



EVALUATING HOW ROOT CAPITAL'S CLIENT BUSINESSES IMPACT SMALLHOLDER LIVELIHOODS: COFFEE COOPERATIVES IN CHIAPAS, MEXICO

Impact Study Report

Acknowledgements

This study was possible thanks to the willingness of our clients Kulaktik and Yaxcoffee to participate in this evaluation. The organizations' leadership and their producers literally opened their doors and welcomed our research team into their homes and farms, sharing their time and insights, expecting nothing in return.

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Juan Taborda, Jorge Bouchot, Miranda Hansen, and Pablo Busto

245 Main Street, 2nd Floor.

Cambridge, MA 02142

jtaborda@rootcapital.org

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Executive Summary

Root Capital invests in the growth of agricultural cooperatives so they can transform rural communities, as these small and growing businesses generate reliable income for smallholder farmers and provide critical access to farm inputs and training. Through these services, agricultural-based cooperatives may offer a critical solution for generating higher income for small-holder farmers, closing agricultural gender gaps, and empowering women across value chains.

This study confirms that affiliation with Root Capital services, meaning being a member of a cooperative that is client of Root Capital or selling coffee to a business that is client of Root Capital, increased the average income of coffee-farming households in Chiapas, Mexico by \$6,188 MXN (\$335 USD) per harvest.¹ This represents a nearly 25% increase when compared to households not affiliated with our services. On average, farmers affiliated with Root Capital produce 89.2 kilograms more and are paid \$2.32 MXN (\$0.13 USD) more than similar farmers not affiliated to our clients. They are also 21 percentage points more likely to hold organic or Fairtrade certifications.

This report presents the findings of a quantitative analysis of the Root Capital programs supported by the Walmart Foundation. The study sought to evaluate the impact on various dimensions related to production, income, and gender inclusivity for smallholder coffee farmers who are affiliated with a Root Capital client cooperative. Data collection was informed by tools created by the International Food Policy Research Institute's (IFPRI) and its ANEW Portfolio, which is a body of research into women's empowerment and inclusion in the smallholder agriculture context. A subsequent report will include additional, disaggregated data on women's empowerment and indicators related to perceptions of gender inclusions in the households.

Data collection took place in the state of Chiapas, Mexico in March and April 2023. A total of 1,434 coffee-farming households were surveyed in the municipalities of Chilón, Tenejapa, Tila, Tumbalá and Yajalón, where two of Root Capital's clients, Yaxcoffee and Kulaktik, operate. The sample consisted of randomly selected farms affiliated to cooperatives receiving Root Capital services, as well as a similar group of unaffiliated coffee-farming households in nearby communities of the same municipalities.

Resumen Ejecutivo

Root Capital invierte en el crecimiento de las cooperativas agrícolas para que puedan transformar las comunidades rurales. Estas pequeñas y medianas empresas generan ingresos estables para los pequeños agricultores y brindan acceso crítico a insumos agrícolas y capacitación. A través de estos servicios, las cooperativas agrícolas pueden ofrecer una solución fundamental para aumentar los ingresos

¹ We use the exchange rate of \$1 USD=\$18.4902 MXN, which corresponds to the exchange rate of March 23, 2023, when the data collection started. Source: Mexican Central Bank (<https://www.banxico.org.mx/tipcamb/main.do?page=tip&idioma=en>).

de pequeños agricultores, cerrar las brechas agrícolas de género y empoderar a las mujeres en las cadenas de valor de productos como el café.

Este estudio confirma que la afiliación a los servicios de Root Capital, es decir ser parte de una cooperativa que es cliente de Root Capital o vender su café a un cliente de Root Capital, incrementa el ingreso promedio de los hogares cafetaleros en Chiapas, México en \$6,188 MXN (\$335 USD) por cosecha.² Esto representa un aumento de casi 25 % cuando se compara con los hogares que no están afiliados a nuestros servicios. En promedio, los agricultores afiliados a Root Capital producen 89.2 kilogramos más y ganan \$2.32 MXN (\$0.13 USD) más que agricultores similares no afiliados a nuestros clientes. También tienen 21 puntos porcentuales más de probabilidad de tener certificaciones orgánicas o de Comercio Justo.

Este informe presenta los hallazgos de un análisis cuantitativo de los programas Root Capital con el respaldo de Walmart Foundation. El estudio buscó evaluar el impacto que tiene estar afiliado a Root Capital en varias dimensiones relacionadas con la producción, los ingresos y la inclusión de género para pequeños caficultores. Los instrumentos utilizados para la recolección de datos se complementaron con herramientas creadas por el International Food Policy Research Institute's (IFPRI) y su portafolio ANEW, que es un proyecto que compila diversos estudios sobre el empoderamiento de las mujeres y su inclusión en la agricultura en pequeña escala. Un informe subsecuente final incluirá no solo estos hallazgos, sino también otros datos desagregados sobre el empoderamiento de las mujeres e indicadores relacionados con las percepciones de la inclusión de género en los hogares.

La recolección de datos se llevó a cabo en el estado de Chiapas, México, en marzo y abril de 2023. Se encuestaron un total de 1,434 hogares cafetaleros en los municipios de Chilón, Tenejapa, Tila, Tumbalá y Yajalón, donde dos clientes de Root Capital operan: Yaxcoffee y Kulaktik. La muestra estaba compuesta por fincas seleccionadas al azar afiliadas a cooperativas que reciben servicios de Root Capital y fincas u hogares cafetaleros seleccionados al azar con características similares que no estaban afiliados a nuestros clientes en las mismas localidades y municipios.

Introduction

ROOT CAPITAL

For nearly 25 years, Root Capital has invested in the growth of agricultural businesses so they can impact individual farmers and transform rural communities. These businesses generate reliable income for smallholder farmers and provide critical access to farm inputs and training. Through these services, agricultural-based cooperatives or private enterprises may offer a critical solution for generating higher

² Utilizamos la tasa de cambio oficial del Banco de México de \$1 USD=\$18.4902 MXN, que corresponde a la tasa de cambio vigente en marzo 23, 2023 que es la fecha de inicio de la recolección de datos. Fuente: Banco de México (<https://www.banxico.org.mx/tipcamb/main.do?page=tip&idioma=en>).

income for small-holder farmers and closing agricultural gender gaps and empowering women across value chains.

Root Capital's "credit plus capacity" model grants our clients the opportunity to access financing and tailored capacity building services to help their businesses grow, giving them the ability to transform rural communities in the world's most vulnerable places. Our lending services work with our clients to evaluate the financing options and terms that will help their businesses succeed. This involves customizing loan amounts and structures, securing competitive rates, and taking advantage of industry expertise to assure the credit provided facilitates the availability of needed working capital. Our capacity-building advisory services provide our clients with financial management and agronomic training that leads to improved enterprise operation, growth, and further access to finance at the business levels and improved quality and yields at the farm level, which in turn leads to improved incomes for smallholder producers. Furthermore, among other, we offer a set of advisory services focused on gender equality and inclusion, which aim to improve the inclusion of women in governance and decision-making bodies of small agricultural businesses.

