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Use and perceptions of alternative economic activities among smallholder coffee farmers in Huehuetenango and El Quiché departments in Guatemala

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ABSTRACT

In the past two decades, Mesoamerican smallholder coffee farmers have had to confront several stressors and shocks, such as price crises and natural disasters, with debilitating impacts on the viability of their livelihoods. More recently, many farmers have suffered crop losses in the wake of the spread of coffee leaf rust disease, and researchers are predicting that some areas will become less suitable for coffee growing in the near future as a result of climate change. For these reasons, many have called for the promotion of livelihood diversification as an additional component of rural development programs. This study uses thematic analysis of transcripts from 15 interviews with members of a regional Guatemalan coffee cooperative, *Asociación Barillense de Agricultores*, based on four different interview guides. Coffee remains the primary livelihood strategy of the respondents, whereas most other activities appear to offer relatively small contributions to incomes, with the exception of honey and a small sewing shop. Some of the farmer responses reflect coping mechanisms rather than risk management. The study also identified other themes mediating diversification, including income-smoothing, optimization, familiarity, social networks, and influences from external actors.

KEYWORDS

Rural livelihoods; diversification; smallholder farmers; coffee

Introduction

Smallholder coffee farmers in Central America are vulnerable to various stressors and shocks, including declining real prices, price volatility and crises, and rising production costs (Bacon, Méndez, and Flores Gómez 2008b); pest and disease outbreaks, such as coffee leaf rust; and land degradation (i.e. soil erosion) and remoteness from economic centers (i.e. economic marginalization) (Pender 2004). Furthermore, researchers have predicted declining coffee yields and coffee quality in many areas due to

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climate change (Schroth et al. 2009). In addition to reduced and unstable incomes, these stressors and shocks can lead to devastating impacts on food security and investments in education (Baca et al. 2014; Bacon, Méndez, and Flores Gómez 2008b), undermining the ability of coffee growers to build sustainable and resilient livelihoods.

In recent history, sustainable development efforts targeting smallholder farmers have focused on access to specialty markets, such as organic and Fair Trade, as well as on farmer organization into growers' cooperatives, which can aggregate local supply and negotiate for higher prices (Bacon, 2008a). Méndez et al. (2010a), however, have shown that certifications alone might be an insufficient solution for reducing poverty among this population. A recurring issue with certified markets is that prices do not rise proportionately with rising costs of production, and changing international policies regarding premiums depend heavily on the political will and coordination of organized smallholders (Bacon et al., 2008a).

In response to the limitations of certifications and cooperatives, it has been recommended that development practitioners pay more attention to livelihood diversification as a leverage point for strengthening and stabilizing livelihoods (Bacon et al. 2012; Schroth et al. 2009). Livelihood diversification has been defined as "the process by which rural families construct a diverse portfolio of activities and social support capabilities in order to survive and to improve their standards of living" (Ellis 1998). The economic activities and social supports that comprise a diversified livelihood draw on a distinct assortment of assets, which, conceptually, can include natural capital (e.g. soil, water, seeds, perennial crops, and livestock); produced or built capital (e.g. equipment or infrastructure); financial capital (e.g. income and savings); human capital (e.g. knowledge, skills, health, and values); social capital (e.g. norms, mutual support, and trust); and cultural capital (e.g. values, symbols, and ways of knowing) (Bebbington 1999; Flora and Flora 2004).

Traditionally viewed as a transitional phase through which rural households pass as they are leaving agriculture-based livelihoods behind, livelihood diversification is increasingly being seen as phenomena of long-term microeconomic equilibrium, where farming families engage in several economic activities in order to sustain livelihoods rooted in agriculture.

Although diversification tends to have a positive connotation in current conversations regarding smallholder viability, the reality of diversification is more complex than the popular discourse suggests. As Ellis (1998) outlines, the impetus to diversify could either be deliberate or involuntary in nature, and its outcomes for rural development are difficult to predict; it could ameliorate or exacerbate local inequalities and have either positive or negative impacts on agricultural growth.

In analysis, diversification can be discussed in terms of comprehensive strategies, which refer to a household's entire portfolio of economic assets and activities and how these interact to form and support livelihoods.

Alternatively, the specific assets or activities that form part of a diversification strategy can be analyzed independently. The latter approach is employed in the following article.

