



Fair Trade/Organic Coffee, Rural Livelihoods, and the “Agrarian Question”: Southern Mexican Coffee Families in Transition

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Summary. — We use a random sample of coffee producing households in southern Mexico to compare opportunities associated with government subsidies and migration to the role of Fair Trade/organic coffee in household livelihoods. Although land and labor returns among Fair Trade/organic coffee growers are higher than for conventional growers, differences in yields are more important than price premiums. Moreover, investment in education and labor opportunities outside coffee dominate those in Fair Trade/organic coffee. The results highlight the value of an integrated approach to the agrarian question that improves productivity and prices and supports other pathways for improving incomes.

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Key words — Latin America, Mexico, Fair Trade, organic, migration, education

1. INTRODUCTION

The agrarian question in Latin America (de Janvry, 1982) has long featured high levels of inequality, persistent poverty, and the challenging quest for a “middle road” between state-led collectivization and capitalist industrial agriculture that offers the rural poor a route to a better life. One key avenue of research and policy exploration has been whether markets, state interventions, and civil society initiatives can promote the competitiveness of peasant producers and generate patterns of broadly based growth and poverty alleviation (Carter & Barham, 1996). Another has been whether other livelihood strategies, especially improved labor market opportunities beyond agriculture, offer the rural poor more promising avenues (Lopez and Valdes, 2000; Reardon, Berdegue, and Escobar, 2001). The potential for combining multiple paths that improve rural incomes is captured by those who view rural poverty alleviation from a “livelihood” perspective (Bebbington, 1999; Ellis, 2000), and the fundamental issue then becomes one of improving the capacities of the rural poor to productively engage agriculture, labor markets, and/or other opportunities (Deininger & Olinto, 2001).

Historically, coffee cultivation has provided, at least in some parts of Latin America, a positive example of an agricultural path for the rural poor. In those cases, a relatively broad pattern of initial land distribution, cooperatives, national coffee boards, coffee banks, and expanding export markets has enabled peasant households to develop their land holdings in a sustainable, high return activity, gainfully employ their family (and other) labor, and exit grinding rural poverty (Paige, 1997; Williams, 1994). In a broad historical sense, the recent NGO driven push for international supply chains that operate under Fair Trade and organic norms (Daviron & Ponte, 2005; Jaffee,

2007; Neilson, 2008) can be viewed as an effort to renew that middle road in the late 20th, early 21st century, with producer, consumer health, and environmental concerns blended into the Fair Trade/organic¹ strategy. Coffee has also been the leading edge of other Fair Trade (FT) and organic products (e.g., cocoa, tea, and wine), and is now just one example of a broader set of sustainability initiatives that operate outside the state and through markets (Cashore, Auld, & Newsome, 2004; Reynolds, 2009).

This article assesses the importance of FT/organic coffee in the income and investment mix for a random stratified sample of southern Mexican coffee producers. We complement previous studies (summarized in Section 2) by comparing returns across FT/organic and conventional growers in an area where these markets are most likely to have benefited growers given the region’s historically strong producer organizations that mediate participation in such markets (Bacon, Mendez, & Fox, 2008). We distinguish between the difference in returns to coffee generated by higher yields and higher prices. In addition to a “within” coffee comparison, we also examine these opportunities in light of other household income sources and investment opportunities during a period of major transformation in the Mexican economy.

* We thank those associated with the research project, “Fair Trade-Organic Coffee, Rural Development, and Migration from Southern Mexico” that provided the primary data utilized in this paper. The project was funded by the Rockefeller Foundation and led by Josefina Aranda, Jessa Lewis, Tad Mutersbaugh, and David Runsten. All errors remain our responsibility, and authorship is shared equally. Final revision accepted: July 26, 2010.

A broader discussion of portfolios is critical for understanding the options facing southern Mexican coffee growing households, because livelihood and investment options have changed dramatically since 1990s when the North American Free Trade Agreement (NAFTA) consolidated the economic liberalization that commenced in the mid 1980s (de Janvry & Sadoulet, 2001; Myhre, 1998; Yúnez Naude and Barceinas Paredes, 2002). Two mega-trends (discussed in Section 3) have reshaped household activity options in our sample:

- New government poverty and rural income support programs—Progres/Oportunidades, which focuses on education and health of children (Rawlings & Rubio, 2005), and Procampo, an agricultural land-based subsidy that largely replaced the pre-NAFTA system of price supports (Levy, 2006; Lustig, 2001; Pastor & Wise 1997);
- Expansion of migration networks and labor opportunities within Mexico and in the United States (Latapí, Martín, López Castro, and Donato, 1998; Massey, Goldring, & Durand, 1994; McKenzie & Rapoport, 2007).

We show that although returns to land and labor among FT/organic coffee growers are higher than for conventional growers, investment opportunities and activity in education and labor opportunities outside coffee dominate those in FT/organic coffee. Our analysis of rural returns and investments centers on two basic comparisons. One (presented in Section 4) explores net cash returns to household land and labor associated with participation in FT/organic arrangements and recent investment patterns among coffee growers. The analysis reveals statistically significant but relatively small economic differences in prices and net cash returns to family labor and land associated with the FT/organic coffee path, and most of this income difference derives from yield differences rather than from price premiums. This result is consistent with Fort and Ruben (2009) and Barham and Weber (2010) in showing that reliance on price premiums for small-scale coffee growers to escape poverty may be problematic.

The other basic comparison (presented in Section 5) is on the labor market side, where we compare returns to labor in FT/organic coffee with returns to non-agricultural labor and investments in education and migration. We find that the economic "game-changer" for most coffee growing households in southern Mexico is integration with better labor opportunities elsewhere rather than deepening coffee participation of any type. This shift is evident in the take-off in educational attainment that has occurred over the past decade among youth in sample households, an investment bolstered by the broadening and deepening of the support provided by Progres/Oportunidades since its introduction to the region in 1998.² Significant investment in education contrasts with little investment in coffee production, despite continuing subsidies for coffee producers that account for about 25–33% of their income from coffee. The Discussion (Section 6) and Conclusion (Section 7) explore the role of FT/organic coffee arrangements and labor market opportunities in the broader agrarian question of rural poverty alleviation.

2. LITERATURE REVIEW

Third party certifications, such as Fair Trade and organic, seek to shape market outcomes related to producer welfare and ecosystems through rules governing production, organization of producers, and commercial relationships. Certification efforts are generally led by both local and transnational non-governmental organizations that implicitly or explicitly seek

to develop alternative institutions and arrangements to the classic "state" *versus* "market" approaches.