CHIAPAS AND THE COFFEE INDUSTRY

Since the introduction of coffee in the late 18th century, Mexico has become the world's eleventh largest coffee producer³ and a major source of coffee imports to the United States. Chiapas is the most important coffee-producing state in Mexico⁴ and a globally significant biodiversity hotspot.⁵ The state's tropical rainforests provide ideal growing conditions for coffee. As a result, coffee farms managed under traditional agroforestry systems — which combine agriculture and forestry to mimic natural forest systems — continue to form an integral part of the landscape. Coffee production accounts for over 250,000 hectares in Chiapas, second only to maize in terms of agricultural land use, and the state contributes between 30 and 40 percent to Mexico's total coffee production each year.⁶

The coffee industry engages nearly a million people in Chiapas and is the primary source of income for around a quarter of the state's labor force⁷. Most coffee producers in Chiapas are smallholder farmers of indigenous background, managing less than five hectares (just over 12 acres) of land and employing organic, agroforestry production methods. Most of these farmers produce specialty-grade Arabica beans for international markets.

According to the National Institute of Geography and Statistics (INEGI), Chiapas is the state with the lowest income per household in Mexico, with an average monthly total income per household in 2020 of \$1,144.50 USD, compared to the \$1,806.63 USD national average. Historically, it is difficult to secure access to capital and financing for agriculture in this region. Furthermore, issues in recent years with leaf rust and

³ Food and Agriculture Organization of the United Nations, [FAOSTAT "Countries by commodity"](#), 2021.

⁴ Instituto de Café de Chiapas, [Datos Importantes Del Café](#).

⁵ Conservation International defines biodiversity hotspots as "the richest and most threatened reservoirs of plant and animal life on Earth." The state of Chiapas lies within the Mesoamerican hotspot. Conservation International, ["The Biodiversity Hotspots"](#).

⁶ Instituto de Café de Chiapas, [Datos Importantes Del Café](#).

⁷ Instituto de Café de Chiapas, [Datos Importantes Del Café](#).

other environmental challenges have devastated coffee trees, leaving farmers with reduced yields and higher expenses to remediate their crops.

The shift to organic farming in the past few decades emerged as a critical response to these challenges. According to Folch and Planas (2019), producers in Chiapas found organic practices to be an effective alternative to the conventional coffee crops that had become difficult to maintain due to unpredictable prices and unsustainable farming methods. The climate in Chiapas was also conducive to ecological farming techniques suited to organic farming, namely polyculture methods where different types of crops protect each other and create richer growing environments. Some scholars assess that organic coffee growing was able to expand rapidly in Chiapas because its productive methods were in close harmony with the traditional knowledge of the small indigenous producers. By the end of the 20th century, Mexico became the world's main producer and exporter of organic coffee, as well as the largest single producer of organic coffee in Mesoamerica.⁸

OUR CLIENTS

Kulaktik

Founded in 1992, Kulaktik has been working with Root Capital's lending and advisory services since 2019. The cooperative is made up of nearly 200 farmers of the indigenous Maya community residing in the highlands of Chiapas, which is classified as a highly marginalized population. Most are of the Mayan Tzeltal background and speak the native Tzeltal language. The Tzeltal word "Kulaktik" means "vine." Each member of the cooperative grows, harvests, and processes their own coffee to be delivered to the cooperative for grading and export. Kulaktik represents a critical resource for small producers to receive fair prices for their coffee and greater access to markets.

With access to credit and training from Root Capital, Kulaktik can export their coffee directly to international markets, securing higher prices from roasters. It is also a woman-led organization, with the President of the Association being one of the few women in the region chairing a cooperative board for this type of association.

Yax Coffee

Yax Coffee, founded in 2011, is made up of over 1500 producers of the Ch'ol and Tzeltal indigenous groups. Located in the Sierra Norte de Chiapas, the cooperative works with 72 communities in 6 municipalities.

"Yax" means *green* in the native languages, and the organization prides itself on using shade tree practices without any chemical substances that promote the biodiversity of the region. The cooperative also strives to improve living conditions of small producers and generate viable jobs for the younger generation as an alternative to migration away from their communities to cities.

⁸ Albert Folch and Jordi Planas, "Cooperation, Fairtrade, and the Development of Organic Coffee Growing in Chiapas (1980–2015)," MDPI, January 11, 2019, <https://www.mdpi.com/2071-1050/11/2/357>.

Root Capital has been providing financing and advisory services to Yax Coffee since 2014. Over the years, the cooperative has not only grown as a business, but has also become a gender-inclusive organization in terms of both employment and purchase of goods from women.

Study Objective and Methodology

RESEARCH QUESTIONS

With the support of the Walmart Foundation, Root Capital conducted this evaluation to explore how affiliation with any of its two clients in Chiapas, Mexico influences the production and income of smallholder coffee farmers and indicators related to gender inclusion and gender inclusion perceptions at the household level.

Our objective was to test Root Capital's theory of change that states supporting small agricultural businesses will have an impact on coffee farmers' income. Therefore, our key research question was:

To what extent do Root Capital services—access to finance and advisory services—impact the income of farmers affiliated with cooperatives receiving these services?

The following analysis presents preliminary findings of impact on various dimensions related to production, income, and gender inclusivity for smallholder coffee farmers who are affiliated with a Root Capital client cooperative.

DATA COLLECTION

Though the study was meant to be carried out in 2021, the data collection was delayed due to several challenges related to the COVID-19 global pandemic and rising security issues in the region of Chiapas.

The data collection took place in March and April 2023, and the instrument implemented was a modified version of IFPRI's Women's Empowerment in Agriculture Index for market inclusion (pro-WEAI+MI) tool (to be detailed further in a subsequent report). The fieldwork was conducted by a local data-collection agency, under the supervision of the research team.

Individual farmers were interviewed in five municipalities of Chiapas: Chilón, Tenejapa, Tila, Tumbalá and Yajalón. **Figure 1** presents the location of households that participated in the study.

A total of 1,434 farmer households (2,013 total observations including households where the partner of the member of the cooperative was also surveyed) participated in the study. Of these, 636 were affiliated to cooperatives receiving the services of Root Capital's clients (Kulaktik and Yax Coffee), and 798 had no

association to Root Capital or any of its clients in the region.⁹ Table 1 breaks down our sample by treatment condition and demographic groups.

Summary statistics on sociodemographic characteristics of the sample are shown in Table 2. On average, farmers in the treatment group are four years older, have fewer children per household, are less educated, cultivate more land, and have a higher prevalence of indigenous languages than the control group. There were no significant differences in gender composition between the treatment and control groups.

