

Report: Long-term evaluation of *Atención a Crisis* interventions¹

January, 2020

1. Introduction

In recent years, there has been renewed attention on policies to enhance the income generating capacity and productivity of the poor (World Bank, 2012). Since both skills and capital can limit productive choices (Lucas, 1978; Banerjee and Newman, 1992), many programs specifically tackle those constraints to improve entry and returns to nonagricultural wage employment or self-employment. Yet the existing evidence base shows mixed results of such program. Even when they are positive, we do not know how sustainable the impacts are over time, especially once beneficiaries graduate from the programs. As such, substantial questions remain about how to design programs to increase skills and foster productive employment.

In particular, traditional employment policies tend to focus on reducing unemployment and creating new formal jobs. Yet in many low-income settings, the vast majority of the population – and in particular the poor and rural populations – are employed in low-productivity occupations such as subsistence agriculture. As such, the rural poor, who often cannot afford to remain unemployed, can be left-out of employment policy. A range of recent evidence has shown how diversifying livelihoods in rural areas, including through diversification of farm activities or into off-farm self-employment can contribute to raise earnings and reduce poverty (Macours, Premand and Vakis, 2013; Blattman, Fiala and Martinez, 2014; Banerjee et al, 2016).

A different set of policies aims to intervene earlier in the lifecycle, and focuses on human capital accumulation during early childhood. Such interventions are often specifically motivated by their long-term potential to sustainably increase human capital, in part based on the Heckman (2008) hypothesis that “skills beget skills”. Yet, with the exception of a relatively small-n experiment of a parenting intervention in Jamaica (Gertler et al, 2004) evidence of long-term impacts of such programs in low or middle income settings is limited.

This study hence contributes to various literatures by providing long-term evidence on the effectiveness of a productive safety nets program and an early childhood parenting intervention, targeted to the rural poor in a low-income setting.

¹ This report was prepared by Karen Macours of the Paris School of Economics and INRA, in collaboration with Renos Vakis and Patrick Premand (World Bank). Assistance from Anna Barbeta Margarit with data analysis is gratefully acknowledged, as are efforts of the CIERUNIC team for data collection. Results mentioned in the report can be found in the complementary file with all Tables (Tables_report_WB_Crisis_Dec2019.pdf). Results are preliminary and additional analysis is planned before further dissemination.

Long-term impact of a productive safety net - Atención a Crisis

Safety nets programs targeting the poor have scaled up rapidly in recent years. Because safety net programs explicitly target the poor or vulnerable, they often reach the core of the population engaged in low-productivity employment, particularly in agriculture and household enterprises. A new generation of safety net programs is trying to be more explicit about maximizing their productive potential in the short to medium-term and promoting productive inclusion, by including skill formation, both for the in-school generation (the typical CCT) and for the young adults through occupational training.

This study measures the long-term effects of *Atención a Crisis*, an income generation and productive safety net intervention in Nicaragua that combined occupational training and business grants with conditional cash transfers. The intervention was implemented between November 2005 and December 2006 by the Ministry of the Family in six of the poorest municipalities in rural Nicaragua. *Atención a Crisis* is one of the few randomized trial of a CCT program where a pure control group still exists 12 years after the commencement of the program. The intervention was randomly assigned across 106 villages. Moreover 3 different combinations of skill and capital interventions were randomly assigned and implemented in parallel, which allows comparing the longer-term pay-off of both the CCT and interventions increasing assets and skills on the short-run. We therefore can assess the relative effectiveness of alternative designs of a productive safety nets intervention.

We designed the study so that the analysis focuses on the long term impacts on 3 populations or cohorts, allowing for each of them to analyze which interventions do better to improve long-term outcomes.

First, we set out to test the impact of the income generating components (occupational training and business grants) for the direct beneficiaries of the program, most of them women. We analyze how access to the occupational training and business grants offered by the program affected their labor market outcomes 12 years later, and as such assess the relative effectiveness of alternative design of a productive safety nets intervention.

Second, we aimed to evaluate the long-term impact of young children's exposure to the program during their first years of life. For this cohort, short-term impacts of the conditional cash transfers (even without the complementary productive interventions) on cognitive and socio-emotional skills were documented and shown to be sustained two years after the end of the program. These children were in primary or secondary school 12 years later, and testing whether their cognitive functioning and their achievement in school continues to reflect this early benefit, is key for understanding the full long-term impact of CCTs on later labor market outcomes.

