The gender dynamics of conditional cash transfers and smallholder farming in Calakmul, Mexico

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A B S T R A C T

We explore how Oportunidades, Mexico’s anti-poverty conditional cash transfer (CCT) program, impacts production and gender dynamics in the smallholder agricultural sector. A 2010 household survey in one southeastern municipality (Calakmul) captured data on Oportunidades receipt, land use and yields, as well as gendered patterns of asset control, decision-making, labor, and income receipt. Our analysis suggests that households with Oportunidades are more likely to engage in semi-subsistence maize cultivation and on average harvest more maize. Thus Oportunidades appears to support semi-subsistence production. We also document persistent gender gaps in land control, decision-making, labor, and income receipt. Nonetheless, we find that households with Oportunidades have on average smaller gaps of particular kinds: women receiving Oportunidades are more likely to hold de jure land rights and to share in income receipt from four main crops. These effects of Oportunidades on gendered smallholder production dynamics are important ones in smallholder women’s lives.

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Introduction

In this paper, we bring research on gender and conditional cash transfers into conversation with research on the effects of neoliberal policies on Mexico’s agricultural sector. We do so by exploring how Oportunidades, Mexico’s primary conditional cash transfer program to address poverty, has unplanned impacts in the agricultural sector—more specifically, unplanned impacts in gender relations and semi-subsistence and cash crop production support in the smallholder sector.

Since the 1980s, Mexican policies have harbored tensions between free-market strategies and measures aimed at mitigating associated economic hardship (Schmook & Vance, 2009). Mexico’s economic liberalization of its agricultural sector is well documented. Following its accession to the General Agreement on Tariffs and Trade in 1986, Mexico began to lower agricultural subsidies and to reduce support for agricultural inputs, extension, and marketing (Foley, 1995). The North American Free Trade Agreement (NAFTA) obliged Mexico to fully liberalize its agriculture. In the early 1990s, officials amended the Mexican Constitution to terminate land distribution and to permit lands held in usufruct under Mexico’s ejido® system to be bought and sold (Goldring, 1995). Ejido land encompasses half of Mexican territory, and official data indicates Mexico currently has 29,529 ejidos (Procuraduría Agraria, 2013).

The state’s retreat from the agricultural sector constituted a kind of “roll-back neoliberalism” (Castree, 2008). Despite – or because of – this neoliberalization, in most rural areas agricultural production did not take off, poverty rates remained high, and international migration became a necessary livelihood strategy among smallholders, especially in the ejidal sector (Eakin, 2006). Against this backdrop, state support continued by other means. Starting in the mid-1990s, conditional cash transfer programs (CCTs) including Oportunidades’ predecessor, Progresa, introduced in 1997, preempted the anticipated adverse effects of economic liberalization. Oportunidades, founded in 2002, was until 2014 Mexico’s main CCT to alleviate poverty. The program aimed at breaking the transmission of poverty to the next generation through investments in human capital. It started first in rural areas and, over time, was extended to urban areas. In 2014, the program was renamed

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1 By “smallholders” we mean those household-based farming enterprises engaged in small-scale agriculture, often combining semi-subsistence and cash crop production. In Mexico, the majority of smallholders are within the ejidal sector (see footnote 2 below). By using the term “smallholders” we are also referring to the access of the farming households to relatively less land than larger commercial farming ventures in the region. Here we use the term to encompass all households residing within Mexico’s ejidos, including those without official rights to ejidal lands.

2 Mexico’s ejidos are a communal land tenure system dating back to the 1917 constitution.
Prospera, with some change in design and implementation. In this paper, we use the program's former moniker, "Oportunidades."

As de Janvry and Sadoulet (2004) suggest, some policy experts claim that CCTs are a kind of magic bullet in development. The programs aim to reduce poverty by paying recipients in "exchange for an action that brings private behavior closer to the social optimum" (De Janvry & Sadoulet, 2004: 1). As such, support is conditional on the performance of specific actions or behaviors. Oportunidades, for example, makes bi-monthly payments to women on behalf of entire families, and in return, requires various actions—most famously, children's school attendance. The program also demands women attend preventative health presentations and volunteer time in community projects. Like other CCTs, Oportunidades conforms with neoliberal discourses of personal responsibility by viewing individuals' actions—such as a failure to invest adequately in education or health—as carrying the responsibility for their poverty.

In Mexico, the retreat from agricultural support and the expansion of CCTs have not been connected at the policy level. However, in places where subsistence and semi-subsistence agriculture predominate, the combined effects of these dual moves demand attention. In the smallholder sector, Oportunidades has served as a safety net by providing cash payments that families use to purchase food (Hoddinott, Skoufas, & Washburn, 2000; Skoufas, 2005). This safety net has likely been essential in the face of low agricultural production, international competition, and the withdrawal of the state from agricultural extension, marketing, and crop insurance. Yet, little research explores the effect of this CCT on smallholder agriculture. This is the case despite the role Oportunidades plays as a model for the developing world at large (Molyneux, 2006; Bradshaw, 2008). CCTs like Oportunidades have been implemented in many Latin American countries (Valencia-Lomeli, 2008), including Colombia (Handa & Davis, 2006; Farah Quijano, 2009) and Brazil (Handa & Davis, 2006; Soares, Ribas, & Osório, 2010). Research has instead focused primarily on two topics: the effectiveness of CCT programs in reaching health and education goals, and the consequences of the programs' common use of gender-targeting.

In order to explore the role of Oportunidades in smallholder agriculture, we report on a 2010 survey of 227 households, in 15 ejidos in the municipality of Calakmul. Located in southeastern Mexico, in 2009, the municipality saw average Oportunidades payments at the household level roughly equal to 15 days of wage labor. This amount constituted 25–100% more money than Mexico's main agricultural support programs (i.e., PROCAMPO; see Haenn, 2011). Notably because Oportunidades employs a series of assumptions regarding gendered roles, responsibilities, and choice-making, in addition to questions around smallholder production, the payments raise questions regarding the associated gender dynamics. Based on the existing literature, we hypothesized that women's receipt of Oportunidades would improve their bargaining position within households, in relation to agricultural production. To answer this question, the survey captured empirical data on the relationship between Oportunidades receipt and land use/production, as well as gendered patterns of land control, cultivation decision-making, agricultural labor, and agricultural activity income receipt.