In general, research has focused on diversification as a product of rational decision-making. To support this notion, the predisposition of the literature has been to rely heavily on quantitative survey data and farmer typologies to draw conclusions about which types of farmers were diversifying, to what ends, and what types of impact diversification was having on these groups (Tittonell 2014). Such interpretations can gloss over important insights into why and how growers are diversifying and leave the complexity of diversification decisions only partially examined.

In the following article, we attempt to elucidate coffee farmers' perceptions of specific diversification *activities* and how and why farmers perceive the benefits of these activities vis-à-vis coffee production. To this end, our study was structured around the following questions:

(1) How have stressors on coffee farmers translated into perceptions of the viability of coffee production?
(2) What types of diversification *activities* are coffee farmers currently pursuing and to what extent have they invested in them?
(3) How might perceptions of coffee production and economic alternatives, as well as factors related to social, human, and cultural capital, encourage or discourage the adoption of specific activities among coffee farmers?

The authors posit that although many of the coffee farmers interviewed were employing several supplemental economic activities, the majority of respondents were only engaging in these activities in a nominal way relative to coffee production. The results demonstrate that this state of affairs could partly be explained by the interviewees' explicit faith in the future viability of coffee production as a primary source of income, as well as respondents' low estimation of the economic significance of alternate activities. We then identify and illustrate several sociological factors (principally social, human, and cultural capital) that appear to have an influence on these perceptions. Despite the fact that farmers in this region face numerous stressors, we suggest that their engagement in alternate activities has more to do with sociological factors and motivations characterized as resource optimization and income-smoothing than with perceptions of risk.

Livelihood diversification and smallholder coffee farmers in Central America

Researchers have already established that livelihood diversification is a common attribute of smallholder coffee-based livelihoods and farmers frequently

have interest in cultivating new agricultural products (Méndez 2008). Westphal (2008) suggests that existing diversification among coffee farmers has been driven by their unique socioeconomic conditions, particularly their vulnerability, low agricultural incomes, and dependency on volatile income sources (Westphal 2008). Bacon et al. (2014), for instance, interpreted the planting of fruit trees and subsistence corn and beans as demonstrative of efforts to maintain food sovereignty, as well as manage risks to food security. Other drivers of diversification among coffee farmers could be land and credit constraints; access to new market opportunities; income-smoothing strategies; or anticipated cost savings from production for domestic consumption (Méndez 2008; Ruiz Meza 2014; Westphal 2008). More recently, scholars have speculated whether climate change would drive further diversification, and whether diversification could be an important adaptation strategy (Eakin et al. 2013).

However, while for many decades Guatemalan national coffee production had stabilized around 280,000 ha, it surged to 305,000 ha in 2014 in the wake of the coffee leaf rust epidemic (likely the result of new plantings) (Tay 2015). In some cases, coffee might be perceived to constitute the only viable option, such that shocks, such as coffee leaf rust, cause a "doubling down" on coffee production rather than complementing coffee income with other economic activities or abandoning coffee altogether.

There is a lack of information (with notable exceptions) on the degree of diversification among coffee-based households and whether alternative activities can compensate for their particular vulnerabilities. Within the agroecology literature, as one stand out, much attention has been paid to how agrobiodiversity, particularly within the coffee shade canopy, contributes to livelihoods (Méndez et al. 2010b; Westphal 2008). Westphal (2008) showed that tree products from coffee shade provided substantial income (on average, this income equaled 30% of coffee income) without requiring much additional capital or labor inputs and complemented coffee production by providing organic matter and shade and, in some cases, purchased inputs. Other research has shown that diversification can have positive impacts on social indicators, especially on gender relations, such as when women are able to control income from new activities outside of male-dominated coffee production (Carswell 2002). International migration of some household members, as a diversification activity, could also increase local land access and improve and expand coffee production among participating households (Aguilar-Støen 2012; Bacon 2008a).

Some researchers have qualified the perceived benefits of diversification for coffee farmers. Ruiz Meza (2014) points out that income diversification might only serve to cover subsistence gaps, constituting a coping strategy and potentially undermining longer-term adaptive strategies. Although agrobiodiversity can provide for various household needs, we cannot assume that

maintaining agrobiodiversity will provide a sufficient (or even a good) livelihood choice for a household. The families surveyed in Méndez et al. (2010b) in El Salvador and Nicaragua, for instance, still lived at or below the poverty line and faced food shortages.