In the case of Mexico, the state dismantled its state-run coffee agency INMECAFE in 1989, which through marketing control and production subsidies had managed the sector for two decades (Snyder, 1999). Around the same time, a number of cooperatives and non-governmental organizations began efforts that made the country a leader in Fair Trade and organic certification programs (Raynolds, 2002; Rice, 2001). Growers in southern Mexico, in particular, have been at the forefront of Fair Trade and organic coffee trends, having now participated in such arrangements for two decades in some cases. UCIRI (The Union of Indigenous Regions of the Isthmus Region), whose members are well represented in our sample, pioneered Fair Trade and organic arrangements. The cooperative adopted an organic program in 1986 in cooperation with a German organic certification entity, and it helped to form the first Fair Trade seal, Max Havelaar, with a Dutch organization in 1988 (Vander Hoff Boersma, 2002). Other large cooperatives represented in the sample followed close behind (Pérezgrovas & Cervantes Trejo, 2002; Gonzales Cabañas, 2002; Aranda & Morales, 2002). It should be noted, however, that Mexico has recently lost ground in FT/organic markets, with Peru becoming a major supplier to both markets (Giovannucci, Liu, & Byers, 2008).

While the FT/organic strategy sidesteps the state *versus* market discourse, it has an embedded tension because it operates within the market while critiquing and trying to reform it. Taylor (2005) highlights this tension, noting that FT organizations increasingly work with and through mainstream actors in the conventional commodity supply chain. The same cooperatives also play a continuing role in helping farmers to access state production subsidies and deficiency payment schemes.

We use data collected specifically for inquiry into FT/organic arrangements to contribute to a limited literature on the importance of these markets for coffee growers. While some Fair Trade-related studies have emerged in recent years, Becchetti and Constantino (2008) state that, "the literature on FT [Fair Trade] impact analyses is surprisingly scarce, given the importance of evaluating claims that participation in the FT chain brings advantages to producers."

It remains unclear whether Fair Trade and sustainable certification programs can shape market forces to deliver higher producer incomes. A growing literature seeks to quantify the price premiums associated with participation in certified markets. Some studies (Bacon, 2005; Calo & Wise, 2005; Jaffee, 2007) rely on simple mean comparisons. A growing body of work has tried to control for the various factors that can affect a producer's marketing performance and has generally found more modest (or no) premiums compared to descriptive studies (De Janvry, McIntosh, & Sadoulet, 2010; Fort & Ruben, 2009; Ronchi, 2006; Weber, 2010; Wollni & Zeller, 2007).

Identifying premiums is important to quantify gains from higher prices, but the impact of participation in FT/organic markets on net cash income is of greater interest. The literature on FT/organic coffee is thin in this area. Martínez-Torres (2008), for example, only looks at gross revenue (price multiplied by coffee production). Calo and Wise (2005) present net revenue for conventional, organic, and FT producers in Oaxaca, but their measures of net revenue are a product of parameters provided by key informants or other studies as opposed to sampling growers and collecting cost, yield, and price data. Jaffee (2007), who conducted his study at the height of the coffee crisis (2001–03), uses a sample of 51 producer households (half of which are involved in FT) in two contiguous villages and finds that for both FT and conventional households

expenditures exceeded income on average. More recently, Valkila (2009) estimates net revenue per hectare based on different price scenarios using survey data from 120 conventional and FT/organic growers in Nicaragua and finds that the under some scenarios the higher yields of conventional growers lead to higher incomes compared to FT/organic growers.

We compare net cash returns across FT/organic and conventional growers in southern Mexico and measure the extent to which prices or yield differences contribute to variations in returns. We then compare net cash returns to family labor in coffee with other options to develop a richer understanding of the livelihood options facing southern Mexican coffee producers in an era of substantive transformation associated with economic integration with the US and major policy reforms in Mexico.

3. KEY TRENDS AND EMPIRICAL FOCUS

In this section, we describe the dataset, and begin the empirical analysis with a broad view of major income sources and investment patterns among coffee growing households. Then, we document the expansion of Fair Trade/organic coffee adoption, migration and educational attainment, and public subsidy programs.

The household level data were collected in 2005–06 from 845 coffee growing households in nine regions in the southern Mexican states of Oaxaca and Chiapas (see Map 1). The sample frame includes coffee growing households that were members of cooperatives engaged in Fair Trade and organic coffee production (the two arrangements became intertwined in the late 1990s), and households that were not members of cooperatives and remained outside the FT/organic market. Respondents from both groups were selected at random from community level lists of coffee growers.³ The survey asked about the 2004–05 season, a period of relatively normal coffee prices that followed the price crisis of 2000–03.⁴ The household data include comprehensive information on income, remittance and subsidy flows and a detailed look at coffee production, pricing, and cultivation costs (for detailed information on the study, see Lewis & Runsten, 2007). The lead operator of the coffee farm, generally men, provided most of the information, though their wives were often part of the interview process as well.

For return measures from coffee, we rely mainly on net cash income, defined as gross revenue minus cash expenses for paying hired laborers and purchasing inputs like fertilizer. Net cash income provides a liberal estimate of coffees returns in

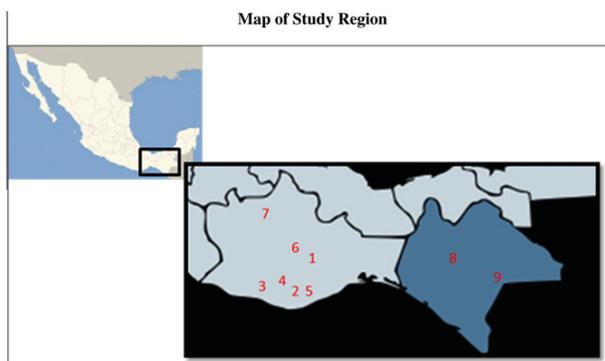
comparison with other potential labor activities, because it does not account for the opportunity cost (i.e., forgone opportunities) of capital or land used in coffee production. However, it does capture the cash income generated by family labor used in coffee production. In addition, we exploit data on wages, remittance flows, educational attainment, and investment choices related to coffee and education to compare various household income sources and investment patterns.

(a) Income sources and investment patterns

Accounting for major income sources, southern Mexican coffee households in our sample earned, on average, about US \$3240⁵ or \$840 per person in 2004–05. This income level (not adjusted for purchasing power parity) places them above standard international poverty thresholds (e.g., \$2 per day per capita) and at 10% of the average per capita income level of Mexico at that time.⁶ These income levels, combined with an average of 2.4 hectares of coffee land, suggest that while sample households are at the lower end of the income distribution, they are not among the poorest of the poor in rural Mexico.

