



Diversification and Labor Market Effects of the Mexican Coffee Crisis

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Summary. — This paper analyses how coffee-producing households responded to the low coffee prices prevailing around 2003. We provide theory on differential responses in regions dedicated to coffee growing, compared to more diversified or better accessible regions. We show how labor market effects can explain why in the former regions value-adding activities (processing, certification) are undertaken while in the latter regions off-farm activities are adopted. Farm size favors value-adding activities as well as on-farm diversification. These findings call for policy responses to low prices that distinguish between specialized regions and diversified or well-connected regions.

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Key words — diversification, value addition, labor market, coffee, Mexico, Latin America

1. INTRODUCTION

The process of liberalization of the Mexican economy in the 1980s opened the door for private international trade of coffee. On the other hand, government support to the coffee sector was drastically reduced, ending the domestic regulation of the coffee market at the beginning of 1990s. These changes forced coffee farmers to adapt to the relatively free coffee market during the 1990s and the first decade of the 21st century. As part of this process and as a response to low coffee prices prevailing in the early 1990s and again around 2003, coffee-producing households have been increasingly engaged in diversification activities within and outside the coffee sector. Some coffee smallholders shifted resources away from their coffee parcels and concentrated on subsistence crops or on other income-generating activities. However, as coffee production represents invested capital, many farmers did not abandon or remove their coffee trees (Calo & Wise, 2005) and instead aimed at vertical diversification by taking up processing of coffee and other value-adding activities.

Diversification has been characterized as a form of household risk management but also as a response to prices. Income diversification implies adopting agricultural activities different from the traditional one, or non-farm activities. Diversification also means changing the use of capital and reallocating labor to other activities, such as wage labor or self-employment, or migration (Ellis, 2000a; Reardon, Delgado, & Matlon, 1992). Thus, diversification includes any combination of activities other than conventional coffee production to generate positive effects on the total household income. In this study, we will include a particular form of (vertical) diversification, which we shall call coffee-extra, namely selling coffee that has undergone some on-farm processing.

Earlier research has focused on the strategies of producing, processing, and marketing coffee by coffee-producing households in Mexico (Avalos-Sartorio, 2006; Calo & Wise, 2005; Renard, 1991). The case study by Jaffee (2007) is among the few that studied Mexican farmers' behavior as to diversification and the effect that reduced coffee prices had on a certain types of livelihood. He showed how coffee growers in Oaxaca in general lost income, but took up other crops and non-farm activities, embraced cooperative activities (processing,

marketing) and above all, took to migration. Our paper tries to shed light on how these choices are affected by the individual and regional characteristics.

The low coffee prices, combined with the dominant position of coffee in the regional economy, imply changes in incomes and wage rates. We derive theoretically how these changes depend on the labor market structure, and how they induce diversification choices. We then test these findings by looking at diversification choices made by Mexican households during 2001–05.

The major change that coffee growers witnessed during 2000–05 was the drop in coffee prices. Producer prices fell from 73.10 dollars per quintal in 2000 to 47.73 dollars in 2001 and 39.80 dollars in 2002 (see Figure 1). They then rose again to 40.52 dollars per quintal in 2003, 35.82 dollars in 2004 and 49.91 dollars in 2005.

During 2001–05, the share of non-diversified coffee households decreased by more than 11 percentage points. Strong increases occurred in diversification toward non-farm (+25 points), and to other agricultural activities (+16 points). Some diversification was due to extra activities in the very same coffee sector (+9 points) despite the low prices prevailing in this period and an original share of 70% that was high already.

In this paper, the farm household is the principal unit of analysis. The overall hypothesis to be tested is that diversification increased from 2001 to 2005 as a response to the low coffee prices and that this change is affected by internal and external factors. Particularly, we expect that external factors, such as the market for output and labor and natural capital, dictate the way in which households diversify their livelihood in response to the prevailing economic conditions.

One of the biggest and direct influences on the producers' decision-making may have been the change in the general organization of the coffee sector that led to more influence of international companies. More private traders emerged

* B.R. Padrón was supported by the Alban Programme, the European Union Programme of High Level Scholarship for Latin America, scholarship number E06D100933MX, and by the Ministry of Science and Education of Mexico (CONACYT). Final revision accepted: November 2, 2014.