In addition, diversification might only be available for the coffee farmers who have access to sufficient financial capital, education, land, labor, and markets. Without the local availability of affordable non-family labor, coffee farmers might forego alternatives, especially if their activities conflict with essential practices in coffee plots (Bray, Plaza Sanchez, and Murphy 2008). This is a special consideration, since many recommendations proposed for adapting coffee agroecosystems require labor-intensive practices (Eakin et al. 2011). In some cases, onerous regulations on certain products could dissuade diversification. This might have been the reason why coffee farmers chose not to plant timber species in their coffee plots in Westphal (2008). Concerns about theft might also discourage diversification on agricultural land far from the house. In Westphal (2008), this kept at least one grower from planting fruit trees on the boundaries of their coffee plots. Off-farm employment is not always available in coffee-growing countries with high national unemployment rates (Bacon, Méndez, and Flores Gómez 2008b). In El Salvador, coffee farmers expressed frustration with the lack of local employment opportunities, perceiving this deficiency as a major driver of food insecurity (Morris et al. 2013).

Beyond these explanations, it is important to consider factors outside of the parameters of the rational decision-making model. For example, human and cultural capital and the strength and dynamics of social ties (Granovetter 2005) could help to either disseminate or preclude diversification options. Authors have also pointed out that interactions with external actors can also influence smallholders' decisions, mainly through the mechanisms of motivating factors and information, outside the bounds of rationality (Ayuya et al., 2015; Eakin and Wehbe 2009). Cultural capital, such as "notions of work," can have impacts on whether growers pursue more lucrative and potentially less labor-intensive alternatives (Davidson 2009). Similarly, cultural change, particularly in the context of globalization, can insinuate changes in local economic ideologies (Goldín 2009).

Research methods

The research for this study was part of a larger project funded by the CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS), which assessed climate change vulnerability among the members of two coffee cooperatives, one in Guatemala and the other in Nicaragua. Ultimately, the project sought to identify and scale-up agroecological practices that could promote resilience to climate change through investment and on-farm experimentation.

The project included funding for field researchers associated with the University of Vermont's Agroecology and Livelihoods Collaborative to collect data (on which this article is based) in the northern area of Huehuetenango and El Quiché departments in Guatemala's Western Highlands. In the Western Highlands, the poverty rate is as high as 76% (27% of the population lives in extreme poverty) and more than half of the children under age 5 are malnourished. The majority of the population in this region is indigenous Maya. In addition, this area was the site of some of the worst atrocities during the armed conflict between the Guatemalan government and guerrilla fighters, which lasted from 1960 to 1996. Despite the implementation of peace accords, the region continues to be marginalized politically and economically (USAID 2014).

The *Asociación Barillense de Agricultores* (ASOBAGRI) supported field researchers in transportation, logistics, and serving as a gatekeeper between the research team and participants. ASOBAGRI was founded in 1989. At the time of this writing, ASOBAGRI had grown to 1,238 active members (990 men and 248 women), located in 86 rural communities in the departments of Huehuetenango and El Quiché, the majority of which are of indigenous Q'anjob'al, Chuj, and Ixil ethnicities.

In the field, field researchers coordinated data collection with activities managed by the cooperative's technical assistance team. In other words, they often interviewed participants (or collected soil samples, in the case of one research partner) where and while the cooperative extension agents were conducting workshops. The collaboration of extension agents (and the good will toward the cooperative among its members) brought legitimacy and fostered local openness to participating in our research.

The results for this article were derived from 15 interviews with smallholder coffee growers in northern Huehuetenango and El Quiché departments in Guatemala using three distinct interview guides. Table 1 summarizes the distributions of respondents by community and gender. The interview guides covered brief historical perspectives on specific economic activities; details about the practices involved; yields and prices; contributions to livelihoods; comparisons with coffee; reasons for not specializing in coffee; reasons for not pursuing other economic alternatives; and plans and expectations for the future. Additionally, insights from informal conversation and participant observation are used, at certain points, to inform or qualify the results.

To gain insights on how livelihood alternatives are interpreted and chosen, the interviews were analyzed using thematic analysis. This method allows categories or codes to emerge from the data itself, rather than approaching the data with an established hypothesis and predetermined set of categories (Ezzy 2002). Since there was an interest in discovering themes that are associated with

Table 1. Distribution of respondent by community and gender.

Community	Department	Male	Female	*Total*
Nueva Esperanza	Huehuetenango	5		*5*
Naranjo	Huehuetenango	5	1	*6*
Chaxa	Quiché	2		*2*
Nueva Primavera	Huehuetenango	1		*1*
Las Brisas	Huehuetenango		1	*1*
Total		*13*	*2*	*15*

engagement in particular alternative economic activities (for instance, beekeeping), later stages of the coding process were more selective. Open coding during the first reading ascribed labels to a multitude of themes to items within the text and began to group those items, allowing strong themes to invoke themselves over the course of the reading (Strauss and Corbin 1990). As recommended by Strauss and Corbin (1990), these themes (or categories) were then described according to properties and the dimensions of such properties in order to relate them to other themes in the data.