Sample households earned income from several sources (see Figure 1). The percents inside the pie chart represent the share of average household income from the source while the percents outside the pie represent the share of households with some positive income from the source. Almost all households had positive market returns to coffee, yet only 19% of average household income came from coffee and 9% from off-farm agricultural wages. Thus, market returns to agriculture generated a little more than a quarter of average household income. Meanwhile, government subsidies accounted for 20% of household income (similar to coffee), and were received by almost all households. The largest average income share, remittances from migrants, at 35% was almost twice that of coffee, while wages and returns from non-agricultural activities accounted for the remaining 17%. Breaking the sample into members of FT/organic cooperatives and conventional growers reveals relatively similar portfolio mixes, with the main difference being that income from coffee is 26% of income for cooperative households but only 11% for unaffiliated growers.

Given that US migrants are the primary source of remittances, these initial comparisons reflect the importance of international labor markets for the incomes of southern Mexican coffee growing households, a role that has expanded dramatically since 2000 when only 1/15 of the sample households



Map 1.

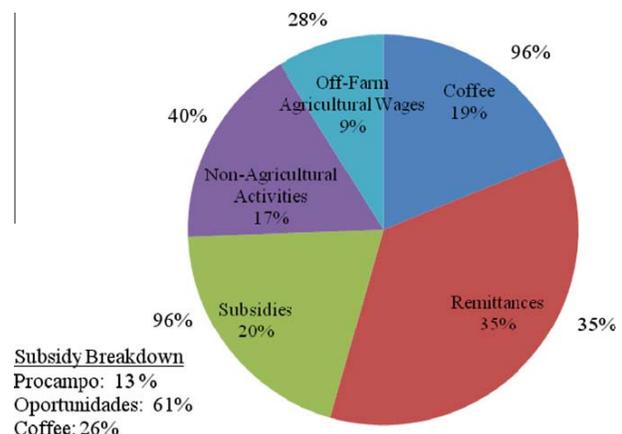


Figure 1. Mean income shares (inside pie) and incidence (outside pie).

had a US migrant (compared to approximately one-quarter of households by 2005). Moreover, these results understate the broader degree of labor market integration, because almost half of the households have at least one immediate family member living elsewhere in Mexico working and/or attending school.

Sample averages of income sources mask significant heterogeneity across the study regions. Table 1 shows the distribution of households across region and organizational status and regional averages for coffee yields, total income, and percent of income from coffee, remittances, and non-agricultural sources. Throughout the article, we highlight three regions characterized by different degrees of coffee specialization and importance of migration to illustrate variation in household portfolios in different locations. On one end of the spectrum is Region 1, with the highest coffee yields of any region, where households earned on average 59% of their income from coffee and only 5% from remittances. On the other end of the spectrum, Region 3 has 50% of households with a US migrant in 2005, coffee accounting for an average of 6% of the \$6200 household income, and remittances on average composing 47% of total income. Region 2, meanwhile, had a similar migration rate to Region 3, and provides a more balanced example of a region with a high remittance share (about 40%) but also a non-negligible coffee income share (about 15%). In the two regions with significant migration, several other income sources dominate or are equal to coffee, which motivates the attention we offer below to broad trends in activity mix, relative factor returns, and investment choices.

Investment patterns in coffee, schooling, and migration are consistent with the broad returns story suggested by Figure 1. Table 2 compares participation rates and the average level of investment for sample households in 2004–05 in three areas: coffee, schooling, and US migration. Only 52% of coffee growing households invested at least \$50 in their coffee farm, with a mean investment of about \$190, where investment is measured by labor allocated to capital improvement activities and valued using the community wage for agricultural day labor. By contrast, 85% of the households with a child of secondary school age had one enrolled, and for them the typical total cost per child would have been about \$400 per year. Only 5% of respondent households invested this much in coffee production. The 12% of households that sent a migrant to the US in 2004–05 spent about \$2075 to finance the migration, again dwarfing the coffee investment figure of \$190. Thus, investments in schooling are more prevalent and far greater in magnitude than they are in coffee. Investments in migration are less frequent, but involve much higher commitments.

(b) *Trends in FT/organic coffee adoption, migration, education, and subsidies*

(i) *FT/organic coffee adoption*

Coffee cooperatives in southern Mexico, with deep historical roots and accumulated social capital (Bray, Plaza Sanchez, & Contreras Murphy, 2002), provided the institutional infrastructure for growers to access growing export opportunities for Fair Trade and organic certified coffee.⁷ The FT market has increasingly demanded coffee certified as organic and

Table 1. *Regional differences*

Region	Number of households		Coffee yield (kg/ha)		Total income		Share of income from ^a ...					
							Coffee		Remittances		Non-agricultural activities	
	Total	Coop Members	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Region 1	95	66	468	180	3111	16	0.59	0.02	0.05	0.02	0.05	0.02
Region 2	109	68	260	288	4468	14	0.15	0.01	0.40	0.03	0.10	0.02
Region 3	81	58	67	632	6265	7	0.06	0.01	0.47	0.04	0.11	0.02
Region 4	91	30	110	338	3573	8	0.12	0.02	0.24	0.04	0.23	0.03
Region 5	71	23	178	389	3590	15	0.30	0.03	0.04	0.01	0.06	0.02
Region 6	110	76	186	176	1658	14	0.16	0.02	0.15	0.03	0.11	0.03
Region 7	83	52	142	111	1067	12	0.22	0.02	0.03	0.02	0.31	0.03
Region 8	83	83	249	287	2510	12	0.35	0.02	0.16	0.03	0.07	0.02
Region 9	122	57	285	618	6736	20	0.25	0.02	0.33	0.03	0.13	0.02
Total	845	513	215	144	3239	6	0.24	0.01	0.19	0.01	0.15	0.01

^aThe income share was first calculated for each household and then averaged over all households in the region.

Table 2. *Investment prevalence and intensity*

Activity	Description	Percent	Description	Average investment
Coffee	Invested at least \$50	52	Labor investment (if invested at least \$50)	188
Schooling	Has a youth in secondary school (of households with youth)	85	Cost of a year of secondary school	400 ^a
Migration	Has a migrant in the US in 2005	23	Cost of sending a migrant to the US	2074 ^b

^aSchultz (2004) argues that Progreso/Oportunidades monthly payments of \$20 per pupil represent 50–75% of the total cost (direct costs plus opportunity cost) of secondary schooling. If it represents 50% of the costs, the total annual cost of schooling is around \$480. If it represents 75%, the total cost would be \$320. We split the difference and use \$400. The number is in line with the OECD report "Education at a Glance: OECD Indicators" that states that annual expenditures per student in secondary school is US\$1918, of which 16.3% or 313 dollars is borne by households. Note that the OECD number is a measure of direct costs while the Schultz number is total cost.