Finally, we aimed to evaluate the long-term impact of young children exposure to the program during their primary school years. Short-term impacts of the conditional cash transfers on cognitive and socio-emotional skills were documented and shown to be sustained two years after the end of the program. These children are now young adults. Understanding how they fare and how the program aided their labor market transition 12 years later is important. For this group, we will place particular on their mobility and migration destination decisions.

Long-term impact of home-visiting parenting intervention

A second intervention, which provided parents of young children with parenting advice through home visits was implemented in the same population in 2009 for 18 months, randomized orthogonally on the CCT. The intervention targeted parents of children between 0-6 years of age (born between september 1st 2002 and september 1st 2009). The intervention included community workshops as well as bi-monthly visits by community educators. The intervention aimed to help parents to: (i) stimulate adoption of practices that benefit early childhood development and nutrition, (ii) improve awareness about the importance of language and communication skill, (iii) increase awareness of the importance of playing and games for children's development, (iv) augment the active role of mothers and fathers in their children's plays, and (v) increase knowledge about adequate nutrition practices. Stimulation material was also distributed to the parents, in the form of a package including toys and children's books. All of these components aimed to directly affect pathways to improve ECD outcomes across cognitive and socio-emotional domains. In order to test the optimal design of delivering home-visits, the experiment included two randomized modalities of the parenting intervention. In one modality, household visits targeted the mother or female caregiver, and in another modality the visits targeted both the mother or female caregiver and the father or male caregiver.

A short-term evaluation the program showed that home visits led to significant increases in early childhood cognitive and socio-emotional development and changes in parenting behavior. Larger impacts were found among children whose fathers were also integrated in the intervention. Specifically, the program led to improvements across domains in cognitive, motor and socio-emotional skills. Impacts on cognitive developments range from 0.08 to 0.16 standard deviations. Impacts were higher among younger children (with impacts on cognitive score reaching 0.2 standard deviations for young boys) and in the mother and father treatment. Questions remain about the sustainability of these impacts in the medium to long term, the focus of this proposal.

2. Study design and outcome measures

This study builds on the randomized design of both interventions. In 2005 there was a random allocation of the CCT program between treatment and control villages. Within treatment villages, households were randomly allocated to receive the CCT, the CCT and a vocational training (i.e. the training package), or the CCT plus a productive investment grant (i.e. the productive investment package). In 2009, the ECD (parenting home visit) intervention was randomized orthogonal to the CCT, with 22 villages receiving parenting advice targeting mothers, 22 villages receiving parenting advice targeting mother and fathers, and 62 control villages.

As the different program modalities were randomized, and as the experimental control groups never received the program benefits, the study provides a unique opportunity to document the long-term effects (after 12 years) of different combinations of interventions

that targeted to increase the human and physical capital of the youth. We do so through a rigorous and comprehensive follow-up survey data collection effort, building on a strong experimental design that allows providing unique evidence to the long-term returns and sustainability of the different program components.

Several large-scale surveys had already been collected prior to the 2017 follow-up. A baseline survey for the cash transfer program was collected in 2005. A first follow-up survey was collected in 2006 before households exited from the CCT program. This included a household survey, as well as a child survey measuring cognitive and non-cognitive outcomes. A second and third follow-up survey were collected in 2008/9 and 2011. These surveys included a household survey with expanded employment modules, an expanded child survey with a broad range of measures of child development, as well as a caregiver survey.

These earlier evaluation surveys were used to establish short-term impacts on cognitive, non-cognitive and achievement outcomes, as well as schooling and anthropometric measures for children that were exposed to the interventions during early childhood or primary school years. Similarly, short-term impacts on income and labor market outcomes were found on beneficiaries of the occupational training and business grants components. These short-term results are key to establish the pathways and causal chain to the longer term results. Information from several rounds of qualitative surveys, the program monitoring data provide further information on the theory of change and mechanisms.