Figure 1. Geographical Location of the Households Participating in the Study

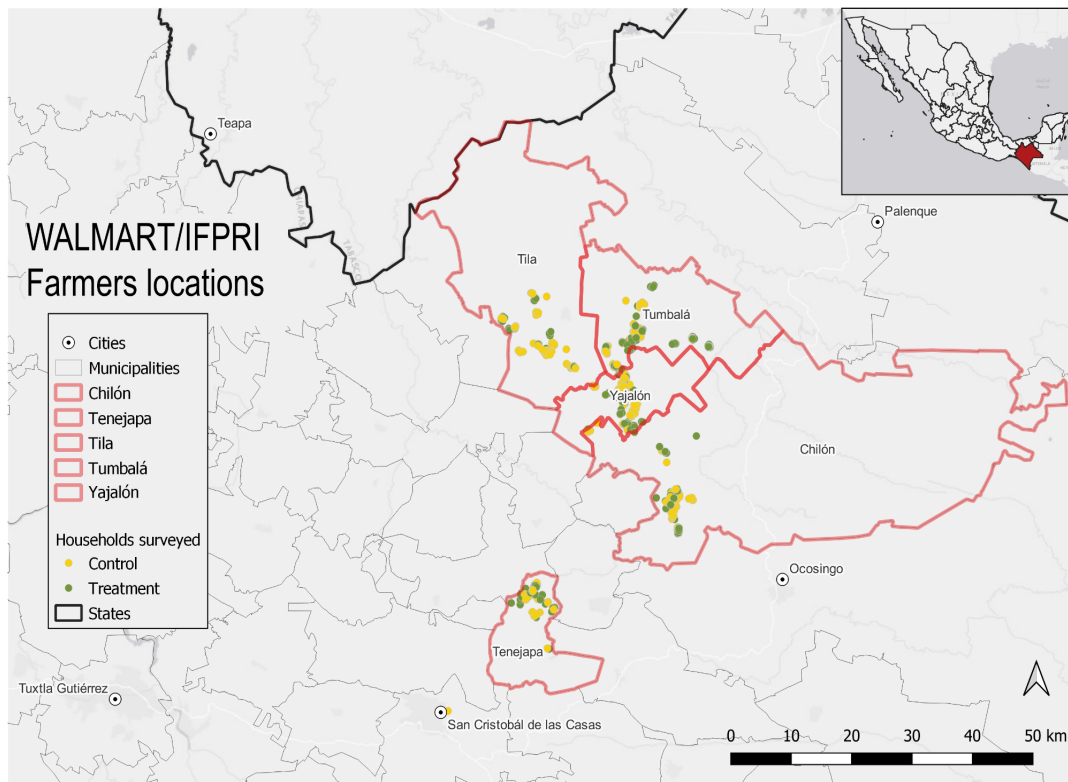


Table 1. Number of Observations by Treatment Condition and Demographic Group

	Full sample	Women	Youth	Youth women
Treatment	1,006	193	129	49
Control	1,007	200	202	80
Total	2,013	390	331	129

⁹ Root Capital has had more than 70 clients in the state of Chiapas over the last 15 years. To assure that we were not including households who are associated to former or current clients not included in the study, the data collection firm validated no farmers belonged to the list of 70+ current or former clients.

Table 2. Descriptive statistics (subset of sociodemographic variables)

Variable	Control Group		Treatment Group		Difference in means	Pr(T > t)
	n	mean	n	mean		
Gender (% of women)	638	31.82	582	32.99	-1.17	0.6617
Age	638	43.37	585	47.12	-3.75***	0.0000
Secondary or Higher Education (%)	633	37.44	577	27.04	10.40***	0.0001
Youth - up to 35 (%)	638	32.29	585	22.05	10.24***	0.0001
Household Size (number of members)	798	4.26	637	4.20	0.06	0.6062
Children up to 5 (average number)	798	0.28	637	0.22	0.06**	0.0354
Children between 6 and 12 (average number)	798	0.66	637	0.57	0.09*	0.0626

Note: Asterisks denote difference in means statistically significant at the confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

Analysis

VALIDATING CONTROL AND TREATMENT GROUPS

Given that the evaluation consisted of a one-time data collection, a *Propensity Score Matching* approach was used to construct the best possible comparison group based on observed characteristics to evaluating the impact of Root Capital's services for farmers in Chiapas. In summary, we aimed to find a pool of non-treated units (farmers not affiliated with Root Capital) whose characteristics were very similar to those that would have been exhibited by the treated units (Root Capital affiliated farmers) *before* receiving any services. Having two groups with the same characteristics allowed us to isolate the impact of Root Capital.

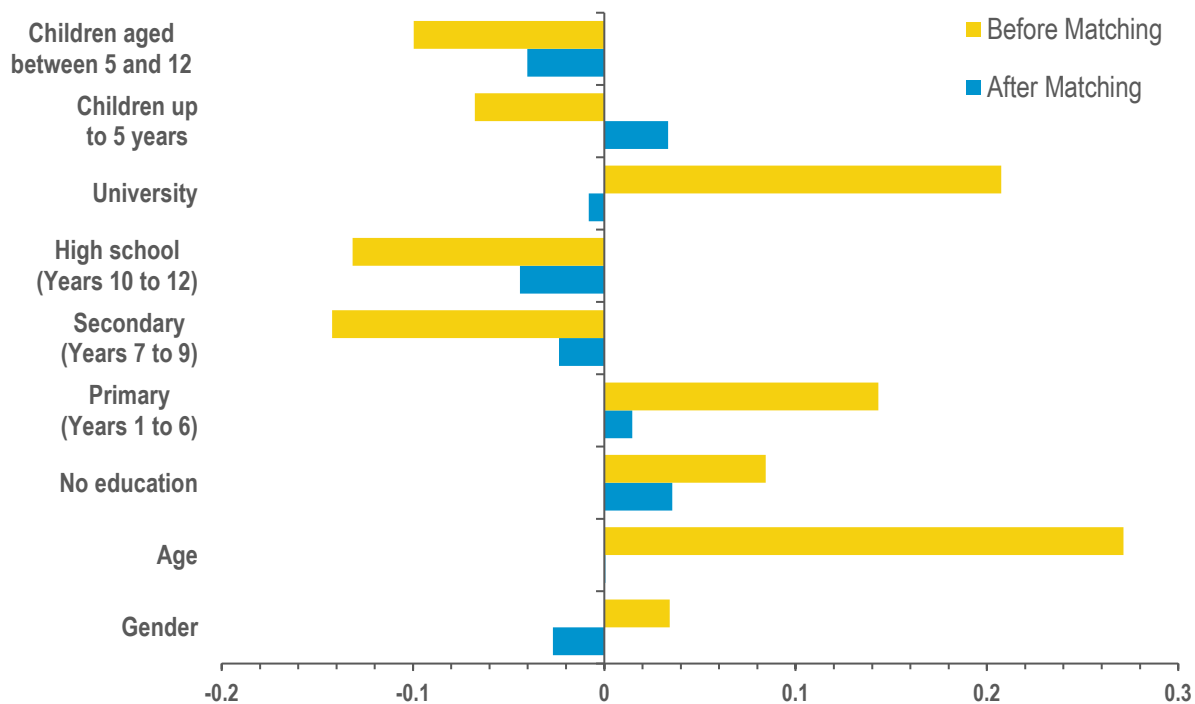
To do this, we identified a set of characteristics that could not have changed given an affiliation with Root Capital. Then we calculated the likelihood that the two groups would look almost exactly alike, with the only difference being whether they were producers of a cooperative that received services from Root Capital. These characteristics included¹⁰:

