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Profitability of coffee farming in selected Latin American countries – interim report

Background

1. The International Coffee Agreement 2007 and the Programme of Activities for coffee year 2018/19 provide the International Coffee Organization with a mandate to conduct analytical work on socio-economic aspects of the coffee sector informing Members and sector stakeholders.

2. As part of the implementation of ICC Resolution 465 on Coffee Price Levels, approved by the International Coffee Council at its 122nd Session held in London in September 2018, the Secretariat is collaborating with the Department of Agricultural and Resource Economics at University of California, Davis, in conducting research to improve the understanding of production costs and factors driving farm profitability. This ongoing research project aims at providing new empirical evidence on the economic situation of coffee growers in selected Latin American countries and will help formulate strategies to increase farm incomes and improve the economic sustainability of coffee production.

3. This document contains an interim report of the analysis of a representative dataset of coffee-producing households located in Colombia, Costa Rica, and Honduras. The results of the analysis indicate a large variation in production costs both between and within countries. Sample farmers in Honduras spent significantly less per hectare than their Costa Rican and Colombian counterparts. In this country, cash outlays represent 64% of full production costs, as compared to 73% and 70% in Colombia and Costa Rica respectively. Labour represents the highest share of costs for each of the countries, accounting for 75% in Colombia, 57% in Costa Rica, and 56% in Honduras. The break-even analyses show that especially Colombian farmers struggle to cover their costs. One-third of the farmers in the

Colombian sample did not cover their cash outlays. When the full costs of producing coffee are considered, a staggering 53% of Colombian farmers are operating at a loss. These producers thus face both short- and long-term challenges to profitability. Growers in Costa Rica and Honduras performed slightly better over the same period.

4. The study concludes with an outlook on further analyses that will be carried out during the remainder of coffee year 2018/19. The final report will be presented at the 125th Session of the International Coffee Council in September 2019.

Action

5. The Council is requested to take note of this document.

PROFITABILITY OF COFFEE FARMING IN SELECTED LATIN AMERICAN COUNTRIES – INTERIM REPORT[1]

(March 2019)

I. INTRODUCTION

1. Since 2016 the coffee market has experienced a serious downward trend and today coffee prices are close to 30% below their 10-year average (ICO, 2019). The downturn of the market directly affects farm incomes and livelihoods of 25 million producers worldwide. Prolonged periods of low coffee prices hamper the ability to invest in modernisation of farms as well as climate change adaptation, affecting the volume and quality of coffee supplies in the future. In view of rising demand for coffee worldwide, especially in emerging markets, this poses a serious challenge for the global coffee sector (ICO, 2018).

2. Low world market prices for coffee increase pressure on high-cost origins and tend to accelerate concentration of production in a few, highly competitive origins. Today, the top-five producers supply over 70% of the world's coffee. If the consolidation trend of previous years continues, this share could increase to more than 80% over the next decade. Less spatial diversification of production exposes the global coffee sector to greater supply risks related to extreme weather events, infrastructure failure or political instability affecting key coffee-growing regions.

3. The main determinant of the competitiveness of individual origins in the world market is the cost of production at farm level. Other factors include the efficiency of supply chains in terms of transaction and transport costs as well as macroeconomic factors. Exchange rates between local currencies and the US dollar in which coffee is traded internationally can play an important role in enhancing or reducing competitiveness. Within countries, production costs show considerable variation between regions and even across individual growers. As a result, some farmers break even while others struggle to cover their cost of production at current price levels. Understanding the drivers of farm profitability is key to devising strategies that help to increase incomes derived from coffee production and to improve household welfare.

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II. EXISTING LITERATURE ON COFFEE PRODUCTION COSTS AND PROFITABILITY

4. Despite the importance of production costs as a determinant of farm profitability, the available literature on this topic is scarce. The majority of studies have been commissioned or conducted by industry or non-profit organizations and often suffer from methodological shortcomings. As such, there are a number of issues with the existing literature, including: i) the lack of consideration of all items required to calculate the full economic costs of coffee farming, understating costs incurred by growers; ii) small or unspecified samples that limit the extent to which findings can be generalised; iii) calculation of costs and profitability for average producers, failing to show the heterogeneity of coffee farmers.