^bThis is the average cost incurred by households who sent a migrant to the US in 2005.

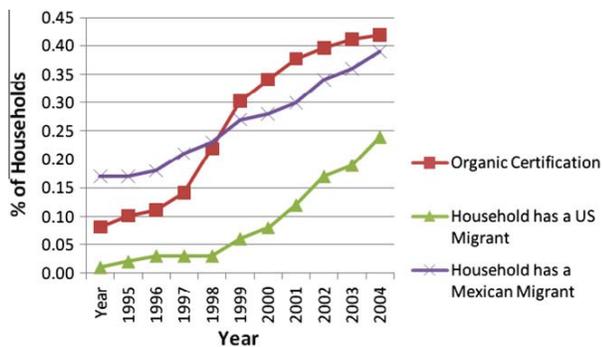


Figure 2. Organic certification and migration.

unsurprisingly, many cooperatives and their members in southern Mexico have adopted organic practices. In the sample as a whole, adoption of organic practices grew more than fourfold from 1995 to 2005 (see Figure 2), from under 10% certified in 1995 to over 40% in 2005 with most of the increase occurring by 2000.

(ii) Migration

Migration to the United States has gone from rare to pervasive in the sample households (Figure 2). In 1999, less than 5% of respondent households had a migrant in the United States. By 2005, 25% reported having at least one migrant in the United States, a fivefold increase in 6 years. Table 6 later shows a high degree of regional variability; 50% of households in 2 of the 9 study areas report a migrant to the United States, while 3 have migration rates at 6% or less.

Migration within Mexico has also expanded significantly over the past decade (Figure 2). In 2005, about 40% of the respondent households reported having an immediate family member living elsewhere in Mexico compared to 30% in 2000 and less than 20% in 1995. Combining both types of migration, more than half of sample households had at least one migrant working (and/or studying) in the United States or Mexico in 2005. A careful look at the primary activity (type of job or student) of migrants within Mexico during the 10-year period also shows a doubling from about 10% to 20% of men and 15% to 25% of women reported as “students”.

(iii) Education investment—Oportunidades

Educational attainment for youth from southern Mexican coffee growing households has exploded in the past decade. For adults in the age cohort of 41–50 and 31–40, the average years of education were 3.6 and 5.4, respectively, or less than a primary education. For young adults in the 17–19 age range, the average year of education was 8.6, an underestimate as some were continuing in school. The proportion of high school graduates in the 20–22 cohort is 18% compared to 3% in the 31–40 cohort. This recent take-off in educational attainment in Oaxaca and Chiapas was stimulated by the introduction in 1998–99 of the well-known conditional transfer program, Progresá, now known as Oportunidades.

Oportunidades reached all nine of the sample regions as part of a nationwide rollout of the program in 1998 and 1999. Currently over 80% of the sample households receive a transfer through Oportunidades, with an average annual transfer of \$500. The transfer helps offset the cost of forgone child labor while attending school, and represents about 15% of the average household's income. The size of the transfer and its rela-

tion to household income are similar to other participating households throughout Mexico (Schultz, 2004).

(iv) Procampo: rural (non-coffee) subsidy

Another large subsidy program is Procampo whose payments are based on agricultural land. Just under half of the households received a Procampo subsidy with an average payment of almost \$180 per year. Created in 1994, Procampo is intended to help agricultural households deal with the potential effect of increased competition from US and Canadian imports resulting from NAFTA (Sadoulet, de Janvry, & Davis, 2001). The payment was to be phased out between 2003 and end in 2008. However, in February of 2007, Mexican President Felipe Calderón announced the program's extension through 2012.

(v) Summary of key trends

The expansion of participation in FT/organic coffee cooperatives was only one of the three major trends that have reshaped their economic activity mix, income portfolio, and investment choices for sample households in the past decade. The other two were migration to the United States and other parts of Mexico and an increase in government subsidies primarily aimed at combating poverty through conditional transfers for families with children attending school. Greater migration and education options have clearly affected labor allocation and investment choices as many sample households derive far more of their income from migrant remittances and government subsidies than from growing coffee. The next two sections explore in more depth the implications of these trends.

4. COFFEE

(a) Returns to organic coffee

This section compares net cash income per hectare for conventional coffee growers (not members of cooperatives) with growers participating in Fair Trade/organic markets through a cooperative. As a rule, sample growers are in a cooperative that markets organic coffee, where at least some coffee moves through Fair Trade channels, or they are formally outside all of these institutional arrangements. About 95% of organized growers are members of Fair Trade cooperatives and only one percent of cooperative growers are not at least in conversion to organic production. Formally, no coffee from growers outside the cooperatives would sell under organic or Fair Trade labels, because certification for both markets is coordinated exclusively through membership in a cooperative.⁸

Using survey data, we calculate annual net cash income to household land and labor employed in production. Net cash income is defined as total revenue less cash costs, where cash costs consist mainly of payments to hired labor (mostly for harvesting) and purchased inputs (e.g., fertilizer). For clarity, we use the term “organics” in the rest of the paper to refer to households that are members of cooperatives, which as shown above, almost always corresponds to organic adoption and participation in Fair Trade.

Organic growers earn on average \$344 (standard error, s.e. 19) in net cash income per hectare compared with 192 (s.e. 18) for conventional growers, a difference of 152. This difference varies substantially across regions. Surprisingly, of the three regions highlighted in Table 1, organic growers earn slightly less than conventional growers in Region 1, the most coffee-intensive region. Organic growers earn \$40 more per hectare in the region most dependent on migration (Region

3) and \$71 more in Region 2, where migration is of average income importance for the sample.

Since we ignore selection bias and certification costs, the mean net cash income difference of \$152 per hectare is an upper-bound estimate of the direct monetary gains associated with participation in Fair Trade/organic cooperatives.⁹ To understand what drives the difference in net cash income and the biases embedded in the comparison, we look at the two factors that compose most of the difference: prices paid to growers and yields (kg of coffee per hectare).

(i) *Prices*

Organic growers received on average 34 cents per kilo more than did conventional growers. While some of this difference is likely from certification premiums and successful marketing by cooperatives, part of it likely corresponds to the higher quality coffee that organic growers sell. Notice in Table 3 that intermediaries pay organic growers 31 cents per kilo more than conventional growers.¹⁰ Since intermediaries cannot formally sell to organic markets as such, the higher price paid to organic growers may reflect its higher physical quality.¹¹ Controlling for coffee quality, therefore, would reduce the estimate of the effect of organic certification on the farm-gate price, although some quality improvement may also reflect management techniques promoted by the cooperatives, and cooperatives can play a pro-competitive role in driving up local prices.