- Sociodemographic features of the farmer (gender, age, education and marital status)

¹⁰ Though hectares of farmland were originally included among these characteristics, and also a criteria to select farmers in the control group, it was found that this variable showed a significant difference between treatment and control groups. We therefore concluded that there may be a relationship between farmers associated with Root Capital clients and the size of land. For example, this could be due to the higher average incomes of Root Capital-affiliated farmers allowing them to purchase larger plots of farming land.

- Household size (number of household members living in the same house).
- Number of children (under five years and those aged between five and twelve years).
- The municipality where the household is located.
- Preferred language for interview (Spanish or Native language).
- Attitudes towards self-efficacy and entrepreneurship.

**Figure 2. Standardized Differences Between Control and Treatment Groups
(before and after the matching process)**



Once a control group is identified with very similar characteristics to those observed in the treatment group, we can say that we have matched the treated observations. The only difference between these groups is that some of them are affiliated to cooperatives receiving Root Capital services and some of them are not. Figure 2 illustrates how the differences between control and treatment group are reduced once Propensity Score Matching is implemented, where a difference closer to zero implies that the means of the selected variables are closer to being the same.

QUANTIFYING IMPACT

Once the treatment and control groups were defined and verified, we compared a series of outcomes to identify whether Root Capital's services had an impact on farmers' livelihoods, production, and dynamics of

gender inclusivity.¹¹ The difference in average outcomes corresponds to the level of impact that can be attributed to Root Capital for each of the following variables:¹²

- Incremental income
- Production, Sales and Average Price
- Certification
- Agricultural Practices
- Access Financial Services
- Collective Agency
- Labor Environment
- Gender
 - Use of Time
 - Income Decisions
 - Violence Against Women

Key Findings

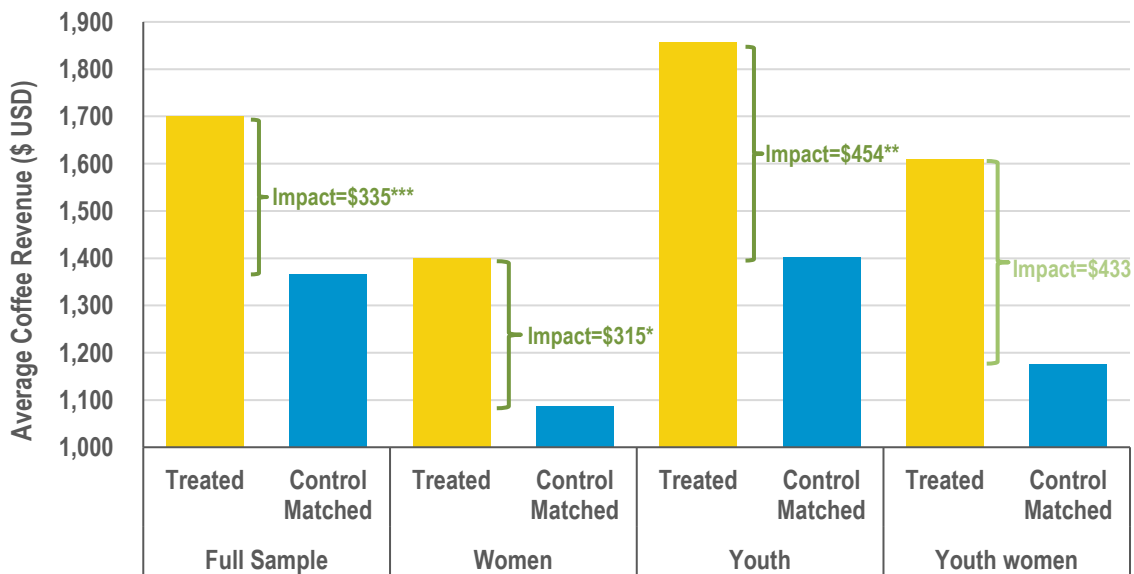
- **Farmers affiliated with cooperatives receiving services from Root Capital receive 24.51% higher annual revenue and \$2.32 MXN (\$0.13 USD) per kilogram of coffee sold compared to agricultural households selling coffee that are not affiliated with Root Capital.** The estimated causal effect of Root Capital services on farmer coffee revenues is an increase of \$6,188 MXN per harvest (\$334.66 USD). Women and youth within the treatment group also displayed increased revenue, particularly young people who showed 32.4% higher revenue (see figures 3 and 4). The monetary value of the national rural minimum welfare line in March 2023 was \$1,659.09 MXN per month (\$89.73 USD). This “extreme poverty line” accounts for the monetary value of the food products needed in a month for the basic caloric intake for a person. This means that the additional income generated as result of the services provided by Root Capital is equivalent to 3.7 times the minimum welfare line in rural Mexico.
- **Farmers affiliated with Root Capital produce an average of 89.2 kilograms per harvest more than farmers in the same municipalities who are not affiliated with Root Capital** (Figure 5.b). Women and youth showed even higher production levels than the control group average. Higher revenues for Root Capital coffee-farming households are a consequence of access to higher prices and greater levels of sales (see Figure 5.c). These results hold even after controlling for farm sizes of the households.

¹¹ We checked the robustness of our estimations running alternative versions of the Propensity Score Matching model, including nearest neighbor matching, Kerel-based matching, and inverse-probability weighted regression adjustment. In all cases the statistical significance (and sign) of our key results remains unchanged. We also verified the overlap assumption for each of our models (graphs not reported).

¹² Annex I at the end of the document presents all the estimates for each of the outcome variables by sociodemographic groups. Standard errors, number of observations and overlap graphs are not reported, but are available upon request.