The 2017 data collection targeted three groups. 1) the adult women that were the main beneficiary of the CCT interventions; 2) young adults 19-29 that were of primary or lower secondary school age during the CCT; 3) teenagers 9-19 that were 0-6 during the CCT or ECD intervention. The new round of data collection included a number of quantitative survey instruments and educational/cognitive tests. In particular: (1) All eligible households from the treatment and control villages that were interviewed during the previous survey rounds were asked to participate and answer questions on a range of topics using a standard household survey, complemented with detailed modules on economic activities and labor history. (2) a shorter household survey was also to be asked to all splitt-of households to whom members of the original households of interest to this study migrated; and (3) For the subsample of households in which there are individuals between 9 and 19 years old (i.e. those exposed to the programs in early childhood), individuals of these age groups were asked to participate in a number of cognitive and educational tests.²

For each test, the enumerator carefully explained the tests, and only proceed to the actual tests once the individual has demonstrated understanding of the test. The tests aim to measure social skills, language skills, and memory. In particular, the study used the Test de Vocabulario en Imagenes Peabody (TVIP) to measure receptive vocabulary, the digit span and a commonly used fluency retrieval test to measure memory, the Raven Colored Progressive Matrices, and basic math and Spanish language tests to measure achievement batteries. The TVIP is the Spanish equivalent of the PPVT, the Peabody Picture Vocabulary Test, and has been normed for Spanish-speaking individuals in Mexico and Puerto Rico. All the achievement tests are modelled after international approved and standardized tests. All

² After oral consent of the parents was obtained for those below 18 (and oral assent of the children) or oral consent of the individual if 18-20, to undertake the tests.

these tests were extensively piloted in Nicaragua and used in previous studies. In addition to these tests, children were asked questions on aspirations and expectations, and some attitudinal and behavior questions, the later using (inter alia) a subset of the widely used Strength and Difficulties test. Finally, a small set of questions was asked regarding behaviors that are widely considered as negative for teenage populations (smoking, drinking, unprotected sex, etc).

The sample for the first 2 groups of interest (the main beneficiaries and young adults 19-29) results directly from the baseline sample. The main beneficiary is the person identified at baseline as the main caregiver of children in the household, almost always a woman, who is typically the mother or grandmother of the children targeted by the CCT. The target sample contains 3972 women of eligible households in the *Atención a Crisis* treatment and control villages (in contrast to earlier rounds, we did not resurvey women in non-eligible households, which are less than 10% of all households in the 106 villages). As in the original sample, this corresponds to all eligible households in the *Atención a Crisis* treatment villages, and 1/3 of all eligible households in *Atención a Crisis* control villages. Young adults 19-29 are identified among members of these same eligible households based on recorded birthdates at baseline.

For the children 9-19, we similarly identify all children present at baseline in these same eligible households with baseline birthdates corresponding to these age groups. In addition, we include all children born to members of the original household between the baseline and the follow-up survey in 2008 (but do not include children born after the 2008 survey). This includes both children living to members that continue to live in baseline households, and children to members that moved out of the original household by 2008 (i.e. in split of households). These are the same children that were included in prior analysis of the ECD outcomes of the intervention (Macours et al, 2012).

Finally, after 2008 we added extra households to the sample in the original *Atención a Crisis* control villages. This was done to increase power, and as the parenting intervention was randomized orthogonally to the *Atención a Crisis* sample. Given that the parenting intervention has fewer treatment than control villages, and because not all households in *Atención a Crisis* control villages were included in the evaluation sample in the first 3 rounds of the panel survey, we did a listing of all households with children of ages eligible for the parenting interventions (below 6 years old in 2008) after the 2008 survey. These children were eligible for the parenting interventions and included in 2011 survey. They are therefore also resurveyed in 2017.

3. Field work and unexpected circumstances

Data collection for all instruments was started in September 2017 through collaboration with the local survey firm CIERUNIC. Following successful protocols of prior long-term panel data collections, the field work plan envisioned an initial phase of 8-9 months in which all the original villages and municipalities were to be visited, and targeted households and individuals that had not moved beyond to be surveyed. After this first phase, an intensive tracking phase was planned, in which both revisits to the original location and intensive tracking to migration destinations was to be pursued.

However, in April 2018 Nicaragua was immersed in a political crisis and civil unrest that led to the suspension of survey activities after the first phase.³ Given the continued civil unrest in the country, field activities were not able to be resumed. As a result, no tracking was done outside of the original municipalities, affecting attrition rates. We therefore first document this attrition and analyze the extent it was selective between treatments, before turning to the impact estimates on the targeted outcomes.