Results

For the three harvests during this study (2012–2015), coffee leaf rust disease has had a devastating impact on coffee yields among most of our respondents. In some cases, the disease was so damaging that the trees could not recover and required growers to re-plant entire orchards, an investment that diminished their savings and forced many to take out loans with banks, the cooperative and friends and families.

However, despite the ongoing crisis, many respondents held positive attitudes toward coffee production, still citing it as their principal form of income generation. All respondents were planning to expand coffee production (or they *would* once their economic situations improved). Only one respondent had an explicitly pessimistic view of coffee.[1]

Optimism regarding the future of coffee production seemed to revolve around two views. First, some saw coffee leaf rust as a temporary problem. They were of the opinion that the disease had run its course and this view gained credence from the fact that their coffee plots appeared to be recovering.

> I think any moment it's going to pass … then in the old coffee plots there that I still have, once the coffee leaf rust is gone, I'm going to … prune [them back] … Coffee leaf rust is losing its strength. I have a plot here, it's beautiful … There are signs [of coffee leaf rust], but it still hasn't taken hold. Whereas in previous years it would already have been dropping leaves, now it isn't. (Respondent 14)

Even more saw coffee leaf rust as a controllable problem.

> Well, in my plot, coffee leaf rust did not have much effect since it's a higher altitude, a few trees, that's it, but I combatted it with Royano©. (Respondent 15)

This view was held by respondents who were confident about resistant coffee varieties and, to a lesser degree, the organic sprays being promoted by the cooperative. Since the crisis was perceived as either temporary or controllable or both, many respondents turned to temporary coping strategies, which included reducing their reliance on non-family labor, seeking temporary employment off-farm, expanding their *milpa* production, and drawing on savings or loans to cover living expenses.

All respondents engaged in additional cash income-generating activities, as shown in Figure 1, but most respondents perceived very small returns from these activities, such that income diversification appeared to be occurring at the margins, and *only* at the margins for the majority of respondents. The full list of alternative cash incomes (Table 2) is very diverse, but besides cardamom,[2] none of these strategies could be considered as standard in the region. Only two respondents mentioned selling surpluses of corn (and only one had sold corn in the previous year).[3] These growers indicated that they were usually only selling a small surplus, and *milpa* production was not necessarily intended as a cash crop. Of the six respondents who sold bananas, five harvested bananas that were growing in their coffee plots as shade and these did not account for more than a few trees. Bananas were typically sold at a price that – as Respondent 1 put it – was accepted since they were merely selling them so that they would not go to waste. Only one respondent owned a small store selling packaged snacks, beverages, and basic household items, but this respondent commented that the store's contribution to his family income is generally very small.[4] Off-farm agricultural labor was pursued out

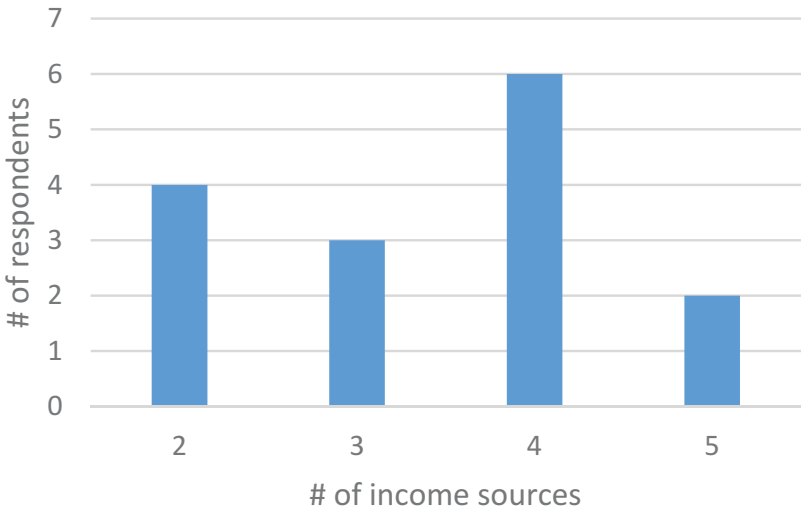

Figure 1. Distribution of respondents according to number of sources of cash income.