The paper first offers a brief review of relevant literature, followed by descriptions of the study region, data collection, and analysis methods. We begin our findings by comparing agricultural production in households with and without Oportunidades. There we find households that receive Oportunidades are more likely to grow maize, and on average harvest more. As such, Oportunidades appears to be supporting semi-subsistence agriculture. We next document persisting and significant gaps between men and women in agriculture. Finally, we compare households with and without Oportunidades in terms of the gender gaps in agriculture. We find that households with Oportunidades have on average smaller gender gaps in some aspects, with women more likely to hold de jure rights to land and to share in the receipt of income from four main crops. However, in most aspects of the gendered dynamics of production, we find little difference between those households with Oportunidades and those without.

Significantly, these differences seem unrelated to the questions of healthcare and education through which Oportunidades is designed to act. In our discussion we note this disconnect, along with the preliminary quality of our findings. Although we see a need for additional investigation into Oportunidades' effects on agriculture, researchers face certain challenges in carrying out this work. One challenge is the program's now widespread quality, such that few households are able to act as a control group. Another challenge is the many indirect ways Oportunidades can intersect with smallholder agriculture and, in particular, gendered participation in farming.

Literature review and conceptual framework

The non-unitary household and gendered agricultural relations

Research on the impacts of CCTs in the agricultural sector is thin and largely focuses on food consumption rather than our interests in food production and agricultural decision-making. For example, Hoddinott et al. (2000) observed that Oportunidades enrollment led to a large increase in overall calories consumed, especially from highly nutritious foods such as fruits, vegetables, and animal proteins. Todd, Winters, and Hertz (2010) used a natural experimental design to examine the effects of enrollment in Oportunidades on land use, food consumption from own-account production, and livestock ownership. The researchers found program enrollment had a positive effect on agricultural production, particularly for smallholders and the landless—most likely by addressing these households’ cash liquidity constraints. Consequently, land use, livestock ownership, and spending on production increased. Gertler, Martinez, and Rubio-Codina (2006) likewise found Oportunidades associated with greater land use and livestock ownership. Furthermore, Todd et al. (2010) observed the value and variety of food consumed by households increased for those receiving Oportunidades. Based on these findings, the authors argue the program increases semi-subsistence production and buffers smallholders from volatile food prices: “An increase in consumption from own production may help shelter extremely poor households from the risk of food insecurity and hunger” (Todd et al., 2010: 40).

Unexplored in this research is the way Oportunidades and smallholder production take place in the context of highly gendered household and community relationships. Smallholder households are not singular units of production. Instead, they act as collective organizations of individuals who, while working together, do not necessarily share the same interests (Sen, 1987). Gender, as a social identity, is a principal distinction among household members. Among other points, gender affects resource access and control, labor, and management (Sachs, 1996; Razavi, 2002; FAO, 2011). Based on their gendered identities, household members make different contributions to smallholder production and receive different benefits. In light of the way Oportunidades’ overall aim entails diminishing poverty through women’s control of resources, these gendered household relationships merit exploration (Molyneux, 2007; Kabeer, 2008).

3 Gender-targeting is the common term used to refer to the targeting of CCT payments to women. We discuss gender-targeting more below.
4 PROCAMPO (Programa de Apoyos Directos al Campo, or Program of Direct Support to the Countryside) is a state program of direct cash transfers to farmers in support of agriculture, implemented in the 1990s to help address the adverse wellbeing effects on smallholders of Mexico’s economic liberalization of agriculture.
5 Because the program in Mexico was implemented gradually across geographic space, it was previously possible to compare enrolled households in covered communities to qualifying households in communities not yet covered. Given Oportunidades’ prevalence today, this “natural experiment” is no longer an option for research design.
We approach our research using the framework of the non-unitary household, in which the household is a site of both competition and cooperation (Sen, 1987). As is common in intra-household resource allocation and control analyses, we break the household apart to consider the individual actors within it (Deere & León, 2001, 2003). In previous research on gendered land access and control, this non-unitary-household approach has been essential to making visible women’s otherwise undocumented contributions to agricultural production (Radel, 2011). As has been documented for Latin America in general (Deere & León, 2001, 2003), there is a gender gap in access to and control over land, including the holding of formal land titles. This gender gap matters for women’s wellbeing precisely because of the reality of a non-unitary household. Research elsewhere in the world also has demonstrated that de jure titling in women’s names can change their bargaining position within households (Agarwal, 1994). This improved bargaining position can then lead to more gender equitable outcomes of intra-household negotiations. For many rural households, some of the key negotiated relations surrounding production that tend to be highly gendered include the allocation of household labor, decision-making over resource management, and the receipt and allocation of any income resulting from production. Throughout the world, research demonstrates that women contribute significant amounts of labor to smallholder production, without an equal role in decision-making or in the share of benefits (Radel & Coppock, 2013). Because this disparity diminishes women’s wellbeing, it increases the relevancy and urgency of questions regarding the relationship between households’ gendered agricultural production and women’s participation in CCTs.

CCTs and women’s gender empowerment

Because little research on Oportunidades and other CCT programs connects them to smallholder agriculture, here we link our research to studies that situate CCTs in household economies. Studies on the gendered dimensions of CCT programs largely focus on whether or not targeting CCTs to women can help close gender gaps and lead to greater gender equity. One idea, in particular, stands as a core hypothesis—that gender-targeted CCTs might empower women by changing intra-household gender dynamics. Reportedly, when women gain independent access to resources they achieve an improved bargaining position in their households (Agarwal, 1997), with potential implications for household spending. In addition, some studies evidence the programs’ positive impact on women’s and girls’ health and nutrition status, as well as school enrollments, noting that these effects carry their own potential for women’s long-term empowerment (reviewed in Molyneux & Thomson, 2011; see also Skoufias, 2005).