Attrition

Attrition and mobility are analyzed separately for the 3 types of respondents of interest: the original main beneficiary of the household (titular), young adults (between 19 and 29), and children (age 9-19). To document the level of attrition, its causes, and the extent to which these differ by treatment group, we estimate ITT effects of the CCT intervention on various attrition related outcomes. Results for the main beneficiary (Table 1a) show that there is 24% attrition, which does not differ significantly between treatment and control villages, nor between the different treatment groups. About 7% of this attrition is due to mortality, while 1.5 % (in the control) is due to unknown reasons. 78% of main beneficiaries were found to live in their original village, though 5% of those could not be interviewed due to temporary absence. Being absent was a (significantly) more important reason for attrition in the control communities. In addition to those interviewed in their original location, a small share was interviewed after a local move.

Table 1b shows the destinations of those that migrated outside of the municipalities (none of whom was interviewed): 9% of main beneficiaries had moved to a different municipality, 6% to another department and 3% to another country. There is no significant difference in destinations between treatment groups. However when zooming into some specific destinations, it does appear that the CCT (and in particular the CCT+training) led to significant increase of migration to Managua. To the extent these women are more likely to be engaged in an economic activity (possibly as a result of the training) we may hence slightly underestimate impacts on such activity by not having these women in the sample.

Turning to similar estimations for the young adults, Table 2a shows that attrition is much higher (37%, as expected given the mobility of this age group, and significantly lower (significant at the 10%) in the treatment villages, driven by lower attrition of those with the basic CCT. Only 1% has died and for 3%, reasons for attrition are missing (with no differences between treatments). Only 42% of young adults still live in the same household as in 2005, indicative of many of them having already transitioned to forming their own household. There is no significant difference here between treatments. However, as for the main beneficiary, young adults were less likely to be absent in treatment than in control villages, with this result being driven by those with the basic and (in particular) the training package. In terms of destinations, 25% in this cohort have moved to a different municipality,

³ The survey firm was able to visit all original villages in the first phase, though could not entirely finish all planned activities in them.

15% to a different department and 7 to a different country (mostly Costa Rica- Table 2b). There are however no significant differences in destinations between treatment groups.

Finally attrition for the 9-19 year olds is 21%, with the basic CCT having slightly lower attrition rates than the control (significant at 10%) – Table 3a. About 1/3 has moved to another household, but this (nor absence) is significantly different between treatments. And while migration to other municipalities (11%), departments (6%) and countries (1.5%) is lower than for the older cohort, the data also shows it is significantly higher for children coming from households that benefitted from the CCT+ training (compared to the control), including for migration to Managua and Costa Rica (Table 3b). This possibly could point to children having moved with other household members, who could be pursuing economic activities outside the villages of origin after the training. International migration is significantly higher for the basic CCT too. These differences point to the need for caution when interpreting results for the 9-19 sample, as attrition could be affecting both internal and external validity (see further below).

Table 3a is estimated using the sample of 9-19 year olds born in the original households. When adding the sample of children born to other original household members (but now living in different households), the results are broadly similar. Table 3c shows attrition rates for the individual survey (containing all tests) for this sample, as well as restricting to only those children living in sample households by baseline, and children living in sample households by baseline below the age of 6. The later corresponds to the core group used in the analysis on ECD outcomes with the 2006 and 2008 surveys (Macours et al, 2012). We note that for some of these samples, attrition is lower in the treatment than in the control. This can in part be explained by very high attrition (more than 50%) in one stratification block which was heavily affected by violence (youth gangs), preventing completion of the survey. Taking out this block makes most differences in attrition insignificant. For the relevant samples, we therefore show results without this particular stratification block, which remain internally valid.

Finally Table 4 shows attrition rates for 9-19 year olds in the sample collected to analyze impacts of the parenting intervention. We note attrition rates that are a bit lower (corresponding to the fact that this group, which includes children born after the baseline is younger, and with the fact that the reference households here are from 2008 not 2004), at 17%. None of the differences are significantly different between treatment and control, or between the treatment arms. This result is similar when considering attrition for the individual survey (with the tests in the last column). This suggests that for the analysis of the long-term impacts of the parenting intervention, attrition will a priori less of a concern than for the CCT analysis.