Table 2. Economic activities and number of households deriving cash incomes from them.[a]

Source	Number
Coffee	15
Cardamom	12
Bananas	6
Local off-farm employment	3
Remittances	2
Government transfers	2
Corn and/or beans (milpa)	1
Cattle	1
Horses	1
Pigs	1
Chickens	1
Tilapia	1
Small store	1
Home industry	1
Temporary migration in-country	1
Loans	1
Fruit trees	0
Black pepper	0
Sale of physical assets	0

Note. $n = 15$.

[a]It is possible that the interviews did not capture all the income sources (in particular, government transfers for women, loans to cover household expenses, and the sale of assets, especially savings).

of necessity (i.e. low coffee yields) and respondents only sought it for part of the year (from February to August). Some respondents indicated that there was no advantage to off-farm work since it amounted to the same income as coffee production. Even cardamom prices were described as consistently low and there were some doubts as to whether cardamom income covered costs. Respondent 10 had grown cardamom in the past, before abandoning it after determining the crop was not profitable. Respondents also shared perceptions about the viability of non-banana fruits. According to Respondents 1 and 2, growing fruits for local markets was unfeasible, since there was already access to a consistent supply of cheap fruit from the large fruit farms in the lowland regions of the country and from plantations in neighboring Mexico and Belize. Growing vegetables for market is probably limited by similar dynamics, as there is substantial production in the southern highlands and produce purveyors seem to be well established in the Barillas' markets.

Tellingly, the concept of risk-minimization appeared to play a limited role in decisions regarding economic alternatives, which could explain why these alternatives did not translate into substantive diversification strategies. That is not to say that respondents did not suffer losses or that coffee is not a risky proposition, but few respondents explicitly described alternatives in terms of risk. This was especially surprising in the case of cardamom, which would appear to be an example of planned redundancy as a second income-

generating export crop. However, only Respondent 5 expressed cardamom's value as such:

> I thought, one day, there are going to be losses in coffee and having cardamom will help me; one day, there will be losses in cardamom and having coffee will help me.

Instead, in the case of cardamom, rationales for the alternative could best be categorized as income-smoothing or resource optimization strategies, which were generally subordinate to coffee production and not necessarily meant as a hedge against it. Cardamom allowed farmers to cover household expenses in the months leading up to the coffee harvest, presumably when income from the previous coffee harvest was exhausted. Second, it allowed farmers to cover labor costs for the coffee harvest, since all our respondents (and most households in the region) need to employ coffee harvesters from outside their family. Commonly cited advantages of cardamom were that its production costs were low since it required relatively less labor than coffee. Cardamom also offers a more flexible harvesting timeline than coffee, which needs to be picked immediately upon maturing; cardamom can be gathered between major coffee harvests. In some cases, growing cardamom instead of coffee was more feasible when isolated plots were far from the home, as in the case of Respondent 3, whose household owned a plot of land in a distant community. But overall, this rationalizing emphasizes that, for most growers, cardamom (and presumably other alternatives) was subordinate to the demands of coffee production, and was only pursued when additional investments of assets to coffee production were not possible or rational.

For the farmers who pursued off-farm work, the responses demonstrated how social capital in the form of access to employment could actually preclude investments in long-term diversification strategies. Respondent 8 related that he could easily find temporary employment through his connections with local large-scale farmers (and other smaller-scale farmers who had alternative income sources, such as teachers). For Respondent 2, friends were able to employ him or he could work on his father's land for a few days per week. Since off-farm work was being pursued as a coping strategy in the wake of coffee leaf rust rather than as a planned and fixed diversification strategy per se, we could hypothesize that farmers who had more flexible access to "employment-as-needed" might be less likely to invest in longer-term diversification strategies.

Social capital in the form of membership in a coffee growers' cooperative or interactions with the Asociación Nacional del Café (Anacafé), the country's national coffee association, could be bolstering the primacy of coffee, and indirectly discouraging diversification. This happens in two ways. First, the cooperative provides better prices for coffee. If these prices offset the additional costs of producing certified coffee and participating in cooperative functions then coffee specialization could become more appealing than

diversification. As Respondent 1 emphasized, the cooperative's price for coffee made production feasible, despite higher costs. Second, extension agents from the cooperative and Anacafé influence growers' expectations about the future of coffee production. During my visit, extension agents seemed very optimistic about their members' ability to regain yields through the use of resistant varieties and additional inputs (i.e. sprays). They also were managing a project to build greenhouse coffee-drying systems. These types of "expert" investments could send strong messages to the communities.

