.85)
18 to 44	1,040.07 (78.25)	881.19 (53.96)	1,317.08 (175.02)
45 or over	900.95 (110.32)	858.62 (152.01)	994.23 (110.57)
Overall total	**1,178.35 (45.25)**	**1,072.06 (46.34)**	**1,332.90 (78.98)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.3.10, we report total household income and its sources. We note that most of the individuals in our survey tend to be informally employed. There are almost no social benefits attached to jobs, reflecting the informality of most working arrangements and the absence of formal contracts. The majority of individuals have informal wage-earning jobs, and function as independent workers or domestic servants.

We split income into 5 different components: regular labour income, occasional labour income, non-labour income, net private transfers (including money transfers, help in kind and physical help) and net institutional transfers, excluding those made in the form of *Familias en Acción* payments.[7]

The average household income in our treatment sample is a little over 241,000 pesos, or about 96 US dollars. This income is predominantly earned in the form of labour income by members of the household, with occasional labour and non-labour income each providing about 6% of total income, and net transfers about 3%. Urban households tend to be relatively richer overall and in terms of all individual components of their incomes. Not surprisingly, households in our TCP group tend to be richer and to earn more from almost all sources of income both overall and at the urban/rural level. This may be traced mainly to the greater proportion of people earning labour income for all ages in this group, except those in the 10 to 17 age bracket. We may conjecture that there is some amount of increased labour supply by people in other age brackets as they attempt to make up for the loss of income as school-age children move out of the labour force and into schools as a result of the programme.

[7] The average monthly contribution to household income in the form of *Familias en Acción* payments was in the region of 61,500 pesos in the TCP sample.

While the patterns of income seem plausible, the level of income seems too low, even for this population. As we shall see below, an important indication of this is the fact that consumption expenditure is estimated at a much higher level than income, for the average household. The low level of income might be a consequence of a reticence to report truthful income figures as respondents might fear that the survey is linked to programme eligibility.

Table 3.3.10
Monthly household income (pesos)

	Total treatment	TCP	TSP
	Mean (Std deviation)	**Mean (Std deviation)**	**Mean (Std deviation)**
Urban			
Regular Labour income	206,127.20 (21,155.96)	235,455.40 (18,654.23)	175,761.20 (33,979.87)
Occasional labour income	15,482.98 (2,891.17)	17,361.41 (4,074.54)	13,538.07 (4,021.71)
Non-labour income	17,704.08 (1,810.82)	18,718.43 (2,318.47)	16,653.84 (2,466.34)
Net Private transfers	8,134.32 (1,480.00)	7,811.80 (1,711.72)	8,468.27 (2,471.13)
Net Institutional transfers	878.75 (215.35)	1,073.12 (370.99)	677.50 (203.08)
Urban income	**248,327.40 (23,813.47)**	**280,420.20 (21,594.18)**	**215,098.90 (38,294.30)**
Rural			
Regular Labour income	200,472.00 (17,280.60)	212,614.50 (24,453.04)	186,368.70 (24,119.05)
Occasional labour income	13,984.54 (2,764.06)	15,693.82 (3,469.06)	11,999.23 (4,094.64)
Non-labour income	12,673.19 (1,959.89)	11,298.77 (2,185.39)	14,269.57 (3,100.38)
Net Private transfers	3,693.25 (1,374.79)	4,299.37 (1,412.27)	2,989.25 (2,426.70)
Net Institutional transfers	1,621.65 (286.72)	1,712.95 (428.84)	1,515.59 (362.68)
Rural income	**232,444.70 (18,913.19)**	**245,619.40 (26,408.84)**	**217,142.40 (26,737.73)**
Overall			
Regular Labour income	205,412.50 (12,885.85)	221,193.90 (15,462.15)	181,596.80 (18,131.69)
Occasional labour income	14,834.25 (1,924.26)	16,247.10 (2,370.11)	12,702.10 (2,642.23)
Non-labour income	14,593.34 (1,327.91)	14,109.02 (1,647.62)	15,324.23 (1,918.16)
Net Private transfers	5,556.97 (979.58)	5,625.16 (1,016.66)	5,454.06 (1,864.04)
Net Institutional transfers	1,315.12 (204.01)	1,435.03 (298.51)	1,134.16 (235.39)

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Overall income	**241,712.20 (14,223.52)**	**258,610.20 (17,079.54)**	**216,211.40 (20,064.33)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.3.11, we report the percentage of households that suffered shocks to their income over the previous three years in the form of (a) death of a household member, (b) grave illness to a household member, (c) loss of crop, (d) loss in a business, (e) fires, floods or other natural disasters and (f) violence, theft or displacement. These shocks not only affect current income but can also jeopardise the earning potential of the household in the medium to long term. Almost a quarter of households report having lost crops over the last three years, reflecting the importance and vagaries of the agricultural sector. Not surprisingly, this proportion in higher in rural areas. About one in six households report a grave illness to one or more members.

Fewer reported shocks in the form of death, losses in a business or natural disasters. It is interesting to note that so few respondents admitted to experiencing violence and displacement, despite the widespread disruptions associated with the country's civil war that were reported by our interviewers. This is perhaps explained by the threat of recrimination at the hands of various factions involved in the violence. Apart from agricultural issues, there are no appreciable differences either in our rural and urban results or across our two types of treatment groups.

Table 3.3.11
Percentage of households experiencing shocks to income during 2000–02

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Urban			
Death of a household member	7.32 (0.50)	7.41 (0.75)	7.23 (0.63)
Grave illness to a household member	17.42 (1.08)	17.41 (1.28)	17.43 (1.83)
Loss of crop	14.99 (1.88)	19.04 (2.90)	10.80 (1.40)
Loss in a business	2.45 (0.36)	1.83 (0.46)	3.09 (0.56)
Fire, flood or other natural disaster	2.82 (0.56)	2.82 (0.98)	2.82 (0.54)
Violence, theft or displacement	3.10 (0.53)	2.97 (0.80)	3.24 (0.72)
Rural			
Death of a household member	6.25 (0.45)	6.62 (0.61)	5.82 (0.73)
Grave illness to a household member	17.51 (1.06)	16.95 (1.45)	18.17 (1.72)
Loss of crop	31.43 (2.36)	31.09 (3.30)	31.82 (3.43)
Loss in a business	2.35 (0.48)	2.61 (0.80)	2.05 (0.56)
Fire, flood or other natural disaster	4.35 (0.81)	4.43 (1.18)	4.26 (1.15)
Violence, theft or displacement	3.53 (0.47)	3.03 (0.70)	4.12 (0.65)
Overall			
Death of a household member	6.73 (0.35)	6.91 (0.48)	6.44 (0.51)
Grave illness to a household member	17.40 (0.75)	17.12 (0.98)	17.82 (1.13)
Loss of crop	24.88 (1.83)	26.52 (2.37)	22.40 (2.62)
Loss in a business	2.40 (0.34)	2.32 (0.53)	2.52 (0.37)
Fire, flood or other natural disaster	3.74 (0.55)	3.82 (0.77)	3.61 (0.70)

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Violence, theft or displacement	3.29 (0.36)	2.99 (0.53)	3.73 (0.46)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Access to Credit, Wealth and Asset Ownership

In this subsection, we measure access to credit and describe wealth and asset ownership patterns in our treatment sample. We begin in Table 3.3.12 by looking at the percentage of households who report having gained credit for housing and other expenditures. Unfortunately, our existing survey did not allow us to distinguish between the sources or uses of credit as finely as we may have desired. This is being corrected in our follow-ups. The table shows that, overall, about 6% of our treatment sample have received credit to buy land or build their home. A little over 2% (or about a third of those who received housing credit) have existing housing debts. The value of the average existing debt for housing purposes is just over 60,000 pesos, corresponding to a little more than 25% of a typical household's monthly income. It is noticeable that a greater percentage of rural households receive housing credit than urban ones. The percentage is also slightly higher in TSP than in TCP areas. Our table indicates that a significant proportion of households are indebted through loans for purposes other than housing. Over 62% of households overall were reported to have such debts, with a slightly higher percentage in urban areas. This percentage is appreciably higher for households in TCP areas, possibly reflecting their greater creditworthiness as a result of access to the programme. The average household in our treatment sample is indebted to the tune of nearly 510,000 pesos in non-housing debts. This figure corresponds to more than twice the monthly income of our treatment households. In our follow-ups, we will be keen to learn more about the pattern, term structure, conditions, sources and uses of these debts in order to get a clearer picture of the existing credit market in our sample.

Table 3.3.12
Access to credit and resulting debts

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Urban			
Housing credit			
Percentage of people who received credit for housing	4.71 (0.57)	4.46 (0.75)	4.98 (0.74)
Percentage of people with existing housing debts	1.77 (0.33)	1.29 (0.29)	2.26 (0.50)
Value of existing housing debt	50,267.30 (9,945.34)	43,794.43 (14,966.08)	56,961.54 (14,567.68)
Other credit			
Percentage of people who received other forms of credit	63.14 (3.01)	71.19 (3.07)	54.82 (3.94)
Value of other debt	481,626.50 (46,726.29)	471,144.90 (41,153.73)	492,502.70 (90,019.48)
Rural			
Housing credit			
Percentage of people who received credit for housing	7.19 (1.18)	6.52 (1.48)	7.98 (1.85)
Percentage of people with existing housing debts	2.80 (0.60)	2.30 (0.74)	3.39 (0.97)
Value of existing housing debt	70,839.14 (15,316.76)	61,048.40 (21,472.74)	82,192.14 (24,905.68)
Other credit			
Percentage of people who received other forms of credit	61.72 (2.20)	65.97 (2.71)	56.77 (3.81)
Value of other credit	524,633.60 (52,173.50)	549,768.70 (73,169.22)	495,426.70 (77,664.51)
Overall			
Housing credit			
Percentage of people who received credit for housing	6.06 (0.73)	5.69 (0.95)	6.62 (1.06)
Percentage of people with existing housing debts	2.29 (0.37)	1.90 (0.48)	2.88 (0.56)
Value of existing housing debt	60,788.07 (10,169.04)	54,156.04 (13,811.37)	70,782.36 (14,903.99)
Other credit			
Percentage of people who received other forms of credit	62.17 (1.69)	67.97 (1.99)	55.92 (2.51)
Value of other credit	509,937.50 (36,162.17)	520,160.30 (46,994.14)	494,490.00 (53,132.71)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.3.13, we document the average level of savings and debt. The level of savings has implications for potential investments in human and physical capital. On the other hand, the level of indebtedness may reflect the desire to engage in such investments where savings are low, or a shortfall in incomes relative to expenditures. We notice that the level of savings in our treatment group as a whole is very low, standing at just over 12,000 pesos (or under 5 US dollars) on average. By contrast, the average household is heavily indebted, to the tune of over 570,000 pesos (227US dollars). This is more than twice the reported monthly income of the average household in our sample. This evidence might suggest that, as these households are already borrowing a considerable amount of resources, they might find it difficult to access additional loans to make investments in human and physical capital. In this sense, there might be a role for micro-credit programmes.

Households in rural areas appear both to save more and to accumulate higher levels of debt, which probably indicates that financial intermediaries are not sufficiently developed in urban areas whereas households in rural areas can turn to more traditional and informal sources of intermediation. Within our treatment sample, those with payments tend to save less and to accumulate more debt, perhaps reflecting their greater willingness to make investments. This could result, for example, from increased optimism about future prospects as a result of the investments in human capital that are induced and supported by the programme.

Table 3.3.13
Household savings and debt (pesos)

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Urban			
Total savings	9,999.95 (2,393.37)	11,685.89 (4,155.12)	8,254.36 (2,381.48)
Total debt	530,449.10 (47,959.59)	514,270.10 (44,557.33)	547,200.70 (90,104.09)
Rural			
Total savings	14,254.14 (4,421.80)	9,563.43 (2,662.38)	19,702.35 (8,852.90)
Total debt	596,484.30 (60,775.50)	611,319.50 (88,940.57)	579,253.40 (89,297.74)
Overall			
Total savings	12,025.49 (2,483.24)	10,336.49 (2,285.00)	14,574.36 (5,155.68)
Total debt	570,685.70 (41,763.33)	574,350.90 (56,143.00)	565,154.60 (5,7574.51)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

We now turn to asset ownership. Table 3.3.14 indicates the percentage of households in our treatment sample who own houses, land and consumer durables. The possession of assets provides an indication of both the well-being of the household and, by serving as collateral, its ability to borrow money. Asset ownership patterns display marked variation depending on the

type of asset we consider. About 64% of the treatment households are home-owners. The average value of homes in our sample is about 2.8 million pesos (1100 US dollars). About 15 percent of the sample report holding land assets distinct from the land on which they live. The average value of land holdings is about 800,000 pesos (320 US dollars). Land ownership is much more common in rural areas, as is home ownership.

In terms of consumer durables, about 2 in 5 households own a radio, 1 in 3 owns a bicycle and 1 in 4 owns a black-and-white television, while only 5 in 100 own a motorcycle and 1 in 100 owns an electricity generator. Almost all consumer durables are much more likely to be owned by households in urban areas. There is no noticeable divergence in consumer durable ownership patterns between our two treatment groups.

Table 3.3.14
Ownership of durables and other assets

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Urban			
House	60.85 (2.26)	57.47 2.98	64.36 (2.64)
Other land	6.13 (0.77)	4.21 (0.82)	7.90 (1.21)
Refrigerator	39.65 (2.34)	43.23 (3.60)	35.95 (2.44)
Sewing machine	11.45 (0.89)	12.33 (1.23)	10.53 (1.18)
Black-and-white television	26.21 (1.79)	22.70 (1.65)	29.83 (2.64)
Radio	43.31 (2.06)	44.22 (3.20)	42.36 (2.97)
Bicycle	43.61 (2.78)	48.33 (3.62)	38.73 (3.27)
Motorcycle	4.31 (0.56)	4.05 (0.69)	4.58 (0.83)
Fan	45.94 (4.75)	46.35 (6.96)	45.52 (7.76)
Blender	51.35 (2.28)	54.23 (3.35)	48.36 (2.51)
Colour television	46.44 (2.16)	51.50 (2.78)	41.19 (2.21)
Kerosene lamp	3.73 (0.69)	3.82 (0.97)	3.64 (1.09)
Canoe, boat or vessel	0.88 (0.26)	0.71 (0.22)	1.05 (0.47)
Electricity generator	0.88 (0.41)	0.66 (0.30)	1.12 (0.75)
Rural			
House	66.01 (1.99)	65.35 (2.42)	66.79 (3.32)
Other land	21.66 (3.30)	17.90 (4.84)	25.93 (4.88)
Refrigerator	20.38 (2.18)	20.56 (3.03)	20.16 (3.00)
Sewing machine	8.87 (1.04)	8.10 (1.10)	9.75 (1.78)

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Black-and-white television	25.36 (1.72)	26.48 (1.95)	24.06 (2.83)
Radio	39.02 (2.19)	40.12 (2.65)	37.73 (3.64)
Bicycle	34.12 (2.98)	36.85 (4.40)	30.94 (3.44)
Motorcycle	5.15 (0.80)	5.60 (1.05)	4.63 (1.22)
Fan	19.48 (2.87)	19.84 (4.33)	19.07 (4.46)
Blender	35.54 (2.97)	37.17 (3.72)	33.64 (4.56)
Colour television	25.92 (2.18)	27.65 (2.81)	23.90 (3.32)
Kerosene lamp	9.27 (1.95)	8.64 (2.56)	10.00 (2.99)
Canoe, boat or vessel	3.34 (1.13)	2.41 (0.80)	4.43 (2.19)
Electricity generator	1.16 (0.45)	0.87 (0.45)	1.49 (0.81)
Overall			
House	63.59 (1.50)	62.21 (1.98)	65.66 (1.98)
Other land	15.19 (2.35)	13.21 (3.42)	18.02 (3.26)
Refrigerator	28.43 (2.00)	29.22 (2.82)	27.23 (2.35)
Sewing machine	9.86 (0.69)	9.70 (0.87)	10.10 (1.03)
Black-and-white television	25.68 (1.16)	25.04 (1.35)	26.65 (1.87)
Radio	40.89 (1.48)	41.60 (1.87)	39.82 (2.14)
Bicycle	38.56 (2.19)	41.29 (2.95)	34.44 (2.38)
Motorcycle	4.85 (0.52)	5.01 (0.69)	4.61 (0.72)
Fan	30.29 (3.11)	29.85 (4.17)	30.97 (4.82)
Blender	42.28 (2.18)	43.63 (2.89)	40.24 (2.92)

	Total treatment	TCP	TSP
	Mean (Std deviation)	Mean (Std deviation)	Mean (Std deviation)
Colour television	34.70 (1.97)	36.74 (2.75)	31.63 (2.51)
Kerosene lamp	6.97 (1.21)	6.85 (1.61)	7.16 (1.75)
Canoe, boat or vessel	2.23 (0.59)	1.77 (0.51)	2.91 (1.24)
Electricity generator	1.00 (0.28)	0.79 (0.27)	1.32 (0.47)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Time Use

In Table 3.3.15, we present some time use statistics for our treatment sample. One of the impacts of the programme could be on the amount of time devoted to various productive activities, perhaps inducing a substitution towards school-related activities in the TCP sample. For this reason, it is interesting look at the variables we consider in Table 3.2.13.

Overall, people report spending 16% of their active time studying or doing school-related work, 36% working outside the house and 48% doing house-related tasks. In terms of a gender comparison, women tend to devote two-thirds of their time to house-related work whereas men spend more than half their time working outside the house. This difference is even more accentuated in rural areas.

Individuals in the 10 to 17 age bracket spend almost half their time in school or doing school-related work. Girls in this age bracket spend most of their residual time doing domestic tasks, whereas boys split the remainder between work and domestic tasks. As expected in terms of possible impacts of the programme, individuals in the TCP sample tend to devote more time to study and less to other tasks. This divergence is especially marked in the 10 to 17 age group for both men and women, and in urban areas.

Table 3.3.15
Time use in week for individuals aged 10 or over
(Percentage of active time devoted to particular activities – Monday to Friday)

	Total treatment			TCP			TSP		
	Study	Work	Domestic tasks	Study	Work	Domestic tasks	Study	Work	Domestic tasks
	Mean (Std dev.)	Mean (Std dev.)	Mean (Std dev.)	Mean (Std dev.)	Mean (Std dev.)	Mean (Std dev.)	Mean (Std dev.)	Mean (Std dev.)	Mean (Std dev.)
Urban									
Male	19.14 (1.91)	54.50 (1.64)	26.36 (1.47)	26.55 (1.34)	51.08 (1.79)	22.37 (1.57)	11.48 (1.77)	58.03 (1.91)	30.48 (2.04)
10 to 17	48.35 (4.15)	19.50 (2.01)	32.15 (2.78)	64.92 (2.57)	12.91 (1.85)	22.17 (1.99)	29.09 (4.11)	27.16 (1.85)	43.76 (3.69)
Female	12.13 (1.00)	25.27 (0.96)	62.60 (1.36)	15.99 (0.67)	25.73 (1.39)	58.28 (1.38)	8.10 (1.12)	24.79 (1.33)	67.11 (2.01)
10 to 17	46.72 (3.99)	6.45 (1.04)	46.83 (3.59)	63.22 (2.49)	4.14 (0.57)	32.65 (2.31)	29.42 (3.65)	8.87 (1.58)	61.71 (4.17)
Urban total	**14.89 (1.33)**	**36.78 (1.00)**	**48.33 (1.27)**	**20.14 (0.91)**	**35.69 (1.12)**	**44.18 (1.12)**	**9.43 (1.31)**	**37.92 (1.37)**	**52.65 (1.89)**
Rural									
Male	17.21 (0.97)	59.89 (1.41)	22.89 (1.30)	20.07 (0.98)	58.52 (2.22)	21.42 (1.88)	13.76 (1.55)	61.56 (1.57)	24.68 (1.58)
10 to 17	44.86 (2.34)	25.33 (1.84)	29.81 (2.02)	52.46 (2.13)	22.73 (2.34)	24.81 (1.85)	35.43 (3.91)	28.56 (3.19)	36.01 (3.38)
Female	13.82 (0.85)	14.78 (1.00)	71.40 (1.06)	16.46 (0.60)	14.06 (0.95)	69.48 (0.82)	10.84 (1.53)	15.59 (1.91)	73.57 (1.86)
10 to 17	45.31 (2.93)	7.34 (1.08)	47.35 (2.58)	55.56 (2.01)	5.30 (1.05)	39.14 (1.94)	34.20 (4.81)	9.55 (1.82)	56.25 (4.34)
Rural total	**15.41 (0.88)**	**35.95 (0.89)**	**48.64 (1.03)**	**18.18 (0.70)**	**35.27 (1.21)**	**46.55 (1.07)**	**12.19 (1.53)**	**36.73 (1.46)**	**51.08 (1.65)**
Overall									
Male	18.64 (0.88)	57.59 (1.15)	23.78 (1.00)	22.26 (0.94)	56.02 (1.64)	21.72 (1.26)	12.81 (1.07)	60.10 (1.20)	27.08 (1.24)
10 to 17	47.95 (1.98)	22.50 (1.41)	29.55 (1.47)	56.81 (1.94)	19.27 (1.78)	23.92 (1.38)	32.83 (2.62)	28.01 (2.03)	39.16 (2.31)
Female	13.58 (0.58)	19.35 (0.95)	67.07 (0.97)	16.25 (0.40)	18.92 (1.23)	64.82 (1.24)	9.53 (0.89)	19.99 (1.57)	70.48 (1.52)
10 to 17	47.93 (2.12)	6.61 (0.70)	45.46 (1.88)	58.43 (1.65)	4.84 (0.67)	36.74 (1.55)	32.19 (2.92)	9.26 (1.21)	58.55 (2.74)
Overall total	**15.80 (0.68)**	**36.16 (0.67)**	**48.04 (0.74)**	**18.93 (0.55)**	**35.45 (0.81)**	**45.63 (0.77)**	**10.94 (0.94)**	**37.26 (1.03)**	**51.79 (1.13)**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.3.2 Comparisons between Treatment and Control Samples

In this section, we evaluate the quality of our controls, i.e. the extent to which treatment and control groups are similar on the basis of certain outcome variables. As in other sections, we perform three kinds of comparisons: (a) all treatments versus all controls, (b) treatments without payments (TSP) versus all controls and (c) treatments without payments (TSP) versus controls without payments (CSP).