Research on household economies, however, presents growing evidence that programs like Oportunidades do not lead to more “family-friendly” spending and may not lead to women’s increased power over household decisions like spending (Handa, Peterman, Davis, & Stampini, 2009). Instead, this research asserts that the overall impact of CCTs on women is mixed (Molyneux, 2006; Bradshaw, 2008; Molyneux & Thomson, 2011). For example, Handa et al. (2009) examined household spending and found that Oportunidades did not change spending behavior. These authors argue that this finding may reflect a reality in which household income is in fact pooled or where household members have shared preferences in expenditures. The findings may also reflect a reality in which Oportunidades payments to women crowd out other intra-household transfers resulting in little net effect on the income women control. One topic of debate is whether unearned income (in the form of state subsidies like Oportunidades) has the same outcome as earned income in improving women’s bargaining position within households (Handa et al., 2009). And, in addition to the positive impacts of women’s increased control over income, possible shifts of financial power within families may ultimately result in negative impacts on women, such as increased violence against women by men threatened by familial changes. Empirical evidence concerning gender-targeted CCT impacts on the incidence of domestic violence is also mixed (Bradshaw, 2008).

Additional research emphasizes consequences associated with programs’ conditional nature. In particular, researchers find women’s work burden may increase due to program demands, as CCTs commonly require women volunteer their labor on community projects (like clean-ups) and attend health-related workshops. Thus, CCTs reinforce existing socially prescribed roles for women in family and community reproduction. As a result, some scholars argue these programs can buttress the gender divisions through which gender inequalities are reproduced at the same time that they might create spaces to transform these divisions (Martínez Franzoni and Vooren, 2008; Farah Quijano, 2009).

Although none of these studies examine the impacts of CCTs on smallholder household economies, their findings are suggestive. If receipt of Oportunidades changes women’s position within the household, we should observe empirical differences between women’s roles in households with Oportunidades and those without. If CCTs improve women’s bargaining position in the household, we might expect Oportunidades receipt to foster women’s greater participation in land control, in farming and land-use decisions, and in receipt and control over farming income.

Methods

Study region

The municipality of Calakmul on Mexico’s southern Yucatán peninsula sits on the central karst uplands (i.e. the meseta) that form the peninsula’s spine (see Fig. 1). Calakmul is home to 27,000 people, two-thirds of whom work in semi-subsistence and cash crop agriculture. A central feature of the municipality is the Calakmul Biosphere Reserve, whose southern boundary coincides with Mexico's border with Guatemala. The region’s forests are broadly classified as seasonally dry tropical forests (see Pérez-Salicrup, 2004 for details) associated with a seasonal pattern of rainfall, with a wet season from May to October (Magaña, Amador, & Medina, 1999). Average annual precipitation is around 1025 mm, but precipitation patterns have become spatially and temporally inconsistent since the mid-1980s and droughts are common (Márdero et al., 2012). Because of the karstic nature of the substrate, the region has no permanent streams and few permanent ponds or lakes. These biophysical characteristics present a challenging context for agricultural production.

Today’s municipal settlements, most of which are ejidos, mainly date to the 1960s and 1970s. At that time, forest extraction and road construction, along with state-sponsored land distribution of ejidos, created many villages and a few small towns. The current population has grown from a little over 2500 in 1960 (Turner et al., 2001) to 26,882 in 2010 (INEGI, 2011). Despite this rapid growth, population density remains low (ca. 1.5 people per km²) (Alayón-Gamboa & Ku-Vera, 2011). As a former agricultural frontier, Calakmul is home to an ethnic mix of peninsular Mayans, indigenous people from Chiapas (e.g. Ch’ol and Tzeltal), and mestizo or non-indigenous people predominantly from the Mexican states of Veracruz and Tabasco (Gurri, 2003). Some 42% of the municipality identifies as indigenous (INEGI, 2010).

By Mexican standards, the region is not prosperous. Mexico’s National Population Council (CONAPO) maintains an ‘Index of Marginalization’ that compares municipalities along axes such as urbanization, literacy, and household income. Each municipality is assigned to one of five categories ranging from ‘very high’ to ‘very low’ marginalization. In 2005, the year for which most recent data are available, Calakmul was ranked as ‘high’ marginalization (Anzaldo & Prado, 2006; Haenn, 2011). Although the municipality’s natural resource-based economy has diversified in recent years, semi-subsistence agricultural production remains...
a core activity for a majority of households. Additionally, around 2000, the municipality became incorporated into national and international labor streams. In 2003 some 7% of Calakmul’s adult population lived in the United States (Schmook & Radel, 2008). Following the economic recession in the United States in 2008, labor migration has shifted to the tourist corridor of the neighboring state of Quintana Roo.

In this economic context, women’s roles within agriculture in the region are critical, especially at harvest and other points of high labor demand (Radel, 2011). Despite women’s importance in production, however, their control over land and other key assets is low and in fact, has been lower historically than has been found elsewhere in Mexico (Radel, Schmook, McEvoy, Méndez, & Petrzelka, 2012). In the ejidal sector, women and men hold land through official membership in the ejido as ejidatario or ejidataria. With the initial establishment of the ejidal system, only one household member served as ejidal member. Men held this membership with the social expectation that they did so as representatives of households. Women held membership only in cases where no adult man was present in the household. Since 1971, both husband and wife in the same household can hold land through the ejido simultaneously. And with Mexico’s movement towards land privatization, ejidal land rights are now treated increasingly as assets belonging to individuals. However, local norms govern ejidal land control, and in Calakmul and elsewhere women continue to be seen as legitimate ejidal members only as temporary or secondary representatives of their families (Radel et al., 2012; Vázquez-García, 2015).

In previous research in the region, we documented how men’s labor migration resulted in the transfer of land title from men to women within the same households (Schmook, Radel, & Méndez, 2014). In one community (“Villanueva”), for example, this transfer occurred following the unannounced arrival of state titling agents. The titling of wives in the place of absent migrant husbands led to some conflict within the community and also within particular households, as some men felt their positions had been usurped. This conflict stood as another example of the fallacy of a unitary-household. As one woman explained: “The problems deepened when I changed the ejidal right into my name. He said to me very angrily that now that I had robbed him of his land, if he returned [from the US] he would have nothing here. He said to me, ‘If I return I will be your manservant, you will hire me’” (Schmook et al., 2014, p. 211). As part of the findings we present here, we document how, despite some changes in women’s participation in asset control, there continues to be a significant discrepancy between women’s labor contributions to production and their participation in asset control, resource management or decision-making, and production income receipt.