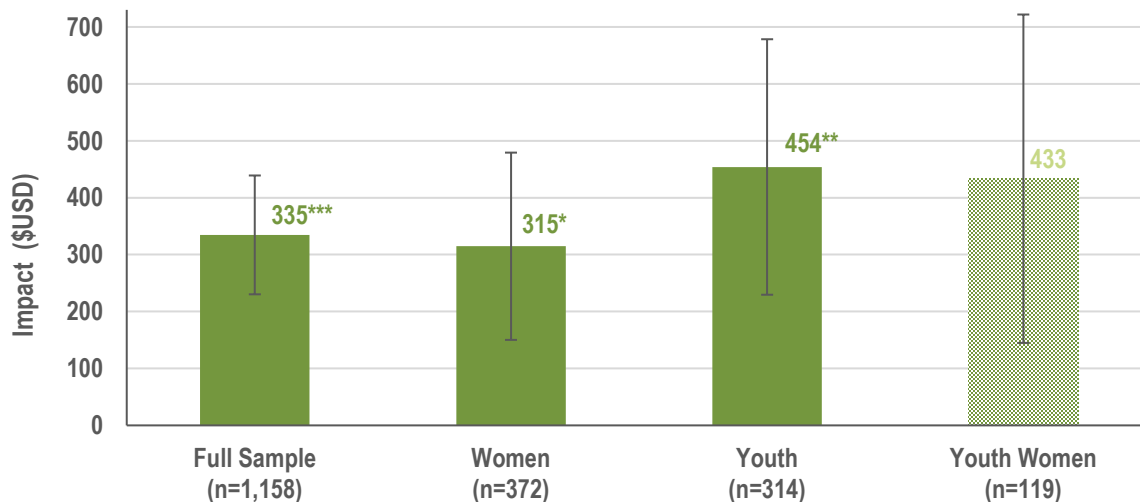
- Although women members are producing and selling higher quantities of coffee, they receive lower than average prices and total revenue than other farmers associated with Root Capital clients. This suggests that women are being paid less per kilogram of coffee and that a gender pay gap discrimination for coffee price persists (see Figure 5.a).

Figure 3. Average Coffee Revenue and Estimated Impact (\$USD)



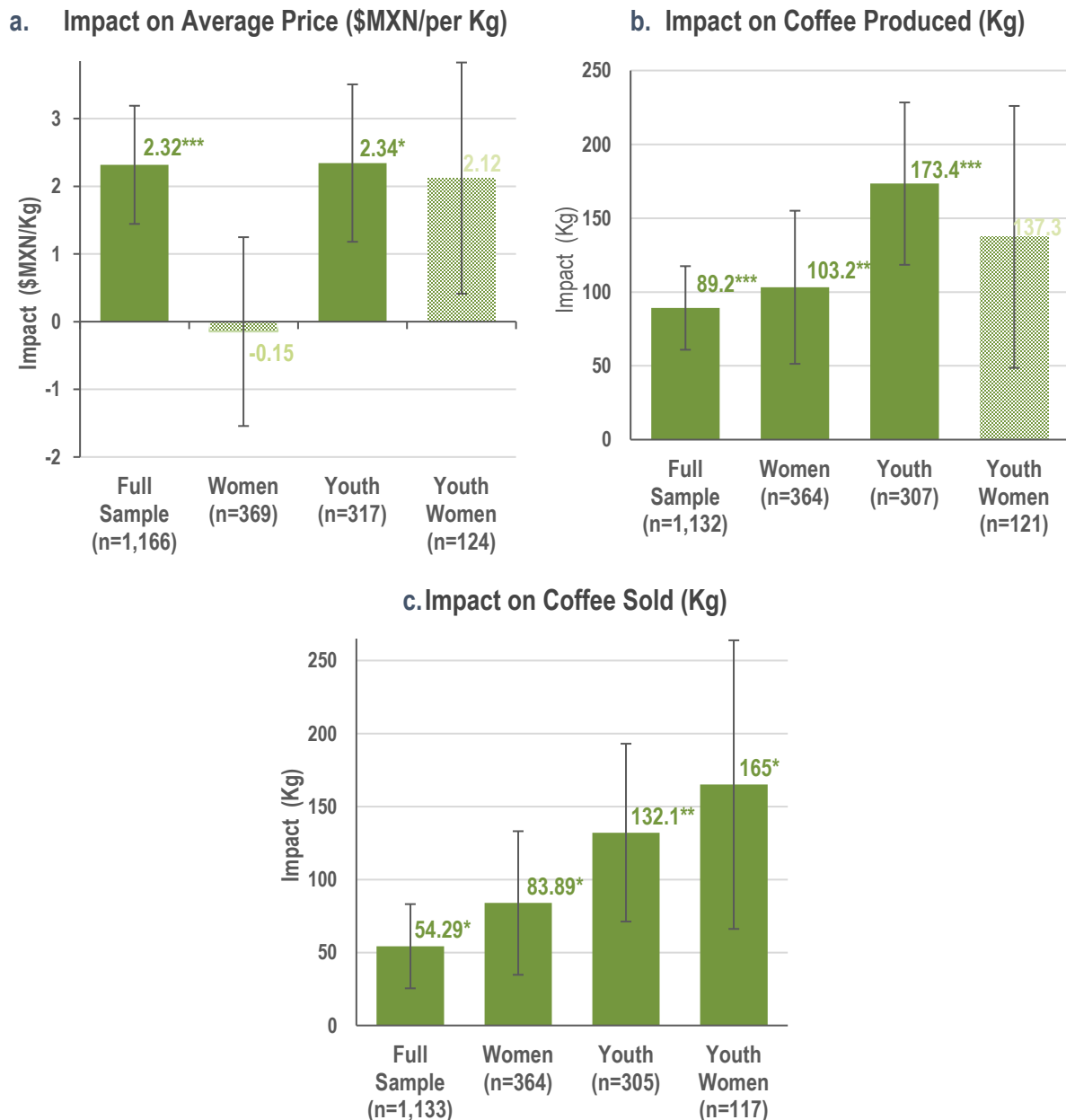
Note: Dark green color for the impact estimation indicates statistically significant results. Asterisks denote statistical significance at the confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

Figure 4. Estimated Impact on Coffee Revenue (\$USD)



Note: Dark green color indicates statistically significant results, meaning statistically significant differences compared to the control group. Asterisks denote statistical significance at the confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