We notice in Table 3.3.16 that the differences between our control and treatment households do not appear significant along most of the dimensions considered in our analysis. Whereas there appears to be significantly more labour supplied in terms of less unemployment and greater number of hours worked in our treatment group than in our control sample, these differences are not significant across our more disaggregated comparisons.

We are most interested in the comparison presented in the last column, since we are comparing treatments and controls that were specifically chosen to match each other closely. We only find significant differences across these groups for time use and household income. In the case of time use, it is perhaps surprising that we observe school-age children reporting significantly less time devoted to school-related activities in our TSP sample.

In the case of household income, we find that the TSP households tend to be significantly less well-off, mainly as a result of lower labour income and lower institutional transfers.

Table 3.3.16
Comparisons between treatment and control groups

Variable		All treatments – All controls	Treatments without payment – All controls	Treatments without payment – Controls without payment
People aged 10 years or over who have worked in return for money (%)	Difference (Standard error) P-value	–0.58 (1.53) 0.71	–1.04 (1.86) 0.58	–1.22 (2.28) 0.59
Labour force participation rate (%)	Difference (Standard error) P-value	–1.56 (1.58) 0.33	–1.91 (1.91) 0.32	–3.48 (2.29) 0.13
Unemployment rate (%)	Difference (Standard error) P-value	–1.55* (0.88) 0.08	–1.13 (0.98) 0.25	–1.20 (1.40) 0.39
Duration of unemployment (months)	Difference (Standard error) P-value	–0.80 (0.68) 0.24	–1.11 (0.84) 0.19	–1.65 (1.02) 0.11
Number of hours worked per week	Difference (Standard error) P-value	–2.36* (1.20) 0.05	–2.01 (1.25) 0.11	–0.39 (1.49) 0.80
Wage rate per hour (pesos)	Difference (Standard error) P-value	40.63 (86.09) 0.64	194.71* (107.48) 0.07	138.66 (135.38) 0.31
Monthly household income (pesos):				
• Total income	Difference (Standard error) P-value	–70,986.08** (31,193.68) 0.02	–96,555.39** (34,882.24) 0.01	–101,348.30** (47,479.84) 0.04
• Regular Labour income	Difference (Standard error) P-value	–68,012.50** (30,598.21) 0.03	–91,867.29** (33,760.88) 0.01	–99,984.67** (47,179.28) 0.04
• Occasional labour income	Difference (Standard error) P-value	1,368.12 (3,492.55) 0.70	–769.06 (3,935.02) 0.85	620.31 (4,328.99) 0.89
• Non-labour income	Difference (Standard error) P-value	–4,587.71 (3,715.43) 0.22	–3,876.66 (3,949.04) 0.33	–5,792.61 (5,524.95) 0.30
• Net private transfers	Difference (Standard error) P-value	2,096.79 (2,436.78) 0.39	1,990.32 (2,890.94) 0.49	6,094.55* (3,475.44) 0.08
• Net institutional transfers, excluding *Familias en Acción*	Difference (Standard error) P-value	–1,850.78** (862.74) 0.03	–2,032.70** (869.55) 0.02	–2,285.91* (1,276.35) 0.08

Variable		All treatments – All controls	Treatments without payment – All controls	Treatments without payment – Controls without payment
Time use for children aged 10 to 17 (% of time):				
• Study	Difference (Standard error) P-value	–2.11 (3.00) 0.48	–17.6** (3.66) 0.00	–17.8** (4.45) 0.00
• Work	Difference (Standard error) P-value	–0.23 (1.54) 0.88	3.54 (1.88) 0.06	3.32 (2.28) 0.15
• Domestic tasks	Difference (Standard error) P-value	2.34 (2.22) 0.29	14.0** (3.07) 0.00	14.5** (3.48) 0.00

** Significant at 95% level.
* Significant at 90% level.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.4 Health

In this section, we consider both the demand for and the supply of health services. We start with the evidence on individual-level variables in treatment municipalities. We then compare these same variables between treatment and control municipalities. We then move to the analysis of health institutions.

3.4.1 Individuals: Treatment Municipalities

Several studies have shown that poverty has negative effects on the growth, cognitive development, and physical and psychological health of children.[8] There is evidence that children from low-income families have a higher prevalence of health problems and nutritional deficiencies, as a direct effect of food supply at home (see Alaino et al. (2001)). Furthermore, Alaimo et al. (1998) show that in the low-income population, insufficient food intake is positively associated with having a head of household who did not complete high school, not having health insurance and belonging to minority communities. Some authors have identified the positive effect of public housing subsidies in improving poor children's nutrition. Subsidies might be classified into (a) in-kind nutritional supplements and (b) economic subsidies to caregivers (see Nweacheck, Jarneson and Halfon (1994), Starfield (1982) and Nweacheck (1989)). Nutritional supplements have been demonstrated to have positive effects on the health and nutritional condition of children (see Moss and Carver (1998), Kendal et al. (2002) and Freeman et al. (1980)). Behrman and Hoddinott (1999) report that the PROGRESA programme in Mexico had a positive effect in increasing child growth and reducing the probability of child stunting in the age range 12 to 36 months.

We proceed by describing the different health indicators in treatment municipalities, making comparisons with previous surveys administered in Colombia. We also compare the indicators by type of municipality, searching for differences among them.

Children Aged 0 to 6

Table 3.4.1 shows that 14.3% of children in treatment municipalities had had acute diarrhoea disease (ADD) in the 15 days previous to the survey. A very similar figure (14%) was found in Profamilia (2000), which surveyed children between 0 and 5 years old in all socio-economic conditions, not just SISBEN1 children.

The relative frequency of acute respiratory disease (ARD) in the last 15 days was 42.1% in the treatment municipalities. According to the Profamilia survey, 13% of children had a cough with quick and short breath in the last two weeks. This remarkable difference between the surveys might be due to the way the two questions were asked and to the variability of occurrence of respiratory disease due to adverse weather conditions.

[8] Nweacheck, Jarneson and Halfon (1994); Starfield (1982); Nweacheck (1989).

Table 3.4.1
Percentage of children 2-6 years old suffering from various illnesses

Type of municipality		Diarrhoea in the last 15 days	Acute respiratory disease in the last 15 days	Other illness in the last 15 days	Any kind of disease in the last 15 days
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		14.3 (0.007)	42.1 (0.015)	16.7 (0.008)	54.7 (0.013)
TCP		12.3 (0.008)	40.7 (0.022)	17.7 (0.012)	53.7 (0.019)
TSP		17.1 (0.012)	43.9 (0.020)	15.2 (0.010)	56.1 (0.017)
TCP	Urban	12.5 (0.012)	39.4 (0.031)	16.8 (0.013)	52.5 (0.025)
	Rural	12.2 (0.010)	41.4 (0.029)	18.2 (0.017)	54.3 (0.026)
TSP	Urban	19.4 (0.012)	47.8 (0.032)	15.8 (0.013)	59.8 (0.027)
	Rural	15.5 (0.017)	41.1 (0.025)	14.8 (0.014)	53.4 (0.022)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.2
Duration of diarrhoea and acute respiratory disease for children aged 2-6

Type of municipality		Duration in days of ADD	Duration in days of ARD
		Mean (Std error)	Mean (Std error)
Total treatment		3.7 (2.8)	5.6 (4.3)
TCP		3.6 (2.7)	5.4 (4.4)
TSP		3.8 (2.8)	5.8 (4.3)
TCP	Urban	3.4 (2.6)	5.6 (4.9)
	Rural	3.7 (2.7)	5.3 (4.1)
TSP	Urban	3.6 (2.6)	6.2 (4.7)
	Rural	4.0 (3,0)	5.5 (4,0)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.2 indicates that the average durations of ADD and ARD in children aged 0 to 6 were 3.7 and 5.6 days respectively, in the treatment municipalities.

Table 3.4.3 shows that the percentage of children from 2 to 6 years old who were unable to perform their normal activities due to health problems was 19.9%, 12.9% of children between 2 and 6 years old stayed in bed because of health problems.

Table 3.4.3
Percentage of children aged 2-6 affected by illnesses in the last 15 days

Type of municipality		Could not perform daily activities	Stayed in bed
		Mean (Std error)	Mean (Std error)
Total treatment		19.9 (0.009)	12.9 (0.008)
TCP		20.0 (0.014)	12.5 (0.011)
TSP		19.0 (0.012)	13.8 (0.010)
TCP	Urban	17.4 (0.017)	9.7 (0.012)
	Rural	21.3 (0.018)	13.5 (0.015)
TSP	Urban	21.2 (0.017)	13.9 (0.012)
	Rural	19.0 (0.017)	13.8 (0.014)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.4 shows that 6.9% of children were hospitalised in the last year, with higher proportions in TSP municipalities and in urban areas. The proportion of children who had at least a growth and development check-up or medical attention in the 15 days previous to the survey was 22.8%, and 5.2% of children were attended by a pharmacist or healer in the last 15 days. Thus, the proportion of children aged 0-6 being seen by informal healthcare providers is relatively low.

Table 3.4.4
Use of health services, children 2-6

Type of municipality		Percentage of children hospitalised in the last year	Percentage of children having a check-up or medical attention in the last 15 days	Percentage of children attended by a pharmacist or healer in the last 15 days
		Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		6.9 (0.004)	22.8 (0.012)	5.2 (0.004)
TCP		6.3 (0.005)	23.0 (0.017)	5.1 (0.006)
TSP		8.0 (0.008)	22.5 (0.018)	5.3 (0.007)
TCP	Urban	7.3 (0.010)	25.7 (0.029)	5.1 (0.009)
	Rural	5.7 (0.005)	21.7 (0.021)	5.0 (0.007)
TSP	Urban	9.6 (0.011)	28.4 (0.030)	5.5 (0.013)
	Rural	6.6 (0.011)	18.3 (0.019)	5.3 (0.008)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Promotion and Prevention Programmes: Indicators for Children Aged 0 to 6

In Table 3.4.5, we consider the participation of children in Growth and Development (G&D) programmes. These involve check-ups and vaccinations. In our treatment sample, 53.2% of children are enrolled in a G&D programme and have an attendance card, according to what is reported by their mothers. In the second column of the table, we show the percentage of children with an appropriate number of G&D check-ups according to their age.[9] In the third column, we report the percentage of children who have a diphtheria, pertussis – whooping cough – and tetanus (DPT) vaccination record appropriate to his/her age (70.4% of children

[9] Our survey allows us to compute the actual number of G&D check-ups that a child has had in the last 12 months. This is compared with the minimum number of G&D check-ups in the last 12 months that the child should have had for his/her age according to the Health Ministry regulations. If this minimum number is larger than the actual number of G&D check-ups, then we say that the child has not had an appropriate number of G&D check-ups. The Health Ministry regulations are obtained from the document 'Norma tecnica para la deteccion temprana de las alteraciones del crecimiento y desarrollo en el menor de 10 anos'. Children between 43 and 66 months old can be complying with the G&D check-up regulations but still not have had a G&D visit in the last 12 months. This is because only a few visits are scheduled for these age groups. As we are unable to detect whether they are complying with G&D regulations,, we do not consider them in the analysis.

in our sample). All three columns indicate that participation in the G&D programme is consistently higher in TCP municipalities than in TSPs.

In the last two columns of Table 3.4.5, we report the proportions of children who received anti-parasite drugs and micro-nutrients or vitamin supplements at their last G&D check-up. The TSP municipalities had higher percentages, which could be associated with a higher frequency of undernourishment and gastroenteritis.

Table 3.4.5
Participation of children aged 0-6 in G&D programmes

Type of municipality		Percentage enrolled in the G&D programme	Percentage with appropriate G&D check-ups	Percentage with appropriate DPT vaccination	Percentage receiving anti-parasite drugs	Percentage receiving vitamin supplements or micro-nutrients
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		53.2 (0.026)	41.8 (0.025)	70.4 (0.020)	27.7 (0.021)	22.1 (0.019)
TCP		63.2 (0.028)	51.0 (0.028)	73.8 (0.027)	26.4 (0.027)	20.7 (0.021)
TSP		39.5 (0.035)	29.2 (0.030)	66.0 (0.028)	30.3 (0.036)	24.9 (0.039)
TCP	Urban	61.2 (0.043)	49.5 (0.038)	73.3 (0.040)	26.4 (0.033)	22.8 (0.039)
	Rural	64.2 (0.037)	51.7 (0.038)	74.0 (0.036)	26.4 (0.037)	19.7 (0.024)
TSP	Urban	43.0 (0.040)	34.0 (0.045)	68.0 (0.045)	35.4 (0.350)	30.6 (0.056)
	Rural	37.1 (0.050)	25.8 (0.040)	64.7 (0.352)	25.8 (0.252)	19.8 (0.059)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Correlation between Promotion and Prevention Variables and Time Travel and Cost to Healthcare Provider

Compliance with G&D check-ups might be influenced by access conditions (travel time and travel costs) to the healthcare providers. Here we explore the difference in access variables for children who are enrolled in G&D programmes and for those who are not. In our survey, we obtain information on travel time and cost to reach the healthcare provider that provided the last attention in the 12 months prior to the interview. The following analysis uses this information.

According to Table 3.4.6, the average time and travel cost to the healthcare provider are higher for children who do not participate in a G&D programme or are characterised by other

negative indicators. However, the only statistically significant difference is obtained at the 10% level for travel costs between those enrolled and those not enrolled in a G&D programme. Table 3.4.7 shows that both travel time and travel cost are statistically significantly larger in the rural areas than in the urban areas.

Table 3.4.6
Time and cost to reach healthcare provider by participation in G&D programmes

	Travel time to healthcare provider (minutes)	Travel cost to healthcare provider (pesos)
Enrolled in a D&G programme	46.6	4,784
Not enrolled in a D&G programme	52.4	6,064
Difference (P-value)	–5.78 (0.13)	–1,280* (0.06)
Has appropriate number of G&D check-ups	48.5	4,937
Does not have appropriate number of G&D check-ups	50.3	5,643
Difference (P-value)	–1.81 (0.53)	–706 (0.26)
Has appropriate DPT vaccination	47.0	4,954
Does not have appropriate DPT vaccination	49.2	5,901
Difference (P-value)	–2.25 (0.54)	–946 (0.21)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.7
Time and cost to reach healthcare provider in urban and rural areas

	Urban	Rural	Difference (P-value)
Travel time to healthcare provider (minutes)	22.6	65.1	–42.4** (0.000)
Travel cost to healthcare provider (pesos)	3,196	5,691	–2,494** (0.002)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.4.8, we summarise the results of a logistic model for the probability of being enrolled in a G&D programme. We report the odds ratio (OR) for selected variables, controlling for other covariates. After adjustment for some covariates, children who took 60 minutes or more to travel to the healthcare provider had an OR of 1.57 of not being enrolled

in a G&D programme, with respect to those who had a travel time of 15 minutes or less (with a 95% confidence interval (CI) of 1.17–2.12).

Table 3.4.8
Logistic model of participation in a G&D programme

Variable	Crude OR	95% CI	Adjusted OR[a]	95% CI
Travel time to healthcare provider (minutes)				
15 or less (reference)	1		1	
16 to 30	1.00	0.81–1.23	0.98	0.80–1.20
31 to 60	0.96	0.69–1.34	1.17	0.87–1.57
More than 60	1.13	0.76–1.69	1.57	1.17–2.12
Residence area				
Urban (reference)	1		1	
Rural	1.07	0.72–1.58	1.22	0.86–1.75
Type of municipality				
TCP (reference)	1		1	
TSP	4.80	3.47–6.63	5.44	3.88–7.62

[a] Odds ratios are adjusted for all the variables included in the analysis.

3.4.2 Individuals: Comparisons between Treatment and Control Municipalities

We now move to the analysis of the differences between various groups of municipalities, looking at treatments and controls in Table 3.4.9. Some of the variables, such as the proportion of children in a G&D programme or having an appropriate number of G&D check-ups, are significantly different between treatment and control groups, these proportions being larger in treatment communities. As even in TSP municipalities the households have been registered into *Familias en Acción*, it is likely that these differences are a consequence of the programme rather than reflecting pre-programme differences. An alternative explanation could be that the health infrastructure and access to it are better in treatment municipalities.

The difference in the incidence of diarrhoea between TSP and control municipalities is also remarkable. In this case, the anticipation effect of the programme is unlikely to be the explanation. There seem to be genuine pre-programme differences in this outcome variable and, possibly, in its determinants.

Table 3.4.9
Comparisons between treatment and control groups

Variable or indicator		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Proportion of children aged 0-6 who are enrolled in the G&D programme	Difference (Standard error) P-value	0.341** (0.032) 0.000	0.206** (0.038) 0.000	0.220** (0.040) 0.000
Proportion of children aged 0-6 with appropriate G&D check-ups	Difference (Standard error) P-value	0.091** (0.025) 0.000	0.061** (0.023) 0.006	0.063** (0.026) 0.010
Proportion of children aged 0-6 with appropriate DPT vaccination	Difference (Standard error) P-value	0.027 (0.032) 0.200	–0.016 (0.037) 0.661	–0.052 (0.035) 0.142
Proportion of children aged 0-6 who suffered from diarrhoea in the last 15 days	Difference (Standard error) P-value	–0.003 (0.013) 0.803	0.024 (0.016) 0.131	0.042** (0.019) 0.036
Proportion of children aged 0-6 who suffered from ARD in the last 15 days	Difference (Standard error) P-value	–0.067** (0.025) 0.008	–0.049* (0.028) 0.088	–0.020 (0.037) 0.581
Proportion of children aged 2-6who were unable to perform normal activities due to illness in the last 15 days	Difference (Standard error) P-value	–0.046** (0.016) 0.007	–0.046** (0.018) 0.014	–0.041* (0.022) 0.068
Travel time to healthcare provider (minutes)	Difference (Standard error) P-value	5.430 (6.080) 0.371	4.381 (7.391) 0.552	1.292 (0.878) 0.143
Travel cost to healthcare provider (pesos)	Difference (Standard error) P-value	–480 (1,098) 0.666	–166 (1,289) 0.892	195 (1,257) 0.873

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.10 redoes the exercise in Table 3.4.9 but splitting urban and rural areas. The principal finding is that the proportion of children between the ages of 0 and 6 who are enrolled in the G&D programme is significantly different between treatment and control municipalities both in rural and urban areas.

Table 3.4.10
Urban and rural comparisons

Variable or indicator		All treatments vs. All controls		Treatments without payment vs. All controls		Treatments without payment vs. Controls without payment	
		Urban	Rural	Urban	Rural	Urban	Rural
Proportion of children aged 0-6 who are enrolled in the G&D programme	Difference (Standard error) P-value	–0.26** (0.040) 0.000	0.37** (0.042) 0.000	0.18** (0.047) 0.000	0.24** (0.054) 0.000	0.21** (0.052) 0.000	0.24** (0.055) 0.000
Proportion of children aged 0-6 with appropriate G&D check-ups	Difference (Standard error) P-value	0.022 (0.034) 0.561	0.14** (0.032) 0.000	0.072** (0.032) 0.024	0.074** (0.025) 0.002	0.007** (0.027) 0.009	0.076** (0.039) 0.049
Proportion of children aged 0-6 with appropriate DPT vaccination	Difference (Standard error) P-value	0.007 (0.042) 0.860	0.051 (0.045) 0.251	–0.022 (0.054) 0.682	–0.002 (0.051) 0.973	–0.074 (0.054) 0.172	–0.028 (0.041) 0.499
Proportion of children aged 0-6 who suffered from diarrhoea in the last 15 days	Difference (Standard error) P-value	0.005 (0.018) 0.801	–0.004 (0.185) 0.817	0.041** (0.019) 0.038	0.016 (0.023) 0.492	0.054** (0.025) 0.037	0.036 (0.028) 0.195
Proportion of children aged 0-6 who suffered from ARD in the last 15 days	Difference (Standard error) P-value	–0.097** (0.031) 0.002	–0.025 (0.035) 0.471	–0.053 (0.039) 0.172	–0.026 (0.038) 0.497	–0.046 (0.048) 0.332	0.014 (0.043) 0.744
Proportion of children aged 2-6 who were unable to perform normal activities due to illness in the last 15 days	Difference (Standard error) P-value	–0.051** (0.022) 0.021	–0.044* (0.025) 0.082	–0.031 (0.025) 0.21	–0.058** (0.027) 0.036	–0.040 (0.032) 0.21	–0.040 (0.029) 0.17

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.4.3 Healthcare Providers: Treatment Municipalities

In this subsection, we describe the characteristics of the public healthcare providers in the treatment municipalities. We use two main sources of information. The municipality mayor is asked about the number of public healthcare providers in the municipality. Detailed information on the characteristics of these providers is obtained through a survey administered to a sample of healthcare providers. The healthcare providers are classified into hospitals, 'centros' and 'puestos'. Puestos are basic healthcare providers that might play an important role in rural parts of the municipality. Often, they provide services less than 24 hours a day and do not have a physician available round the clock. Centros are more complex healthcare providers than puestos. They usually offer physician services every working day. Centros might even have some beds for patient observation, though not for hospitalisation. For the municipalities in our sample, it is always the case that if there is no hospital in the municipality, then there is a centro. Consequently, to some extent, centros are substitutes for hospitals. Our sample of healthcare providers has the distribution given in Table 3.4.11.

Table 3.4.11
Distribution of healthcare providers in the sample

Type of municipality	Total	Hospitals	Centros	Puestos
TCP	36	18	7	11
TSP	59	27	13	19
CCP	55	24	10	21
CSP	45	20	8	17

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.12
Number of hours of personnel hired in the month previous to the survey

Type of municipality	Hospitals	Centros	Puestos
	Mean (Std error)	Mean (Std error)	Mean (Std error)
General practitioners			
Total treatment	1,279.00 (174.39)	532.92 (79.14)	28.84 (21.51)
TCP	1,248.27 (290.59)	653.51 (74.28)	3.07 (3.57)
TSP	1,320.80 (153.99)	323.22 (89.14)	60.15 (41.67)
Nurses			
Total treatment	550.03 (105.36)	151.40 (29.02)	21.67 (12.04)
TCP	626.28 (167.32)	173.50 (37.14)	16.18 (15.82)
TSP	457.88 (108.37)	115.71 (50.32)	27.71 (15.39)
Assistant nurses			
Total treatment	3,028.41 (394.54)	782.38 (160.38)	107.44 (17.54)
TCP	3,402.70 (622.06)	848.02 (243.12)	104.24 (24.38)
TSP	2,576.55 (414.30)	700.42 (175.42)	109.30 (24.14)
Health promoters			
Total treatment	1,235.96 (197.94)	687.83 (282.36)	114.06 (44.21)
TCP	1,642.98 (307.08)	545.34 (297.17)	116.80 (36.86)
TSP	752.61 (157.39)	929.20 (433.78)	110.60 (36.75)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.12 shows the number of personnel-hours provided in the month previous to the survey. Hospitals and centros provided many more hours of all types of health professionals than puestos. Puestos provided very few hours of both general practitioners (GPs) and nurses. Puestos provide a basic type of care, so their personnel are mainly formed by assistant nurses and health promoters.