Data collection and analysis

We have been working in the Calakmul region for almost two decades. Schmook’s research is rooted in an interest in the drivers of land change. Radel’s focus on women’s participation in conservation projects has considered the projects’ impacts on their access to and control over land. Haenn has examined state–ejido relations in the context of conservation–development programs. Green is conducting research on differential vulnerability to climate change. Institutional settings, gender questions, and state-sponsored development policies have been core to our research. According to the specific research question examined, our methods have been both ethnographic and quantitative, mostly via household surveys. The data for this article results from a
specific survey, with ethnographically driven contextual information and insights.

In 2010, we surveyed 227 smallholder households, in 15 ejidal communities, many of them indigenous. For this survey, we returned to two sets of Calakmul households previously surveyed in 2001 (by Haenn) and in 2003 (by Schmook). The participants in the original 2001 and 2003 surveys were drawn from a random sample of households in select ejidos. The 2003 survey ejidos were selected through a stratified two-stage cluster design (see Schmook and Radel [2008] for more detailed descriptions of ejido selection), while the 2001 survey ejidos were selected to generally achieve an even geographic distribution. The combined 15 ejidos for the 2010 survey represent approximately 17% of the rural sections of the municipality (excluding the more urbanized municipal seat).

Data analyzed for this article are exclusively from the 2010 survey, which covered a range of topics related to households’ livelihood activities and income sources. It also included sections on perceptions of labor migration, intra-household financial management, and resource sharing. The survey was administered to both the male head of household (referred to here as the husband) and the female head of household (referred to here as the wife) for each household in our sample. Some questions were asked of both household members and other questions only asked of the husband or wife. The data analyzed here came from both the husbands’ and wives’ sections of the survey. The survey was administered by a Spanish-speaking team of five persons, four of whom were from Calakmul and two of whom spoke local indigenous languages (Yucatec Maya and Ch’ol).

The survey was not specifically designed to examine the effects of Oportunidades on households, or we might have chosen to stratify the sample for Oportunidades enrollment. However, due to our prior work in the area, we knew Oportunidades payments played a significant role in household economies (see earlier in this text) and included questions on this topic in the survey instrument. Comparing the number of households officially enrolled in the program with the number of households enumerated by the Mexican census, we calculate some 75% of all Calakmul households receive some kind of Oportunidades payment. This number likely underrepresents needs. Despite a rigorous and centralized selection process for program inclusion, we found quite a number of qualifying households were left out. Some of these excluded households claimed that their non-inclusion had to do with their standing in the community and perceived exclusion as a political move to damage them. On the other hand, in some conversations, respondents expressed doubts about reasons for inclusion of some families perceived to be wealthier. Enrolled households receive varying payment amounts, tied to the number, age, and sex of participating family members. In our survey, 86% of respondent households were enrolled in Oportunidades. This higher percentage in our sample may reflect a higher enrollment rate in rural areas, as compared to more urbanized parts of the municipality.

In this paper, we compare households enrolled in Oportunidades to those that are not. We are aware that the low percentage of households not receiving the payment constitutes a challenge for data analysis, as it reduces the statistical power of tests for differences between recipients and non-recipients. This challenge may have resulted in a lack of statistically significant differences between the groups, based on our sample, even when such differences may have existed in the population. With SPSS we conducted a variety of statistical analyses, drawing primarily on Chi-squares for cross-tabulations of binary categorical variables and t-tests for comparisons of means of continuous data (e.g., comparing mean harvests of households enrolled and not enrolled in Oportunidades). For the cross-tabulations, we employed Fisher’s Exact Test for analyses where one or two cross-tabulation cells had expected counts less than five (otherwise we used Pearson). For all analyses, we used and report here 1-sided significance levels, as we are testing directional hypotheses of the impact of Oportunidades on agricultural production and gender gaps, based on related findings and claims in the literature. The effective sample size for specific variables is usually less than the full 227 households, due to cases with missing data. These cases were excluded analysis by analysis. For all analyses of husbands’ rates (of participation in decision-making, for example) we excluded the 15 households with no husband (e.g., due to death), and for all analyses of wives’ rates we excluded the 10 households with no wife.

Results

Smallholder agricultural production and the impacts of Oportunidades receipt

Before turning to the impact of Oportunidades on gender gaps in agricultural production, we present our findings on production and land use at the household level. These findings are important on their own, but they also provide a context for the findings on associated gender dynamics. For example, understanding the rates of different agricultural activities is important to understanding the significance of lessening gender gaps related to each activity.

Milpa (semi-subistence maize production, mostly swidden cultivation) remains the most widespread land use for smallholder production in Calakmul, with 87% of sampled households engaged in the activity despite the difficult biophysical and social contexts described above. For most households cultivating milpa in Calakmul, this is no longer the main economic activity, since off-farm employment and government transfers have tended to stabilize household economies and decrease dependence on agricultural production. On the other hand, these incomes and subsidies have allowed households to maintain their milpas for subsistence and cultural reproduction (Schmook, van Vliet, Radel, Manzón-Che, & McCandless, 2013). Traditionally, all farmers cultivated milpa, and it included maize grown in conjunction with companion planting of beans and squash. However, most milpa production is now limited to maize in monoculture. Some households (18%) engage in a second annual cycle of maize cultivation (tornamil, or winter maize).

More than a quarter of households engage in jalapeño chili cultivation (26%), cattle production (28%), or both; these represent most common cash crop activities in the region. In the 1990s, chili became an important cash crop in the region, with coyotes buying from smallholder producers. While chili income in some ejidos provided the necessary cash for some families to migrate to the US in the late 1990s (Radel & Schmook, 2008), by now this activity has been abandoned by many smallholders due to the low farm-gate prices received and the high costs of necessary chemical inputs. Before the 1990s only very few farmers had cattle, as acquiring cattle is expensive and long dry periods make the sufficient and continuous production of pasture very difficult. Nevertheless, starting in the 1990s, state subsidies for cattle production encouraged this activity among smallholders. Households desire to incorporate cattle as a long-term source of income, but also as a relatively liquid asset in case of an emergency.