5. The most comprehensive study on this topic to date appears to be the review conducted by the Specialty Coffee Association (2017) on coffee production costs and profitability, which finds that variable costs can generally be compared across studies and origins. However, many of the studies examined in the review suffer from methodological shortfalls. Most of the research fails to consider family or unpaid labour as part of smallholder costs, or lacks an explanation of how these were accounted for. Only one of the analysed studies, conducted by Technoserve (2014) in Colombia, explicitly addresses family labour. In this case, coffee farming became unprofitable when family labour was monetized. Furthermore, studies often neglect to consider all costs beyond those associated with maintaining existing plantations. Costs that are often neglected include installation costs, depreciation of equipment and machinery, finance costs and the opportunity cost of land. These papers also indicate that, in most cases, production costs and profitability figures are provided as an average, therefore obscuring the high level of variability that characterizes coffee production.

6. Cost structure and break-even points in different coffee origins were examined by Fairtrade USA and Cornell University (2017). The authors calculate the cost estimate of smallholder coffee farming in cooperatives in Honduras, Peru, Colombia and Mexico. Using average costs and productivity, they construct a “benchmark” producer for each cooperative. They then utilize this “benchmark” farmer to calculate four break-even points: one that considers only variable costs; one that adds fixed costs; one that includes depreciation; and one that accounts for the amortization of farm establishment costs as well as opportunity costs of land, labour and physical capital. They conclude that after taking into account depreciation and opportunity costs, farmers in all the studied origins face challenges to their long-term viability.

7. This study adds to the debate by examining in-depth farmer-level data that allows an investigation of the distribution of costs and profitability across farmers in three important coffee origins. Using a large sample size and implementing the same methodology to calculate variable and fixed costs, this study will allow for comparisons of the full economic costs in the different countries. Furthermore, the analysis will demonstrate the high level of heterogeneity and variability across individual farmers. The analysis thus also addresses some of the limitations of previous work by the ICO on the economic viability of coffee farming (ICO, 2016).

III. DATA AND METHOD

A. Survey

8. This study is based on an original dataset comprising cross-sectional data from three Arabica-producing countries in Latin America: Colombia, Costa Rica and Honduras. These countries were selected based on their importance in coffee production – almost a quarter of world Arabica output originates here – and because they present different institutional frameworks as well as political and economic circumstances. Honduras is a country where coffee is the number one agricultural export and over one million people depend on it for their livelihoods (USDA, 2016). In Costa Rica coffee production has historically been important, but production has declined lately due to competing land use for urbanization and diversified production. Colombia, the world's third largest coffee producer, has strong institutions that support the sector. These differences help to identify the impact of various economic and institutional factors on the profitability of smallholder coffee farmers.

9. For the sampling strategy, specific coffee regions within each country were selected based on their relative importance to national production. Within each region, producer organizations were identified and selected to participate in the study. The final dataset consists of a random sample of over 1,900 coffee producers, 745 of which are from three cooperatives in Colombia's Coffee Belt; 503 from five cooperatives from the Los Santos and the Western Valley area in Costa Rica; and 659 from one foundation in Honduras, encompassing farmers from three regions (North, South and West).[2]

10. The survey instrument collected detailed socio-economic indicators at the household level. Key data on production costs, productivity, coffee prices, and sales through different channels for each of the interviewed growers were recorded. Data collection took place between April 2016 and June 2017, with the recall period being the coffee year 2015/16.

[2] *To avoid undue influence of outliers, sample farmers in the top and bottom 1% of the distribution of full production cost per hectare were dropped from this analysis.*

B. Conceptual discussion of costs

11. Farmers incur different costs for coffee production. Broadly, these costs can be divided into cash costs and economic costs. Cash costs, often referred to as variable costs, comprise agricultural inputs, remuneration for agricultural labour, transportation, and fuel for machinery operation. Farmers are considered profitable in the short term if they meet their variable costs. However, in order to achieve long-term profitability, the full economic costs of coffee production must be taken into account. These additional costs include fixed installation costs, taxes, financing costs, administration, overhead, machinery depreciation and the opportunity costs of land and labour[3] (Fairtrade USA & Cornell University, 2017; ICO, 2016; Specialty Coffee Association, 2017).

12. In this paper, profitability is measured under two cost scenarios. In the first scenario, only cash outlays for maintenance and harvest of the crops are taken into account. These cash operating costs are generally what coffee farmers consider the relevant costs when they think about profitability. The second scenario considers the full economic costs of coffee production. In addition to the cash outlays described above, the full economic costs, or total production costs, include two additional categories. The first category is unpaid labour. The reason unpaid labour should be factored into economic profitability is because there is an opportunity cost associated to it. The second is a general category of additional costs that farmers might not typically include in their consideration of profitability. They include the following items: fixed installation costs, finance costs, depreciation of machinery and equipment, and the opportunity cost of land. For simplicity, we call them fixed costs.