Table 3.4.13 shows that none of the puestos in our treatment sample has a clinical lab or a birth delivery room. However, 16.5%of them have an emergency unit. As centros are more complex healthcare providers, almost all of them have an emergency unit, and most of them have a clinical lab and a birth delivery room.

Table 3.4.13
Percentage of healthcare providers with specific equipment

Type of municipality	Centros	Puestos
	Mean (Std error)	Mean (Std error)
Emergency unit		
Total treatment	97.66 (2.07)	16.55 (8.73)
TCP	100.00 (0.00)	9.37 (8.60)
TSP	93.43 (5.73)	25.15 (13.48)
Basic clinical lab		
Total treatment	68.58 (14.15)	0.00 (0.00)
TCP	84.62 (14.88)	0.00 (0.00)
TSP	40.82 (20.71)	0.00 (0.00)
Birth delivery room		
Total treatment	68.58 (14.15)	0.00 (0.00)
TCP	84.62 (14.88)	0.00 (0.00)
TSP	40.82 (20.71)	0.00 (0.00)

Note: The numbers for basic clinical lab and birth delivery room are the same because all centres that have one have the other.

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.14 shows that the head nurse tends to stay in a centro or puesto for between 52 and 66 months on average. Consequently, it does not seem that retaining nurses is a problem for these healthcare providers.

Table 3.4.14
Number of months that the head nurse has been working in the healthcare provider

Type of municipality	Centros	Puestos
	Mean (Std error)	Mean (Std error)
Total treatment	52.23 (26.94)	66.30 (16.90)
TCP	34.16 (27.16)	62.77 (25.37)
TSP	87.61 (48.78)	70.44 (20.93)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.15 reports the number of hours a week that particular health services are provided. Notice that though hospitals and centros typically provide the services for longer than puestos (except in the case of health education), it is not always true that hospitals provide them for longer than centros.

Table 3.4.15
Number of hours per week that particular services are provided

Type of municipality	Hospitals Mean (Std error)	Centros Mean (Std error)	Puestos Mean (Std error)
Vaccinations			
Total treatment	23.41 (4.12)	22.17 (3.91)	18.54 (5.25)
TCP	21.05 (6.06)	23.57 (3.96)	8.27 (3.79)
TSP	26.26 (5.17)	19.70 (8.18)	31.11 (4.47)
Health education			
Total treatment	15.88 (3.67)	15.06 (4.36)	16.29 (4.37)
TCP	11.53 (4.49)	20.93 (4.25)	13.42 (4.52)
TSP	21.15 (5.39)	4.82 (3.21)	20.34 (7.98)
G&D check-ups			
Total treatment	20.26 (3.32)	22.78 (7.64)	9.02 (1.74)
TCP	18.50 (5.21)	26.04 (10.35)	7.11 (2.91)
TSP	22.39 (3.50)	17.08 (7.60)	11.25 (1.55)
Smear tests			
Total treatment	22.55 (4.03)	19.30 (3.36)	9.31 (3.38)
TCP	20.97 (5.72)	17.35 (3.39)	5.40 (2.88)
TSP	24.45 (5.42)	22.69 (7.28)	14.84 (6.38)
Prenatal check-ups			
Total treatment	20.97 (3.39)	23.07 (7.40)	5.89 (1.58)
TCP	23.50 (6.31)	26.78 (9.73)	4.67 (2.02)
TSP	24.67 (5.50)	16.60 (7.82)	7.27 (2.99)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.16 provides us with the fraction of healthcare providers that have faced either a strike or personnel desertion due to violence or catastrophic events. The problem of strikes

seems to be more frequent than the one of personnel desertion, which has only taken place in 10% of the healthcare providers.

Table 3.4.16
Proportion of healthcare providers that have suffered any strike or personnel desertion due to violence or catastrophic events during 2001

Type of municipality	Strikes	Desertion
	Mean (Std error)	Mean (Std error)
Total treatment	0.18 (0.05)	0.09 (0.03)
TCP	0.20 (0.08)	0.10 (0.06)
TSP	0.17 (0.06)	0.08 (0.04)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.17 reports the fees that have to be paid for a visit with a GP. As expected, people who receive healthcare thanks to subsidised health insurance ('ARS') pay less than those who receive healthcare thanks to a direct benefit given by the municipality ('Vinculados').

Table 3.4.17
Fee for a visit with a GP, according to type of health insurance (pesos)

Type of municipality	ARS	Vinculado
	Mean (Std error)	Mean (Std error)
Total treatment	298.66 (60.33)	529.14 (76.04)
TCP	239.42 (80.82)	435.74 (106.13)
TSP	395.00 (69.92)	661.16 (67.38)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.4.4 Healthcare Providers: Comparison between Treatment and Control Municipalities

In this section, we report differences between treatment and control groups in terms of the variables considered above. We will divide the variables into two groups and analyse these groups separately. The first group constitutes background variables. These variables are likely to condition health outcomes but they may be unlikely to be affected by the programme. On

the other hand, the second group of variables might be influenced by the programme, either now or in the future. The variables are categorised in this way for the benefit of the exposition, but the reader should bear in mind that the difference is not clear-cut in all cases.

First we report the differences in background variables between treatment and control groups. Comparison of these variables is of interest because they might influence health outcomes. Understanding the differences in health infrastructure will contribute to our understanding of differences in health outcomes between treatment and control municipalities. Most of the variables analysed below are related to some dimension of access to healthcare.

Background Variables

Before comparing the characteristics of the healthcare providers, it is important to compare the quantity of public healthcare providers. Table 3.4.18 shows that TSP municipalities have a higher probability of having a public hospital. The differences in the number of centros and puestos are not statistically significantly different from zero. When we compare the whole treatment group with the whole control group, the number of puestos is also significantly higher in treatment municipalities than in control ones. This might reflect different access conditions to healthcare for the rural population.

Table 3.4.18
Differences in the number of public healthcare providers in the municipality

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Hospitals	Difference	0.17**	0.25**	0.22**
	(Standard error)	(0.07)	(0.08)	(0.10)
	P-value	0.02	0.00	0.03
Centros	Difference	0.07	0.12	0.11
	(Standard error)	(0.20)	(0.26)	(0.32)
	P-value	0.70	0.65	0.72
Puestos	Difference	1.86**	1.35	–0.10
	(Standard error)	(0.83)	(1.01)	(1.44)
	P-value	0.02	0.18	0.94

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Some healthcare providers might be better equipped than others. Table 3.4.19 shows the difference in the provision of emergency units, clinical labs and birth delivery rooms. Centros in control municipalities seem to be better equipped regarding labs and birth delivery rooms. As hospitals are more common in TSP municipalities, it is likely that centros in TSPs are less equipped than in controls. In TSP municipalities, hospitals already provide the community with birth delivery services and clinical labs, and hence centros do not need to be fully equipped. When we compare the whole treatment group with the whole control group, the previous differences are no longer significant. This suggests that TCPs are more similar to controls than TSPs are.

Table 3.4.19
Differences in the percentage of healthcare providers with specific equipment

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Emergency unit				
Centros	Difference (Standard error) P-value	–2.33 (2.07) 0.26	–6.56 (5.73) 0.25	–6.56 (5.73) 0.25
Puestos	Difference (Standard error) P-value	11.50 (9.63) 0.23	19.83 (14.14) 0.16	24.14* (13.53) 0.08
Basic clinical lab				
Centros	Difference (Standard error) P-value	–23.46 (15.14) 0.12	–51.12** (21.43) 0.02	–51.30** (21.85) 0.02
Puestos	Difference (Standard error) P-value	–3.61 (3.76) 0.34	–3.82 (3.96) 0.33	– – –
Birth delivery room				
Centros	Difference (Standard error) P-value	–23.46 (15.14) 0.12	–51.12** (21.43) 0.02	–51.30** (21.85) 0.02
Puestos	Difference (Standard error) P-value	–3.61 (3.76) 0.34	–3.82 (3.96) 0.33	– – –

Note: The numbers for basic clinical lab and birth delivery room are the same because all centres that have on have the other.
– indicates that the test cannot be carried out because the sample variance of both groups is zero.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The occurrence of strikes or the lack of personnel might prevent individuals from seeking care. Table 3.4.20 shows that there are not significant differences in the occurrence of either strikes or personnel desertion due to violence between treatment and control municipalities.

Table 3.4.20
Differences in the ratio of healthcare providers that have suffered strikes or personnel desertion due to violence or catastrophic events during 2001

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Strikes	Difference (Standard error) P-value	–0.02 (0.10) 0.82	–0.02 (0.10) 0.78	–0.19 (0.15) 0.23
Desertion	Difference (Standard error) P-value	0.05 (0.04) 0.21	0.04 (0.04) 0.37	0.02 (0.05) 0.68

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In small healthcare providers, the experience of the head nurse might influence both the organisation and the quality of the care provided. Table 3.4.21 shows that there are not statistically significant differences among municipalities.

Table 3.4.21
Differences in the number of months that the head nurse has been working in the healthcare provider

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Centros	Difference (Standard error) P-value	33.20 (27.73) 0.23	68.52 (49.48) 0.17	65.36 (51.52) 0.21
Puestos	Difference (Standard error) P-value	–19.12 (23.29) 0.41	–14.22 (25.99) 0.58	–26.45 (31.69) 0.40

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Access to healthcare services might also be determined by the fee that has to be paid. Table 3.4.22 shows that fees are statistically significantly higher in TSPs than in controls. When it comes to comparing all treatments with all controls, the difference is not statistically significant any more. This suggests that TCP municipalities have lower fees than TSPs.

Table 3.4.22
Differences in the fees paid according to type of health insurance

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
ARS	Difference (Standard error) P-value	80.77 (75.85) 0.28	175.25** (83.56) 0.03	205.61** (91.19) 0.02
Vinculado	Difference (Standard error) P-value	129.75 (101.62) 0.20	257.92** (94.88) 0.01	279.85** (127.51) 0.03

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Variables that Might Be Affected by the Programme

The programme does not give resources directly to healthcare providers. Rather, the administrative work carried out by the healthcare providers might be increased by the programme. The programme might increase consumer demand, especially for vaccinations and G&D check-ups. Given that revenues obtained by public healthcare providers are market driven, resources might be increased in order to meet increasing consumer demand. Moreover, local authorities might supply public healthcare providers with more resources in order to meet the new demand produced by the programme. Consequently, it is of interest to compare the results of variables that might be influenced by the programme, if only in the future.

Table 3.4.23 compares the number of hours weekly that healthcare providers supply healthcare services that are closely related to the programme. The only significant differences can be found in puestos. Puestos in TSPs provide key services for more hours than those in control municipalities. At this point, it is quite unlikely that this is caused by the programme, as none of the puestos in TSP municipalities declared in the interview that they had carried out any improvements because of the programme. So these differences are more likely to reflect systematic pre-programme differences. Consequently, the rural population in TSP municipalities might have better access to key healthcare services than the rural population in control municipalities. On the other hand, differences between whole treatment and whole control groups are not significant. This means that TCPs are probably more similar to controls than TSPs are.

Table 3.4.23
Differences in the number of hours a week that particular services are provided

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Vaccinations				
Hospitals	Difference (Standard error) P-value	–3.82 (5.51) 0.49	–1.09 (6.33) 0.86	5.17 (7.33) 0.48
Centros	Difference (Standard error) P-value	7.20 (6.35) 0.25	3.85 (9.69) 0.69	15.01 (8.70) 0.09
Puestos	Difference (Standard error) P-value	3.98 (6.65) 0.55	16.15** (6.06) 0.01	24.26** (4.95) 0.00
Health education				
Hospitals	Difference (Standard error) P-value	–0.17 (4.94) 0.97	4.95 (6.31) 0.43	1.03 (7.40) 0.88
Centros	Difference (Standard error) P-value	6.35 (6.28) 0.31	–5.74 (5.95) 0.33	3.39 (2.96) 0.25
Puestos	Difference (Standard error) P-value	–8.19 (14.33) 0.56	12.46 (8.53) 0.14	16.31** (8.05) 0.05
G&D check-ups				
Hospitals	Difference (Standard error) P-value	–2.69 (4.91) 0.58	–0.57 (5.05) 0.91	3.61 (5.94) 0.61
Centros	Difference (Standard error) P-value	13.19 (8.56) 0.12	6.96 (8.70) 0.42	12.16 (8.10) 0.13
Puestos	Difference (Standard error) P-value	–2.60 (3.76) 0.49	–1.55 (3.87) 0.68	5.77** (2.39) 0.02
Smear tests				
Hospitals	Difference (Standard error) P-value	–4.71 (5.36) 0.38	–2.96 (6.46) 0.64	4.43 (7.28) 0.54
Centros	Difference (Standard error) P-value	4.45 (6.48) 0.49	9.82 (8.89) 0.27	17.93** (8.18) 0.03
Puestos	Difference (Standard error) P-value	30.86 (30.19) 0.30	6.28 (6.53) 0.33	8.82 (6.47) 0.17

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Prenatal check-ups				
Hospitals	Difference (Standard error) P-value	–0.06 (4.69) 0.98	–1.59 (5.48) 0.77	7.17 (5.34) 0.18
Centros	Difference (Standard error) P-value	13.94* (8.33) 0.09	7.05 (8.87) 0.42	12.95 (8.18) 0.11
Puestos	Difference (Standard error) P-value	–1.37 (2.40) 0.56	–0.46 (3.65) 0.89	1.40 (3.40) 0.68

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.4.23 also gives the number of hours that public healthcare providers supply prenatal check-ups and smear tests. These services are probably less linked to the program than the other ones in Table 3.4.23. The only significant difference takes place in centros, between TSPs and CSPs. This is also unlikely to be caused by the programme and seems to indicate pre-programme differences. Moreover, it suggests that CSPs are not necessarily more similar to TSPs than CCPs are.

Table 3.4.24 compares the number of hours of personnel hired across different types of municipalities. The first thing to notice is that the only significant differences at the 5% level occur for hospitals. Centros and puestos do not show statistically significant differences. For GPS, the number of hours employed is significantly larger in TSP municipalities than in control ones. This difference is unlikely to be due to the programme, as only 2 out of 27 TSP hospitals in the sample declared in the interview that they had increased the number of hours of personnel hired because of the programme. Consequently, the difference is more likely to be a pre-programme difference.

Table 3.4.24
Differences in the number of hours of personnel hired in the month previous to survey

		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
GPs				
Hospitals	Difference (Standard error) P-value	368.86* (204.12) 0.07	412.78** (187.73) 0.03	248.01 (198.94) 0.21
Centros	Difference (Standard error) P-value	64.97 (125.38) 0.60	–137.76 (130.47) 0.29	–235.22 (167.60) 0.16
Puestos	Difference (Standard error) P-value	13.05 (23.45) 0.57	44.22 (42.76) 0.30	47.66 (42.65) 0.26
Nurses				
Hospitals	Difference (Standard error) P-value	284.88** (113.22) 0.01	194.54* (116.10) 0.09	118.86 (122.15) 0.33
Centros	Difference (Standard error) P-value	32.85 (51.48) 0.52	–4.10 (66.45) 0.95	14.77 (71.58) 0.21
Puestos	Difference (Standard error) P-value	21.67* (12.04) 0.07	27.71* (15.39) 0.07	27.71* (15.39) 0.07
Assistant nurses				
Hospitals	Difference (Standard error) P-value	1,021.73** (468.48) 0.03	579.94 (486.02) 0.23	424.16 (501.89) 0.85
Centros	Difference (Standard error) P-value	219.31 (195.13) 0.26	130.84 (210.59) 0.53	226.56 (196.67) 0.25
Puestos	Difference (Standard error) P-value	–10.98 (62.26) 0.86	–7.91 (61.69) 0.89	–28.96 (125.94) 0.81
Health promoters				
Hospitals	Difference (Standard error) P-value	473.75* (245.52) 0.06	–9.04 (215.01) 0.96	–236.19 (218.67) 0.28
Centros	Difference (Standard error) P-value	43.22 (301.15) 0.88	288.07 (446.84) 0.52	265.91 (449.96) 0.55
Puestos	Difference (Standard error) P-value	–4.83 (51.14) 0.92	–7.44 (44.94) 0.86	–22.57 (48.44) 0.64

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In comparing all the treatments and all the controls, there are statistically significant differences at the 10% level in all the categories of personnel for hospitals. In this case, one cannot rule out that the differences might be caused partly by the programme, as 5 out of 18 TCP hospitals in the sample declared having increased the number of hours of personnel.

Conclusions

- There is little evidence of substantial anticipation effects by TSP healthcare providers. Only 2 hospitals and 1 centro declared in the interview that they had increased the amount of hours of personnel hired.

- We can conclude that TSP municipalities have better healthcare infrastructure than controls. The following variables are higher in TSP municipalities than in controls: (i) the probability of having a hospital; (ii) the number of hours that GPs and nurses are hired in hospitals; (iii) the time range over which certain key health services are offered in puestos; and (iv) the number of hours that nurses are hired in puestos.

- The advantage of TSP municipalities in hospital-provided care might be partially offset by the fact that centros are better-equipped in controls than in TSPs and by the higher fees that have to be paid in TSP municipalities.

- There is some evidence to suggest that TCP municipalities are more similar to control municipalities in terms of health infrastructure than TSP municipalities are. In addition to the results discussed earlier, we mention here that the probability of having a hospital is not statistically different for TCPs and for controls (p-value = 0.42). However, there are still some differences between TCPs and controls; for instance, TCPs have an average 2.47 more puestos than control municipalities (standard error = 0.97, p-value = 0.01).

- We cannot find evidence that TSP municipalities are more similar to CSP municipalities than to CCP ones.

- The number of hours of hired personnel is significantly larger in treatment municipalities than in controls. This might be partly due to the effect of the programme.

3.5 Consumption

In this section, we consider both expenditure on and consumption of various commodities. We describe the consumption shares in various commodity subgroups of the population and estimate some simple Engel curves for these subgroups. In the second part of the section, we discuss the prevalence of poverty according to various indicators. We look at indicators based on 'unsatisfied basic needs', misery and poverty lines, and a quality of life index.

Our consumption data are extremely detailed and include information on both expenditure on and consumption of various commodities obtained in kind. In the case of food consumption, which represents a large share of our households' budget, we have information both on quantities and on values. The quantities are crucial both to estimate consumption values for the large fraction of households that report consumption 'in kind' and to compute the poverty line based on 'unsatisfied basic needs'.

Construction of comparable and consistent figures was a very laborious procedure. For all our commodities, we had to convert a variety of local measures into homogeneous units of measure and use various sources of information on prices to obtain values.

3.5.1 Consumption and Expenditure Analysis

We start our analysis by reporting the prevalence of consumption in kind. This is a particularly important phenomenon for food. In Table 3.5.1a, we report, for each of the four types of municipality and for the urban and rural sectors, the percentage of households that report 'consumption in kind' of food. In Table 3.5.1b, we report the average share of food consumption that is estimated to be consumption in kind.

From these tables, it is clear that for food, consumption in kind is an important phenomenon. As many as 73% of our households report some consumption in kind of food. For rural households, the proportion is above 80%. As for the average share, this can be as large as 25% of food consumption.

Table 3.5.1a
Proportion of households reporting some food consumption 'in kind'

Type of municipality	Urban	Rural	Total
CCP	0.6565	0.8407	0.7295
TCP	0.5794	0.7625	0.6827
CSP	0.6569	0.8523	0.7463
TSP	0.6166	0.8691	0.7540
Total	**0.6254**	**0.8243**	**0.7254**

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.5.1b
Average share of food consumption that is 'in kind'

Type of municipality	Urban	Rural	Total
CCP	0.1326	0.2445	0.1770
TCP	0.0800	0.1649	0.1279
CSP	0.1099	0.2199	0.1602
TSP	0.1193	0.2502	0.1907
Total	0.1095	0.2137	0.1620

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

For all other commodities, we only know if a household acquires something without paying for it, but we do not have information on quantity or value. For most of the other commodities, this is not a serious problem, as the percentages are very low. The only exception is clothing and footwear: it turns out that among the households that answered 'yes' to the question on whether they acquired some item of clothing in the last 3 months, about 25% report that they received that item as a gift. This is an important limitation of our consumption data that we should keep in mind.

For the first part of our analysis, we divide the many commodities on which we have information into 12 categories. While the information on each of these categories was collected over different time horizons, we adjust the figures to report monthly aggregates. The categories we analyse are:

- Food (including food in and out): food in is obtained by aggregating information on 94 different commodities on which we have both quantity and value information. See below for more detailed information on food consumption.

- Transport.

- Personal care.

- Utilities and household services: sewerage, telephone, electricity, gas, gas cylinders, house repair, rubbish collection, water, candles and matches, rent and rent equivalent for home-owners, other household services.

- Clothing and footwear: this is obtained by aggregating the expenditure on men's, women's, boys', girls' and infants' clothing and footwear.

- Alcohol and tobacco.

- Entertainment: vacations, entertainment services, parties, lotteries etc.

- Health: out-of-pocket medical expenses including insurance.

- Education: books, fees, uniforms, transport to school, school meals.

- Durables other than vehicles: furniture, appliances, sheets and blankets, pots and pans, toys, jewellery.

- Vehicles.

- Miscellaneous.

In Table 3.5.2, we report the mean monthly consumption (per household) in the treatment municipalities. We compute separately the mean in the urban and rural sectors and also consider separately TSP and TCP municipalities. In Table 3.5.3, we report, for each of the 12 groups considered, the share in total consumption.

The tables confirm that we are dealing with a very poor population. Total monthly consumption, including consumption in kind of food, amounts to about 450,000 pesos, which is equivalent to about 180 US dollars. Among rural households, this amount is about 6% lower. We observe that consumption is roughly 8% higher in TCP municipalities than in TSP municipalities in urban areas and about 4.4% higher in rural areas.

The poverty of this population is confirmed by the pattern of consumption shares. Food accounts for about 60% of total consumption for these households. As expected, the share is higher among rural households. Moreover, we notice that the share is slightly higher in TSP than in TCP municipalities.

The second largest item in the budget of these households is housing services, accounting for about 20%. Once again, we notice marked differences between rural and urban samples and, to a lesser extent, between TSPs and TCPs.