To analyze the long-term impacts of the parenting intervention, we consider all children age 9 to 19 as of September 1st 2017. This hence includes all children directly targeted by the parenting intervention (age 9 to 14 in 2017, but also older children as they may have benefitted indirectly from the parenting intervention). The main analysis is done based on the intent-to-treat as defined by children's village of origin in 2008. The analysis hence excludes children present in the CCT target villages between 2005 and 2008, but who were not living in those villages in 2008. To account for the fact that there is a lot of circular migration, and to be able to compare directly with the CCT intervention, we also tested robustness based on the 2005 location (the full sample for that analysis are 6297 children, of

whom 21% attrited, with attrition not significantly different between treatment groups). Results are broadly similar.

4. Long-term impact of the parenting intervention

We first analyze impacts of the parenting intervention on the entire 9-19 cohort together. Table 5 shows long-term impacts on the outcomes of the cognitive and achievement tests. All tests were standardized using the mean and standard deviation of the control.⁴ Given the multitude of tests, and to correct for multiple hypotheses testing, we aggregate test scores by calculating an average index, taking a simple averaging of all standardized test scores. We separate between cognitive and achievement tests. I.e. we combine in one index tests more likely to capture cognition/intelligence (Raven, memory, receptive vocabulary), and in another index those more likely to measure learning in school (Math and Spanish tests). All estimations control for the variables used to stratify the parenting intervention (prior presence in community of PAININ (the government preschool & early childhood intervention); prior exposure of community to CCT; and municipality). Estimations also control for the child's age through age fixed effects, and standard errors are clustered at the village level (based on the 2008 village of residence used to determine eligibility for the parenting interventions).

The results show that there is no evidence of any significant long-term impacts on cognitive or learning, nor any differences between treatment groups. This holds both for the full sample, and when limiting the sample to the cohort of children directly exposed to the parenting interventions (age 9-14, lower panel). The point estimates of the ITT moreover are very small.⁵ These results are in line with lack of longer-term impacts on cognition found in other home-visiting parenting interventions (e.g. Andrew et al, 2018).

Table 6 shows evidence of long-term impacts on the parental-child relationships themselves. Again, we construct two indices: one combining different aspects of parent-child relationships (time spent with parent, transfers sent to and received from parents); and one with parent-child communications (frequency in which they talk about what happened during the day, child's friends, how to prevent illness & nutrition, and the importance of studies). The results show a small but significant increase in the quality of the relationship between mothers and children, driven by impacts of the mother only treatment. Most notably, children spent more time with their mother during the week and are also more likely to send her money (typically when they are no longer members of the same household). There is no parallel impact for the overall relationship between fathers and their children, though fathers exposed to the parenting intervention are somewhat more likely to send their children support. There are also no long-term impacts on the type of communication mothers and fathers have with their children.

Table 7 shows evidence suggesting that there are also long-term effects on behavioral outcomes. Youth 14 years and older were asked to report on a number of behaviors that can be seen as negative given the age group and context: smoking, drinking, sex (and in

⁴ Results are similar using the median of the control.

⁵ We also analyzed ITT effects on a number of ancillary variables that can be derived from the test results (such as the duration of the tests, the performance on practice items -done before the test), as well as alternative ways of scoring the tests. These results further confirm that there is no evidence on long-term impacts on cognition or learning.

particular unprotected sex), and verbal or physical fights. Both parenting treatment variations lead to a significant reduction in these negative behaviors, with results being the strongest for smoking and having unprotected sex. This evidence suggest that improved parental-child relationships may have led to behavioral improvements, even if it did not lead to improvements in cognition. This is a particularly interesting result as the short-term evidence had also shown positive impacts on self-control. Note further that these impacts are measured for children that were mostly not directly targeted by the parenting intervention, suggesting positive spillovers on the older siblings.

Finally, children were asked their aspirations and expectations along a number of dimensions. Aspirations were asked in terms of “dream” job (education level and career, wage, etc...) by the age of 30. Expectations were asked in terms of the job (education level and career, wage etc) the child expected to get given the realities of his/her household. Overall there are no significant impacts of the parenting intervention on aspirations (not shown). This holds both for the full sample and when restricting to the age groups directly targeted by the intervention. However, the results in Table 8 suggest some impact of the parenting intervention on children’s expectations regarding university studies, and to a certain extent on whether their expectations and aspirations match.