Honey production is an increasingly important economic activity for Calakmul smallholders, with a growing proportion of households (20%) engaged in it. Chihuahua (Cucurbita spp.), a local squash variety raised for its seeds, which are sold commercially, and beans (Phaseolus spp.), used largely for subsistence, are also important crops cultivated by some Calakmul smallholders (17% and 11%, respectively). Sheep production, also important for some households, was reported by 18% of respondents. Given the forested character of the region, one might expect wood harvesting for sale to be a widespread productive activity, but this is not currently the case, according to respondents. Wood harvesting is strictly forbidden by the Calakmul Biosphere Management Plan (enacted in 2000) in most of the region except for a few areas under community forestry management. Only 5% of sampled households reported income from wood harvesting.
To examine the impacts of Oportunidades receipt on this smallholder production, we first examined the presence or absence of the three most prevalent agricultural activities: maize (often as milpa), cattle, and chili production. We found that households enrolled in Oportunidades were somewhat more likely to have milpa (see Table 1), with 90% of Oportunidades households cultivating milpa, and only 70% of non-Oportunidades households doing so (1-sided Fisher’s Exact \( p = 0.005 \)). In contrast, households with Oportunidades were somewhat less likely to have cattle, but this result was not statistically significant at a 90% confidence level. Households with Oportunidades were no more or less likely to cultivate chili.

We also compared land use in terms of hectares of land employed for crop cultivation. Households enrolled in Oportunidades had a mean of 3.4 ha of land in crops, while those not enrolled had 2.9 ha in crops, but this result was not statistically significant at a 90% confidence level (Table 1).

Given our finding of Oportunidades households’ increased likelihood of investing in milpa production, we also compared households’ maize harvests, measured in kilograms (see Table 1). We believe this to be important, as harvest is a direct measure of agricultural production. Differences in kilos harvested can reflect different amounts of land planted, but can also potentially reflect investment of Oportunidades funds in agricultural intensification or the loosening of overall household budget constraints, allowing other funds to be invested this way. Funds could be used to purchase inputs such as improved maize seeds, fertilizers, or pesticides in cases of pest outbreaks. We found that households with Oportunidades had a mean maize harvest of 1022 k; while those not only had a mean maize harvest of 706 k (\( p = 0.092 \), 1-tailed).

The gender dynamics of land control and smallholder production: significant gender gaps

These findings relating Oportunidades receipt and gendered smallholder land use and production need to be considered in light of gender gaps in agriculture, such as the land tenure gap. We first address our overall findings on these persistent gaps between men and women before turning to our examination of differences between households with and without Oportunidades. The survey results indicate that the overall gender gap in land tenure has not changed much in Calakmul since we first began collecting data on gendered land tenure in the municipality in 2002 (Radel, 2005; Radel, 2012a). This reality persists despite the significant shifts that have occurred in specific ejidos due to a confluence of events around men’s labor migration and processes of land privatization (see earlier discussion).

In the households in our sample, 89% of the 213 husbands or widowed/separated men held rights to a parcel of land through ejidal membership, while only 16% of the 216 wives or widowed/separated women did (Table 2). In 24 of the 35 households in which a wife held an ejidal land right, a husband did as well. This 16% rate of women’s titling is an increase from the 10% rate we found eight years earlier in the region (Radel, 2005). It still means that, while nine out of ten husbands hold ejidal land rights, only about 1.5 wives out of ten possess those land rights, up from just one out of ten.

We also asked about other landholdings, and in whose name each was held. The gap between husbands and wives is similar for the “ownership” of the family’s primary house lot, or solar. When we examine land tenure more broadly, however, including land held outside of the ejidal structure, the gap between husbands and wives lessens.

As we have argued elsewhere (Radel, 2005; Radel, 2012a), land control is about more than de jure land rights or the household-recognized “owners” of various land holdings. Participation in land control includes participation in land-related decision-making, such as decisions over land use, land sale, and even over the income or benefits of land use or sale. Here we consider only the participation in decisions to sell land, as an indicator of women’s de facto participation in control over land. We examine below decision-making concerning land use and the receipt of income from land use, as part of the gendered dynamics of land use. Our survey results indicate that wives participate much more widely in de facto land control compared to their de jure land rights or reported “ownership” (Table 2). In fact, survey respondents more frequently reported wives as participating in land sale decisions than they reported husbands as doing so.

Turning to the gendered dynamics of land use, versus control over land, we find other important and persistent gender gaps. As Fig. 2 below illustrates, wives’ crop-specific rates of labor contribution are much higher than their rates of participation in decision-making or in the receipt of income. In essence, wives often contribute labor, but most do not share in making decisions or reaping financial benefits. Rates of women’s labor contribution are higher than often assumed in Mexico, but are in line with the rates we have previously documented in other communities in the same region (Radel, 2011). In contrast, for men, the rates of participation are generally high for decision-making and income receipt. These generalizations belie differences across

### Table 1
Oportunidades and the presence/absence of agricultural activities.

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<th>Households with Oportunidades</th>
<th>Households without Oportunidades</th>
<th>Statistical test significance values&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize, percentage households cultivating</td>
<td>90%</td>
<td>70%</td>
<td>0.005 (chi-square, Fisher’s exact)</td>
</tr>
<tr>
<td>Cattle, percentage households owning</td>
<td>27%</td>
<td>36%</td>
<td>0.159 (chi-square, Pearson)</td>
</tr>
<tr>
<td>Chili, percentage households cultivating</td>
<td>26%</td>
<td>27%</td>
<td>0.485 (chi-square, Pearson)</td>
</tr>
<tr>
<td>All crops, mean hectarage planted in crops</td>
<td>3.4 ha</td>
<td>2.9 ha</td>
<td>0.194 (t-test, difference in means)</td>
</tr>
<tr>
<td>Maize harvest, mean</td>
<td>1022 k</td>
<td>706 k</td>
<td>0.092 (t-test, difference in means)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Reported for 1-sided test, based on underlying hypothesis of Oportunidades increasing cultivation and production.