13. In order to assign values to these costs, the following assumptions are made:

- Unpaid labour is valued at 60% of the average local wage paid by sample growers for each specific activity[4].
- Installation or establishment costs of coffee are calculated as follows. First, in each country the average installation cost per hectare is calculated for those sample farmers who installed new trees in the 12 months prior to the survey. Next, the average cost is divided by 20 to spread out the cost evenly over the productive life of a coffee plantation per hectare. Installation costs are thus assumed identical for all farmers within a country[5].

[3] *Some of the most comprehensive efforts to estimate costs and returns for agricultural commodities have been conducted by the Economic Research Service of the United States Department of Agriculture and the Agricultural Issues Center of the University of California, Davis (https://coststudies.ucdavis.edu/en/). Where possible, this study uses the methodology of the latter organization.*

[4] *In Colombia and Costa Rica, average wages are calculated for each of the three and five cooperatives respectively. In Honduras, a single average wage for the Honduran sample was calculated.*

[5] *33%, 41% and 51% of sample farmers installed new trees in the previous 12 months in Colombia, Honduras and Costa Rica, respectively.*

- The opportunity cost of land is calculated as the annual interest payment on a loan for the investment in land[6].
- Depreciation costs of machinery and equipment are calculated by dividing their total value by ten, as an approximation of their years of productive life. Since the productive assets may be used in other crops and activities outside of coffee, the cost is scaled by the fraction of the total farm area in coffee. Finally, since the age of the assets is not available in this dataset, these costs are further scaled by 0.5 to roughly account for the likelihood that most productive assets are not new.
- Finance costs are calculated as the annual interest paid by farmers that borrowed in the 12 months prior to the survey[7].

14. While these were the assumptions chosen to conduct this analysis, future work will explore the sensitivity of the results to different assumptions.

IV. RESULTS

A. Breakdown of costs/ha by country

15. Table 1 presents detailed breakdowns of average production costs per hectare for Colombia, Honduras and Costa Rica, respectively. Costs are disaggregated into four main categories: paid labour, unpaid labour, inputs (chemical and organic) and fixed costs. More disaggregated categories, such as the specific labour task and type of input, are also provided. The main categories were chosen in order to compare costs under the two scenarios described above. In the first scenario, only paid labour and inputs are included. In the second scenario, unpaid family labour and fixed costs are included as described above. These two scenarios allow us to evaluate profitability and break-even prices if we only take into consideration short-run, cash outlays versus the full economic costs of operating a coffee farm.

16. Consider first per hectare costs in Colombia. When all economic costs are considered (Scenario 2), average costs per hectare were US$3,318. Of this total, 57% (US$1,908) correspond to hired labour, 18% (US$586) to unpaid labour, 16% (US$519) to inputs and 9% (US$305) to fixed costs. If instead only short-run, cash outlays (Scenario 1), are considered, average costs drop to US$2,427 (= 1,908 + 519) per hectare.

[6] *The average cost of agricultural land per hectare, derived from local sources, was found to be US$3,000 in Colombia, US$2,800 in Honduras and US$11,000 in Costa Rica. The interest rate used is 3.25% p.a., which is the rate used by the Agricultural Issues Center – University of California.*

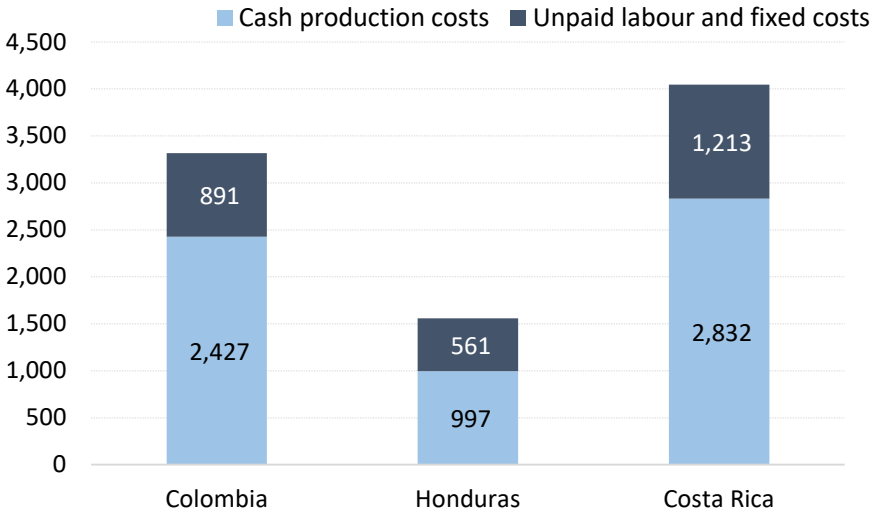
[7] *The survey did not collect information on amount borrowed or interest rate. We assume those who borrowed, received US$1,000 per hectare under coffee at an interest rate equal to the preferential rates for agriculture in each country. These rates were: 12.5% for Colombia, 7.25% for Honduras and 8% for Costa Rica.*