Further analysis will test the robustness of these findings for inclusion of controls (which can help increase precision), and possibly interactions with the CCT. For the older children, testing differences between those that are siblings of children targeted by the parenting intervention (i.e. whose parents were exposed to the parenting intervention), and other children in the village will be important too, to further understand possible spillovers.

5. Long-term impact of early childhood exposure to productive safety net (CCT plus) intervention

We next analyze the long-term impact of early exposure to the CCT intervention, considering the same set of outcomes as in section 4. The main focus is on children 9-19 year olds that were living in the *Atención a Crisis* sample households at baseline, and those that were born to members of those households between 2005 and 2008. We also show results including households added to the sample in 2008 (from *Atención a Crisis* control villages) to increase power (see above). The beneficiaries in the *Atención a Crisis* treatment communities were randomly assigned into one of three packages: (i) a conditional cash transfer (CCT) conditional on children’s primary school and health service attendance; (ii) the CCT plus a scholarship that allowed one of the household members to choose among a number of vocational training courses; and (iii) the CCT plus a productive investment grant, aimed at encouraging recipients to start a small non-agricultural activity with the goal of asset creation and income diversification. We hence estimate the general impacts of the CCT (pooling the 3 treatment arms), and also show impacts by treatment arm.

We show estimations for the full sample, the 2005 sample, and for 3 age groups: children 9-12, i.e. those that were born between 2005 (baseline) and 2008, and hence benefitted from exposure to the program in utero or very early in life. Children 13-15, i.e. those born between 2002 and 2004, and youth 16 to 19, i.e. those born between 1998 and 2001. The later group was exposed to the program around entry in primary school. Table 9 shows a significant positive effect on cognitive test scores for the full sample, while there is no significant impact

on learning outcomes (achievement tests). Results are positive for the 4 cognitive tests, and highest and significant for the TVIP and Raven. Results are robust to surveyor fixed effects (each time in the second column). Results for the different learning tests show negative but not significant point estimates for reading and math fluency, but this is offset by a positive and significant impact on the math puzzles test. Results are broadly similar (though a bit noisier) when restricting to the 2005 sample. Further precision may be obtained when adding controls.

Results by age group show that impacts are positive and significant for those exposed very early in life, and those in the oldest age group, but not for the group in the middle. The magnitude of the cognitive effects are in the same ball park as the short- and medium-term results found in 2006 and 2008, and (as in Macours et al, 2012) not significantly different between the 3 treatment groups. Interestingly though, impacts for the oldest age group are largest in households with the productive investment package. Years of education is positively affected, and also largest for the oldest age group, consistent with this being the group exposed to the CCT around entry to primary school.

For the oldest age group we can estimate impacts on negative behavioral outcomes. In contrast with the parenting intervention, on average the CCT did not have a significant impact on these outcomes (Table 10). But it is notable that here there is a difference between treatment groups, with a increase in negative behavior among children in households with the training intervention (possibly because of migration or absence of mothers), and a positive (mostly not significant) effect for the other intervention groups, driven by lower probability of being involved in fights.

We further investigate impacts on child-parent relationships, but find little evidence of consistent effects (Table 11), though there are some differences in particular variables. When separating by age group (last panel), we do however find some patterns that are consistent with earlier findings. With most notably an apparent deterioration of communication and relationships of mothers with the children in the middle age group, while children in the oldest group seem to enjoy better communication and relationships with their father. Differences are not significant between treatment groups. These patterns deserve further analysis, in light also of the earlier findings of differences in cognitive impacts between age groups.

We also find a positive and significant increase in children's educational aspirations (Table 12), with children exposed to the CCT reporting to want to finish secondary school (3 p.p. higher), get at least a technical degree (5 p.p. higher) or get a university degree (6 p.p higher). Impacts largely persist when focusing on the 2005 sample, and appear stronger for the basic and training package, though differences between treatment groups are not significant. Children's expectations also are positively affected, with in particular their expectation about finishing secondary school being 5 p.p. higher. Note also that the answers to the expectation questions are notably lower than to the aspiration questions (see control means), in line with children having taken into account existing constraints when answering the expectation questions. Analyzing the results by age group, we note that impacts on aspirations and expectations are particularly large for the oldest group, in line with earlier results.