Interestingly, the third most important item is expenses for education. These account for about 5% of the budget. The share is higher in urban than in rural areas. Moreover, we notice that, especially in urban areas, the education expenditure share is higher in TCP than in TSP areas.

Whether the differences between TCP and TSP communities are significant and whether they can be attributed to the programme (or to other features) we discuss below. At this point, we only note the difference between the food and education shares.

Table 3.5.2
Total consumption and its main components: household means

Variable	TCP		TSP		Total treatment	
	Urban	Rural	Urban	Rural	Urban	Rural
	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total consumption	480,588.9 (14,749.4)	434,403.6 (13,869.3)	441,812.4 (20,006.8)	415,974.3 (18,617.0)	454,524.8 (12,418.5)	427,964.6 (17,282.0)
Food	269,566.0 (7,079.1)	265,579.3 (8,431.5)	256,567.5 (12,142.6)	258,995.4 (12,095.2)	267,316.2 (7,222.5)	257,868.7 (10,646.8)
Transport	15,420.4 (1,306.9)	21,704.2 (1,555.8)	19,323.2 (2,969.7)	19,092.8 (1,997.6)	18,966.5 (1,229.6)	19,199.7 (2,069.7)
Personal care	17,286.9 (768.9)	15,145.8 (1,149.9)	15,434.9 (960.0)	13,645.4 (1,056.5)	16,078.6 (886.3)	14,475.8 (942.2)
Housing services	101,846.4 (5,110.5)	65,202.9 (2,632.3)	91,151.0 (4539.4)	65,942.3 (3,801.9)	81,167.1 (3,071.8)	77,640.5 (3,629.8)
Clothing and footwear	14,508.5 (1,630.3)	15,833.8 (3,080.6)	10,730.0 (1,602.6)	12,544.3 (2,150.0)	15,256.4 (2,338.7)	11,702.4 (1,791.1)
Alcohol and tobacco	4,746.0 (1,281.0)	4,178.1 (363.0)	3,618.0 (333.9)	3,957.4 (405.6)	4,425.5 (512.4)	3,799.9 (311.8)
Entertainment	4,299.1 (497.3)	2,505.7 (317.0)	4,051.8 (469.7)	2,505.1 (344.3)	3,287.0 (381.0)	3,222.9 (381.7)
Education	23,846.6 (1,447.7)	19,053.7 (1,161.6)	19,070.5 (1,447.5)	17,626.4 (1,816.3)	21,141.8 (1,145.6)	18,296.6 (1,434.1)
Health	12,834.5 (919.2)	13,044.3 (1,229.4)	11,627.8 (1,295.0)	13,047.0 (1,355.0)	12,952.9 (782.2)	12,388.4 (1,139.7)
No. of observations	*1,550*	*2,008*	*1,466*	*1,749*	*3,016*	*3,757*

Note: Means and standard errorsare computed taking into account stratification weights, non-response and cluster effects.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.5.3
Consumption shares

Variable	TCP		TSP		Total treatment	
	Urban	Rural	Urban	Rural	Urban	Rural
	Mean Std error	Mean Std error	Mean Std error	Mean Std error	Mean Std error	Mean Std error
Food	0.5602 0.0079	0.6098 0.0108	0.5735 0.0110	0.6276 0.0099	0.5882 0.0083	0.6025 0.0092
Transport	0.0265 0.0022	0.0439 0.0025	0.0320 0.0036	0.0398 0.0037	0.0363 0.0021	0.0362 0.0031
Personal care	0.0374 0.0010	0.0367 0.0018	0.0372 0.0020	0.0341 0.0020	0.0370 0.0014	0.0356 0.0017
Housing services	0.2240 0.0078	0.1645 0.0041	0.2313 0.0105	0.1716 0.0073	0.1904 0.0057	0.1993 0.0084
Clothing and footwear	0.0272 0.0024	0.0326 0.0057	0.0201 0.0026	0.0245 0.0032	0.0302 0.0041	0.0225 0.0028
Alcohol and tobacco	0.0081 0.0008	0.0103 0.0008	0.0091 0.0009	0.0106 0.0011	0.0093 0.0005	0.0099 0.0009
Entertainment	0.0077 0.0008	0.0055 0.0008	0.0077 0.0009	0.0055 0.0008	0.0065 0.0008	0.0066 0.0008
Education	0.0510 0.0024	0.0436 0.0025	0.0447 0.0019	0.0411 0.0029	0.0468 0.0020	0.0427 0.0021
Health	0.0255 0.0017	0.0280 0.0022	0.0242 0.0027	0.0278 0.0021	0.0269 0.0013	0.0261 0.0018
Durables	0.0071 0.0010	0.0058 0.0010	0.0066 0.0007	0.0055 0.0007	0.0064 0.0008	0.0060 0.0006
Miscellaneous	0.0253 0.0023	0.0194 0.0016	0.0136 0.0017	0.0119 0.0019	0.0220 0.0018	0.0127 0.0016
No. of observations	*1,550*	*2,008*	*1,466*	*1,749*	*3,016*	*3,757*

Note: Means and standard errors are computed taking into account stratification weights, non-response and cluster effects.
Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Having reported the description of the main data in the treatment sample, we move on to compare it with the control sample. We perform four comparisons: all treatments with all controls; TSPs with all controls; TSPs with CSPs; and TSPs and TCPs. The results of these exercises are reported in Tables 3.5.4 and 3.5.5.

Table 3.5.4
Comparison of consumption levels

Variable		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment	Treatments without payment vs. Treatments with payment
Total consumption	Difference (Standard error) P-value	–12,004.4 (21,146.3) 0.5710	–26,757.7 (25,274.8) 0.2920	–34,119.4 (29,566.5) 0.2510	–24,515.2 (21,260.0) 0.2510
Food	Difference (Standard error) P-value	3,689.6 (11,153.7) 0.7410	–1,953.5 (14,152.2) 0.8900	–2,180.6 (15,261.9) 0.8870	–9,388.6 (12,908.0) 0.4680
Transport	Difference (Standard error) P-value	–5,700.5 (2,570.3) 0.0280	–5,802.0 (3,094.6) 0.0630	–5,393.4 (3,444.3) 0.1200	–164.2 (2,406.6) 0.9460
Personal care	Difference (Standard error) P-value	–869.4 (1,048.0) 0.4080	–1,785.2 (1,237.5) 0.1520	–2,155.7 (1,450.4) 0.1400	–1,520.9 (1,314.7) 0.2500
Housing services	Difference (Standard error) P-value	–15,342.7** (7,354.3) 0.0390	–16,425.9** (7,871.5) 0.0390	–21,351.3** (10,351.1) 0.0410	–1,790.0 (4,650.5) 0.7010
Clothing and footwear	Difference (Standard error) P-value	5,039.5** (1,810.0) 0.0060	2,874.3 (1,933.2) 0.1400	2,196.3 (1,954.8) 0.2630	–3,602.5 (3,031.8) 0.2370
Alcohol and tobacco	Difference (Standard error) P-value	–463.0 (454.9) 0.3110	–815.9* (463.2) 0.0810	–418.0 (528.7) 0.4310	–584.2 (543.3) 0.2840
Entertainment	Difference (Standard error) P-value	–2,365.8** (717.1) 0.0010	–2,351.7** (765.7) 0.0030	–2,106.6** (942.6) 0.0270	23.0 (527.3) 0.9650
Education	Difference (Standard error) P-value	3,403.9** (1,469.7) 0.0220	1,861.9 (1,842.0) 0.3140	1,494.9 (2,114.7) 0.4810	–2,564.8 (1,828.5) 0.1630
Health	Difference (Standard error) P-value	2,222.3** (926.2) 0.0180	1,868.1 (1,306.9) 0.1550	1,142.0 (1,320.3) 0.3890	–586.7 (1,413.5) 0.6790
Durables	Difference (Standard error) P-value	–710.5 (452.6) 0.1190	–1,022.9** (478.2) 0.0340	–1,373.8** (549.6) 0.0140	–518.9 (480.1) 0.2820
Miscellaneous	Difference (Standard error) P-value	–907.8 (1,250.9) 0.4690	–3,360.5** (1,327.6) 0.0130	–3,984.9** (1,656.9) 0.0180	–4,075.5** (1,179.4) 0.0010

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.5.5
Comparison of consumption shares

Variable		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment	Treatments without payment vs. Treatments with payment
Food	Difference (Standard error) P-value	0.0198 (0.0127) 0.1220	0.0271* (0.0144) 0.0620	0.0358** (0.0162) 0.0290	0.0120 (0.0125) 0.3380
Transport	Difference (Standard error) P-value	–0.0092** (0.0039) 0.0200	–0.0099** (0.0047) 0.0380	–0.0103** (0.0051) 0.0470	–0.0010 (0.0038) 0.7840
Personal care	Difference (Standard error) P-value	–0.0015 (0.0017) 0.3820	–0.0024 (0.0022) 0.2700	–0.0022 (0.0022) 0.3200	–0.0015 (0.0022) 0.5120
Housing services	Difference (Standard error) P-value	–0.0282** (0.0107) 0.0100	–0.0212* (0.0127) 0.0980	–0.0262* (0.0143) 0.0690	0.0116 (0.0100) 0.2480
Clothing and footwear	Difference (Standard error) P-value	0.0106** (0.0033) 0.0020	0.0058* (0.0032) 0.0670	0.0042 (0.0035) 0.2290	–0.0080 (0.0051) 0.1210
Alcohol and tobacco	Difference (Standard error) P-value	–0.0013 (0.00100 0.1880	–0.0010 (0.0012) 0.4120	0.0004 (0.0011) 0.6970	0.0005 (0.0010) 0.6520
Entertainment	Difference (Standard error) P-value	–0.0035** (0.0011) 0.0020	–0.0034** (0.0012) 0.0070	–0.0024* (0.0013) 0.0710	0.0002 (0.0011) 0.8660
Education	Difference (Standard error) P-value	0.0090** (0.0023) 0.0000	0.0068** (0.0027) 0.0140	0.0063** (0.0031) 0.0470	–0.0036 (0.0029) 0.2180
Health	Difference (Standard error) P-value	0.0055** (0.0015) 0.0000	0.0050** (0.0021) 0.0170	0.0034* (0.0020) 0.0980	–0.0009 (0.0023) 0.6890
Durables	Difference (Standard error) P-value	–0.0009 (0.0010) 0.3690	–0.0011 (0.0010) 0.2880	–0.0021 (0.0013) 0.1010	–0.0003 (0.0010) 0.7430
Miscellaneous	Difference (Standard error) P-value	–0.0004 (0.0023) 0.8550	–0.0058** (0.0024) 0.0170	–0.0070** (0.0029) 0.0160	–0.0090** (0.0024) 0.0000

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The interpretation of the results is not completely straightforward. In many cases, the differences are not significant; and in some cases in which they are, the point estimates of the difference (especially in the consumption shares in Table 3.5.5) are so small that they are not economically significant. Finally, as consumption is probably affected by the programme's intervention, the comparison between treatments and controls (given that some of the former are affected by the programme even in the baseline survey) should be taken with particular caution. It is interesting that the straightforward comparison of TSP and TCP municipalities

does not reveal any significant differences (except in the category of miscellaneous consumption). However, this lack of difference could be due to the imbalance between the two types of municipalities in other background variables that we document elsewhere. It should therefore not be interpreted as a sign that the programme is not affecting consumption.

To check whether the consumption patterns we observe in our data resemble those in other data-sets, we estimate some simple Engel curves for the 12 commodities into which we have divided our total consumption expenditure. The specification we choose is the one used by Banks, Blundell and Lewbel (1997): consumption shares are regressed on a number of controls, the log of total expenditure and its square. We estimate this specification in the treatment municipalities only. The variables we use as controls in the share equations are the number of children between the ages of 0 and 6, the number of children between the ages of 7 and 17, the total number of people in the household, a dummy for the rural sector and a dummy for the 'sin pago' status. We report the results of this exercise in Table 3.5.6.

As expected, the demographic and geographic location variables are highly significant for many equations. In some cases, such as food, both the linear and quadratic term in the log of total consumption is significant. In others, on the other hand, neither of the two terms is significant. For 9 of the shares, we plot the estimated effect of the two terms against log total consumption in Figure 3.5.1. When considering these pictures, it should be remembered that the only shares for which the coefficients on total expenditure are significantly different from zero at the 5% level are those on food, housing services and transport.

The most puzzling result is that the food share seems to be increasing at very low levels of total consumption and declining afterwards. A possible explanation of this pattern, consistent with some recent evidence from Malaysia, is that extremely poor households have to spend a certain amount on some fixed items and food. When income (and total expenditure) increases, they start buying better food, keeping the other items constant. In such a situation, the food share would increase with total expenditure at very low levels of expenditure and then decline after a certain threshold. The single item forming a significant share of total expenditure that is a strict necessity in our sample seems to be housing services, i.e. the share of housing services in total consumption falls as total consumption rises.

From a methodological point of view, it should also be kept in mind that the estimates are obtained by simple OLS. We therefore ignore any endogeneity problem that might lead to a bias in the coefficients of interest.

Interestingly, the only equations for which the TSP dummy is significant are education and food (as well as miscellaneous items). We resist the temptation to interpret this particular result as an effect of the programme.

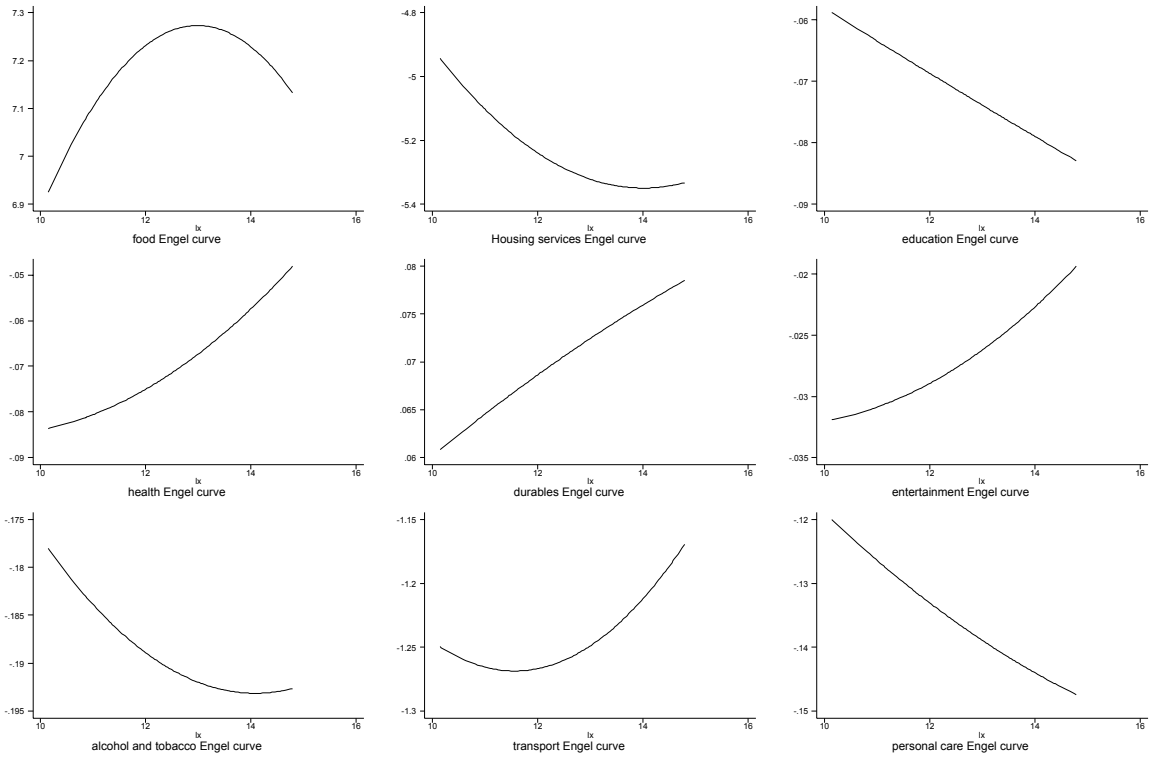
Table 3.5.6
Engel curves

	Food	Personal care	Transport	Clothing and footwear	Housing services
Ln(Expenditure)	1.121** (0.148)	–0.016 (0.032)	–0.219** (0.057)	–0.075* (0.041)	–0.764** (0.131)
{Ln(Expenditure)}^{2}	–0.043** (0.006)	0.000 (0.001)	0.009** (0.002)	0.004** (0.002)	0.027** (0.005)
No. of children 0–6	0.015** (0.003)	0.002** (0.001)	–0.001 (0.001)	0.003** (0.001)	–0.010** (0.002)
No. of children 7–17	–0.003 (0.002)	–0.001** (0.000)	–0.003** (0.001)	0.002** (0.001)	–0.009** (0.001)
No. of people in household	0.002 (0.002)	0.000 (0.000)	–0.000 (0.001)	–0.003** (0.001)	0.003** (0.001)
Rural	0.053** (0.008)	–0.003** (0.001)	0.014** (0.002)	0.007** (0.003)	–0.062** (0.006)
TSP	0.023** (0.012)	–0.003 (0.002)	0.004 (0.003)	–0.006 (0.005)	–0.002 (0.008)
No. of observations	*6,761*	*6,761*	*6,761*	*6,761*	*6,761*
R-squared	*0.079*	*0.024*	*0.046*	*0.054*	*0.197*

	Alcohol and tobacco	Entertainment	Durables	Health	Education	Miscellaneous
Ln(Expenditure)	–0.027 (0.022)	–0.007 (0.014)	0.007 (0.011)	–0.019 (0.034)	–0.006 (0.036)	0.006 (0.027)
{Ln(Expenditure)}^{2}	0.001 (0.001)	0.000 (0.001)	–0.000 (0.000)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)
No. of children 0–6	–0.001** (0.000)	–0.001** (0.000)	0.001** (0.000)	0.001 (0.001)	–0.007** (0.001)	–0.001 (0.001)
No. of children 7–17	–0.001** (0.000)	–0.001** (0.000)	0.000 (0.000)	–0.002** (0.001)	0.014** (0.001)	0.003** (0.001)
No. of people in household	0.001** (0.000)	0.000 (0.000)	–0.001** (0.000)	–0.000 (0.000)	–0.001** (0.000)	–0.001** (0.000)
Rural	0.002** (0.001)	–0.003** (0.001)	–0.001 (0.001)	0.005** (0.002)	–0.007** (0.002)	–0.003** (0.001)
TSP	0.001 (0.001)	0.001 (0.001)	–0.000 (0.001)	–0.001 (0.003)	–0.006** (0.003)	–0.010** (0.003)
No. of observations	*6,761*	*6,761*	*6,761*	*6,761*	*6,761*	*6,761*
R-squared	*0.009*	*0.0154*	*0.014*	*0.013*	*0.1627*	*0.1627*

Note: Robust standard errors are given in parentheses.

Figure 3.5.1
Engel curves



3.5.2 Poverty

In this section, we present the results obtained in measuring the prevalence of poverty according to three different indicators: an index of 'unsatisfied basic needs' (UBN), a poverty and misery line (PL and ML) and a quality of life index (QLI). Under each heading, we start by giving the basic definitions of the indicator being considered.

Unsatisfied Basic Needs

The UBN indicator tries to identify the households that do not have access to some basic commodities and services. The overall indicator is composed of the following simple indicators:

- Housing UBN (HUBN). This identifies households that live in houses that are considered 'inadequate'. There are differences in the definition of adequate housing depending on where the house is located. If it is located in an urban area, the following are considered inadequate accommodation natural shelters, mobile houses, bridges, houses without walls or with walls made mainly of textiles or other perishable materials and houses with dirt floors. A similar definition applies to rural houses, although there are some differences in the way walls are classified.

- Services UBN (SUBN). This identifies households that live in houses with no access to basic services such as drinking water and sewerage. Again, there are some differences in the definitions for urban and rural households.

- Crowding UBN (CUBN). This identifies households that have more than three people per room (including living room, dining room and bedrooms but excluding kitchen, bathroom and garage).

- Education UBN (EUBN). This identifies households with at least one child aged 7 to 11 related to the head of household who does not go to school.

- High economic dependency UBN (DUBN). This identifies households where there are more than three individuals per employed individual and the household head has less than three years of education.

Households that satisfy one of these criteria are considered poor on the basis of UBN. Those that satisfy two or more of these criteria are considered to be in extreme poverty (destitution). If a household is poor, all individuals in it are considered poor. Given that the population we are studying are those belonging to the SISBEN1 register, we expect a large fraction of poor and extremely poor individuals.

In Table 3.5.7, we report the percentages of households that are classified as poor by municipality type and area of residence. Table 3.5.8 gives the percentages for individuals.