Table 1: Average production costs per hectare in 2015/16 (in US$)

	Colombia (n=720)	Honduras (n=644)	Costa Rica (n=493)
Paid labour	**1,907.92**	**583.86**	**2,173.91**
Labour pruning and weeding	245.13	137.47	148.44
Labour fertilizing	75.39	39.29	26.91
Labour spraying	48.99	25.63	55.17
Labour harvest	1,538.41	381.47	1,408.99
Permanent labour (managerial)	-	-	534.39
Unpaid labour	**586.11**	**295.61**	**150.19**
Labour pruning and weeding	79.57	55.55	96.49
Labour fertilizing	27.24	17.92	19.42
Labour spraying	12.11	9.11	34.29
Labour harvest	467.19	213.02	-
Inputs	**519.18**	**412.79**	**658.36**
Herbicides	2.16	3.65	29.42
Pesticides	22.46	27.94	122.92
Fertilizer	494.57	381.19	506.02
Fixed costs	**304.59**	**265.02**	**1,062.54**
Distributed fixed cost			
- Installation costs	40.80	47.76	142.14
- Depreciation of machinery	112.93	84.67	523.85
Opportunity cost of land	97.50	91.00	357.50
Finance cost	53.36	41.59	39.05
Full economic costs	**3,317.80**	**1,557.26**	**4,045.01**

17. Figure 1 summarizes both the magnitude and relative importance of short-run cash costs versus full economic costs across the three countries. Costa Rica and Colombia present relatively similar pictures with full costs per hectare of US$4,045 and US$3,318 respectively. The Costa Rica sample spent about US$400 per hectare more in short-run cash outlays than their counterparts in Colombia (US$2,832 versus US$2,427). Similarly, annualized fixed costs per hectare in Costa Rica were about US$320 higher than in Colombia (US$1,213 versus US$891). Sample farmers in Honduras spent significantly less per hectare than their Costa Rican and Colombian counterparts. Full costs per hectare were only US$1,557, with US$997 corresponding to cash outlays and US$561 to fixed costs.

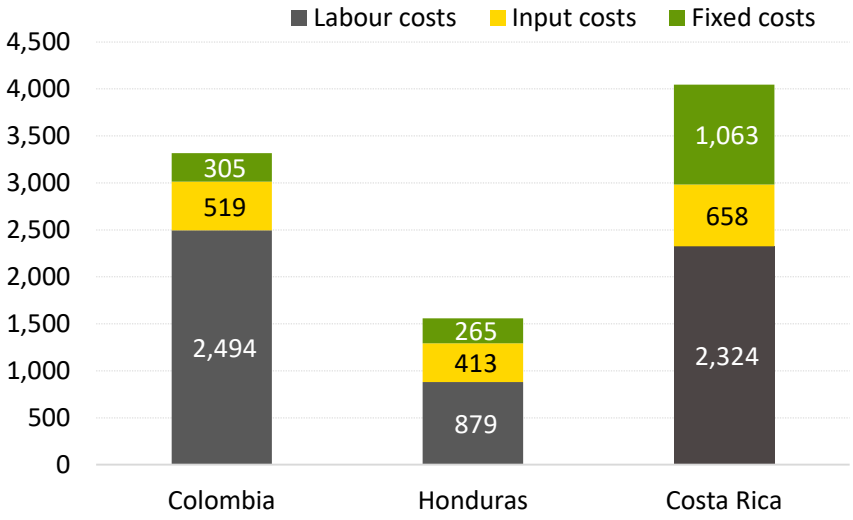
Figure 1: Full economic costs by country in 2015/16 (US$/ha)