Table 13 further shows some indications of positive effects on matching between children's studies and their occupational aspirations. Though there is also an effect on aspiring to a

technical career, but expecting to end up in an agricultural related field. These intriguing patterns between expectations and aspirations deserve further investigation.

6. Long-term impact exposure to productive safety net intervention on economic activities of the main beneficiary

Atención a Crisis had the specific objective to help rural households diversify their income generating activities, in order to help them cope with future drought shocks. Short and medium term results confirmed the intervention was successful in increasing the share of households with nonagricultural self-employment, and that this persisted 2 years after the end of the transfers (Macours and Vakis, 2018; Macours, Premand and Vakis, 2019). Results were largest for households who received the productive investment grant, in addition to the basic CCT.

Table 14 shows that there is remarkable persistence of these results 12 years later. Beneficiaries that received the basic CCT and the CCT plus productive investment grant are 5% point more likely to have a nonagricultural self-employment activity (coming from small increases across food elaboration, manufacturing, commerce and services), and that this leads to significant higher income from self-employment. Almost all these activities were done in the home location of the beneficiary (with only 7% of the interviewed beneficiaries migrating temporarily for work).

Nonagricultural self-employment income is about 25% higher overall, and treatment effects are significantly different between treatment arms, with the beneficiaries of the training package showing no increase in self-employment activities 12 years later. The bottom part of table 14 shows that the increase in non-agricultural self-employment is partly offset by a lower likelihood of being engaged in agricultural activities (and possibly livestock), inline with the income diversification objectives. Beneficiaries are however also more likely to have worked in agricultural wage work (in particular those with the productive investment package, for whom these activities are often done through seasonal migration), leading to a small but not significant increase in wage work overall.

Finally, drawing on a survey module in which labor history was recalled, table 15 shows evidence of long-term impacts on beneficiaries' economic activities in the last 10 years, i.e. since the survey in 2008 (which took place about 2 years after the end of the transfers). Results confirm that there was a sustained impact on business activity among both beneficiaries of the basic CCT package and of the productive investment grant package. These are significantly different than those with the training package. Indeed beneficiaries with the training package on averages had 7 months less business activity than the control, while those with the productive investment grant had businesses for 8 months longer (from a mean of about 3 years). Notably, they also still own business assets of higher value in 2017.

The rest of Table 15 provides further evidence supporting lasting income diversification, with a small increase in the number of wage jobs held in the country. The increase comes from wage jobs in the municipality (consistent with the relatively low mobility of the beneficiaries) though also more likely in urban areas.

Overall these results hence point to a sustained impact on the economic activities and income diversification of the main beneficiary of the productive safety net intervention. Further

analysis will widen the scope of the analysis to other household members, and analyze in particular whether the limited impacts of the training intervention on the main beneficiary was offset by impacts among other (possibly younger and more mobile) household members. We'll also further analyze whether the attrited main beneficiaries were more likely to have migrated for work if they got the training intervention (as results in Table 1b and 3b may suggest).

7. Conclusion

The case for investments in conditional cash transfer programs and early childhood development interventions largely depends on their effectiveness in improving outcomes over the medium to long-term. Yet there is still limited evidence on medium to long-term impacts of either CCT or ECD programs on youths and adults, even if the evidence-base on short-term program effectiveness is expanding. And the existing evidence on medium-term and long-term impacts of such programs have sometimes given different results, highlighting the need to better understand the time trajectories of impacts and mechanisms by which short-term impacts can lead to long-term impacts.

The results in this report contribute to these ongoing debates by presenting 12-year impacts of a one-year productive safety net (CCT) program, as well as 8 year impacts of an early childhood parenting (ECD) intervention. The results most notably show sustained impacts of the productive safety net program on economic activities of the past beneficiaries, suggesting that even after 12 years, these beneficiaries continued to have a more diversified portfolio of economic activities and related income sources. Evidence also shows sustained impacts on the cognitive outcomes of children exposed to the CCT during early childhood, though these differ by age group. In contrast, the parenting intervention did not lead to sustained impacts on cognition. It did however lead to lasting improvements in parent-child relationships, and possibly as a result, in a number of behavioral indicators.

Overall these results hence suggest that well targeted short productive safety nets and human capital interventions can have long-term impacts for different generations. They also suggest that CCT and ECD interventions may affect a different set of outcomes (cognition versus behavior), with possibly long-term consequences on the trajectories of those children as they enter adulthood.