Conventional growers produced an average of 179 kg of parchment or "pergamino" coffee¹² per hectare. Combined with the organic price premium of 34 cents, these growers would receive about \$60 in additional revenue per hectare. This potential gain of \$60 is an estimate of a gross revenue gain per hectare from participating in FT/organic cooperatives and assumes no difference in yields or costs resulting from selection bias, certification standards, or extensions services offered through the cooperative.

Sample price averages mask considerable heterogeneity across regions. In Region 1, organic growers actually received a slightly lower price than did conventional growers, \$1.95 per kilo compared with 1.99 (the difference is statically significant at the 5% level). At the other extreme is Region 9 where organic growers received 75 cents more than conventional growers. Differences in coffee quality and the competitiveness of regional spot markets may explain much of the variation in premiums associated with organic status.

(ii) *Yields*

Organic adoption implies changes in production practices and possibly changes in yields and quality; how much organic conversion changes production techniques and yields may vary across farming system. At one extreme, though rare in our sample, are well-capitalized farms that intensively use fer-

Table 4. *Organic farms are larger and have higher yields*

Variable	Organic	Conventional	Difference statistically significant at 1% level
Kg of coffee per hectare	264	179	Yes
Farm size in hectares	2.9	2.0	Yes
Cash cost per hectare	68	53	Yes

tilizers and pesticides. Those types of farms might experience yield-depressing changes to achieve organic certification. Low-input growers, in contrast, may only have to document current practices and wait the transition period to become certified. A third scenario possible is that organic adoption is associated with management techniques that increase yields. Perhaps more importantly, differences between organic and conventional growers could be pre-existing and reflect local conditions and management intensity. We therefore cannot interpret observed yield differences between organic and conventional farms as a clear consequence of organic conversion or the extension services of cooperatives.

Sample means reported in Table 4 show that organic farms are larger, more productive, and have greater cash costs. Most of the estimated difference in net cash income per hectare between organic and conventional growers comes from higher yields on organic farms. A conventional grower with the yields and cash costs of an organic grower would earn \$120 more per hectare, or almost 80% of the \$152 net cash income per hectare difference between organic and conventional growers. Put differently, the mean income gain for conventional growers associated with organic price premiums is much less than one-half of the gain that would be achieved if conventional growers had comparable yields to organic farms.

As with prices, yields vary markedly across regions, often more than across organic status (see Figure 3). In Region 3—the high migration region depicted in Table 1—both organic and conventional growers have low yields. Farms in Region 1 by contrast produce roughly eight times more coffee per hectare than farms in Region 8 and two to four times as much coffee as in most other regions. While agronomic factors explain some regional yield differences, economic factors such as wages and migration opportunities that affect investment and management intensity also likely contribute to these differences.

(iii) *Summary view of the gains from going organic*

We calculate returns to family labor by dividing the total farm net cash income estimate by the days of family labor em-

Table 3. *Farm-gate prices (US\$/kg) by buyer and grower type^a*

Grower status	Average intermediary price			Average organization price			Average price		
	N	Price	SE	N	Price	SE	N	Price	SE
Organic	131	1.75	0.036	479	1.81 ^a	0.013	497	1.79	0.013
Conventional	246	1.44	0.038	–	–	–	302	1.45	0.034
Difference		0.31						0.34	

^a This corresponds to a per pound price of US\$.82, well below the Fair Trade minimum price for conventional and organic coffee (1.21 and 1.36, excluding the 5 cent social premium that the cooperative retains). The discrepancy is for several reasons. First, the Fair Trade minimum price refers to the contract price between the cooperative and the importer, not the price paid by the cooperative to member growers. Second, the minimum price is for exportable grade coffee (the growers sell parchment coffee, which must have the hull removed and be dried to 12% moisture content). Third, it is possible for a certified cooperative may sell much of its coffee in the conventional market.

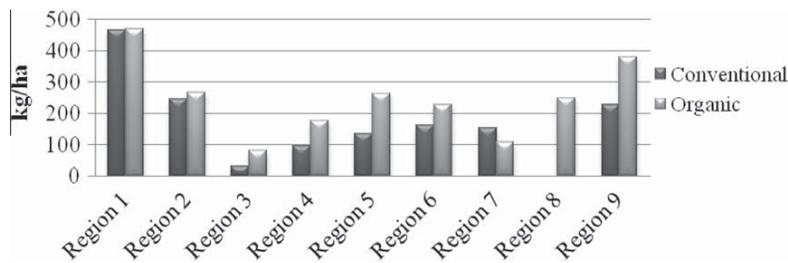


Figure 3. Productivity by region and organic status.

ployed in production. Conceptually, this is the “wage” earned per person per day of family labor allocated to coffee growing. On organic farms, family labor earned a median net cash return of \$5 per day compared with \$3.20 on conventional farms, a difference that is statistically different at the 5% level. The difference holds across the three regions highlighted in the introduction, with organics earning \$1.1–1.4 more per day of labor than do conventional households. However, returns to family labor vary more across regions than across organic status. For organic growers in the three regions, the return to labor varies from \$0 per day to 9.7 while for conventional growers it varies from 1.4 to 11.1. Greater variation across regions suggests that economic forces such as migration have a first order effect on returns to coffee while entering FT/organic arrangements has at most a second order effect.

The \$152 in higher net cash income per hectare for organic growers implies a total gain of around \$360 for the average farm of 2.4 hectares. This is an improvement of about 10% of average household income. If the gain were based only on liberal estimates of the price premiums, it would only be about \$145 per year per farm, or less than 5% of average household income. This range of \$145–360 per year, although potentially important for poor households, will appear small relative to outside labor options explored in Section 4.

(b) Coffee investment

As briefly noted above, we calculate investment as the value of time spent on capital improvement activities including planting, pruning, managing shade trees, and creating terraces and hedges for soil conservation. We value family labor employed in capital improvements using the average community wage paid for agricultural day labor from the wages reported by growers for hired labor. Though household dependence on

coffee differs across regions, the average magnitude of total coffee investment reported in Table 5 is very dispersed across households (the sample standard error is 70) and is generally low, with regional averages of investment ranging from US \$25 to \$93. In one region only about a half of households spent at least one day in the survey year on capital improvements.¹³

Typically, coffee plants start producing in the third year after planting and reach peak production around the fifth or sixth year and then without pruning will decline especially after ten years. Plant age therefore indicates how much households have allowed their capital stock to depreciate. It is also a more accurate reflection of the stock of investment than time spent on specific activities in the past year. The low intensity of investment indicated by time making capital improvements could for example reflect the 2001–03 coffee crisis more than a more secular decline in coffee investment in southern Mexico. As a stock measure, the age of the household’s youngest stand of coffee is a better indicator of longer term investment trends.