### Table 2
Gender gaps in land tenure and participation in land sale decisions.

<table>
<thead>
<tr>
<th></th>
<th>Husbands</th>
<th>Wives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold ejidal rights to land</td>
<td>89%</td>
<td>16%</td>
</tr>
<tr>
<td>Hold rights to the solar (house lot)</td>
<td>85%</td>
<td>13%</td>
</tr>
<tr>
<td>Hold rights to any other land&lt;sup&gt;a&lt;/sup&gt;</td>
<td>61%</td>
<td>19%</td>
</tr>
<tr>
<td>Would participate in decision to sell the solar (house lot)</td>
<td>47%</td>
<td>80%</td>
</tr>
<tr>
<td>Would participate in decision to sell other land owned by household members&lt;sup&gt;a&lt;/sup&gt;</td>
<td>53%</td>
<td>67%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Other land can be within the ejido, in another ejido, or a privately-owned parcel elsewhere. These data exclude any land the household holds rights to through membership in the Unidad de Agricultura Industrial de la Mujer (UAIM), a local institution for women’s collective organization and agricultural production.
crops, with the smallest gap between husbands and wives for bean cultivation—a crop that is often cultivated purely for a household’s own consumption.

We do not have the data on men’s labor contribution due to a weakness in the design of our survey instrument. Respondents for the agricultural section were largely husbands and were asked, “¿quién más trabajó ...?”, or “¿who else worked ...?” As a result, the design assumed the respondent’s labor contribution, and resulted in a severe underreporting of husband’s labor contribution. Given this problem, we used the responses from a different survey question, when respondents were asked specifically if the wife had made a labor contribution or not to a crop’s production and what contribution she had made. Interestingly and as a methodological note, in many cases, husbands’ initial, unprompted responses to “¿quién más ...?” (“who else ...?”) did not include the wife’s labor contribution, but when prompted to consider the wife’s contribution, these same men “remembered” their wives’ labor. This methodological finding reinforces the thesis that women’s field labor contributions in smallholder agriculture in Latin America can often be invisible and uncounted due to local social discourses that position women as “helpers” and not “farmers” (Radel, 2011; Radel, 2012b).

We also examined the gap between husbands and wives in the receipt of income (and for wives, the gap between contribution of labor and income receipt) for other non-crop agricultural activities, including cattle, sheep, bees/honey, and wood9 (Fig. 2).10 Again, the gender gap is significant, with low rates of women’s participation compared to men’s, but higher rates of women’s contribution of labor than rates of women’s sharing in receipt of income. Sheep stands out as an activity in which women participate in both labor and income receipt. Vázquez-García (2013) has argued that for Mexico as a whole, women’s frequent responsibilities in sheep production often go unrecognized. Sheep in Calakmul result from participation in sheep projects, which are often directed towards women. Sheep also arguably combine more easily with activities in and around the home, as sheep may be grazed around town or fed with collected fodder.

Finally, we compared husbands’ and wives’ receipt of income across all four most important crops (maize, chili, chihua, and beans) and across all crops and agricultural or forest products.11 For sampled households cultivating any of the four main crops, in 19% of cases, women were reported as sharing in the income from one or more crop; while in 79%, men were. For sampled households engaged in any of the larger set of activities, in 20% of cases, women were reported as sharing in the income; while in 88%, men were. As these cross-activity comparisons indicate, the gap between husbands and wives is considerable, with husbands four or more times more likely than wives to participate in the receipt of income.

The impact of Oportunidades receipt on smallholder gender gaps

Does the receipt of Oportunidades affect the gender gaps in smallholder farming? As the second component of our analysis of the impact of Oportunidades on smallholder farming, we examine its effect on gendered land control and on the gaps in decision-making, labor, and income receipt. As detailed above, the theorized link between Oportunidades and the gendered relations of agricultural production is a changed household bargaining position for the woman through her receipt of Oportunidades payments. For our analyses, we again compare households enrolled in Oportunidades to those not enrolled (excluding households with no wife).

A woman’s status as an ejidataria, or holder of ejidal land rights, is a significant challenge to local gender norms and expectations (Radel et al., 2012). A changed household bargaining position might lead to increased instances of women holding these ejidal land rights, either instead of husbands or as a second set of rights in addition to husbands’ rights. We found that women receiving Oportunidades payments were more likely than other women to also hold ejidal land rights, with 18% of women receiving Oportunidades also holding status as ejidatarias, while only 7% of those without Oportunidades held ejidataria status (Table 3). This difference is statistically significant at a 90% confidence level (Fisher’s exact chi-square significance = 0.097, 1-sided). The rate of wives’ participation in the reported “ownership” of a solar (house lot) is the same with and without Oportunidades. The rate of participation in the reported “ownership” for any other land is higher for wives with Oportunidades, but the statistical significance of the difference is quite low and the sample difference might not represent a population difference. Wives’ participation in the decision to sell land appears to be the same whether or not households are enrolled in Oportunidades.

With respect to the gender gaps in decision-making, labor, and crop/product income receipt, our hypothesis, as with land, (based on the CCTs and women’s empowerment literature) was that women’s receipt of Oportunidades funds translates into an improved position in the household and therefore to a lessening of these gender gaps. Women’s reported rates of participation in decision-making for the cultivation of specific crops are higher for those households enrolled in Oportunidades. In fact, all households in which wives participated in decision-making belonged to the Oportunidades-receiving group. However, due to low rates of women’s participation and high rates of Oportunidades enrollment, the differences between the groups are not statistically significant.

Our data do not indicate much difference between those households with Oportunidades and those without for women’s labor contributions, although in the sample, women with Oportunidades are somewhat more likely to report contributing labor for most crops (except chihua) and for the care of sheep and bees (but not cattle). None of these differences are statistically significant.

For income receipt from the crops, we found differences between the two groups, but again none of these were statistically significant (with the exception of income from honey), due to the small effective sample sizes. There was no difference for income from cattle; no wives in either group shared in cattle income. These differences do aggregate to a statistically significant difference for the four main crops combined—maize, chili, chihua, and beans (Table 4). In households with Oportunidades that cultivated one or more of these four crops, respondents reported 22% of wives as participating in the receipt of the income from crop sales. This compares to no wives in households without Oportunidades (chi-square Fisher’s exact significance = 0.07, 1-sided). We do not know what accounts for the only other statistically significant finding that wives in households with Oportunidades were statistically less likely to share in income receipt from honey than were wives in households without Oportunidades. More research would be needed to understand any processes underlying this observation.