Figure 5. Estimated Impact on the Performance of the Farm



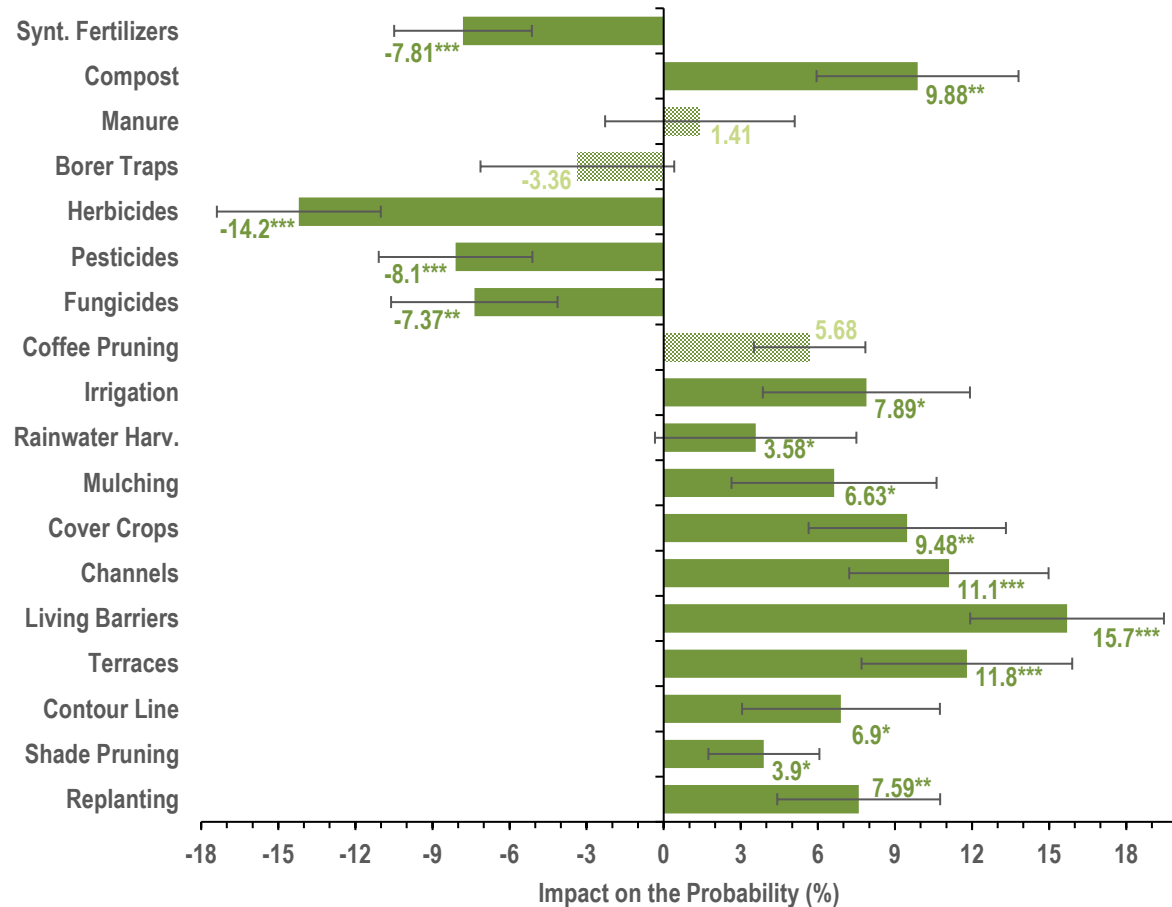
Note: Dark green color indicates statistically significant results. Asterisks denote statistical significance at the confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

- 56.2% of Root Capital affiliated farmers grow certified coffee, compared to 32.7% non-affiliated farmers.** For the estimation of the causal effect, affiliated farmers are 27.2 percentage points more likely to have an organic certification and 21.8 percentage points more likely to have a Fairtrade certification than farmers in the control group. Women exhibit a similar likelihood of holding certifications, while for youth we do not observe strong differences on the higher probability of holding organic or Fairtrade certifications compared to non-affiliated farmers.

- **The findings do not indicate any effect of being affiliated with a Root Capital client on farmer's access to financial services.** This includes access to credit, access to a bank account and formal mechanisms for savings management. This finding is not surprising given that Root Capital works to provide access to finance for small agricultural businesses and does not have a program to directly promote financial inclusion for coffee farmers in Chiapas.
- **Farmers who are members of cooperatives receiving Root Capital services tend to strongly feel that they have more agency to give opinions on setting goals and how to achieve them in collective cooperative-related spaces.** They also feel motivated to cooperate with others and perceive mutual help among members to recover from obstacles. Women members have even stronger perceptions that they can give their opinion on setting goals and how to achieve them, as well as mutual assistance among members. Young people have less strong feelings in these areas, but still perceive that they can give opinions on how to achieve goals and value mutual support within the cooperative.
- **The likelihood of farmers associated with Root Capital experiencing instances of sexual hostility and gender-based violence does not differ significantly from other farmers in similar circumstances.** Though the full group of cooperative members associated with Root Capital showed a modest increase in tendency to report never experiencing sexual comments or jokes in the workplace or physical contact in a sexual way without consent, this does not hold true for just the women members. This may indicate that despite other advances in gender equality, there are still behaviors and attitudes that persist regarding sexual hostility and gender-based violence.
- **Farmers affiliated with Root Capital are more likely to adopt good agricultural practices.** They exhibit higher instances of practicing replanting, shade pruning, mulching, composting, and rainwater harvesting and are less likely to be using pesticides, fertilizers, and herbicides (Figure 6). These practices may be linked to certification requirements.
 - **The agricultural practices Root Capital associated farmers are engaged in reflect general practices associated with higher crop and farm resilience to impacts of climate change.** In particular, the use of compost, cover crops, irrigation, and rainwater harvesting are key practices that provide assurances for climate-related vulnerabilities¹³.
 - **The lower likelihood of use of pesticides, fertilizers, and herbicides by farmers associated with Root Capital does not seem to be hindering production levels.** Though typically avoiding the use of these practices generates lower yields, Root Capital farms are still exhibiting, on average, higher production levels than the control group.

¹³ Bunn, C., Lundy, M., Läderach, P., Girvetz, E., Castro, F. (2018). Climate Smart coffee in Honduras. International Center for Tropical Agriculture (CIAT), United States Agency for International Development (USAID). Cali. CO. 27 p.

Figure 6. Impact on the probability of implementing a specific agricultural practice



Note: Dark green color indicates statistically significant results. Asterisks denote statistical significance at the confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

Conclusions

Based on the present analysis, we can conclude that Root Capital's services for agricultural cooperatives have an impact on incremental income at the farmer level. On average, farmers that are members of Root Capital affiliated cooperatives produce more coffee per harvest, sell their product for higher prices, and gain higher revenues per harvest than farmers from the same region that are comparable and not affiliated with Root Capital in any form.

The robust measures in the analysis ensured that the observable relationships could be attributed solely to Root Capital's interventions. However, there are a few limitations for the conclusions that may be drawn from this study.

First, the one-time data-collection for this study meant that we did not have access to data before the provision of Root Capital services. This implies that some of the general characteristics of the farmers and their performance could have been affected as a result of Root Capital interventions. We mitigated this

limitation by using the propensity score method to balance the treatment and control groups using exclusively sociodemographic variables not affected by Root Capital's interventions.

Furthermore, we acknowledge that Root Capital is selective in its clients with the aim of identifying businesses that create a positive social and environmental impact for the communities in which they operate. Therefore, the higher likelihood of farmers associated with Root Capital clients having organic or Fairtrade certifications cannot be wholly attributed to the *services* provided by Root Capital.

Finally, while these two clients are representative of a typical Root Capital client, we must point out that our services are client-driven, so there might be differences in the specific programs or services that each client received.