Table 3.5.7
Percentage of poor households according to UBN indicators

		HUBN	SUBN	CUBN	EUBN	DUBN	Poor	Destitute
Total	Total	34.1	18.9	25.0	7.2	38.4	68.9	36.4
	Urban	27.9	20.7	22.4	6.0	32.3	61.8	31.3
	Rural	40.1	17.2	27.5	8.4	44.2	75.9	41.3
Controls								
Total control	Total	32.2	21.1	26.7	10.1	38.3	68.6	37.2
	Urban	27.0	22.4	24.2	8.4	33.2	61.4	32.6
	Rural	39.1	19.5	29.9	12.3	45.1	78.1	43.2
CCP	Total	31.9	30.0	29.9	11.2	41.3	73.2	42.2
	Urban	29.7	30.2	26.6	9.3	36.7	67.7	38.8
	Rural	35.2	29.6	35.0	14.2	48.6	81.7	47.5
CSP	Total	32.5	13.1	23.7	9.1	35.6	64.4	32.6
	Urban	24.1	14.3	21.7	7.5	29.6	54.9	26.3
	Rural	42.0	11.8	26.1	10.9	42.4	75.3	39.9
Treatments								
Total treatment	Total	35.4	17.4	23.8	5.2	38.4	69.2	35.9
	Urban	28.7	19.1	20.8	3.8	31.6	62.1	30.2
	Rural	40.7	16.0	26.2	6.3	43.8	74.7	40.3
TCP	Total	36.3	18.5	23.7	5.2	38.8	69.7	36.7
	Urban	28.7	20.9	20.2	3.8	31.7	62.8	30.0
	Rural	41.9	16.7	26.3	6.2	43.9	74.6	41.5
TSP	Total	34.5	16.1	23.9	5.2	38.0	68.6	35.0
	Urban	28.8	17.3	21.4	3.9	31.4	61.3	30.3
	Rural	39.3	15.2	26.1	6.4	43.6	74.8	38.9

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.5.8
Percentage of poor individuals according to UBN indicators

		HUBN	SUBN	CUBN	EUBN	DUBN	Poor	Destitute
Total	Total	35.3	19.7	31.4	8.4	41.4	72.9	41.1
	Urban	29.1	22.1	28.2	6.9	35.2	66.1	35.6
	Rural	41.3	17.4	34.5	9.9	47.2	79.3	46.3
Controls								
Total control	Total	33.3	22.3	33.6	11.6	41.2	72.7	42.0
	Urban	27.8	24.1	30.1	9.3	35.8	65.7	36.5
	Rural	40.4	19.9	38.1	14.5	48.3	81.8	49.1
CCP	Total	33.4	30.9	37.7	13.0	44.1	77.2	47.2
	Urban	30.8	31.5	33.5	10.4	38.9	71.8	43.0
	Rural	37.4	29.9	44.4	17.0	52.3	85.6	53.7
CSP	Total	33.3	14.0	29.6	10.3	38.5	68.5	37.1
	Urban	24.6	15.7	26.2	8.1	32.2	58.9	29.3
	Rural	42.8	12.1	33.2	12.6	45.3	78.9	45.5
Treatments								
Total treatment	Total	36.8	17.9	29.9	6.1	41.5	73.0	40.4
	Urban	30.3	20.3	26.4	4.5	34.7	66.6	34.8
	Rural	41.8	16.0	32.5	7.3	46.6	77.8	44.7
TCP	Total	38.3	19.4	29.2	6.2	41.9	73.5	41.5
	Urban	31.1	23.1	25.0	4.5	35.5	67.6	35.3
	Rural	43.4	16.8	32.1	7.3	46.4	77.6	45.9
TSP	Total	35.2	16.2	30.6	6.1	41.0	72.4	39.2
	Urban	29.5	17.5	27.7	4.6	34.1	65.6	34.2
	Rural	39.9	15.1	33.0	7.2	46.8	78.1	43.4

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

When considering Table 3.5.8, we notice that, in our sample, 72.9% of individuals are classified as poor according to UBN indicators. The percentages are very similar across control and treatment municipalities. However, comparing the two types of treatment municipalities, we notice slightly higher percentages in TCPs than in TSPs.

There are also differences across areas. The proportion of poor individuals is 79.3% in rural areas, while in urban areas it is 66.1%. We also observe differences between urban and rural areas across different types of municipalities. The lowest proportion is observed in urban areas in CSP municipalities (59%), while the largest is seen in rural areas in CCP municipalities (86%).

In the same table, we can observe the incidence of each of the various indicators that compose the overall index. The indicator with the greatest incidence is the one of high economic dependency, affecting 41.4% of individuals, followed by the housing UBN (35.3%) and then

the crowding UBN, the service UBN and the education UBN. In both urban and rural areas, the relative importance of the various indicators is the same. However, the importance of the various indicators changes across the type of municipality. DUBN is particularly important in all municipalities; however, in control municipalities, the second most important indicator is CUBN, while in treatment municipalities it is HUBN. Some differences are also observed in the importance of the education UBN. Whether this is an early indication of the effect of the programme is debatable. Overall, the pattern of incidence of the various indicators is remarkably similar across the various municipalities.

Poverty Line

The measurement of a poverty line (PL) attempts to identify households and individuals whose income is insufficient to acquire basic goods and services that are deemed necessary for survival. Within the poor group identified by the PL, we also identify a subgroup labelled as 'indigent' which fall below the misery line (ML). These are individuals whose income is not sufficient to acquire basic food necessary for survival. The poverty line we use is standard in rural Colombia and is of 149,052 pesos per capita per month. The misery line is at 64,105 pesos per capita per month. These values have been used by the Department for National Planning for small urban localities and for rural areas and were updated in September 2002 using the price index for low-income households.

In Tables 3.5.9 and 3.5.10, we report the percentages of households and individuals that are classified as poor (and indigent) according to the classification above.

Table 3.5.9
Percentage of poor and indigent households

		Indigent according to ML	Poor according to PL	Poor according to QLI
Total	Total	75.0	96.9	68.8
	Urban	70.1	95.7	48.9
	Rural	80.0	98.1	88.5
Controls				
Total control	Total	70.7	96.0	65.6
	Urban	63.7	94.5	47.9
	Rural	79.9	98.1	89.0
CCP	Total	72.3	96.5	68.0
	Urban	66.9	95.9	54.0
	Rural	80.7	97.5	90.0
CSP	Total	69.3	95.6	63.4
	Urban	60.4	93.0	41.5
	Rural	79.2	98.5	88.2
Treatments				
Total treatment	Total	78.1	97.5	71.0
	Urban	75.6	96.8	49.9
	Rural	80.0	98.1	88.2
TCP	Total	75.1	97.5	70.5
	Urban	71.4	96.7	46.4
	Rural	78.0	98.0	89.2
TSP	Total	81.3	97.5	71.5
	Urban	80.0	96.8	53.4
	Rural	82.4	98.2	87.1

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.5.10
Percentage of poor and indigent individuals

		Indigent according to ML	Poor according to PL	Poor according to QLI
Total	Total	77.2	97.3	74.0
	Urban	72.1	96.1	56.5
	Rural	82.2	98.5	91.1
Controls				
Total control	Total	73.1	96.6	71.0
	Urban	65.9	95.0	55.5
	Rural	82.4	98.6	91.2
CCP	Total	74.6	97.2	73.6
	Urban	69.3	96.5	61.9
	Rural	82.9	98.3	92.2
CSP	Total	71.6	96.0	68.5
	Urban	62.0	93.4	48.3
	Rural	82.0	98.9	90.5
Treatments				
Total treatment	Total	80.2	97.9	76.1
	Urban	77.9	97.2	57.4
	Rural	82.1	98.4	91.0
TCP	Total	77.3	97.8	76.0
	Urban	73.7	97.2	54.9
	Rural	80.1	98.3	91.7
TSP	Total	83.3	97.9	76.3
	Urban	82.1	97.1	59.8
	Rural	84.3	98.5	90.1

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The level of poverty is stunningly high. We observe that, according to the PL definition, 97.3% of individuals are poor. This proportion is 96.1% in urban areas and 98.5% in rural areas. The differences between treatment and control municipalities are small. The proportion of indigent individuals is 77% (72% in urban and 82% in rural areas). In this case, we do observe some differences between treatment and control municipalities. In the latter, the proportion of indigent individuals is 73%, while in the former it is as high as 80%.

These proportions need to be treated with some caution as they are based on reported income. As we discussed in Section 3.3, income might be affected by under-reporting in our survey for a variety of reasons.

Quality of Life Index (QLI)

In the last columns of Tables 3.5.9 and 3.5.10, we report the percentages of households and individuals that are classified as poor on the basis of an index of life quality, LQI. This index, which is relatively standard in Colombia, measures poverty using an indicator whose level depends on a number of variables that are deemed important for the welfare of Colombian households. In particular, the value that this indicator takes depends, with different weights, on the following variables:

- household head schooling;
- average schooling of individuals older than 12;
- school enrolment of children aged 12 to 18;
- main material of house walls;
- main material of house floor;
- mode of sewage disposal;
- access to water;
- cooking fuel;
- mode of garbage disposal;
- proportion of children under 6;
- school enrolment of children aged 5 to 11;
- number of individuals per room.

The index takes values between 0 and 100, and a household is considered poor if it has a value less than 56. As can be seen in Table 3.5.10, 74% of individuals are poor according to the LQI indicator. In urban areas, the proportion is 57%, while in rural areas it is as high as 91%. As for PL, we find a larger proportion of poor people in treatment municipalities.

To sum up, the measurements of poverty we obtain are roughly in line with what would be expected. The large majority of the population we are investigating is poor, although the percentages of poor people are slightly lower when we consider UBN and QLI definitions rather than a poverty line.

3.6 Empowerment of Women

There are several ways to illustrate the condition of women in the households of the target population. In this section, we consider three different types of analyses. First, we use a number of questions asked of the respondents about the decision-making process within the households. Our survey contains a number of questions on who takes a number of specific

decisions. The first set of tables report descriptive statistics on these questions. Secondly, we consider the sources of income that women have within these households. In particular, we consider in detail female participation rates and earnings. Finally, we report some observations from the analyses of focus group discussions.

3.6.1 Decision-Making

One of the main assumptions of the programme in terms of its possible effects is that mothers, by receiving the grant money, might expect some kind of empowerment. To measure this kind of effect is obviously not easy. In this section, we look at several questions in the questionnaire that asked about decision-making within the household. In particular, we asked whether the decision about a number of issues is made only by the father, only by the mother, by both of them or by other members of the household.

Table 3.6.1
Who takes the decision to send children to school? (%)

Type of municipality		Only the father	Only the mother	Both	Others
Total treatment		8.6	44.9	43.8	2.7
TCP		8.3	47.4	42.0	2.3
TSP		8.9	41.8	46.2	3.1
TCP	Urban	7.3	47.7	43.0	2.1
	Rural	8.9	47.2	41.5	2.2
TSP	Urban	8.2	46.9	41.3	3.6
	Rural	9.5	38.1	49.7	2.7

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The first two questions ask who decides whether children go to school (thus relating to the education component) and what to do if one of the children is sick (thus relating to the health component). In Table 3.6.1, we tabulate the answers about the schooling decisions. The figures for the decision to take children to the doctor are very similar. The answers are equally distributed between the 'only the mother' and 'both' options. Very few women answer that the father is the only decision maker. There are no large differences between TCP and TSP or between rural and urban areas.

However, when the questions involve money, the answers differ quite notably. When the question asks who takes the decision about buying some shoes or clothes for children, the proportions of women answering 'only the father' or 'only the mother' are roughly the same. When asked about the decision to buy food (we tabulate these answers in Table 3.6.2), most women answer that it is the father only in charge of this decision. The 'both' option is also important. We can clearly see, then, how the decision-making plan changes according to whether or not there is money involved. Although mothers are the ones receiving the grant, and the ones attending the talks about nutrition and general health advice, the allocation of expenditure seems to be mainly a male prerogative. It will be interesting to check whether the programme will change this in any appreciable way.

Table 3.6.2
Who takes the decision when buying food? (%)

Type of municipality		Only the father	Only the mother	Both	Others
Total treatment		42.7	22.0	32.2	3.1
TCP		44.7	21.7	30.5	3.1
TSP		40.1	22.5	34.4	3.0
TCP	Urban	39.6	25.5	31.1	3.8
	Rural	47.6	19.5	30.1	2.9
TSP	Urban	33.1	28.2	35.3	3.4
	Rural	45.2	18.4	33.7	2.7

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.6.2 Female Labour Market Outcomes

In this section, we look at female labour supply and earnings in our survey and compare them with data from other sources for Colombia at large.

Women's Labour Supply

The most recent figures on female labour supply, participation and unemployment are available in the report from the 'Contraloría General de la República' for 2002. According to this source, the female unemployment rate is 16.9%. Furthermore, 42.9% of working women earn less than one minimum salary. 61% of working women are employed in the informal sector, which is therefore perceived by women as their best option for earning some money. In rural areas, the economic recession is preventing women from improving their economic conditions and occasionally limiting the opportunity for earning income during harvest periods. There are fewer opportunities in rural areas for taking part in the formal sector. Most of the women able to work are concentrated in the TCP municipalities, in both the urban and the rural areas.

In Table 3.6.3, we report the percentages of women in our survey engaged in various activities. The main activity of women, in urban as well as in rural areas, in the week prior to the survey, is housekeeping. This phenomenon is more important for those women living with a partner than for single women. For single women, the second activity is study, with no difference between areas. Although the activity of looking for a job is often pointless, it is higher in urban than in rural areas.

Table 3.6.3
Women's principal activity (%)

Type of municipality		Working	Unable to work	Looking for a job	Housekeeping activities
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		42.50 (1.42)	1.15 (0.19)	0.84 (0.18)	50.18 (1.48)
TCP		25.65 (2.60)	0.64 (0.16)	0.41 (0.13)	30.41 (3.09)
TSP		16.85 (2.68)	0.50 (0.14)	0.42 (0.14)	19.77 (2.85)
TCP	Urban	28.38 (4.26)	0.60 (0.18)	0.55 (0.20)	22.88 (3.49)
	Rural	22.91 (2.99)	0.68 (0.27)	0.28 (0.16)	37.94 (4.51)
TSP	Urban	21.37 (4.35)	0.77 (0.25)	0.63 (0.26)	18.66 (3.53)
	Rural	12.33 (2.80)	0.24 (0.09)	0.22 (0.13)	20.87 (4.49)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

There are few opportunities available to women for earning an income through the formal sector. Women household heads in rural areas work temporarily during the harvest (although this activity has diminished, as noted above) and normally they receive help from their children to increase earnings during the harvest season. Women living in urban areas hold other activities within their own or a nearby municipality. The informal selling of food has become an important activity for these women. Although women with partners may help their partners during the harvest season, it is the man who receives the payment.

We report the figures on female labour force participation by marital status in Table 3.6.4. The participation rate in the TCP municipalities as a whole is higher for single women (widowed, separated, divorced or single) than for married women or those with a partner. In every case, participation in the labour force is higher in urban than in rural areas.

Table 3.6.4
Female labour force participation

Type of municipality		With partner	Married	Widowed	Separated or divorced
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		39.76 (1.96)	42.11 (2.66)	47.83 (3.22)	78.01 (1.62)
TCP		41.86 (2.33)	45.04 (4.01)	47.38 (4.64)	80.46 (2.04)
TSP		36.24 (3.50)	38.24 (2.80)	48.62 (3.50)	74.03 (2.49)
TCP	Urban	52.46 (2.89)	55.24 (4.31)	49.71 (5.50)	85.18 (2.07)
	Rural	35.27 (2.43)	40.52 (5.58)	45.26 (7.48)	73.63 (3.34)
TSP	Urban	50.54 (2.28)	50.01 (2.96)	54.16 (4.52)	78.80 (2.77)
	Rural	24.03 (3.41)	31.38 (3.65)	40.45 (5.28)	66.52 (4.05)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.6.5, we report female unemployment rates by marital status. On average, it is nor surprising to find that widows and women who are separated or divorced are the least affected by unemployment since these women often need to be economically active in order to meet their expenses.

Table 3.6.5
Female unemployment rates (%)

Type of municipality		With partner	Married	Widowed	Separated or divorced	Single
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		7.95 (1.27)	7.45 (1.48)	2.76 (0.94)	4.73 (0.87)	10.95 (1.63)
TCP		7.31 (1.72)	7.13 (2.14)	0.93 (0.69)	3.51 (0.90)	10.69 (2.31)
TSP		8.96 (1.80)	7.95 (1.94)	5.59 (2.03)	6.79 (1.66)	11.45 (2.27)
TCP	Urban	9.28 (2.47)	8.71 (3.29)	1.83 (1.33)	4.01 (1.13)	11.63 (3.45)
	Rural	4.96 (1.93)	5.62 (2.77)	- -	2.59 (1.48)	9.44 (2.94)
TSP	Urban	9.25 (1.82)	7.84 (2.49)	5.24 (2.23)	8.47 (2.22)	12.85 (3.03)
	Rural	8.38 (3.96)	8.09 (3.10)	6.35 (4.24)	3.68 (2.16)	8.84 (3.10)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

The National Survey of Demographics and health, held by Profamilia in 2000, established that female employment rates are underestimated because, as well as doing housework, women sow, care for and harvest the fields. The survey showed that 47% of women living in the departments on Boyacá, Cundinamarca and Meta work in activities related to agriculture; in the department of Tolima, this rate is 41%.[10]

Women's Income

We report figures on female earnings in Table 3.6.6. The average monthly income of women working in the week prior to the surveywas not even as high as the monthly minimum wage of 309,000 pesos. The highest average incomes are earned by married women in the urban areas of TCP municipalities, and the lowest by widows living in rural areas of the TCP municipalities.

[10] National Survey of Demographics and Health, *El Tiempo*, 8 March 2003.

Table 3.6.6
Average monthly income for women (pesos)

Type of municipality		With partner	Married	Widowed	Separated or divorced	Single
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		123,294 (7,621)	142,169 (12,308)	117,421 (11,898)	132,951 (5,593)	126,928 (7,207)
TCP		119,578 (8,370)	137,120 (15,896)	98,439 (7,940)	126,014 (6,665)	113,082 (9,321)
TSP		134,659 (16,334)	151,627 (18,013)	161,743 (31,412)	148,062 (9,528)	150,048 (9,145)
TCP	Urban	129,378 (11,991)	171,480 (24,616)	110,577 (10,523)	128,658 (7,937)	128,823 (13,670)
	Rural	106,553 (10,210)	104,113 (14,134)	86,270 (10,638)	120,577 (12,201)	94,209 (5,853)
TSP	Urban	147,374 (22,467)	171,469 (24,809)	164,932 (41,892)	163,662 (12,230)	161,261 (10,657)
	Rural	103,012 (5,670)	121,886 (19,692)	152,690 (25,234)	125,671 (13,138)	133,465 (11,560)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.6.7, we report figures on the marital status of the beneficiary ('titular') mothers interviewed. The largest group is that of women living with a partner but not married, followed by the married women and finally divorcees and widows. The urban and rural patterns are similar, except that there are more married women and fewer divorced ones in rural areas.

Table 3.6.7
Marital status of 'titular' mother (%)

Type of municipality		With partner	Married	Widowed	Separated or divorced
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		44.6 (2.18)	29.0 (2.22)	5.8 (0.46)	15.1 (0.95)
TCP		46.1 (3.04)	28.1 (3.25)	5.9 (0.63)	15.2 (1.17)
TSP		42.4 (2.97)	30.1 (2.68)	5.6 (0.63)	15.1 (1.61)
TCP	Urban	45.2 (2.27)	20.0 (1.83)	7.4 (1.02)	21.1 (1.13)
	Rural	46.7 (4.77)	33.3 (4.77)	5.0 (0.73)	11.4 (1.25)
TSP	Urban	40.4 (3.84)	22.5 (2.10)	7.2 (0.84)	21.9 (2.32)
	Rural	44.0 (4.47)	36.5 (3.80)	4.3 (0.78)	9.2 (1.20)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Health Guidance

The baseline survey contains questions regarding the instructions mothers have received in fields such as nutrition, vaccination and how to proceed in the case of child having a respiratory illness or diarrhoea. Moreover, women were asked whether they received any advice on healthcare during pregnancies. In this section, we analyse the responses to these questions.

In Table 3.6.8, we see that participation in workshops, both in TCP and TSP municipalities, was highest for the vaccination courses. For vaccination courses and workshops relating to the care of pregnant women, the participation rate is lower in the rural areas. Perhaps surprisingly, we can observe that, on average, the participation rate in any of the subjects is higher in urban areas of TSP (where the programme has not yet started) than in urban areas of TCP municipalities. The opposite is true in terms of participation in rural areas.

Table 3.6.8
Participation in workshops (%)

Type of municipality		Care when child has respiratory illness	Care when child has diarrhoea	Child nutrition	Care for pregnant women	Vaccination
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		17.30 (1.37)	14.69 (1.28)	19.27 (1.65)	12.30 (1.02)	25.04 (2.00)
TCP		17.61 (2.08)	15.20 (2.00)	19.96 (2.59)	12.92 (1.56)	24.21 (2.97)
TSP		16.92 (1.67)	14.06 (1.45)	18.42 (1.84)	11.55 (1.19)	26.05 (2.58)
TCP	Urban	16.01 (2.13)	14.29 (2.25)	19.34 (2.55)	14.24 (2.17)	24.83 (3.84)
	Rural	18.70 (3.14)	15.82 (2.97)	20.39 (3.97)	12.01 (2.16)	23.80 (4.26)
TSP	Urban	20.13 (2.09)	16.25 (1.87)	20.98 (2.59)	14.19 (1.69)	30.64 (3.64)
	Rural	14.07 (2.25)	12.12 (1.98)	16.15 (2.42)	9.21 (1.38)	21.98 (3.30)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.6.3 Focus Group Discussions

In this section, we present the results of the analysis of focus group discussions that were held in 15 municipalities. Beneficiary mothers, mothers with no subsidy, municipality institutions and the person in charge of the programme ('Enlace') were involved in the discussions. We present some interesting quotations from these group discussions. We focus on decision-making and role division within the household and expectations about the programme.

"Mothers feel the necessity of finding more money for the household by selling food, washing clothes, working part times in other households, to be able to get 'peso by peso' the money to buy their children's shoes, socks and uniforms."

In the qualitative analysis, we identify two different groups of women: those who work and earn some money, and those who do not have a formal job outside of the household. In the first group, we find more single women, who are, therefore, also the head of their households. In the second group, we find those who depend economically on their partners, and also mothers who receive some money from their working children.

For all women involved in the discussions, the word 'work' is understood to mean productive activity developed out of the house, so that housekeeping and work at home, on the land or in other self-employed activity at home are considered to be non-labour activities. Childcare and general household activities are not considered as being productive. Moreover, these activities are perceived as the sole responsibility of women.

"… here, men don't help in anything. One must do everything and more if one doesn't work … In every household, housekeeping activities are responsibility of the woman"[11]

"I have to do all the housekeeping activities by myself …"[12]

"… in my house, we split the work with my daughter. She sweeps while I do the cooking and when I have to leave to wash clothes she takes care of her brothers …"[13]

There is some male participation in these types of activities among young couples, but very little in older ones. However, mothers always think that if they do not generate monetary income, domestic activities and childcare are their responsibility.

Expectations about the Programme

It is reported that after mothers use the first payment form the programme to buy what is prescribed in the training conference – that is, food, clothes and school tools – because they think they may lose the money if they do not. However, with subsequent payments, they tend to diminish the investment in schoolbooks and uniforms, and so they claim to have more freedom to decide what other household items to buy.

The mothers receiving the grant have acquired a more prominent position in the household, as they are perceived as a source of income. As a consequence, beneficiary mothers perceive that now they have a larger number of options and greater flexibility in the way they spend money.

"… of course, I will use it for many things, it will change the way we live because the kids will be able to go well fed, and they will not have brain suffering …" "… It will change my way of life because now I can give food to my children and they can calm down as well, since I can't send them to school some days because of the lack of breakfast"[14]

"The expectations about the subsidy are focused on the fact that the change in their quality of life will let them get better health and buy some necessary and essential things for the household. They expect their children to improve in school and they are sure that they will see only positive changes that their children are already expecting too. Additionally they expect to have some savings out of this money to invest in a home-business."