The median age of plants in the household’s youngest stand varies significantly across regions. Farms in Region 8 have the youngest stands, with a median youngest parcel of 7 years. At the other extreme, both Regions 5 and 3 have a median youngest parcel of 25 years while for Region 2 the number is 18. Few investments in new plants in Regions 2 and 3 are consistent with the small contribution of coffee revenue to total income for households in those regions.

The importance of migration to mean income in Regions 1, 2, and 3 ranges from marginal to very important. Viewing migration as an alternative investment pathway for households, it is unsurprising that the median age of the youngest stands in Regions 1, 2, and 3 are 10, 18, and 25 years, respectively. Few new plantings suggest that the higher returns to investing in education and/or sending a migrant (detailed in the next section) draw household resources away from coffee. Greater labor market opportunities also increase the cost of labor, an important determinant of the profitability of coffee growing.

(c) Coffee subsidies

Most (86%) sample households receive coffee subsidies. Three subsidies—a Price Stabilization Fund, Coffee Productivity Fund, and Environmental Services Fund (Lewis & Runsten, 2008)—were received by 45%, 87%, and 7% of the sample, with an average payment of about \$110, \$170, and \$60 to those receiving subsidies. The Price Stabilization Fund pays farmers on a per kilo basis when the market price falls below a predetermined level.¹⁴ The Coffee Productivity Fund is paid based on the number of hectares in production. The Environmental Services Fund was just starting at the time of the survey and pays households on a per hectare basis for maintaining their coffee lands in an environmentally

Table 5. Coffee investment patterns 2004–05 regions ranked by US migration rate (low to high)

Region	Age of youngest parcel	Percent investing	Investment (ha)
Region 7 (low US migration)	15	55	36
Region 8	7	100	68
Region 1	10	66	28
Region 6	10	67	32
Region 5	25	83	58
Region 4	13	61	25
Region 9	12	100	77
Region 2	18	99	93
Region 3 (high US migration)	25	81	38
Entire sample	12	75	47

sustainable manner. If the coffee subsidies are included in net coffee income, the share of household income accounted for by coffee rises to 24%, as compared to 19% without them. In all likelihood, coffee subsidies provide non-market incentives for households to keep growing coffee and when combined with the evidence on the lack of new plantings suggest that many households in the sample may be cultivating coffee in a relatively passive manner (i.e., drawing down the capital stock of trees).

5. LABOR MARKET OPTIONS: RETURNS AND INVESTMENTS ASSOCIATED WITH MIGRATION AND EDUCATION

Southern Mexican coffee growing households generate significant income from remittances from migrants to the United States and within Mexico, off-farm wages, and government subsidies conditional on keeping children in school. This section presents the prevalence and returns associated with local, national, and international labor opportunities. It also discusses the role of education investments in increasing expected returns to family labor.

(a) Migration to the United States

In 2/3 of the regions, at least 20% of sample households had a migrant in the United States in 2005 (Table 6). Furthermore, half of the surveyed households in two regions, Regions 2 and 3, had migrants in the United States. In those two regions, total average incomes are 1.5–2 times that of Region 1, the most productive coffee region in the sample. Region 7, one of the poorest regions, has almost no migrants in the United States.

Returns to US migration dominate the income portfolios of the quarter of sample households with US migrants. For households with a migrant in the US, remittances account for 2/3 of total income or almost \$4000, more than four times the coffee net cash income of the average organic household and more than twice the net cash income of the average household in coffee-intensive Region 1. In terms of returns to labor (i.e., the potential wages), the comparison between migration and coffee is more balanced. An organic household earns about \$2500 per worker year (supposing 300 working days in a year) while one migrant to the US typically generates a sending household \$2400 in cash remittances. However, aside from the substantial "start-up" costs to becoming an international migrant (costs of border crossing, etc), US migrants typically do not draw on the household budget unless they experience legal, health, or job troubles, whereas the \$2500

per worker year associated with coffee would certainly have to support the consumption of that individual.

(b) Intra-Mexico migration

Intra-Mexico migration is a growing economic option for sample households—about 40% had an immediate family member elsewhere in Mexico, working, attending school, or both (Table 6). Almost half of those households received remittances from intra-Mexico migrants, and these remittances accounted for more than a quarter of household income. Overall, 20% of the sample households received remittances from family members working elsewhere in Mexico.

For the three sample regions with relatively low US migration rates (Regions 7, 8, and 1), migration within Mexico was common for all three and a substantive share of household income for Regions 7 and 8. For example, in Region 8, where only 6% of households had a migrant in the United States as of 2005, 42% had a migrant elsewhere in Mexico, with almost 60% of them sending remittances that accounted for about a third of total income of households. This shows that migration has emerged as a major livelihood option for one of the most coffee-oriented regions in the sample—all households surveyed in Region 8 went organic in recent years, and a third of them reported receiving more than half of their income from coffee. To the extent that intra-Mexico and US migration propensities are positively linked (Lozano-Ascencio, Roberts, & Bean, 1996; Skeldon, 2006; Zabin & Hughes, 1995), it could be an indicator of a broader shift in orientation in Region 8 toward outside labor opportunities.

(c) Off-farm opportunities

In the section on coffee returns, we calculated the returns to family labor allocated to coffee growing for organic and conventional households. Off-farm wage opportunities also warrant attention (Yúnez-Naude and Taylor, 2001), and here we discuss opportunities in off-farm agricultural work, local non-agricultural work, and investing in education and working elsewhere in Mexico. Table 7 compares off-farm opportunities in the sample and across the three regions highlighted in Tables 1 and 6.

For the 27% of households that reported working off-farm in agricultural activities, the average wage received was \$5.2 per day, \$2.0 above what family labor earns on a conventional farm and .03 below that of an organic farm. Not surprisingly, the medium and high migration-dependent regions (Regions 2 and 3) had higher off-farm agricultural wage rates (\$7.2 and

Table 6. US and Mexican migration: prevalence and economic importance

Region	US migration rate	Households receiving remittances (%) ^a	Share of household income ^a	Mexican migration rate	Households receiving remittances (%) ^b	Share of household income ^b
Region 7	1	100	46	56	32	7
Region 1	6	55	15	33	38	11
Region 8	6	84	67	58	49	23
Region 6	20	94	73	33	24	35
Region 5	21	46	15	21	40	19
Region 4	27	80	62	58	45	30
Region 9	39	80	63	42	59	32
Region 2	50	94	69	23	55	28
Region 3	52	96	84	43	92	45
Total	23	86	65	39	46	27

^a Considers households with a migrant in the US.