Annex I. Propensity Score Matching Results

Table A - 1. Impact of Root Capital on selected outcome variables (full sample)

PERFORMANCE OF THE FARM - Impact on key indicators of farm' financial performance (increase in Mexican pesos) and product (kilograms of coffee)

Average Price (\$MXN)	Production (kg)	Amount sold (kg)	Revenue (\$MXN)
2.317***	89.20***	54.29*	6,188***

CERTIFICATION - Percentage change in the probability of having a certificate (%)

Certification	Organic Certification	Fairtrade Certification
21.7***	27.2***	21.8***

AGRICULTURAL PRACTICES - Percentage change in the probability of implementing a specific practice (%)

Replanting	Shade Pruning	Contour Line	Terraces	Living Barriers	Channels	Cover Crops	Mulching	Rainwater Harv.
7.59**	3.9*	6.9*	11.8***	15.7***	11.1***	9.48**	6.63*	3.58*
Irrigation	Coffee Pruning	Fungicides	Pesticides	Herbicides	Borer Traps	Manure	Compost	Synt. Fertilizers
7.89*	5.68	-7.37**	-8.1***	-14.2***	-3.36	1.41	9.88**	-7.81***

ACCESS TO FINANCIAL SERVICES - Percentage change in the probability of accessing specific financial services (%)

Access to Credit

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender	Access to a Bank Account
4.36	1.81	2.63	3.75	1.40	2.27

Savings Management

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender
-0.349	0.693	0.522	3.12	1.39

GROUP COLLECTIVE AGENCY - Percentage change in the probability of members having a STRONG perception about cooperative dynamics (%)

Members agreeing together on new goals	Members giving their opinion on setting new goals	Members giving their opinion on how achieving goals	Members cooperating for achieving goals	Progress of the cooperative to achieve goals	Motivation of the members to cooperate	Mutual help among members to recover from obstacles
2.23	5.21**	7.81***	3.17	6.55**	5.96**	6.31**

SEXUAL HOSTILITY -Percentage change in the probability of NEVER experienced / perception of NEVER experiencing the following (%)

In the workplace, NEVER have experienced:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about your sexuality, sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
2.56	8.06**	3.54	5.28	-0.887	2.30	-1.06	0.707	0.709

Perception of people of your same sex and age NEVER experiencing:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about sexuality or sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
1.16	1.95	2.47	2.75	5.02*	2.23	3.56	-1.43	2.05

SEXUAL VIOLENCE -Percentage change in the opinion regarding whether a husband is justified in using physical violence in specific situations (%)

If leaving without telling?	If neglecting children?	If it burns the food?	if arguing with him?	Engaging in new income- activities without consent?	If refusing to have sex with him?	If talking to other men in the community?
1.05	1.22	2.45	1.30	1.06	-2.32	4.83*

TIME ALLOCATION - Impact on the number of hours allocated by activity (hours)

Resting	Domestic Work	Cooking	Childcare	Adult care	Agricultural work (grains)	Training/meetings about agriculture	Animal husbandry
0.444*	0	-0.0416	-0.0347	0.0208	-0.482	0.00347	0.0312
Horticulture	Working as an employee	Working own business	Social Activities	Eating	School	Household care	Agriculture
0.0520	-0.00347	-0.00693	-0.0416	0.0555	0.0381	-0.0555	-0.478

Note. Asterisks denote statistical significance at confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

Table A - 2 Impact of Root Capital on selected outcome variables**(Analysis restricted to women member of cooperatives)****PERFORMANCE OF THE FARM - Impact on key indicators of farm' financial performance (increase in Mexican pesos) and product (kilograms of coffee)**

Average Price (\$MXN)	Production (kg)	Amount sold (kg)	Revenue (\$MXN)
-0.147	103.2**	83.89*	5,813*

CERTIFICATION - Percentage change in the probability of having a certificate (%)

Certification	Organic Certification	Fairtrade Certification
21.5***	20.6***	26.0***

AGRICULTURAL PRACTICES - Percentage change in the probability of implementing a specific practice (%)

Replanting	Shade Pruning	Contour Line	Terraces	Living Barriers	Channels	Cover Crops	Mulching	Rainwater Harv.
5.79	8.38*	9.39	1.11	3.85	7.94	1.16	9.55	0.526
Irrigation	Coffee Pruning	Fungicides	Pesticides	Herbicides	Borer Traps	Manure	Compost	Synt. Fertilizers
-4.81	1.05	-20.1***	-19.4***	-19.4***	-12.0*	2.7	5.95	-12.6***

ACCESS TO FINANCIAL SERVICES - Percentage change in the probability of accessing specific financial services (%)**Access to Credit**

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender	Access to a Bank Account
3.66	1.1	3.7	1.11***	-1.58	-3.19

Savings Management

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender
-4.26	0.524	3.16	5.76	0.526

GROUP COLLECTIVE AGENCY - Percentage change in the probability of members having a STRONG perception about cooperative dynamics (%)

Members agreeing together on new goals	Members giving their opinion on setting new goals	Members giving their opinion on how achieving goals	Members cooperating for achieving goals	Progress of the cooperative to achieve goals	Motivation of the members to cooperate	Mutual help among members to recover from obstacles
5.14	8.57*	10.4*	5.17	5.78	6.9	10.9**

SEXUAL HOSTILITY -Percentage change in the probability of NEVER experienced / perception of NEVER experiencing the following (%)

In the workplace, NEVER have experienced:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about your sexuality, sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
-6.95	2.67	0	10.3	-1.09	5.95	6.49	-0.54	4.32

Perception of people of your same sex and age NEVER experiencing:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about sexuality or sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
-9.19	5.46	1.64	4.92	2.16	7.69	7.14	1.64	6.04

SEXUAL VIOLENCE -Percentage change in the opinion regarding whether a husband is justified in using physical violence in specific situations (%)

If leaving without telling?	If neglecting children?	If it burns the food?	if arguing with him?	Engaging in new income- activities without consent?	If refusing to have sex with him?	If talking to other men in the community?
5.29	5.26	5.82	0.00	5.32	7.49	-6.35

TIME ALLOCATION - Impact on the number of hours allocated by activity (hours)

Resting	Domestic Work	Cooking	Childcare	Adult care	Agricultural work (grains)	Training/meetings about agriculture	Animal husbandry
0.534	-0.136	-0.628	-0.0838	-0.0628	-0.168	0.0105	0.0733
Horticulture	Working as an employee	Working own business	Social Activities	Eating	School	Household care	Agriculture
0.335*	0.136	-0.0524	0.136	0.0419	0.0733	-0.911	-0.157

Note. Asterisks denote statistical significance at confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

Table A - 3. Impact of Root Capital on selected outcome variables

(Analysis restricted to youth member of cooperatives)

PERFORMANCE OF THE FARM - Impact on key indicators of farm' financial performance (increase in Mexican pesos) and product (kilograms of coffee)