Mothers living in the TSP municipalities also have expectations from the subsidy as well as considering it as a secondary source of income for the household. Family interactions may also have changed as a consequence of the programme. The extra money could be an opportunity to improve household relationships.

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[11] Titular mother in Morales (Cauca).

[12] Conclusion to the focus groups given by the titular mother in Morales (Cauca).

[13] Titular mother in Repelón (Atlántico).

[14] Titular mother from Repelón (Atlántico).

"I don't think we will be fighting because of the subsidy, I argue with him because he drinks too much, he's very defiant"[15]

"Family dynamics have been modified thanks to the existence of the subsidy and to the empowerment that women are starting to have. They claim to have changes inside the family that benefit living together, as the subsidy has reduced the number of fights, which were mainly motivated by the lack of money."[16]

The almost unanimous conclusion from the focus group discussions is that up to now, the programme has not generated important conflicts within the household.

"The expectations held by the Enlace and the local public secretary in the municipality are that women's empowerment may increase conflicts in the households. The role of managing the money and deciding how to spend it can be claimed by men."[17]

3.7 Nutrition

In this section, we analyse the results of the nutrition module of the survey. We present results on breastfeeding for children under 2, on food consumption for children aged 2 to 6 and on nutritional status for children aged 0 to 6. For nutritional status, we also report some results obtained on the children who participate in the programme 'Hogares Comunitarios de Bienestar Familiar'.

Nutrition, especially at early ages, is one of the most important factors for the accumulation of human capital. Malnourished populations have become marginalised and limited in their opportunities in all aspects of human development. The nutritional status of a population is the result of three factors that determine it and have their expression in a socio-economic and cultural context. They are the availability of food, its consumption and its biological use. Availability is affected by production, acquisition and sale. Consumption is determined by the purchasing power of individual households. Biological use is determined by life and work conditions, such as the availability of potable water.

Poverty is associated with insufficient consumption in quantity and quality of food and insufficient intakes of micro and macro nutrients. This in turn is linked to malnutrition.

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[15] Titular mother from Corozal (Sucre).

[16] Conclusion from titular mothers in Santuario (Risaralda).

[17] Conclusion from talks with the Mayor and the Enlace in Santuario (Risaralda).

3.7.1 Children Aged 0 to 2: Breastfeeding

Breastfeeding provides infants with adequate nutrients and with strong immune systems, as well as with psychological strength. Therefore, the patterns of breastfeeding are important determinants of the development of young children.

Table 3.7.1
Breastfeeding: children aged 0 to 2

Type of municipality		Percentage of children who were breastfed	Percentage of children who are currently breastfed	Duration of breastfeeding (months)
		Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		97.3 (0.53)	63.0 (1.74)	8.3 (0.31)
TCP		97.6 (0.62)	60.0 (2.46)	8.7 (0.40)
TSP		97.0 (0.90)	67.0 (2.24)	7.6 (0.47)
TCP	Urban	96.7 (1.13)	60.6 (4.09)	8.6 (0.49)
	Rural	98.0 (0.72)	59.7 (3.03)	8.7 (0.53)
TSP	Urban	96.7 (1.70)	66.9 (3.14)	7.2 (0.41)
	Rural	97.2 (0.93)	67.1 (3.13)	8.0 (0.75)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

We measure and report several variables connected to breastfeeding for children under 2. In Table 3.7.1, we analyse the starting of breastfeeding, its duration and the current status. The percentage of children in our survey who were breastfed is higher than the national average. The survey 'Encuesta Nacional de Demografía y Salud' (ENDS), which was run by Profamilia and is representative of children under 5 in Colombia, reported proportions of 93.4% in 1990, 94.5% in 1995 and 95.5% in 2000.

We now move to the comparison of treatment and control municipalities for various indicators for breastfeeding. The results are reported in Table 3.7.2. For the most part, we do not find any significant differences between control and treatment municipalities. The only exception is the proportion of children who are currently being breastfed, which is significantly higher in TSP than in control municipalities; the significance level is 6.6%.

Table 3.7.2
Breastfeeding: comparisons between treatment and control groups

Indicator		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Percentage of children who were breastfed	Difference (Standard error) P-value	0.51 (0.92) 0.58	0.13 (1.17) 0.91	0.31 (1.44) 0.83
Time taken to start breastfeeding after birth (in hours)	Difference (Standard error) P-value	–1.80 (3.58) 0.62	–4.63 (3.68) 0.21	–6.21 (4.02) 0.13
Time taken to start breastfeeding after birth (in days)	Difference (Standard error) P-value	–1.81 (3.59) 0.62	4.63 (3.69) 0.21	6.21 (4.02) 0.13
Percentage of children who are currently breastfed	Difference (Standard error) P-value	2.67 (3.36) 0.43	6.75* (3.64) 0.066	4.64 (4.65) 0.32
Duration of breastfeeding (months)	Difference (Standard error) P-value	0.53 (0.75) 0.48	–0.11 (0.82) 0.89	0.04 (0.97) 0.97
Percentage of children who were non-exclusively breastfed	Difference (Standard error) P-value	–0.83 (2.81) 0.52	–1.98 (3.35) 0.56	–0.26 (3.69) 0.38

a: This question was answered in hours by those who started breastfeeding their child within the first day of the birth, and in days by those who started breastfeeding more than a day after.

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.7.2 Children Aged 2 to 6: Food Consumption and Nutrition

The analysis of food consumption among children is a way to capture the main determinants of nutrition and tries to measure the nutritional intake of a child over a certain time horizon. In our survey, we asked questions about specific food intakes during the seven days preceding the survey for children aged 2 to 6. We asked about the frequency and the quantity of consumption.

The main indicators we obtained on the number and types of foods are consistent with what is known about the nutrition and diet of the poorest sectors of the Colombian population. In Table 3.7.3, we report the proportions of children who consumed each of the specific food types listed during the seven days preceding the interview.

The largest proportion is observed for rice and the food group including potatoes and other tubers. The second most important group is milk or cheese. In the case of milk, it is important to notice that 18.5% of children aged 2 to 6 did not drink any in the previous seven days (not reported separately in the table). The proportion that did not eat any eggs was 19.3%.

The comparison in Table 3.7.4 shows that there is a significantly higher consumption of eggs, meat and vegetables in treatment municipalities than in the controls. This might indicate the effect of the programme on the consumption of these commodities.

Table 3.7.3
Proportion of children who consumed the specific food type in the seven days prior to the survey

Type of municipality		Milk or cheese	Eggs	Meat or liver of beef or pork	Chicken	Chicken scraps	Fish	Tuna or sardines	Grains	Vegetables	Fruit	Rice or oat	Potatoes, plantains or yuca
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		85.1 (1.52)	80.7 (1.64)	73.1 (1.54)	51.4 (2.05)	38.1 (1.89)	35.6 (2.40)	33.1 (1.61)	82.3 (1.95)	66.2 (2.29)	83.2 (1.35)	98.8 (0.23)	98.4 (0.29)
TCP		87.9 (1.44)	84.5 (1.85)	76.9 (1.65)	54.7 (2.09)	40.4 (2.06)	38.1 (2.70)	36.6 (1.88)	84.6 (2.75)	73.1 (2.90)	85.7 (1.53)	99.3 (0.25)	98.5 (0.42)
TSP		81.3 (2.95)	75.3 (2.64)	67.7 (2.64)	46.7 (3.83)	34.7 (3.40)	32.3 (4.15)	28.3 (2.53)	79.1 (2.48)	56.6 (2.79)	79.7 (2.28)	98.1 (0.41)	98.4 (0.38)
TCP	Urban	92.3 (1.54)	88.3 (1.39)	80.5 (2.27)	60.1 (2.98)	45.9 (2.82)	40.5 (3.88)	40.2 (2.53)	87.6 (1.72)	76.8 (3.13)	85.4 (1.76)	100.0 (0.00)	99.2 (0.30)
	Rural	85.5 (1.88)	82.5 (2.68)	75.1 (2.08)	51.9 (2.62)	37.6 (2.57)	36.9 (3.53)	34.7 (2.49)	83.1 (4.09)	71.2 (4.12)	85.8 (2.14)	98.9 (0.35)	98.1 (0.62)
TSP	Urban	87.7 (2.70)	78.4 (2.75)	71.4 (2.93)	50.5 (5.55)	41.9 (5.53)	32.3 (5.82)	32.0 (2.79)	81.2 (2.49)	58.4 (3.23)	78.8 (2.92)	98.7 (0.38)	97.4 (0.68)
	Rural	76.9 (4.20)	73.1 (3.97)	65.2 (3.83)	44.1 (5.02)	29.8 (3.57)	31.8 (5.74)	25.8 (3.74)	77.7 (3.76)	55.3 (4.14)	80.3 (3.23)	97.6 (0.61)	99.1 (0.33)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.7.4
Comparison between treatment and control municipalities: proportions of children who consumed the specific food type

Food type		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Milk or cheese	Difference (Standard error) P-value	1.50 (2.43) 0.53	–2.31 (3.50) 0.51	–3.41 (4.02) 0.39
Eggs	Difference (Standard error) P-value	6.47** (2.50) 0.01	1.07 (3.25) 0.74	0.82 (3.68) 0.82
Meat or liver of beef or pork	Difference (Standard error) P-value	6.68* (3.42) 0.052	1.34 (4.03) 0.74	–4.64 (3.74) 0.22
Chicken	Difference (Standard error) P-value	3.13 (3.30) 0.35	–1.50 (4.62) 0.74	1.20 (5.27) 0.82
Chicken scraps	Difference (Standard error) P-value	3.12 (3.22) 0.33	–0.19 (4.28) 0.97	3.61 (4.09) 0.38
Fish	Difference (Standard error) P-value	–6.11 (5.09) 0.23	–9.64 (6.11) 0.12	–1.05 (5.83) 0.86
Tuna or sardines	Difference (Standard error) P-value	2.04 (3.28) 0.53	–2.79 (3.82) 0.47	–4.46 (5.05) 0.38
Grains	Difference (Standard error) P-value	0.69 (2.57) 0.79	–2.53 (2.99) 0.40	–1.60 (3.51) 0.65
Vegetables	Difference (Standard error) P-value	8.20** (3.61) 0.024	–1.47 (3.95) 0.71	–5.11 (4.09) 0.21
Fruit	Difference (Standard error) P-value	4.38* (2.62) 0.10	0.87 (3.20) 0.79	–2.72 (3.71) 0.46
Rice	Difference (Standard error) P-value	0.14 (0.43) 0.73	–0.56 (0.55) 0.31	–0.88 (0.63) 0.16
Potatoes, plantains or yuca	Difference (Standard error) P-value	0.80 (0.85) 0.34	0.75 (0.88) 0.40	0.10 (0.82) 0.90

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.7.5, we report the average number of days that a certain food type is consumed during the seven days preceding the interview. Note that since some food are grouped together, we can observe numbers greater than 7. This table confirms the evidence presented in Table 3.7.3, which shows that the most common food types are rice and potatoes.

Table 3.7.5
Average number of days per week the specific food type is eaten

Type of municipality		Milk or cheese	Eggs	Meat or liver of beef or pork	Chicken	Chicken scraps	Fish	Tuna or sardines	Grains	Vegetables	Fruit	Rice and oat	Potatoes, plantains or yuca
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		5.76 (0.18)	2.93 (0.10)	2.78 (0.12)	0.91 (0.04)	0.71 (0.05)	0.87 (0.09)	0.56 (0.04)	2.33 (0.11)	2.2 (0.14)	3.78 (0.12)	7.60 (0.11)	11.1 (0.30)
TCP		6.13 (0.20)	3.23 (0.13)	3.05 (0.16)	1.02 (0.05)	0.72 (0.05)	0.83 (0.08)	0.62 (0.04)	2.45 (0.15)	2.56 (0.19)	3.89 (0.16)	7.91 (0.11)	11.16 (0.46)
TSP		5.26 (0.31)	2.52 (0.12)	2.44 (0.16)	0.78 (0.07)	0.7 (0.09)	0.94 (0.19)	0.49 (0.06)	2.17 (0.17)	1.69 (0.12)	3.63 (0.18)	7.17 (0.21)	11.1 (0.33)
TCP	Urban	6.6 (0.22)	3.39 (0.17)	3.14 (0.19)	1.17 (0.08)	0.91 (0.08)	0.82 (0.11)	0.71 (0.05)	2.44 (0.12)	2.75 (0.20)	3.64 (0.14)	8.02 (0.15)	10.8 (0.40)
	Rural	5.88 (0.26)	3.15 (0.18)	3.01 (0.22)	0.94 (0.06)	0.62 (0.05)	0.83 (0.11)	0.57 (0.05)	2.45 (0.22)	2.47 (0.28)	4.02 (0.22)	7.85 (0.14)	11.3 (0.65)
TSP	Urban	5.67 (0.41)	2.66 (0.17)	2.44 (0.18)	0.91 (0.10)	0.83 (0.12)	0.93 (0.31)	0.49 (0.06)	2.14 (0.18)	1.72 (0.15)	3.48 (0.22)	7.47 (0.21)	10.45 (0.41)
	Rural	4.973 (0.42)	2.42 (0.17)	2.4 (0.25)	0.69 (0.90)	0.62 (0.12)	0.94 (0.24)	0.49 (0.09)	2.2 (0.26)	1.67 (0.17)	3.74 (0.25)	6.97 (0.30)	11.56 (0.44)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.7.6
Comparison between treatment and control municipalities: number of days per week the specific food type is eaten

Food type		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Milk or cheese	Difference (Standard error) P-value	0.21 (0.33) 0.52	–0.29 (0.42) 0.78	–0.44 (0.51) 0.39
Eggs	Difference (Standard error) P-value	0.39** (0.17) 0.02	–0.31 (0.18) 0.86	–0.12 (0.20) 0.53
Meat or liver of beef or pork	Difference (Standard error) P-value	0.54** (0.19) 0.05	0.17 (0.22) 0.45	–0.23 (0.22) 0.30
Chicken	Difference (Standard error) P-value	0.04 (0.08) 0.61	–0.99 (0.96) 0.31	–0.02 (0.11) 0.86
Chicken scraps	Difference (Standard error) P-value	0.03 (0.09) 0.71	0.02 (0.12) 0.85	0.19* (0.11) 0.10
Fish	Difference (Standard error) P-value	–0.41* (0.25) 0.10	–0.35 (0.30) 0.25	0.19 (0.23) 0.40
Tuna or sardines	Difference (Standard error) P-value	0.03 (0.07) 0.65	–0.04 (0.08) 0.61	–0.07 (0.11) 0.52
Grains	Difference (Standard error) P-value	0.04 (0.20) 0.82	–0.11 (0.23) 0.63	0.09 (0.23) 0.71
Vegetables	Difference (Standard error) P-value	0.58** (0.18) 0.001	0.07 (0.16) 0.67	–0.01 (0.19) 0.96
Fruit	Difference (Standard error) P-value	0.50** (0.20) 0.014	0.35 (0.24) 0.15	0.04 (0.29) 0.90
Rice	Difference (Standard error) P-value	–0.02 (0.18) 0.90	–0.45* (0.25) 0.07	–0.65** (0.25) 0.012
Potatoes, plantains or yuca	Difference (Standard error) P-value	0.85* (0.48) 0.08	0.82 (0.50) 0.10	0.55 (0.70) 0.43

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.7.6, we look at how the average number of days differs between treatment and control municipalities. We can see, once again, some significant differences between total

treatment and controls, probably reflecting differences between TCP and controls, for eggs, meat, vegetables and fruit. This evidence is consistent with that of Table 3.7.4.

Diet Variety

In Table 3.7.7, we look at the average number of different food types children had during the previous seven days. As expected for this population, the diet is not very varied. The situation in urban areas is slightly better. Interestingly, we notice that TCP municipalities seem to have a larger number of foods. This might be an effect of the programme and would be consistent with the evidence presented on Engel curves if the additional food types added to the diet are more expensive.

Table 3.7.7
Mean number of different food types eaten during the previous week

Type of municipality		Mean (Std error)
Total treatment		8.3 (0.94)
TCP		8.6 (0.92)
TSP		7.8 (0.14)
TCP	Urban	9.0 (0.93)
	Rural	8.4 (0.12)
TSP	Urban	8.1 (0.17)
	Rural	7.6 (0.19)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.7.8, we compare diet variety in treatment and control municipalities. We do not find any difference between TSPs and controls. However, there is a significant difference between total treatments (which include TCPs) and the controls.

Table 3.7.8
Comparison between treatment and control municipalities: diet variety

Indicator		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Treatments with payment
Number of different food types	Difference (Standard error) P-value	0.31** (0.14) 0.029	–0.17 (0.18) 0.34	–0.18 (0.19) 0.35

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.7.3 Nutritional Status of Children Aged 0 to 6

To study the nutritional status of children aged 0 to 6, we use the anthropometric measures collected in the survey – specifically, weight and height – and relate them to the children's ages. We consider three indicators that are normally used in the analysis of children nutritional status: height for age, weight for age and weight for height. Obviously, these three indicators are correlated, but each gives specific and useful information on the nutritional status of the children.

Each indicator is expressed in terms of number of standard deviations from the mean of the international standard used by NCHS/CDC/WHO (National Centre for Health Statistics/Centre for Disease Control/World Health Organization). Children are classified as malnourished if they are 2 or more standard deviations below the mean of the reference population.

For each of the three indicators, we use the following cut-off points:

Indicator	Z-score between	Nutritional status
Weight/height	–6 <= z <= –2 –2 < z <= –1 –1 < z <= 2 2 < z <= 6	Acute malnourishment Risk Normal Overweight
Weight/age	–6 <=z <= –2 –2 < z <= –1 –1 < z <= 2 2 < z <= 6	Global Malnourishment Risk Normal Overweight
Height/age	–6 <=z <= –2 –2 < z <= –1 –1 < z <= 6	Chronic malnourishment Risk Normal

Note: The z-score of height (weight) for age is the difference between child height (weight) and the median height (weight) of a child of the same age in the reference population divided by the standard deviation of height (weight) for children of the same age in the reference population. The z-score of weight for height is the difference between child weight and the median weight of a child of the same height in the reference population divided by the standard deviation of weight for children of the same height in the reference population.

To establish a point of reference for our results on malnutrition, we report in Table 3.7.9 some figures on the nutritional status of children in Colombia from another survey, the 'Encuesta Nacional de Demografía y Salud' (ENDS) run by Profamilia in 1995 and 2000. This survey is representative of children aged under 5.

Table 3.7.9
Percentage of malnourished children in ENDS, 1995 and 2000

	Weight/height Percentage of acutely malnourished children		Weight/age Percentage of globally malnourished children		Height/age Percentage of chronically malnourished children	
	1995	2000	1995	2000	1995	2000
Urban	1.0	0.7	6.6	5.7	12.5	10.8
Rural	2.1	1.0	11.4	8.9	19.1	19.4
Total	1.4	0.8	8.4	6.7	15.0	13.5

In Table 3.7.10, we report the distribution of weight/height z-scores and the implied indicators. Notice that the percentage of children who are classified as acutely malnourished according to this indicator is a bit higher in our sample than in the ENDS survey. This is particularly evident in the comparison with 2000.

Table 3.7.10
Distribution of z-scores for weight/height

Type of municipality		Acute malnutrition	Risk	Normal	Overweight
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		1.5 (0.30)	10.0 (0.58)	85.7 (0.75)	2.9 (0.49)
TCP		1.2 (0.39)	8.9 (0.74)	86.4 (1.06)	3.5 (0.81)
TSP		1.9 (0.46)	11.5 (0.88)	84.6 (0.95)	2.0 (0.32)
TCP	Urban	1.7 (0.94)	9.6 (0.99)	85.2 (1.87)	3.4 (0.85)
	Rural	0.9 (0.30)	8.5 (0.98)	87.0 (1.25)	3.6 (1.15)
TSP	Urban	2.4 (0.92)	12.3 (1.30)	83.1 (1.56)	2.2 (0.41)
	Rural	1.5 (0.43)	10.9 (1.16)	85.7 (1.17)	1.9 (0.46)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.7.11, we report the distribution of the same indicators reported in Table 3.7.10, but disaggregated by age. Interestingly, the youngest children (those aged between 0 and 2) seem to

be most affected by malnutrition, with the possible exception of the TSP municipalities, where the 5- to 6-year-olds also seem particularly affected by the problem.

Table 3.7.11
Distribution of z-scores for weight/height by age group

Type of municipality	Age	Acute malnutrition	Risk	Normal	Overweight
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment	< 2	2.5 (0.71)	11.3 (1.30)	79.6 (1.74)	6.6 (1.38)
	2 to 4	0.7 (0.23)	10.1 (0.86)	87.2 (1.02)	2.0 (0.58)
	5 to 6	1.8 (0.42)	9.1 (0.74)	87.0 (0.84)	2.1 (0.30)
	Total	1.5 (0.30)	10.0 (0.58)	85.7 (0.75)	2.9 (0.49)
TCP	< 2	3.0 (1.13)	9.4 (1.62)	79.7 (2.50)	8.0 (2.22)
	2 to 4	0.2 (0.12)	9.3 (1.02)	87.9 (1.31)	2.5 (0.95)
	5 to 6	1.3 (0.54)	8.2 (0.91)	87.9 (1.12)	2.5 (0.44)
	Total	1.2 (0.39)	8.9 (0.74)	86.4 (1.06)	3.5 (0.81)
TSP	< 2	1.9 (0.63)	13.9 (2.07)	79.6 (2.28)	4.6 (1.06)
	2 to 4	1.4 (0.51)	11.3 (1.43)	86.0 (1.56)	1.3 (0.33)
	5 to 6	2.5 (0.64)	10.4 (1.22)	85.6 (1.24)	1.5 (0.35)
	Total	1.9 (0.46)	11.5 (0.88)	84.6 (0.95)	2.0 (0.32)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.7.12, we report the distribution of the weight/age z-scores in our sample. The percentage of children affected by global malnutrition is, according to this table, much higher than the 2000 ENDS numbers in Table 3.7.9. This is particularly true for the TSP municipalities; we find a slightly better picture for the TCPs.