Perceptions related to human capital also seemed to narrow options, particularly for nonagricultural employment. Respondents seemed to categorize off-farm employment into two camps: off-farm agricultural labor and all other off-farm opportunities. This aligns with categorizations in the academic literature on diversification, but not necessarily with modern notions of skilled versus unskilled labor. Respondents considered themselves qualified for agricultural labor, since it usually constituted the same activities that they practice on their own farms. However, for all other types of off-farm labor, including construction, most respondents considered themselves unqualified, reporting that they were excluded from such opportunities for lack of formal education and a title certifying their skill level.

Familiarity – which was high with lower-return crops like cardamom and corn and lacking with higher-return products like honey – is another aspect of human capital that partly explains patterns of economic alternatives. Respondents were very familiar with cardamom since it has been produced for longer periods of time either by the respondents themselves or by their neighbors. Respondent 1's description of cardamom practices demonstrated that cardamom propagation is very similar to coffee propagation. Although some respondents offered positive perceptions of honey prices (Respondent 10 expressed confidently that honey would be a profitable strategy), it was also clear that producing these items on a commercial scale was limited partly by a lack of experience and not necessarily by doubts about their economic value.

Cultural capital, in terms of expectations of "how to get ahead," might explain low investment in nonagricultural diversification. Many of our respondents related their own capacity to improve their incomes with their capacity to expand their agricultural production. When asked how her household could improve their income, Respondent 15 said simply by planting more coffee, since coffee yielded more than any other option. Interestingly, some respondents who had migrated to the United States did not show a strong split from these coffee-based pathways. Most used their migration savings to buy land and build houses in rural communities, so that, in practice, migration seemed to be a short-term phase embedded in a long-term agricultural strategy, possibly due to the ever-present risk of deportation in the United States. With that said, some respondents who had migrated would not rule out returning to the United States in the future. Of these, Respondents 1 and 9 served as exceptions, as discussed below.

Whereas the interviews showed a pattern of only marginal use of economic alternatives, there were four important exceptions to this state of affairs. Respondent 13 kept bees[5] and had managed to grow his bee-keeping operation quickly over 7 years. At the time of the interview, he was harvesting from 50 hives on less than 0.05 ha of land. Despite last year's dip in production, which he attributed to abnormally rainy conditions, he was especially optimistic about honey income, intending to add another 20 hives over the next two seasons. The price of honey had risen substantially since he began, and was supported by the recent formation of a local honey producers' cooperative. His small operation even included a hand-cranked honey extractor. He also had land in pasture and bought and sold cattle – he always had two steers at once, and typically replaced one every year. The income from the cow and honey had become more important to his family than coffee, although he still expected coffee to be significant in the future. He hoped to grow his herd to 10 heads, which he thought was a manageable number considering his household's labor.

Respondent 12 was another exception: he was the only respondent who had started what could be considered a home-based industry: a *sastreria*, or sewing shop. He and a sister had been trained at the *Instituto Técnico de Capacitación y Productividad (INTECAP)*, a workforce development institute, after which he bought two sewing machines and set up a business in his family's home in the town of Chajul. He plans to buy two more machines (as he explained, each machine is different and appropriate for a different type of sewing).

Respondent 9 was the only respondent who had set aside land dedicated to banana production and he sold to intermediaries who purchased his crop in the community. He had a substantial landholding, which he was able to afford with savings he had accumulated while working as a migrant in the United States. He also worked as a builder and owned a small gas-powdered maize mill where community members paid to have their corn ground on a daily basis.

Last, while this study was being conducted, Respondent 1 had attained full-time employment as an extension agent for the regional office of Anacafé, the national coffee growers' association. After returning from the United States, he began cultivating a plot of coffee on his family's land and worked occasionally as a sometime extension agent and conducting surveys for ASOBAGRI. This experience allowed him to be considered as a candidate for Anacafé's position.