Average Price (\$MXN)	Production (kg)	Amount sold (kg)	Revenue (\$MXN)
2.343**	173.4***	132.1**	8,394**

CERTIFICATION - Percentage change in the probability of having a certificate (%)

Certification	Organic Certification	Fairtrade Certification
7.63	6.84	13.8*

AGRICULTURAL PRACTICES - Percentage change in the probability of implementing a specific practice (%)

Replanting	Shade Pruning	Contour Line	Terraces	Living Barriers	Channels	Cover Crops	Mulching	Rainwater Harv.
12.8**	6.4	0.847	2.56	13.7*	13.6	5	9.17	8.94
Irrigation	Coffee Pruning	Fungicides	Pesticides	Herbicides	Borer Traps	Manure	Compost	Synt. Fertilizers
2.44	-0.8	-19.7***	-7.38	-11.3***	-9.84	1.63	2.48	-7.2

ACCESS TO FINANCIAL SERVICES - Percentage change in the probability of accessing specific financial services (%)**Access to Credit**

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender	Access to a Bank Account
2.4	2.5	-0.806	-0.806	1.60	3.2

Savings Management

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender
3.2	2.4	4.07	4.84	0

GROUP COLLECTIVE AGENCY - Percentage change in the probability of members having a STRONG perception about cooperative dynamics (%)

Members agreeing together on new goals	Members giving their opinion on setting new goals	Members giving their opinion on how achieving goals	Members cooperating for achieving goals	Progress of the cooperative to achieve goals	Motivation of the members to cooperate	Mutual help among members to recover from obstacles
-0.84	4.31	9.48*	6.09	4.27	0.87	9.48**

SEXUAL HOSTILITY -Percentage change in the probability of NEVER experienced / perception of NEVER experiencing the following (%)

In the workplace, NEVER have experienced:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about your sexuality, sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
4.07	6.45	-8.26	-0.813	3.25	2.42	0	-2.42	7.32

Perception of people of your same sex and age NEVER experiencing:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about sexuality or sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
-12.3	7.38	-4.1	-2.44	0.806	3.23	5.69	3.25	3.23

SEXUAL VIOLENCE -Percentage change in the opinion regarding whether a husband is justified in using physical violence in specific situations (%)

If leaving without telling?	If neglecting children?	If it burns the food?	if arguing with him?	Engaging in new income- activities without consent?	If refusing to have sex with him?	If talking to other men in the community?
0	2.44	4	-0.81	5.79	-3.33	3.31

TIME ALLOCATION - Impact on the number of hours allocated by activity (hours)

Resting	Domestic Work	Cooking	Childcare	Adult care	Agricultural work (grains)	Training/meetings about agriculture	Animal husbandry
0.864*	-1.024**	-0.288	-0.0960	0.112	0.400	-0.0960	0.0640
Horticulture	Working as an employee	Working own business	Social Activities	Eating	School	Household care	Agriculture
0.0320	-0.352	-0.240	0.0480	0.160	0.128	-1.296**	0.304

Note. Asterisks denote statistical significance at confidence interval of 99% (***), 95% (**) and 90% (*), respectively.

Table A - 4. Impact of Root Capital on selected outcome variables**(Analysis restricted to youth women member of cooperatives)****PERFORMANCE OF THE FARM - Impact on key indicators of farm' financial performance (increase in Mexican pesos) and product (kilograms of coffee)**

Average Price (\$MXN)	Production (kg)	Amount sold (kg)	Revenue (\$MXN)
2.128	137.3	165.0*	8,013

CERTIFICATION - Percentage change in the probability of having a certificate (%)

Certification	Organic Certification	Fairtrade Certification
19.1	26.1*	-10.9

AGRICULTURAL PRACTICES - Percentage change in the probability of implementing a specific practice (%)

Replanting	Shade Pruning	Contour Line	Terraces	Living Barriers	Channels	Cover Crops	Mulching	Rainwater Harv.
16.7	14.6*	11.9	0	15.9	7.94	2.17	9.55	-14.9
Irrigation	Coffee Pruning	Fungicides	Pesticides	Herbicides	Borer Traps	Manure	Compost	Synt. Fertilizers
-12.8	4.17	-20.1***	-19.4***	-19.4***	-12.0*	17	17.4	-12.6***

ACCESS TO FINANCIAL SERVICES - Percentage change in the probability of accessing specific financial services (%)**Access to Credit**

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender	Access to a Bank Account
0	-8.89	-4.26	1.11***	0.00	16.7

Savings Management

Commercial Bank	Digital Financial Service Provider	Cooperatives	Family / Friends	Informal lender
8.33	2.08	4.26	5.76	2.13

GROUP COLLECTIVE AGENCY - Percentage change in the probability of members having a STRONG perception about cooperative dynamics (%)

Members agreeing together on new goals	Members giving their opinion on setting new goals	Members giving their opinion on how achieving goals	Members cooperating for achieving goals	Progress of the cooperative to achieve goals	Motivation of the members to cooperate	Mutual help among members to recover from obstacles
2.17	13.6	13.6	6.98	9.09	11.6	15.9

SEXUAL HOSTILITY -Percentage change in the probability of NEVER experienced / perception of NEVER experiencing the following (%)

In the workplace, NEVER have experienced:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about your sexuality, sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
-4.17	-4.26	-14.9	12.8	-2.13	6.25	0	-10.4	10.4

Perception of people of your same sex and age NEVER experiencing:

Treated as inferior because of Gender	Sexual comments / jokes / stories	Comments on people not suitable for their work because of their gender	Gossip or rumors about your sexuality or sex life	Unwanted attempts for dating or sexual relationship despite efforts to discourage	Physical contact in a sexual way without consent	Offer of job benefits with expectation of sexual favors	Sexual propositions	Fear because of threats of getting fired for refusing to have sexual relations
-19.1	-8.7	-10.9	6.38	12.5	4.17	0	-2.08	-6.25

SEXUAL VIOLENCE -Percentage change in the opinion regarding whether a husband is justified in using physical violence in specific situations (%)

If leaving without telling?	If neglecting children?	If it burns the food?	if arguing with him?	Engaging in new income- activities without consent?	If refusing to have sex with him?	If talking to other men in the community?
2.13	29.8***	4.17	6.25	6.38	10.6	4.17

TIME ALLOCATION - Impact on the number of hours allocated by activity (hours)

Resting	Domestic Work	Cooking	Childcare	Adult care	Agricultural work (grains)	Training/meetings about agriculture	Animal husbandry
-0.417	0.250	-1.750**	0.0417	0	1.083	0	-0.417
Horticulture	Working as an employee	Working own business	Social Activities	Eating	School	Household care	Agriculture
-0.0833	0.167	-0.208	0.708*	-0.458	0.208	-1.458	1.083

Note. Asterisks denote statistical significance at confidence interval of 99% (***), 95% (**) and 90% (*), respectively.