^b Considers households with a migrant in Mexico.

Table 7. *Importance of off-farm work*

	Sample	Region 1	Region 2	Region 3
Off-farm ag wage (mean \$/day)	5.2	5.3	6.9	7.2
Worked off-farm in ag (%)	27	9	42	37
Worked off-farm in non-ag (%)	13	2	14	9
Off-farm income exceeds coffee income (%)	53	13	80	59

\$6.9 per day) than did Region 1 (\$5.3), the most productive coffee region with a low US migration rate. In Region 1, the median return to family labor allocated to coffee farming is \$10.7 per day, more than double the average agricultural wage, while in the other two regions highlighted, the return to family labor in coffee at .14 for Region 3 and 6.7 for Region 2 is less than the going agricultural wage. This comparison underscores the potential lack of competitiveness of coffee production in those regions.

In our sample, 13% of households reported a member working locally as a non-agricultural laborer (e.g., construction worker) with an average earning of about \$10 per day (SD .75). This wage roughly matches data from Mexico's 2000 census (Chiquiar & Hanson, 2005). Non-agricultural wages are two and three times what farmers could earn working their own organic or conventional coffee plots, respectively, except in Region 1, the region with higher coffee yields. Non-agricultural labor markets, however, are thin in certain regions. Only 2% of households in Region 1, for example, reported doing non-agricultural wage work, while the participation rates were 9% and 14% for the Regions 2 and 3, which corresponds to their high migration rates and more opportunities for housing construction work.

Off-farm wages can be viewed as the opportunity cost of employing labor on the farm. In regions where off-farm agricultural and non-agricultural wages are high, it is unsurprising that households depend heavily on wage earnings for income. Almost half of sample households earn more from working off-farm than from coffee, though as one would expect given variations in those wages, the percent varies by region. In the medium and high migration regions, the percentages of households earning more from off-farm wages than from coffee are 59% and 80%, both of which are higher than the sample average. In Region 1, on the other hand, only 13% of households earned more off-farm than from coffee, but it is the only region in the sample with that outcome.

In addition to local work, household members in the sample have increasingly pursued labor opportunities in other parts of Mexico (see Table 6). Furthermore, education can improve labor market possibilities and returns. While US labor markets may offer low returns on secondary education obtained in Mexico (Chiquiar & Hanson, 2005), studies have estimated sizeable returns to secondary education within Mexico between roughly 8% and 12% per year (Chiquiar, 2003; Schultz, 2004; and Mehta and Villarreal, 2008).

Supposing a base wage of \$10 a day for "unskilled labor" and a 10% return to a year of secondary school, a 10% increase in earnings means an extra \$300 in annual income, equivalent to 30% of net coffee revenue for organic households. If we use the cost of schooling supposed earlier, a household would recuperate 75% of the cost of an extra year of schooling in 1 year. Though moving to regions that pay the highest education premium involves costs, they would have to be very high

to make schooling an unattractive investment especially when the government is providing cash transfers to support that investment.

Since 1998, households have been able to recuperate the cost of education even faster as high school and middle school students receive stipends equivalent to about 40% of education costs through Progresa now called Oportunidades (Schultz, 2004). As shown above, the conditional cash transfer program Oportunidades existed in all nine of the sample regions and had high participation rates. This participation is likely a major cause of a sharp increase in schooling over the last decade. The estimated returns to education and the subsidies provided by the Mexican government would seem to provide a strong incentive to invest in schooling.

6. DISCUSSION

This article provides a systematic comparison of returns and investment behavior of organic and conventional coffee growing households in a region of Mexico with many early entrants into FT/organic arrangements. At the broadest level, it explores whether FT/organic coffee provides a potential path toward addressing Latin America's longstanding "agrarian question" or challenge of persistent rural poverty. In general, the answer appears to be no, especially compared to alternative pathways rural households are pursuing, but it may be that these paths are complementary options to escape poverty.

Our analysis begins by examining the popular notion that FT/organic producers receive higher prices than conventional producers. While the empirical results confirm that in 2004–05 prices and net returns to FT/organic producers were somewhat higher than they were for conventional growers, the differences are relatively small (about a \$300 difference in net returns), especially when compared to higher returns to labor in domestic and international labor markets. Moreover, most of the difference in net cash income per hectare between FT/organic and conventional households comes from differences in yields, not prices.

Our finding that yields matter more than prices for explaining income differences among coffee growers could motivate a shift in the FT/organic discourse. It appears difficult for NGOs, policy makers, or cooperatives to influence prices given the competitiveness of the world coffee market. Indeed, Fair Trade or organic price premiums unrelated to physical quality will likely dissipate in time as more growers enter such markets (de Janvry *et al.*, 2010). In contrast, policy makers, cooperatives, and growers have more control over farm-level variables. Given the role of yields highlighted in our study, improving the welfare of coffee growing households through better technology and management deserves more attention, especially in developing countries where public extension services have been curtailed or eliminated in recent decades. In southern Mexico, coffee cooperatives often fill this extension role, providing technical assistance to growers that can help them improve quality and boost yields. Organizations targeting the small-holder coffee sector for higher prices might accomplish more by focusing on grower skills and knowledge and financing to employ management practices that improve productivity and hence returns to household assets (land, labor, and plants).

In addition to a "within" coffee analysis, we compared the returns to coffee with those associated with other labor activities and education investments. For the whole sample, off-farm labor opportunities generated more income for households than coffee, regardless of Fair Trade/organic status.

For example, the returns to sending a migrant to the US or a child to school substantially exceed returns to family labor in coffee. And for households with migrants, international migration and remittances dominated any other source. Government subsidies, led by Progres/Oportunidades, also matched net coffee income levels for the average household, and helped to increase education investments and incomes.

Nevertheless, integration with off-farm labor markets and returns to coffee vary significantly by region. The yields of coffee farms in Region 1 were multiple times higher than those of most sample regions. Accordingly, the value of labor allocated to coffee is much higher and competitive with non-agricultural local labor opportunities in Region 1, but because of the small size of farms there, Region 1 also ranks fifth out of the nine sample regions in terms of per capita income. Thus, in even the region with the highest coffee yields, coffee does not generate enough earnings to put the region's households on par with those in other regions with more diversified portfolios and greater integration with local, national, or international labor markets. Unless there are regions with even higher yields than Region 1, a specialized coffee path that includes FT/organic is not likely to dominate a diversified one that includes substantial participation in labor markets.