Table 3.7.12
Distribution of z-scores for weight/age

Type of municipality		Global malnutrition	Risk	Normal	Overweight
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		10.2 (0.67)	32.7 (0.94)	55.9 (1.19)	1.3 (0.18)
TCP		8.7 (0.83)	33.0 (1.16)	56.7 (1.58)	1.5 (0.25)
TSP		12.2 (1.03)	32.2 (1.55)	54.6 (1.82)	0.9 (0.23)
TCP	Urban	8.2 (1.20)	32.8 (2.24)	57.2 (3.02)	1.7 (0.40)
	Rural	9.0 (1.10)	33.2 (1.31)	56.4 (1.80)	1.4 (0.32)
TSP	Urban	12.7 (1.60)	32.8 (1.62)	53.6 (2.38)	0.9 (0.25)
	Rural	11.9 (1.36)	31.8 (2.37)	55.4 (2.58)	0.9 (0.34)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.7.13 redoes the exercise in Table 3.7.12 by age groups. Here, partly because the z-score refers to a variable standardised by age, we do not find big differences across the age groups.

Table 3.7.13
Distribution of z-scores for weight/age by age group

Type of municipality	Age	Global malnutrition	Risk	Normal	Overweight
		Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment	< 2	10.1 (1.24)	27.8 (2.03)	59.4 (2.00)	2.7 (0.59)
	2 to 4	10.0 (0.89)	33.5 (1.40)	55.5 (1.74)	1.0 (0.24)
	5 to 6	10.4 (0.80)	34.2 (1.29)	54.5 (1.52)	0.9 (0.22)
	Total	10.2 (0.67)	32.7 (0.94)	55.9 (1.19)	1.3 (0.18)
TCP	< 2	8.0 (1.58)	30.2 (2.97)	58.7 (2.81)	3.1 (0.81)
	2 to 4	8.4 (1.14)	32.8 (1.92)	57.5 (2.46)	1.4 (0.38)
	5 to 6	9.5 (0.89)	34.7 (1.74)	54.9 (2.02)	0.9 (0.29)
	Total	8.7 (0.83)	33.0 (1.16)	56.7 (1.58)	1.5 (0.25)
TSP	< 2	13.0 (1.83)	24.4 (2.18)	60.5 (2.72)	2.1 (0.84)
	2 to 4	12.4 (1.35)	34.6 (2.03)	52.6 (2.35)	0.4 (0.17)
	5 to 6	11.7 (1.44)	33.4 (1.90)	53.9 (2.31)	0.9 (0.33)
	Total	12.2 (1.03)	32.2 (1.55)	54.6 (1.82)	0.9 (0.23)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

Table 3.7.14 reports the distribution of z-scores for height/age. This indicator of chronic malnutrition indicates a dramatic situation for the children in our sample. The percentage affected by chronic malnutrition is now considerably higher than that in Table 3.7.9 for the ENDS survey. The situation is particularly dramatic in rural areas, where as many as 24% of children in our sample are affected by chronic malnutrition. Here, perhaps not surprisingly since at least in the short term height is unlikely to be affected by the programme, we do not find any significant difference between TCP and TSP municipalities.

Table 3.7.14
Distribution of z-scores for height/age

Type of municipality		Chronic malnutrition	Risk	Normal
		Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment		22.9 (1.08)	37.0 (0.87)	40.1 (1.22)
TCP		22.3 (1.44)	38.1 (1.09)	39.6 (1.65)
TSP		23.7 (1.66)	35.6 (1.38)	40.7 (1.77)
TCP	Urban	18.8 (1.88)	39.8 (1.67)	41.4 (2.06)
	Rural	24.1 (1.78)	37.1 (1.39)	38.7 (2.19)
TSP	Urban	22.8 (1.62)	36.3 (2.27)	40.8 (1.99)
	Rural	24.3 (2.57)	35.1 (1.67)	40.6 (2.67)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

In Table 3.7.15, we break down the information in Table 3.7.14 by age group. Once again, we find no large differences among the various age groups for chronic malnutrition. In the case of risk, however, we find that young children are less exposed than older ones. There are no large differences between TSP and TCP municipalities.

Table 3.7.15
Distribution of z-scores for height/age by age group

Type of municipality	Age	Chronic malnutrition	Risk	Normal
		Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment	< 2	22.1 (1.44)	31.2 (1.99)	46.7 (2.17)
	2 to 4	23.1 (1.36)	36.7 (1.07)	40.2 (1.60)
	5 to 6	23.0 (1.29)	40.4 (1.30)	36.6 (1.25)
	Total	22.9 (1.08)	37.0 (0.87)	40.1 (1.22)
TCP	< 2	22.0 (1.96)	34.1 (2.64)	43.8 (2.60)
	2 to 4	22.8 (1.82)	37.4 (1.33)	39.8 (2.22)
	5 to 6	21.8 (1.52)	40.7 (1.60)	37.4 (1.69)
	Total	22.3 (1.44)	38.1 (1.09)	39.6 (1.65)
TSP	< 2	22.2 (2.12)	27.3 (2.80)	50.6 (3.49)
	2 to 4	23.6 (2.04)	35.6 (1.74)	40.8 (2.22)
	5 to 6	24.6 (2.25)	39.9 (2.19)	35.5 (1.88)
	Total	23.7 (1.66)	35.6 (1.38)	40.7 (1.77)

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

As already mentioned, the percentages of children affected by malnutrition are higher in our sample than the national figures. This is consistent with the fact that our sample is restricted to SISBEN1 households.

Nutritional Status: Comparison between Treatment and Control Municipalities

We now turn to the comparison of treatment and control municipalities in terms of the various nutrition indicators we have been using (Table 3.7.16). There are no significant differences, except that the proportion of globally malnourished children (on the basis of weight/age) appears to be significantly higher in TSP municipalities than in CSP ones.

Table 3.7.16
Comparison between treatment and control municipalities: nutritional status

Indicator		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Acute malnutrition (based on weight/height)	Difference (Standard error) P-value	0.21 (0.40) 0.60	0.64 (0.53) 0.23	0.82 (0.57) 0.16
Global malnutrition (based on weight/age)	Difference (Standard error) P-value	–0.63 (1.37) 0.65	1.44 (1.58) 0.37	3.48** (1.77) 0.05
Chronic malnutrition (based on height/age)	Difference (Standard error) P-value	0.24 (1.93) 0.90	1.06 (2.30) 0.65	2.67 (2.78) 0.34

Source: IFS–Econometria SA–SEI Consortium, baseline survey, October 2002.

3.7.4 Nutritional Status of Children in Hogares Comunitarios

As mentioned a few times in this report, an important nutritional programme – *Hogares Comunitarios* – operates partly as an alternative to *Familias en Acción* in all the communities we study. Households participating in this programme can send their children aged 0 to 6 to a *Hogar Comunitario* where the child receives care and three meals a day. Beneficiary households cannot participate in both programmes with children aged 0 to 6.

As the two programmes are perceived as and effectively are substitutes for children aged 0 to 6, it is interesting to look at the nutritional status of SISBEN1 children attending *Hogares Comunitarios*. For this purpose, we use a specific survey that was conducted in the same municipalities where we collected our household survey.

In Table 3.7.17, we report the percentages of children attending *Hogares Comunitarios* and from SISBEN1 households that are affected by 'acute malnutrition', defined using the z-score for weight/height. The numbers in this table are not greatly different from those in Table 3.7.10.

Table 3.7.17
Distribution of z-scores for weight/height:
SISBEN1 children in *Hogares Comunitarios*

Type of municipality	Acute malnutrition	Risk	Normal	Overweight
	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment	1.2 (0.27)	10.5 (0.92)	86.9 (1.06)	1.5 (0.31)
TCP	1.0 (0.35)	11.0 (1.02)	86.7 (1.21)	1.3 (0.32)
TSP	1.5 (0.33)	9.2 (2.17)	87.3 (2.19)	1.9 (0.77)

In Table 3.7.18, we report the z-score distribution for weight/age for the *Hogares Comunitarios* children. This is equivalent to Table 3.7.12 for the *Familias* children. We observe some not tremendously significant differences, especially for globally malnourished children. The proportion of children at risk seems to be higher, at 35.2% compared with 32.7%.

Table 3.7.18
Distribution of z-scores for weight/age:
SISBEN1 children in *Hogares Comunitarios*

Type of municipality	Global malnutrition	Risk	Normal	Overweight
	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment	9.7 (0.86)	35.2 (1.94)	54.5 (2.04)	0.6 (0.18)
TCP	10.0 (1.14)	35.5 (2.70)	54.1 (2.82)	0.4 (0.18)
TSP	9.0 (1.12)	34.4 (1.62)	55.5 (1.82)	1.1 (0.39)

In Table 3.7.19, we report the z-score distribution for height/age used to compute the percentage of children with chronic malnutrition. The proportions of children chronically malnourished and at risk are not dissimilar from those in Table 3.7.14.

Table 3.7.19
Distribution of z-scores for height/age:
SISBEN1 children in *Hogares Comunitarios*

Type of municipality	Chronic malnutrition	Risk	Normal
	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment	22.5 (1.71)	37.7 (1.39)	39.8 (1.76)
TCP	22.1 (2.23)	38.3 (1.74)	39.6 (2.53)
TSP	23.4 (2.37)	36.2 (1.71)	40.4 (2.51)

Hogares Comunitarios: Comparison between Treatment and Control Municipalities

In Table 3.7.20, we present the comparisons previously considered in Table 3.7.16 using the subset of children in our survey who are in Hogares Comunitares. Once again, we find that children in TSP municipalities are significantly more likely to suffer from acute malnutrition.

Table 3.7.20
Comparison between treatment and control municipalities:
nutritional status of children in *Hogares Comunitarios*

Indicator		All treatments vs. All controls	Treatments without payment vs. All controls	Treatments without payment vs. Controls without payment
Acute malnutrition	Difference (Standard error) P-value	0.58 (0.40) 0.15	0.88* (0.45) 0.05	1.28** (0.34) 0.00
Global malnutrition	Difference (Standard error) P-value	–0.98 (1.37) 0.47	–1.67 (1.54) 0.28	–2.16 (1.61) 0.18
Chronic malnutrition	Difference (Standard error) P-value	0.88 (2.39) 0.71	1.80 (2.89) 0.54	–0.48 (3.13) 0.88

Nutritional Status: Familias en Acción and Hogares Comunitarios

While it is very tempting to compare the children attending *Hogares Comunitarios* and those registered for *Familias en Acción*, especially because the two programmes are often seen as alternatives, we should be aware of the fact that the children who actually switched from

Hogares to *Familias* did so by choice, so that a proper comparison should take the endogeneity of such a decision into account. Moreover, the children in *Hogares* have been exposed to that programme for longer.

Keeping these caveats in mind, however, we notice in Tables 3.7.21 and 3.7.22 that children in *Hogares* have better nutritional indicators than children in *Familias*. The most important differences are apparent global malnutrition.

Table 3.7.21
Comparison between *Familias en Acción* and *Hogares Comunitarios*: nutritional status

Type of municipality	Percentage of eligible children aged 0 to 6 affected by:					
	Acute malnutrition		Global malnutrition		Chronic malnutrition	
	Familias	*Hogares*	*Familias*	*Hogares*	*Familias*	*Hogares*
	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)	Mean (Std error)
Total treatment	1.5 (0.30)	1.2 (0.27)	10.2 (0.67)	9.7 (0.86)	22.9 (1.08)	22.5 (1.71)
TCP	1.2 (0.39)	1.0 (0.35)	8.7 (0.83)	10.0 (1.14)	22.3 (1.44)	22.1 (2.23)
TSP	1.9 (0.46)	1.5 (0.33)	12.2 (1.03)	9.0 (1.12)	23.7 (1.66)	23.4 (2.37)

Table 3.7.22
Differences between *Familias en Acción* and *Hogares Comunitarios*: nutritional status

Type of municipality		Percentage of eligible children aged 0 to 6 affected by:	
		Acute malnutrition	Global malnutrition
		FA vs. HC	FA vs. HC
Total treatment	Difference (Std error)	0.3 (0.40)	0.5 (1.09)
TCP	Difference (Std error)	0.2 (0.52)	–1.3 (1.41)
TSP	Difference (Std error)	0.4 (0.57)	3.2** (1.52)

4. A Preliminary Impact Evaluation

As was mentioned in Chapter 1, both TCP and TSP municipalities will participate in *Familias en Acción*. At the time the data were collected, TCP municipalities had already received payments from the programme. Most of the families in TSP municipalities had already been through the registration process, but none of them had started to receive payments.

In this chapter, we will exploit the difference in the timings of the payments to perform a preliminary impact evaluation of the programme. This is subject to the following main caveats:

- The TCP municipalities have not been enrolled for long. Hence, the programme might not have produced any significant effects yet. This issue is particularly relevant for nutrition and health variables and less so for education. The problem would tend to underestimate the impact of the programme.

- As families in TSP municipalities are already aware of the presence of the programme, they might have already started to take actions in order to benefit more from the programme. For instance, they might have already registered in Growth and Development check-ups, or they might have not allowed the children to leave school. These anticipation effects would also tend to underestimate the impact of the programme.

- The sample size we are using for this exercise is necessarily half the optimal planned sample size for the overall evaluation. This issue affects the precision of our impact evaluation and is particularly relevant for small expected effects.

4.1 Comparing TCP and TSP

In any evaluation, a key issue is to examine the difference between the treatment group (TCP in this chapter) and the control group (TSP in this chapter). If the categorisation between TCP and TSP had been random, then these groups would be extremely similar. Unfortunately, the decision process that assigned municipalities to the TCP or TSP groups was not random. In practice, one can easily find variables that predict whether a municipality belongs to TSP or to TCP. Table 4.1.1 shows that the probability of a municipality belonging to TCP, for example, decreases if there is a hospital in the municipality, as well as decreasing with the number of 'centros' (medium-sized healthcare providers). However, this probability increases with the number of urban schools in the municipality. Consequently, TSP municipalities have better health infrastructure, while TCP ones have better education infrastructure.

Table 4.1.1
Probit for assignment to TCP

Variable	Marginal effect[a]	Standard error	P-value
Having a hospital	–0.719**	0.101	0.001
Number of 'centros'	–0.314**	0.123	0.011
Number of 'puestos'	–0.028	0.028	0.317
Number of pharmacies	0.039	0.025	0.128
Number of banks	–0.064	0.121	0.598
Number of urban schools	0.090**	0.039	0.021
Number of rural schools, in hundreds	0.024	0.506	0.962
Personnel desertion due to violence in a healthcare provider	–0.335	0.228	0.253
Strike in a healthcare provider	0.087	0.209	0.675
Urban population in 2002, in thousands	–0.024	0.016	0.134
Rural population in 2002, in thousands	0.028	0.015	0.075
Quality-of-life index (QLI) in 1993	0.011	0.013	0.397

[a] This is the marginal increment in probability for continuous variables and the increase in probability for binary variables, evaluated at the average of other covariates.

At the individual level, it is also possible to find differences between TSP and TCP. Children living in TCP municipalities are less likely to have parents with formal health insurance. The prevalence of previous assistance with schooling is higher in TCP municipalities. For Kids between 0 and 6, the probability of living in a TCP municipality increases if they do not get water by pipe. However, there are other variables that do not show systematic differences between TSP and TCP: single-parent households, house wall materials, rubbish collection, type of telephone and whether the toilet is connected to sewerage or cesspool. The results of a probit on individual variables are included in the Appendix.

4.2 Propensity Score Matching

One of the costs of not having a random control group is that the impact of the programme cannot be estimated for all TCP families but only for those families that are similar enough, according to observable characteristics, to some of the TSP families. We use propensity score matching (PSM) to select which TCP families are similar to some TSP families. The percentage of TCP families that are comparable to TSP families, also called the percentage of matched TCP families, is then a key parameter for the evaluation. The higher this percentage is, the more meaningful the results of the evaluation are, and probably more accurately the effects of the programme can be estimated.

The details of the PSM are as follows. The propensity score is the probability that an individual lives in a TCP community. The key idea is that if the distribution of the propensity score is the same in the treatment and the control samples, then it can be shown that the distribution of characteristics used to construct the propensity score is also the same in the two samples. Hence, we can balance the treatment and control samples by reweighting the data to achieve

the same distribution of the propensity score. As is usual in practice, we have estimated this propensity score using a parametric binary choice model – in particular, a probit model. We use a particularly rich set of variables, including all those dimensions that we believe are relevant determinants of the outcomes, thus eliminating as far as possible the bias due to non-random assignment; a full list of variables is given in the Appendix. In particular, attendance at school in the year previous to the start of the programme is included in the propensity score used to estimate the education and child labour supply impact. Mother's height is a regressor in the propensity score used to estimate the nutritional and health impact of the programme. Our propensity scores also include a set of community variables that summarise the health and education infrastructure in the municipalities.

Having computed the propensity score for each observation, for the observations in the 'control' sample (in this case, the TSP) we fit a flexible regression (using splines) of the outcome variable over the propensity score. The average impact of the programme for those eligible living in TCP communities is then computed as the average difference between the actual outcome and the estimated value obtained using the regression described previously. We do not use all the TCP individuals to obtain this average, but only those who are comparable to the TSP individuals.[18] Consequently, this average impact is obtained only for those individuals in TCP who are similar enough, according to the propensity score, to those individuals in TSP. Consequently, the estimate of the impact of the programme cannot be extrapolated to all the TCP individuals. The standard error and confidence interval are estimated using bootstrap techniques with 300 replications that take into account the clustered nature of the sample.

4.3 Education

In addition to the estimates based on propensity score matching, we also compute the impact of the programme on the probability of attending school by running a probit on a number of control variables (as a matter of fact all the variables that are in the propensity score, except previous attendance) and a dummy for the TCP municipalities. We report the effect of the programme as estimated by the probit model and by propensity score matching in Table 4.3.1. The first column of the table shows the increase in the probability of enrolment due to the programme, evaluated at the sample average of the other covariates. The remaining columns show various statistics relevant for the PSM. In particular, we report the estimated effect of the programme and its standard error (column 2), the 95% confidence interval (column 3), the average value of the variable under study in the matched TSP sample (column 4), the percentage of TCP households matched (column 5) and the total number of observations in the TCP (column 6). The 95% confidence interval (CI) and the standard errors are computed by bootstraps that take into account municipality-level clusters. The same scheme is used for the remaining tables in this chapter.

[18] To be specific, any TCP individual used to compute this average must satisfy the following two conditions: first, there must be a TSP individual with a propensity score value smaller than the specific TCP's propensity score value; and secondly, there must be a TSP individual with a propensity score value higher than the specific TCP's propensity score value.

Table 4.3.1
Impact on enrolment

Variable	(1) Probit (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
Enrolment probability, age 7–13	0.001 (0.007)	0.003 (0.022)	–0.037; 0.054	0.941	88.9	1,920
Enrolment probability, age 14–17	0.122* (0.043)	0.138* (0.066)	0.024; 0.269	0.639	87.5	885
Rural						
Enrolment probability, age 7–13	0.020 (0.012)	0.012 (0.028)	–0.169; 0.105	0.915	92.1	2,691
Enrolment probability, age 14–17	0.043 (0.050)	0.055 (0.053)	–0.018; 0.170	0.496	86.6	1,198

The two samples match reasonably well: between 87% and 92% of the observations in the treatment sample can be used to estimate the impact of the programme.

The programme does not seem to have any effect on the enrolment of children aged between 7 and 13. This result, which is confirmed by both the probit and PSM estimates and holds true in the rural and urban subsamples, is not particularly surprising. Enrolment rates are already above 90% for this age group, so that it is clearly hard to induce additional children to go to school. Similar results were obtained by the Mexican programme Progresa, which hardly changed the enrolment of primary-school children. Incidentally, for the same age group, the Colombian sample presents higher enrolment rates of primary-school children.

Moving to the 14–17 age group, the picture changes substantially. In the urban sector, we observe a very large effect from the programme, which is estimated to be statistically different from zero. The probit estimates indicate an increase of 12 percentage points, while the PCM estimates indicate an increase of almost 14 percentage points in enrolment. These are very large effects.[19] The effect in the rural sector, on the other hand, is estimated to be much smaller – around 5 percentage points. The latter is not significantly different from zero. The problem is essentially one of precision. As we mentioned at the beginning of this chapter, the sample we are using in this preliminary evaluation is half the intended size for the full evaluation. It is therefore not entirely surprising that we cannot estimate a relatively smaller effect with the necessary precision.

[19] We have also estimated the impact of the programme on the 14–17 urban population without including the community-related variables in the propensity score. The estimate of the impact is drastically reduced, to 0.02, and it is not significant. This highlights the importance of including community-related variables for the evaluation.

4.4 Labour Supply

In this section, we will evaluate whether the programme has had a significant impact on the labour supply of women and children in our TCP sample. While changing labour supply outcomes was not one of the stated objectives of the programme, we might expect a degree of spillover into this dimension through changes in time allocation and incomes.

We may conjecture that the programme would have opposing impacts on the labour supply decisions of these two groups. On the one hand, we could see a reduction of labour supply from school-age children, as the programme encourages them to devote more time to school-related activities. This would represent a direct effect. Women's labour supply is more likely to be affected indirectly. As their children spend more time out of the house and in school, these mothers and older women could devote more time to supplying labour, either because they no longer have to look after the children for as long as they needed to before the programme or because they are driven by a desire to make up for the loss of income from their school-going children. Moreover, we could expect the latter effect to be stronger for those women living in households with school-age children.

In Table 4.4.1, we consider the probability of earning labour income among females aged 18 and above. We find that the programme has a positive effect on the probability of supplying labour. The effect appears to be larger in urban areas but is not significant anywhere. While the point estimate of the effect is higher for those women living in households with older children, the difference is not significant due to the correspondingly larger standard errors. The effect is not precisely enough estimated for us to be able to detect any appreciable difference in the effect based on household composition. The effect is much smaller in magnitude in rural areas.

Table 4.4.1
Impact on female labour supply

Variable	(1) Probit (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
Probability of earning labour income	0.104* (0.061)	0.173 (0.126)	0.055; 0.293	0.178	65.6	2,043
Probability of earning labour income, households with children aged 0–6	0.088 (0.059)	0.151 (0.126)	0.051; 0.360	0.190	64.2	1,317
Probability of earning labour income, households with children aged 7–17	0.112* (0.064)	0.177 (0.133)	0.013; 0.382	0.193	65.9	1,840
Rural						
Probability of earning labour income	0.051 (0.045)	0.088 (0.086)	–0.008; 0.234	0.101	75.1	2,385
Probability of earning labour income, households with children aged 0–6	0.041 (0.045)	0.052 (0.110)	–0.086; 0.242	0.115	64.5	1,507
Probability of earning labour income, households with children aged 7–17	0.052 (0.046)	0.086 (0.068)	–0.009; 0.264	0.107	75.9	2,130

In Table 4.4.2, we repeat the exercise for children aged between 10 and 17. While the effect through our probit estimates is always negative, it is never significant. Through our matching exercise, the effect is similarly imprecisely estimated and insignificant. The absence of any significant impact may reflect misreporting. We note that through our analysis of labour supply decisions in Chapter 3, we found, that across all groups, very few children in our survey were reported to be earning labour income. Other studies have reported significantly higher degrees of child labour in both rural and urban parts of Colombia. We could conjecture that the respondents in our survey downplayed the extent of child labour market participation because they believed that this would maximise their chances of entering or staying in the programme.