Discussion

Supporting semi-subsistence production

The changes in the agricultural sector that we attribute to Oportunidades are unintended consequences of the program and somewhat contradictory in nature. These changes appear unrelated to the questions of healthcare and education through which Oportunidades is designed to act. First and foremost, Oportunidades appears to support semi-subsistence production both directly and indirectly.
We found a relationship between agricultural production (and extent of land use) and Oportunidades receipt for smallholders in Calakmul’s ejidos. This relationship was most evident, and statistically significant, for maize production—with households enrolled in Oportunidades more likely to cultivate maize and also having a significantly higher mean harvest. This result is in line with the findings of Todd et al. (2010) in that Oportunidades appears to increase poor households’ production of the region’s key subsistence crop by providing cash that can be used for agricultural inputs or can otherwise lessen financial constraints experienced by the household. Arguably, our results might reflect an underlying correlation of Oportunidades receipt with greater poverty, as the program targets poorer households.

Table 3
Wives’ land tenure and land sale control by household’s Oportunidades status.

<table>
<thead>
<tr>
<th></th>
<th>Households with Oportunidades</th>
<th>Households without Oportunidades</th>
<th>Cross-tabulation chi-square, 1-sided significance levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wife’s land tenure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife is an ejidataria</td>
<td>18%</td>
<td>7%</td>
<td>0.097 (Fisher’s exact)</td>
</tr>
<tr>
<td>Wife holds rights to the solar (house lot)</td>
<td>13%</td>
<td>15%</td>
<td>0.508 (Fisher’s exact)</td>
</tr>
<tr>
<td>Wife holds rights to any other landa</td>
<td>20%</td>
<td>14%</td>
<td>0.461 (Fisher’s exact)</td>
</tr>
<tr>
<td>Wife’s shared control of land sale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife would participate in decision to sell the solar (house lot)</td>
<td>81%</td>
<td>77%</td>
<td>0.337 (Pearson)</td>
</tr>
<tr>
<td>Wife would participate in decision to sell any other landa</td>
<td>67%</td>
<td>67%</td>
<td>0.607 (Fisher’s exact)</td>
</tr>
</tbody>
</table>

Notes: Data on husbands’ labor contribution were not collected. Income receipt for winter maize is included in the values for maize. Data on decision making were only collected for cultivated crops. Values do not sum to 100, as decision-making, income receipt, and labor contribution can be shared by wives and husbands and/or can include other household members.

Fig. 2. The gender gaps in decision making, income receipt, and labor contribution to smallholder agriculture.

*These data exclude any land the household holds rights to through membership in the Unidad de Agricultura Industrial de la Mujer (UAIM), a local institution for women’s collective organization and agricultural production.
And poorer households might be more likely to cultivate maize and more of it. However, we believe that a good many of the households in our sample not receiving the CCTs are in fact eligible to be enrolled, but are not for a variety of reasons including intra-ejido politics and social inequalities (see Navarro-Olmedo, Haenn, Schmook, & Radel, 2016).

Impacts on cultivation also occur indirectly, as Oportunidades generally increases food purchases enabled through the additional income from enrolment, thereby preparing them for jobs outside farming. While Oportunidades expects women to improve their families’ lives through behavioral change. Furthermore, men are discursively treated as having interests separate from families, while women are treated as having interests that coincide with the larger wellbeing of the family. In our analyses, we bring to light behavior change not in terms of the discourse of co-responsibility espoused by Oportunidades, but in terms of the activities and actions of different household members in relation to each other and in relation to smallholder production.

**Table 4**  
Wives’ decision-making, labor contribution, and income receipt for main crops and activities, by Oportunidades status.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Households with Oportunidades</th>
<th>Households without Oportunidades</th>
<th>Chi-square exact; Fisher’s exact; 1-sided significance levels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wife participates in decision-making</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>3%</td>
<td>0%</td>
<td>0.619</td>
</tr>
<tr>
<td>Winter maize</td>
<td>4%</td>
<td>0%</td>
<td>0.749</td>
</tr>
<tr>
<td>Chihua</td>
<td>2%</td>
<td>0%</td>
<td>0.915</td>
</tr>
<tr>
<td>Beans</td>
<td>12%</td>
<td>0%</td>
<td>0.489</td>
</tr>
<tr>
<td>Chili</td>
<td>0%</td>
<td>0%</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Wife contributes labor</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>41%</td>
<td>39%</td>
<td>0.441 (Pearson)</td>
</tr>
<tr>
<td>Winter maize</td>
<td>49%</td>
<td>38%</td>
<td>0.417</td>
</tr>
<tr>
<td>Chihua</td>
<td>46%</td>
<td>60%</td>
<td>0.447</td>
</tr>
<tr>
<td>Beans</td>
<td>66%</td>
<td>50%</td>
<td>0.376</td>
</tr>
<tr>
<td>Chili</td>
<td>71%</td>
<td>67%</td>
<td>0.583</td>
</tr>
<tr>
<td>Sheep</td>
<td>68%</td>
<td>33%</td>
<td>0.291</td>
</tr>
<tr>
<td>Cattle</td>
<td>19%</td>
<td>25%</td>
<td>0.513</td>
</tr>
<tr>
<td>Bees</td>
<td>50%</td>
<td>25%</td>
<td>0.363</td>
</tr>
<tr>
<td><strong>Wife receives or shares in receiving income from</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>22%</td>
<td>0%</td>
<td>0.417</td>
</tr>
<tr>
<td>Chili</td>
<td>21%</td>
<td>0%</td>
<td>0.347</td>
</tr>
<tr>
<td>Chihua</td>
<td>9%</td>
<td>0%</td>
<td>0.397</td>
</tr>
<tr>
<td>Beans</td>
<td>44%</td>
<td>0%</td>
<td>0.227</td>
</tr>
<tr>
<td>Sheep</td>
<td>41%</td>
<td>0%</td>
<td>0.251</td>
</tr>
<tr>
<td>Cattle</td>
<td>0%</td>
<td>0%</td>
<td>n/a</td>
</tr>
<tr>
<td>Honey</td>
<td>0%</td>
<td>33%</td>
<td>0.021</td>
</tr>
<tr>
<td>Any of the four main crops</td>
<td>22%</td>
<td>0%</td>
<td>0.070</td>
</tr>
<tr>
<td>Any crop or agricultural/forest product</td>
<td>21%</td>
<td>13%</td>
<td>0.386</td>
</tr>
</tbody>
</table>

* Unless indicated as Pearson.