One specific question of interest is whether the high yields of coffee farms in Region 1 have kept labor from migrating? Or, alternatively for this region, has the lack of integration with outside labor markets kept households dependent on coffee, and perhaps led them to pursue more intensive farm management and higher yields? This question about Region 1 fits into a broader issue concerning the extent that participation in FT/organic coffee markets might provide financial and informational resources that allow households to broaden their activity portfolios, or whether if pursued exclusively it could generate more of a poverty trap than springboard.

7. CONCLUSION

This southern Mexico study of FT/organic coffee growing households offers lessons regarding the agrarian question of persistent rural poverty and the limited potential for a middle path based on third party certifications. First, significant

improvements in economic outcomes seem more likely to arise when rural households have access to a range of better labor opportunities. Second, while better opportunities can be generated through markets for certified agricultural or other local products, we would not anticipate transformative gains from such initiatives unless they are combined with efforts to also improve management practices that enhance labor productivity. Third, major improvements can arise from better access to off-farm labor opportunities in the community and beyond in national and international markets, which speaks to the role of immigration policies in other countries, and domestic labor market reforms.

While Mexico has unique features associated with its proximity to and long history of migration to the US, in the past two decades Central American countries have also established major migration networks to the US and to other neighboring countries (e.g., Nicaragua to Costa Rica, Guatemala to Mexico). Likewise, Andean countries, such as Ecuador, Bolivia, and Peru have international migration networks that include the US but also European and richer Latin American countries. Mexico, thus, may be toward one extreme of international labor market integration relative to other Latin America countries, but others are also deeply engaged in that process (Clark, Hatton, & Williamson, 2004).

Finally, policies that improve educational attainment for rural youth can complement improved labor market opportunities for rural households. Oportunidades has boosted educational attainment in southern Mexico, and underscores the need for an integrated view of the agrarian question that includes improving agricultural productivity and prices (when possible) but also providing ways for rural households to improve returns to their most abundant factor, their family labor. Returns to educational subsidy programs could be even higher in poorer countries, such as Central America, where liquidity constraints and child labor use are more likely to limit schooling than in Mexico (Gitter & Barham, 2007, 2009). Fair Trade and other third party certifications related to agricultural sustainability should therefore be viewed in the context of broader livelihood portfolios that the rural poor pursue. Put simply, the agrarian question in Latin America has no easy answers, and real answers will almost certainly involve looking for more than a better price for certified agricultural products.

NOTES

1. Producer participation in both markets is common especially in the case of coffee. Currently, more than 60 percent of Fair Trade coffee sold in the US carries the organic label (Transfair., 2009).

2. Oportunidades (originally called Progres) is a national conditional cash transfer program that provides millions of low-income Mexican households a monthly cash transfer delivered to the mother of the household (or father if he is the single parent) in return for school participation of children. The program began in 1995, and is heavily studied see Fiszbein and Schady (2009) for a review of the literature.

3. Coffee growers in each region were enumerated and divided into two basic groups: those that are organized and participate in Fair Trade-organic coffee production and those that do not. Producers were identified through cooperative lists (for organized producers) and the *Padrón Nacional Cafetalero* or National Coffee Census (for non-organized producers). Each group was further stratified by prior information on migration history (history of US migration, history of intra-Mexico

migration, and no migration) and a random sample was drawn from the strata. Each coffee household was weighted appropriately in the data analysis according to the selection probability of their particular stratum.

4. According to the International Coffee Organization, prices for mild Arabica coffee hovered at historic lows of around \$.60 per pound from 2001 to 2003 before recovering to an average price of \$.80 in 2004 and 1.14 in 2005.

5. Our measure of total income excludes income from non-coffee agricultural production. Only 15 percent of the sample reported having sold non-coffee agricultural production, with a median gross income of US\$ 44. We did not have cost information to calculate net income, which would be even more negligible.

6. Using GNP per capita of \$8,080 given by the World Bank's World Development Indicators available online through the "Quick Query" option on World Bank's "Key Development Data and Statistics" webpage.

7. Raynolds (2004) describes the growth of organic markets, while [Giovannucci and Koekoek \(2003\)](#) describe the growth of specialty coffee markets.
8. Technically, large farms can be certified without associating with a cooperative. Our sample, however, consists predominately of small farms where cooperative participation is a practical necessity for participation in organic and Fair Trade markets.
9. Other benefits linked to participation in Fair Trade/organic cooperatives are omitted in this net cash estimate of gains. Growers who participate in FT/organic cooperatives can benefit from increased price stability, longer-term contracts, technical assistance that can help improve yields and quality, and access to credit. The Social Premium paid to Fair Trade cooperatives above-and-beyond coffee price is often designated for social and economic development projects in participating communities ([Bacon 2005](#); [VanderHoff Boersma 2002](#)). Responses by growers in our sample who participated in FT/organic cooperatives largely confirmed these benefits to organization.
10. Organic growers can sell coffee to their cooperative as well as to local intermediaries in contrast to conventional growers who can only sell to intermediaries.
11. An alternative explanation is that the presence of cooperatives increases prices paid by intermediaries in the local market. This is unlikely the case since intermediaries probably know that conventional (unaffili-

ated, non-organic growers) generally cannot sell to the cooperative and that in most cases conventional growers would have to transition to organic production to be able to sell of the cooperative in future years. Regressing prices paid by intermediaries on an indicator for cooperative membership and regional dummy variables to control for the competitiveness of local markets still shows that intermediaries pay cooperative members more than unaffiliated growers (14 cents per kg more).

12. Parchment coffee refers to coffee that has had the fruit removed from the bean, washed and fermented, and to some degree dried. Prices quoted in international markets generally refer to exportable grade coffee, which is parchment coffee that has had the hull removed and been dried to 12 percent moisture content.

13. An activity with intertemporal effects that was not included in our investment measure was labor costs associated with weeding coffee plots. Weeding is time intensive and almost all households do it, and weeding labor costs are generally much higher (several times in some cases) than investment levels in Table 5. Not surprisingly, Regions 1, 2, and 3, which are ordered in terms of increasing reliance on migration and remittances as an income source, have average weeding costs per hectare of \$191, 101, and 61. Thus, time spent on weeding, like investment, may reflect the emphasis that households place on coffee as they adjust their portfolios to new labor market opportunities.

14. Conversely, this program takes money from growers when the price rises above this predetermined level.

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