What differentiated these respondents from the majority? Judging by the above, it would appear that market opportunities and assets (in particular, human, cultural, and social capital) were more pivotal factors than perceptions about risk. However, the distinctions in human, cultural, and social capital between the majority cases and the exceptions were not as defined as, say, having or not having a physical asset. In addition, among the exceptions,

there was no comparable "set" of capitals. In the case of Respondent 1, the social capital of the coffee cooperative provided a very rare type of benefit: an opportunity for building skills as a part-time extension agent (an opportunity that was also facilitated by the social capital of having an uncle on the cooperative's extension team). Respondent 9 benefited from both the level of his remittances from migration, which allowed him to buy an extensive landholding relative to his neighbors, as well as his technical skills in construction and an entrepreneurial approach to production (e.g. selling bananas wholesale and purchasing a corn mill). Other returned migrants had not purchased as much land, nor had they taken on a trade. Respondent 13 pursued honey production because of his social capital as a member of another organization that had created linkages with international markets for honey, so that "cooperative membership" could have two very different impacts on diversification. Importantly, this organization with support from an external NGO had established the markets, access to production equipment, and technical assistance, thereby protecting the respondent from the direct costs typically associated with undertaking a new economic activity. Respondent 12 was distinct both in his human capital (technical skills) and in his experience working in Guatemala City for 6 years (in a restaurant). He expressed the limits of a strictly farm-based livelihood:

> For the farmer, what he produces is what he consumes; but a person who wants something more looks for a way to improve things, figures out how he is going to get ahead. That's why I'm thinking of having, in the future, the sewing machines, a clothing shop, and in this way, I'll earn more income.

Interestingly, many of the former migrants did not discuss the feasibility of nonagricultural strategies, and so "emigration" as a factor in diversification merits a more granular examination.

Discussion

In summary, this study demonstrated that although diversified livelihoods are prevalent, the majority of respondents were only engaging in economic alternatives in a nominal way. In general, alternative activities appeared to fall into three camps: activities with the sole aim of temporary coping, activities that complemented but did not significantly offset the risks of coffee production, and finally activities that formed part of a meaningful and intentional strategy to counterbalance volatility in coffee production in the long-term. This last camp referred to only three respondents: the former migrant with the large landholding who was still heavily invested in coffee; the beekeeper who perceived coffee production to be less critical on account of his investment in (and enthusiasm for) honey production, and the young coffee grower who was invested in his sewing shop.

All respondents expressed optimism in the future suitability of coffee production in the region and, tellingly, alternative activities are largely referred to as complementary or subordinate to coffee production. The limited use of these activities was partly explained by a low estimation of their economic significance relative to coffee production and the fact that most respondents did not refer to their risk-minimizing potential. In addition, the interviews revealed several sociological factors that could be discouraging more robust diversification strategies overall. For example, our observations appeared to be consistent with those of Eakin and Wehbe (2009), which pointed out that interactions with external actors can also influence smallholders' decisions, mainly through the mechanisms of motivating factors and information.

There is some logic to perceiving coffee production as the only viable strategy. Horticultural and non-farm employment pathways might only be feasible for areas near to urban areas and reliable roads; whereas the coffee production pathway depends slightly less on road quality and far less on proximity to markets, since it is dried before transporting and can be stored. Local fruit and vegetable markets are already well integrated with suppliers from large fruit plantations in lowland areas and established vegetable growers with less marginal land endowments. In addition, many of these crops share co-variate risks with coffee vis-à-vis climatic change. Respondent 13 indicated that especially rainy conditions, which he attributed to climate change, reduced his honey yields by 25%. While diversifying farms to provide products for domestic consumption might alleviate expenditure pressures and secure access to food, it is still unclear how much families are really saving, and whether such savings constitute viability. Regarding alternative export products, such as cardamom, honey, and pepper, it is unclear whether they will be able to make up for gaps in coffee incomes over the long term. For one thing, these products also have their price limitations, especially cardamom. Second, these products are not immune to their own threats. A recent outbreak of an insect pest (Thrips) in nearby Alta Verapaz Department has significantly reduced the selling price of cardamom there (Woods 2015). Linkages with economic growth in second- or third-tier cities for labor opportunities and consumers of nonagricultural goods and services could potentially meet rural households' demand for higher and more stable incomes, but these linkages are complex and could be difficult to foster through policy.

It should be noted that even though farmers did not express risk minimization explicitly, we could not conclude that the alternative activities do not serve as components of broader risk management strategies. One possible explanation for the lack of discussion around risk is that respondents were asked about particular activities rather than about livelihood security, in general. The structure of the interviews might have drawn attention to how these activities interact functionally with one another (i.e. cash flow), rather

than how these activities compensate for the weaknesses of others in the grand scheme of livelihood security. In the former relationships, risk minimization might be less apparent, less tangible, and operating in the background. Another explanation is that farmers might prefer to focus on what they have managed to control or what empowers them, whereas they could be more laconic regarding external risks.