Table 4.4.2
Impact on children's labour supply

Variable	(1) Probit (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
Probability of earning labour income	–0.009 (0.009)	0.009 (0.066)	–0.100; 0.069	0.041	68.3	1,985
Probability of earning labour income, boys	–0.019 (0.015)	0.004 (0.080)	–0.130; 0.121	0.068	74.2	1,059
Probability of earning labour income, girls	–0.000 (0.002)	0.005 (0.063)	–0.153; 0.050	0.022	64.7	926
Rural						
Probability of earning labour income	–0.001 (0.015)	0.008 (0.049)	–0.095; 0.083	0.066	70.1	2,699
Probability of earning labour income, boys	–0.001 (0.022)	0.018 (0.069)	–0.151; 0.112	0.084	68.0	1,470
Probability of earning labour income, girls	–0.002 (0.006)	–0.009 (0.040)	–0.151; 0.034	0.048	72.9	1,229

4.5 Nutrition

The programme aims to influence children's nutritional status. This might be achieved through various means, including food consumption and information on infant nutrition obtained from talks. Food consumption and nutritional information might be regarded as inputs to produce the final nutritional outcome. In this part of the report, we first evaluate the impact of the programme on the inputs (food consumption and women's attendance at nutritional talks) and then evaluate the impact of the programme on indicators of nutritional status.

4.5.1 Impact on Nutritional Inputs

Women were asked whether in the last six months they had attended a talk, workshop or conference about infant nutrition or about diarrhoea treatment. We report PSM estimates in Table 4.5.1. The table also shows the estimates of the impact of the programme on the consumption frequency of various food items. The results of an ordinary least squares model for food frequency and a probit model for attendance at nutritional talks are also given for comparison. These simple models condition on the same variables as the propensity score to estimate the coefficient of the TCP dummy variable. The results are in accordance with those reported in Section 3.7 on nutrition. According to these, there is a statistically significant difference between treatment and control municipalities in the number of days that children between the ages of 2 and 6 consumed eggs, vegetables and beef and pork in the seven days

previous to the interview. Thus the programme significantly influenced the frequency of intake of eggs, meat and vegetables.

Table 4.5.1
Impact on nutritional inputs

Variable	(1) Probit (#) / OLS (†) (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
Probability of woman attending talk on infant nutrition	# –0.014 (0.048)	0.124 (0.091)	–0.181; 0.263	0.103	52.4	1,337
Probability of woman attending talk on diarrhoea treatment	# –0.003 (0.037)	0.134* (0.068)	0.037; 0.307.	0.061	52.4	1,337
Number of daysthat 2- to 6-year-olds ate eggs	† 0.737* (0.223)	0.705* (0.437)	0.513; 2.628	2.4	69.0	1,040
Number of days that 2- to 6-year-olds ate vegetables	† 1.073* (0.199)	1.383* (0.437)	0.684; 2.399	1.264	69.0	1,040
Sum of number of days that 2- to 6-year-olds ate meat or liver of beef or pork	† 0.910* (0.272)	0.961* (0.534)	0.260; 2.114	2.037	69.0	1,040
Rural						
Probability of woman attending talk on infant nutrition	# 0.064 (0.035)	0.090 (0.079)	–0.040; 0.271	0.143	79.4	1,652
Probability of woman attending talk on diarrhoea treatment	# 0.033 (0.028)	0.074 (0.079)	–0.064; 0.215	0.122	79.4	1,652
Number of days that 2- to 6-year-olds ate eggs	† 0.824* (0.220)	0.774* (0.428)	0.108; 1.884	2.668	60.9	1,528
Number of days that 2- to 6-year-olds ate vegetables	† 1.125* (0.268)	1.148* (0.488)	0.104; 1.993	1.672	60.9	1,528
Sum of number of days that 2- to 6-year-olds ate meat or liver of beef or pork	† 0.854* (0.310)	0.880 (0.558)	–1.192; 1.881	2.411	60.9	1,528

4.5.2 Impact on Nutritional Status

Table 4.5.2 gives the impact of the programme on the nutritional status of children aged 0 to 6 as measured by the following two indicators:

$$WHM = \frac{Child's\ \ weight}{Median\ \ weight\ \ of\ \ the\ \ reference\ \ population\ \ for\ \ the\ \ child's\ \ height} \times 100$$

$$WAM = \frac{Child's\ \ weight}{Median\ \ weight\ \ of\ \ the\ \ reference\ \ population\ \ for\ \ the\ \ child's\ \ age} \times 100$$

where the reference population is the one used in Section 3.7. The table shows the results of the matching estimates, as well as the ordinary least squares ones for comparison.

Table 4.5.2
Impact on nutritional status of children aged 0 to 6

Variable	(1) OLS (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
WHM	1.516 (0.939)	1.867 (1.428)	–0.835; 5.011	99.30	71.1	1,217
WAM	2.142 (1.087)	2.911 (2.512)	–4.255; 6.582	90.07	71.1	1,217
Rural						
WHM	0.956 (0.686)	2.318* (1.337)	0.248; 5.066	99.27	67.5	1,772
WAM	0.990 (0.766)	2.449* (1.540)	0.325; 7.422	89.48	67.5	1,772

The results of Table 4.5.2 show that the programme significantly influenced the weight of children who live in the rural part of the municipalities. The results for the urban part are of similar magnitude but not statistically significantly different from zero at the 95% level. It is worth pointing out the difference between the point estimates given by matching and those provided by the ordinary least squares model, which is a simpler method.

Table 4.5.3 gives the impact of the programme on the probability of (i) suffering acute malnutrition, (ii) being at risk of acute malnutrition, (iii) suffering global malnutrition, and (iv) being at risk of global malnutrition. The definitions of these categories were given in Section 3.7.

Table 4.5.3
Impact on malnutrition

Variable	(1) Probit (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
Probability of suffering acute malnutrition	0.001 (0.001)	–0.007 (0.016)	–0.060; 0.015	0.021	71.1	1,217
Probability of being at risk of acute malnutrition	–0.026 (0.023)	–0.028 (0.054)	–0.134; 0.078	0.136	71.1	1,217
Probability of suffering global malnutrition	–0.053** (0.021)	–0.057 (0.079)	–0.163; 0.084	0.132	71.1	1,217
Probability of being at risk of global malnutrition	–0.032 (0.041)	–0.081 (0.087)	–0.208; 0.107	0.497	71.1	1,217
Rural						
Probability of suffering acute malnutrition	–0.003 (0.003)	–0.016 (0.022)	–0.068; 0.009	0.023	67.5	1,772
Probability of being at risk of acute malnutrition	–0.021 (0.016)	–0.070 (0.048)	–0.184; 0.004	0.164	67.5	1,772
Probability of suffering global malnutrition	–0.015 (0.021)	–0.067 (0.052)	–0.224; 0.024	0.166	67.5	1,772
Probability of being at risk of global malnutrition	–0.024 (0.034)	–0.059 (0.075)	–0.266; 0.049	0.492	67.5	1,772

Notice that the estimate of the matching is negative but not statistically different from zero at the 95% level. These results do not contradict the ones above as they analyse the impact of the programme on different indicators. The indicators in Table 4.5.3 estimate the impact of the programme on the lower tail of the weight distribution, while Table 4.5.2 shows the estimates of the impact of the programme on the mean of the weight distribution.

4.6 Health

The participating families will receive the so-called nutritional subsidy if they regularly take their children under 6 years old to Growth and Development (G&D) check-ups. At these check-ups, healthcare professionals will pay particular attention to the status of children's vaccination schemes. Table 4.6.1 shows the impact of the programme on whether the child has the DPT vaccination appropriate for his/her age and whether he/she has had an adequate

number of G&D check-ups.[20] The results show that the programme has increased the probability of young children having an appropriate number of G&D check-ups in both urban and rural areas.

Table 4.6.1
Impact on adequacy of G&D check-ups and on appropriateness of DPT vaccination

Variable	(1) Probit (#) / OLS (†) (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
Probability of adequate number of G&D check-ups	0.123** (0.052)	0.218** (0.100)	–0.023; 0.401	0.271	68.5	834
Probability of appropriate DPT vaccination	0.008 (0.031)	0.031 (0.077)	–0.064; 0.244	0.748	68.8	1,250
Rural						
Probability of adequate number of G&D check-ups	0.295** (0.048)	0.335** (0.084)	0.256; 0.483	0.200	68.0	1,280
Probability of appropriate DPT vaccination	0.082** (0.029)	0.119 (0.076)	0.009; 0.330	0.700	66.4	1,838

Table 4.6.2 shows the estimates of the impact of the programme on the probability of: (i) suffering from ADD (acute diarrhoea disease), (ii) suffering from ARD (acute respiratory disease), (iii) suffering from any acute illness (including the previous two), (iv) staying in bed in the last 15 days because of health problems and (v) not being able to do normal activities due to health problems. The time span is the 15 days previous to the interview.

[20] See footnote 7 in Section 3.4.

Table 4.6.2
Impact on occurrence of illness

Variable	(1) Probit (#) / OLS (†) (std error)	(2) Matching (std error)	(3) 95% CI	(4) Average value of variable in matched TSP	(5) Percentage of TCP sample matched	(6) No. of obs. in TCP
Urban						
Probability of suffering from any illness	–0.095** (0.043)	–0.028 (0.109)	–0.192; 0.181	0.561	68.6	1,306
Probability of suffering from ADD	–0.092** (0.018)	–0.102* (0.055)	–0.244; –0.003	0.212	68.6	1,306
Probability of suffering from ARD	–0.093** (0.041)	–0.032 (0.103)	–0.212; 0.161	0.448	68.6	1,306
Probability of staying in bed due to health problems	–0.056** (0.019)	–0.027 (0.056)	–0.245; 0.039	0.138	68.6	1,306
Probability of not being able to do normal activities	–0.059** (0.027)	–0.020 (0.058)	–0.159; 0.092	0.204	68.6	1,306
Rural						
Probability of suffering from any illness	–0.064** (0.029)	–0.007 (0.063)	–0.080; 0.140	0.513	67.3	1,918
Probability of suffering from ADD	–0.055** (0.022)	–0.054 (0.065)	–0.261; 0.023	0.170	67.3	1,918
Probability of suffering from ARD	–0.058 (0.038)	–0.021 (0.073)	–0.132; 0.101	0.404	67.3	1,918
Probability of staying in bed due to health problems	–0.027 (0.020)	–0.021 (0.060)	–0.191; 0.061	0.153	67.3	1,918
Probability of not being able to do normal activities	–0.021 (0.020)	–0.024 (0.061)	–0.307; 0.045	0.230	67.3	1,918

The results show that the programme has significantly decreased the probability of suffering from diarrhoea in the urban part. It is worth mentioning that the programme also had a significant impact on attendance at talks about diarrhoea in urban areas.

4.7 Conclusion

According to the results above, we conclude that *Familias en Acción* has positively influenced the school enrolment rate of 14- to 17-year-olds living in the urban areas of TCP municipalities. The impacts of the programme on children's labour supply are not statistically different from zero.

The nutritional status of rural children from 0 to 6 years old has improved as measured by the relation between child's weight and the median weight of the reference population, though no

significant impact is found on the probability of malnutrition. A very significant impact on adequate compliance with G&D check-ups is found for rural children aged 0 to 6. For this group of children, we also found a positive and marginally significant impact at the 95% level for the probability of having appropriate DPT vaccination.

The impact of the programme on children's morbidity is still unclear, as the only significant impact found is a decrease in the probability of suffering from diarrhoea for urban children.

For women, the impact of the programme seems to be predominantly in the urban part. We estimate a positive and marginally significant effect of the programme on the probability of attending a talk on diarrhoea treatment in the urban area. We find a positive impact of the programme on female labour supply in urban areas but this effect is not significant. It was also in the urban area that a positive impact of the programme on school enrolment was found for 14- to 17-year-olds. When putting all these results together, they indicate that women are working more to offset the income loss from having children at school. However, it is still too early to take a final position on this.

Appendix

Variables common to all the propensity scores	
- Head of household has health insurance	- Household toilet connected to sewerage or cesspool
- Head of household's and spouse's ages	- Household with rubbish recollection
- Head of household's and spouse's education	- Access to telephone services
- Single-parent household	- Ownership of house where family lives
- Number of families living in household	- Dummies for catastrophic events in previous years
- Living in house vs. room or apartment	(death, serious illness, violent attacks)
- Materials of house wall	- 1993 municipality quality-of-life index
- Household receives gas and water by pipe	- Population in urban part of municipality
- Household has sewerage	- Population in rural part of municipality
	- Living in an isolated rural area

Variables included in the propensity score of education and child labour supply	
All the common variables (see above) plus:	
- Previous attendance to school	- Age of child in years
- Child has health insurance	- Number of public urban schools in the municipality
- Sex of child	- Number of public rural schools in the municipality

Variables included in the propensity score of female labour supply	
All the common variables (see above) plus:	
- Number of public urban schools in the municipality	- Number of centros and puestos in the municipality
- Number of public rural schools in the municipality	- Number of pharmacies in the municipality
- Number of public hospitals in the municipality	- Whether strikes or personnel desertion in healthcare centres have taken place

Variables included in the propensity score of female attendance at talks on nutrition and diarrhoea	
All the common variables (see above) plus:	
- Number of public urban schools in the municipality	- Number of centros and puestos in the municipality
- Number of public rural schools in the municipality	- Number of pharmacies in the municipality
- Number of public hospitals in the municipality	- Whether strikes or personnel desertion in healthcare centres have taken place

Variables included in the propensity score of food consumption, nutrition and health outcomes	
All the common variables (see above) plus:	
- Mother's height	- Number of public hospitals in the municipality
- Child has health insurance	- Number of centros and puestos in the municipality
- Sex of child	- Number of pharmacies in the municipality
- Age of child in months	- Whether strikes or personnel desertion in healthcare centres have taken place

Probit model. Dependent variable is living in TCP municipality. Children between 0 and 6

	Urban			Rural		
	Marginal effect	Std error	P-value	Marginal effect	Std error	P-value
Living in an isolated rural area	–	–	–	–0.066	0.143	0.644
Mother's height	0.005	0.003	0.129	–0.004	0.004	0.303
Non-subsidised health insurance	–0.020	0.121	0.869	0.227	0.165	0.236
Subsidised health insurance	–0.180**	0.064	0.005	–0.084	0.133	0.529
Health insurance from municipality	–0.232**	0.082	0.007	–0.013	0.112	0.910
Head of household with non-subsidised health insurance	–0.447*	0.116	0.010	–0.387	0.109	0.006
Head of household with subsidised health insurance	–0.240	0.157	0.150	–0.131**	0.058	0.025
Head of household with health insurance from municipality	–0.075	0.178	0.674	–0.128	0.093	0.176
Age in months	0.001*	0.000	0.060	0.000	0.000	0.397
Female	–0.072**	0.020	0.000	–0.022	0.017	0.213
Head of household's age	–0.001	0.003	0.733	0.002	0.003	0.421
Household spouse's age	0.008	0.004	0.032	0.002	0.002	0.429
Single-parent household	–0.014	0.060	0.809	0.060	0.043	0.171
Head of household with incomplete primary education	0.051	0.058	0.380	0.101**	0.043	0.020
Head of household with complete primary education	0.005	0.063	0.938	0.078	0.048	0.113
Head of household with incomplete secondary education	0.129	0.074	0.090	0.102	0.075	0.187
Head of household with complete secondary education	–0.009	0.077	0.911	0.002	0.095	0.979
Household spouse with incomplete primary education	–0.013	0.067	0.848	0.007	0.052	0.899
Household spouse with complete primary education	0.033	0.069	0.632	–0.127**	0.056	0.024
Household spouse with incomplete secondary education	–0.090	0.053	0.090	0.061	0.073	0.402
Household spouse with complete secondary education	0.035	0.086	0.683	–0.188**	0.074	0.015
Living in a house vs. room or apartment	0.228*	0.121	0.081	–0.217	0.121	0.117
House walls made of adobe, tapia or Bahareque	–0.017	0.079	0.826	–0.047	0.055	0.401
House walls made of wood	0.178	0.150	0.273	–0.002	0.168	0.989
House walls made of bamboo or similar	0.027	0.129	0.835	–0.044	0.082	0.588
House walls made of cardboard or non-existent	0.057	0.144	0.693	0.028	0.171	0.873
Household receives gas by pipe	–0.003	0.131	0.980	–0.036	0.158	0.821
Household receives water by pipe	–0.370**	0.091	0.001	–0.140**	0.061	0.023
Household has sewerage	0.043	0.102	0.673	0.035	0.127	0.785
Household with rubbish recollection	0.090	0.069	0.196	–0.091	0.111	0.416
Two families live in the household	0.040	0.074	0.591	0.142	0.087	0.115
Three or more families live in the household	0.198**	0.095	0.050	0.054	0.156	0.732
Household does not have telephone service	–0.080	0.080	0.325	0.161	0.151	0.307
Household enjoys communal telephone	–0.312*	0.149	0.077	0.301*	0.126	0.064
Toilet is connected to sewerage or cesspool	–0.030	0.060	0.616	0.019	0.065	0.765
Living in a rented house	0.172**	0.054	0.002	–0.144	0.095	0.139
Living in a house that was found abandoned or empty	–0.145	0.104	0.176	0.072	0.127	0.576
Living in a house without the legal right to sell	0.012	0.057	0.833	0.017	0.067	0.804
Someone in household suffered a death in 2000 or 2001	–0.421**	0.121	0.019	0.171	0.107	0.140
Someone in household suffered a serious illness in 2000	–0.242	0.165	0.197	–0.308**	0.126	0.062
Someone in household suffered a serious illness in 2001	–0.115	0.106	0.284	0.133	0.209	0.546
Someone in household has suffered a violent attack since 2000	–0.365*	0.127	0.053	–0.317**	0.112	0.020

Notes: The marginal effect is evaluated at the average of other covariates. It is the discrete change in probability for dummy variables. The probit also controls for all the municipality variables of the municipality probit included in the main text.

Probit model. Dependent variable is living in TCP municipality. Children between 7 and 17

	Urban			Rural		
	Marginal effect	Std error	P-value	Marginal effect	Std error	P-value
Living in an isolated rural area	–	–	–	0.002	0.117	0.987
Attendance at school in previous year	0.139**	0.042	0.001	0.097	0.031	0.002
Non-subsidised health insurance	0.068	0.084	0.428	–0.123	0.131	0.347
Subsidised health insurance	0.079	0.086	0.358	–0.016	0.089	0.855
Health insurance from municipality	0.001	0.089	0.992	–0.042	0.085	0.620
Head of household with non-subsidised health insurance	–0.368**	0.084	0.000	0.016	0.089	0.857
Head of household with subsidised health insurance	–0.335**	0.086	0.001	–0.198	0.067	0.004
Head of household with health insurance from municipality	–0.206**	0.100	0.047	–0.168	0.089	0.060
Age in years	0.005**	0.002	0.031	0.004	0.002	0.049
Female	–0.045**	0.014	0.002	–0.006	0.009	0.492
Head of household's age	0.001	0.002	0.785	0.001	0.002	0.598
Household spouse's age	0.002	0.002	0.442	0.000	0.002	0.936
Single-parent household	0.019	0.038	0.615	–0.009	0.044	0.844
Head of household with incomplete primary education	0.034	0.026	0.191	0.031	0.027	0.260
Head of household with complete primary education	0.013	0.045	0.781	–0.028	0.040	0.484
Head of household with incomplete secondary education	0.093**	0.029	0.002	–0.032	0.036	0.376
Head of household with complete secondary education	–0.073	0.059	0.220	–0.100	0.102	0.328
Household spouse with incomplete primary education	–0.103**	0.039	0.009	–0.003	0.040	0.947
Household spouse with complete primary education	–0.040	0.046	0.382	–0.036	0.049	0.466
Household spouse with incomplete secondary education	–0.171**	0.050	0.001	0.058	0.076	0.455
Household spouse with complete secondary education	–0.011	0.076	0.887	0.029	0.071	0.684
Living in a house vs. room or apartment	–0.039	0.117	0.740	0.051	0.121	0.668
House walls made of adobe, tapia or Bahareque	–0.024	0.071	0.735	–0.011	0.055	0.844
House walls made of wood	0.076	0.167	0.658	0.031	0.132	0.814
House walls made of bambu or similar	–0.068	0.086	0.430	0.009	0.087	0.920
House walls made of cardboard or non-existent	0.050	0.128	0.701	0.204	0.102	0.077
Household receives gas by pipe	–0.014	0.137	0.920	–0.102	0.132	0.438
Household receives water by pipe	–0.289**	0.100	0.012	–0.113	0.070	0.105
Household has sewerage	–0.051	0.102	0.615	–0.140	0.127	0.270
Household with rubbish recollection	0.065	0.080	0.414	0.078	0.093	0.418
Two families live in the household	0.114	0.074	0.137	0.032	0.061	0.595
Three or more families live in the household	0.153	0.110	0.184	0.120	0.153	0.465
Household does not have telephone service	–0.090	0.073	0.226	0.029	0.087	0.741
Household enjoys communal telephone	–0.259	0.158	0.136	0.068	0.152	0.662
Toilet is connected to sewerage or cesspool	–0.054	0.049	0.269	–0.031	0.051	0.539
Living in a rented house	0.027	0.066	0.686	–0.057	0.065	0.371
Living in a house that was found abandoned or empty	0.075	0.072	0.305	–0.082	0.105	0.434
Living in a house without the legal right to sell	–0.042	0.063	0.506	–0.026	0.053	0.623
Someone in household suffered a death in 2000 or 2001	–0.266**	0.059	0.000	0.266	0.061	0.000
Someone in household suffered a serious illness in 2000	–0.128	0.215	0.560	0.036	0.105	0.733
Someone in household suffered a serious illness in 2001	–0.189**	0.065	0.005	0.068	0.087	0.444
Someone in household has suffered a violent attack since 2000	0.021	0.151	0.890	–0.208	0.093	0.032

Notes: The marginal effect is evaluated at the average of other covariates. It is the discrete change in probability for dummy variables. The probit also controls for all the municipality variables of the municipality probit included in the main text.

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