Figure 1. National and international coffee prices (own elaboration with data from *Banco de México (2010)*, *ICO (2009)* and *SIAP (2010)*).

as the primary contact to buy coffee from the growers. Some of these responded by organizing themselves into cooperatives that undertook further processing of coffee. Traders established themselves in centers of production, and growers in smaller communities or in remote places were served less well than under the old government-led organization. Coffee prices at the farm gate became less predictable but more closely followed market prices (and at higher relative levels) than before; prices of inputs were also more market determined. Thus, location of the growers mattered more than before: in communities with large numbers of growers, marketing is easier. The variability of the prices works out differently in regions where coffee growing is the dominant activity than in regions with a diverse economic base. In the latter, wages are less dependent on coffee prices. Comparing a specialized coffee region with a diversified region, these induced wage changes make profits from coffee growing more stable in the former than in the latter region. This issue will be elaborated in the next section. In the empirical analysis based on a survey of 2005 of nearly 2,300 coffee growers, we account for these spatial differences by including information on the municipalities: numbers of growers, traders, and prevailing prices.

The results of our analysis indicate that the market environment, such as the number of coffee farmers and the coffee prices at the municipal level, is positively correlated with the coffee farmers' decision to engage in value adding activities. Those factors, together with household and farm characteristics, affect the households' response to low coffee prices.

The low prices *per se* induced farmers to move into non-coffee agricultural activities, while other diversification, such as toward non-farm work and coffee-extra activities, are related to more structural features such as road connections, favoring non-farm work, and farm size and numbers of coffee growers in the village favoring vertical diversification.

The rest of the paper is organized as follows. Section 2 will present theoretical considerations to explain the coffee growers' response to a low coffee price. Section 3 will describe the data and method used in the study; here, we will also present statistics from the survey and the National Coffee Census of 2001. Section 4 will present some major characteristics of the diversification in Mexican coffee sector. Section 5 will specify the factors influencing the choice of diversification. Section 6 will draw conclusions and discuss their implications for policy and outreach in Mexico's coffee-producing areas.

2. THEORETICAL CONSIDERATIONS

There are many reasons why coffee-producing households diversify their sources of income. The decline and variability of the coffee prices, partly as a result of the liberalization of the coffee market, are obvious reasons to induce coffee farmers to diversify their sources of income. This process does not exclude the possibility of diversification within the traditional commodity, in this case within the coffee sector. Coffee is a perennial crop, and uprooting or abandoning coffee trees is a decision with long-term effects. Restoring old plantations to previous levels of productivity is difficult, while newly planted trees take three to four years to reach maturity. Keeping the trees has an option value. Therefore choices in which labor allocation is adjusted, but trees are kept, can be attractive. Diversification as we study it includes adopting different crops (horizontal diversification), engaging in coffee-related value-adding activities (including vertical diversification), or even diverting away from the agricultural sector ([Barghouti, 2004](#); [Eakin, Tucker, & Castellanos, 2005](#)). The move toward value-adding activities includes producing according to criteria of certification systems (organic, Fair Trade, Rainforest Alliance, *etc.*). In the recent review of adaptations by coffee growers in Mesoamerica of [Eakin et al. \(2013\)](#), off-farm work including migration is found to be the most common response to low coffee prices. They found little horizontal diversification: no coffee was uprooted, while few compatible crops were added. [Tucker, Eakin, and Castellanos \(2010\)](#) also report little responsiveness of crop mixes to various stressors, including low prices. [Barham, Callenes, Gitter, Lewis, and Weber \(2011\)](#) find that coffee-growing families in Southern Mexico show rates of migration, and rates of adoption of certified production (notably on larger farms) that rise during 1999–2004, but note that migration and off-farm work offer far better prospects for increased income than certified coffee production. This move to certified production is made in particular by households with low man-land ratios ([Wollni & Zeller, 2007](#)) and at higher altitudes. The latter effect is confirmed in a study on the state of Veracruz, Mexico, where [Ellis, Baerenklau, Marcos-Martínez, and Chávez \(2010\)](#) indicate that quality promotion was directed more to better growing regions, typically at higher altitudes, while coffee at lower altitudes was gradually replaced by sugar cane. [Blackman, Albers, and Murphy \(2008\)](#) use satellite images and spatial regression to link clearing of land to being located outside

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