Although Oportunidades was not designed to have a positive impact on smallholder livelihoods, but instead to provide an income minimum to a shrinking smallholder sector over time. Instead, Oportunidades generally increases food purchases enabled through the additional income from enrolment, thereby preparing them for jobs outside farming. While Oportunidades expects women to improve their families’ lives through behavioral change. Furthermore, men are discursively treated as having interests separate from families, while women are treated as having interests that coincide with the larger wellbeing of the family. In our analyses, we bring to light behavior change not in terms of the discourse of co-responsibility espoused by Oportunidades, but in terms of the activities and actions of different household members in relation to each other and in relation to smallholder production.

**Shrinking persistent gender gaps in agriculture**

It is important to note that the unintended gender consequences of Oportunidades are still within the realm of human capital improvements, but with human capital understood much more broadly in terms of investing in all the individuals of a family, regardless of differences such as sex and age. Oportunidades is often framed as helping to address inequality within Mexico, by providing a route out of poverty. We also have considered and framed Oportunidades in terms of social inequalities—but those inequalities that take expression within households as well as among them.

We found evidence that in Calakmul, Oportunidades does alleviate some intra-household inequality. This evidence rests on the finding of differences in the persistent gender gaps between households receiving Oportunidades and those not receiving the payments. Our finding of a reduction of some gender gaps in agriculture for households enrolled in Oportunidades suggests that some women receiving Oportunidades may have experienced an enhanced position within their households, translating into improvements in land control and a lessening of the discrepancies between participation in farm decision-making, labor, and income receipt.

More specifically, we found that in households with Oportunidades women were more likely to hold ejidal land rights in their own name (and may be more likely to hold title to other land as well). This difference may be an outcome of women’s increased bargaining position and status within their households, but it may also reflect households’ decreased liquidity constraints and their concomitant ability to purchase a second ejidal land right. Nonetheless, no matter the mechanism, status as ejidatarias gives women officially sanctioned voice in ejidal decision-making. However, the receipt of Oportunidades does not otherwise affect the processes of power within households around land control by changing the role of women in land sale decisions in general. Yet, given that the gap between husbands and wives in de jure land rights is much greater than the gap in de facto land control based on participation in land sale decision-making, the association of Oportunidades receipts with higher rates of wives’ de jure land rights is important.

The differences between the two household groups (with and without Oportunidades) in women’s participation in agricultural decision-making, labor and income receipt are also intriguing. Although not statistically significant, it is suggestive that the only households in our sample in which women participated in decision-making for the four principal crops – maize, chihua, beans, and chili – were those with Oportunidades. And with the exception of honey, again the only households in our sample in which wives shared in income receipt for the examined crops and agricultural activities were those with Oportunidades. Wives with Oportunidades were more likely (a statistically significant finding) to participate in the receipt of income from the four main crops (maize, chihua, beans, and chili) in combination.

These gender gap findings suggest something interesting about co-responsibility, gender, and non-unitary households. The neoliberal discourse of co-responsibility espouses a pure agency that negates the reality of gender structures, including those operating within households. Oportunidades expects women to improve their families’ lives through behavioral change. Furthermore, men are discursively treated as having interests separate from families, while women are treated as having interests that coincide with the larger wellbeing of the family. In our analyses, we bring to light behavior change not in terms of the co-responsibility expected by Oportunidades, but in terms of the activities and actions of different household members in relation to each other and in relation to smallholder production.
Conclusions

The case of smallholders is an illuminating one for understanding the impacts of Oportunidades. The program provides a significant portion of cash income for these households. As mentioned earlier, payments are (on average) equal to roughly 15 days of a local salary, and local salaried labor opportunities are scarce. So in the end, has Oportunidades (as it has been structured) been good or bad for smallholder households and the women within them? In our assessment, based on the Calakmul case, the program has been good for these women and their families, but perhaps not as good as the “magic bullet” it has claimed to be. Further, and more relevant to our point in this article, Oportunidades has proven beneficial in ways unrelated to the program’s design or conditionality, and the behaviors or actions it requires, largely of women.

Some scholars assert that gender-targeted CCT programs potentially reinforce the gender divisions through which gender inequalities are (re)produced, but that at the same time they might open windows for transformations in these divisions. We believe this to be the case in Calakmul. We have not focused in this study on the potential reinforcement of household gender divisions, but we have documented the impact of Oportunidades receipt on existing divisions within what are highly gendered dynamics of smallholder production and land control. Our evidence suggests that the receipt of Oportunidades funds possibly enhances small openings for women in Calakmul, in arenas such as land tenure. In general, more research is needed on the current impacts of Oportunidades and other CCT programs in smallholder farming contexts and on gender roles and relations in these contexts. Future research could try to assess when and why CCT receipt makes a difference for some women (and perhaps not others), and could take a more qualitative or ethnographic approach.

Overall, the “side effects” of Oportunidades on gendered smallholder production dynamics are important ones in rural smallholder women’s lives. The neoliberal thinking behind CCTs – to change household behavior “for the better” – tends to narrowly emphasize household investment in health and education. Underneath all this are other important human-capital-related impacts on how individuals behave in households, how they use their resources, including land, and how they relate to each other along lines of intra-household gender difference. And finally, we must not forget that under the guise of offering something good (cash), CCTs can mask the overall reality of neoliberal economic policies that do not allow smallholder men and women to overcome poverty, maintaining them in a state of limited subsistence.

In closing, we need to stress that we see our findings as promising and suggestive, but preliminary. They hint at the unintended effects of Oportunidades receipt as (re)producing household gender divisions, but we have not focused in this study on the potential reinforcement of household gender divisions, but we have documented the impact of Oportunidades receipt on existing divisions within what are highly gendered dynamics of smallholder production and land control. Our evidence suggests that the receipt of Oportunidades funds possibly enhances small openings for women in Calakmul, in arenas such as land tenure. In general, more research is needed on the current impacts of Oportunidades and other CCT programs in smallholder farming contexts and on gender roles and relations in these contexts. Future research could try to assess when and why CCT receipt makes a difference for some women (and perhaps not others), and could take a more qualitative or ethnographic approach.

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