Still, our study suggests that researchers should not assume that externally defined risks correlate directly with household decisions regarding alternative activities and diversification, as a whole. Risk must also be perceived by smallholders and they must be persuaded that new activities can mitigate that risk. In addition, "the social meaning of particular risks is often far removed from the bounds of probabilistic thinking and, rather, is framed in terms of cultural meaning and affect" (Wilkinson 2010, 70). Further research could explore smallholder coffee farmers' conceptions of specific *types* of risks (Harwood et al. 1999) and the different mitigation strategies associated with them. It should also capture farmers' own assessments of the efficacy of these strategies.

However, despite adults' aspirations for agriculture-based growth, parents' focus on formal education for their children seems to suggest that these plans might be "generation"-bound, and that aspirations with regard to children might be very different. The primacy of education was a theme throughout the interviews, and did have an effect on how households allocated the labor of young people. Some of the respondents indicated that education was prioritized over agricultural labor and migration. This might suggest that households are willing to forego additional income from young people in the short term to opt for longer-term benefits. If true, it reflects considerable optimism about returns to education. Respondent 13, for instance, was investing heavily in his children's education, spending Q11,000 (approximately US $1,475 in 2015) a year for his son's degree at the University of Sololá.

At the very least, development practitioners should take seriously smallholder coffee growers' resistance to activities that interfere with (or allocate resources away from) coffee production since such initiatives might find little traction among growers in this region. Technical assistance should articulate a dual approach of improving resiliency of these farmers' livelihoods by (1) continuing to improve the resiliency of coffee production strategies and (2) lowering both the barriers to diversification options with specific attention paid to the human, social, and cultural capital barriers, in addition to the economic ones.

This study identifies a number of avenues for future research. First, when considering diversification "strategies," we can also fall into the bad habit of assuming that the household is implementing a carefully determined plan. As Richards (1998) has emphasized this runs the risk of conflating "plans" and "performance." In addition, skillfulness in coffee growing could be instrumental – not in economic terms, but in terms of social status (Granovetter 2005).

Future research should seek to understand the relationship between smallholders' use of agricultural livelihoods, rural networks, and performances as a source of identity and pride, and decision-making with regard to diversification.

Second, in our study, emigration and remittances appeared to be used as an entry into agriculture-based livelihoods, not a transition out of it, since it afforded land-constrained households the opportunity to build up their landholdings and invest in their physical homes in the communities. Future research should explore the mechanisms that lead former migrants to focus on agricultural strategies and rural physical capital, rather than urban capital and skills relevant to urban markets.

Finally, while many of our respondents viewed agriculture as their primary income source moving forward, it was less obvious that they expected their children to be dependent on agriculture. Parents' focus on formal education for their children seems to suggest that agricultural strategies might be "generation"-bound. Agriculture might be viewed as the best option that allows households to remain together and to cover educational costs while they strategically position their children for nonagricultural or, at least, not exclusively agricultural livelihoods in the future. Future research should explore these motivations more deeply.

Conclusions

Various factors weigh on smallholder coffee farmers' decisions on whether (and how) to diversify. A comprehensive understanding of the factors that encourage or discourage diversification is useful when planning interventions that seek to promote diversification activities. However, as this research demonstrates, these studies should not rely solely on econometric and survey-based data. Our work identified qualitative factors such as confidence in primary crop, economic ideologies, familiarity with performance of certain activities, future-planning and aspirations of households, primacy of educational continuity for children as a household goal, social networks, and influences on motivations from external actors. Some of these factors only applied to certain activities in this study; for example, social networks were most important for attaining nearby off-farm employment that could complement agricultural self-employment. Perhaps the most important contribution of this study is its support for a mixed-methods approach to development research.

Notes

1. According to him, coffee production in the 1980s (when he began producing) provided three times the income that it currently offered. He attributed the local rates of

international migration to the declining value of the crop, including the migration of his son, who was serving a prison sentence in the United States.
2. Of the three respondents who did not grow cardamom, two were located near Chajul, where cardamom production is not prevalent, probably due to cooler growing conditions.
3. These two respondents were situated in areas where corn production dominated the landscape, very unlike the landscape in which other respondents were situated.
4. One extension agent for the cooperative estimated that his family's store netted 10% profit over its costs and the volume sold was low.
5. Bee-keeping in general was more common in this respondent's region (near Chajul) than in the other sites in this study. His entry into honey was fostered through a development project that had selected a local farmers' association as a participant.

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