18. Honduras is also an outlier compared to the other two countries with respect to the relative importance of cash versus fixed costs. While short-run cash outlays represent 73% and 70% of full production costs in Colombia and Costa Rica respectively, they are only 64% of full production costs in Honduras. Closer inspection of Table 1 reveals that this is primarily due to the fact that unpaid family labour represents a significantly higher fraction of total labour costs in Honduras (34% = 296/(296 + 583)) than in Colombia (23% = 586/(1,907 + 586)) and Costa Rica (6% = 150/(2,174 + 150)). The especially low number in Costa Rica reflects the fact that Costa Rican coffee farmers tend to pay cash wages to family workers. Given that labour is by far the largest cost component in coffee production costs, a point we shall return to shortly, this difference, at least partially, explains the lower relative importance of cash costs in Honduras. Similarly, failure to account for non-cash and fixed costs would lead to a relatively larger over-statement of the profitability of coffee production in Honduras compared to the other two countries.

19. Figure 2 provides a breakdown of the full economic costs per hectare (scenario 2) by three main components: labour (both paid and unpaid), inputs and fixed costs. Labour represents over half of total production costs in all three countries, with the highest fraction in Colombia (75%), followed by Costa Rica (57%) and Honduras (56%). Within the category of labour, harvesting is by far the most important task. On average, per hectare labour costs for harvest were US$594 in Honduras, US$1,408 in Costa Rica and US$2,005 in Colombia, representing 68%, 61% and 80% of total labour costs in the three countries.

Figure 2: Cost structure of full economic costs by country in 2015/16 (US$/ha)



20. After labour, inputs represent the next largest fraction of total cost in both Colombia and Honduras, although this fraction was much higher in Honduras (27%) than Colombia (16%). Fixed costs represent the smallest fraction of total costs in these two countries. In contrast, fixed costs represent the second largest fraction of total costs in Costa Rica (24%), followed by inputs at 16%. The relatively greater importance of fixed costs in Costa Rica can be attributed to two factors: the significantly higher value of farm equipment and machinery owned by coffee farmers in Costa Rica and the higher price of land.

21. The differences in the absolute level of costs per hectare across the higher cost countries of Costa Rica and Colombia on one hand and Honduras on the other hand, as well as the differences in the relative importance of different cost categories, are striking. As mentioned above, for example, labour costs per hectare ranged from US$879 in Honduras to just under US$2,500 in Colombia and Costa Rica. Are these differences across countries due primarily to differences in input prices across countries, quantities used, or both? Table 2 provides a partial answer to this question by presenting the average per unit prices for a number of key inputs that are common across the three countries including: daily wage rates for specific tasks, the per litre price of the herbicide glyphosate, and the price of a 45kg bag of urea. The most striking feature is the difference in labour costs across the three countries. Daily wages for non-harvest tasks were three times higher in Costa Rica (US$15.7) than in Honduras (US$5.5). Wages in Colombia were in the middle, at US$11.5 per day. This pattern is maintained for harvest labour, where the daily wage is approximately 40% to 50% higher than for non-labour tasks in each country.

22. The order is inverted for the two inputs reported in Table 2. The per litre cost of glyphosate averaged US$6.5 in Honduras, US$6.3 in Costa Rica and US$4.6 in Colombia. Similarly, a 45kg bag of fertilizer in Honduras was 15% more expensive than in Colombia

(US$21.3 versus US$18.2) and 30% more expensive than in Costa Rica (US$21.3 versus US$16.4). One possible explanation for the input price differentials is the role of cooperatives. Specifically, sample farmers in both Costa Rica and Colombia all belong to cooperatives, while those in Honduras do not. Cooperatives are able to purchase inputs in bulk and thus may be able to offer them to members at prices lower than those available to non-cooperative members.

Table 2: Average per unit costs for key inputs in 2015/16 (US$)

	Colombia	Honduras	Costa Rica
Labour costs per day			
Labour pruning and weeding	11.48	5.54	15.69
- Labour fertilizing	11.48	5.54	15.69
- Labour spraying	15.22	5.54	15.69
- Labour harvest	16.29	8.37	22.18
Input costs per unit			
- Herbicides (glyphosate 1L)	4.62	6.51	6.31
- Fertilizer (urea 45kg)	18.18	21.28	16.45
Installation costs per unit			
- Cost per plant	0.09	0.18	0.38

23. The other notable difference is the price of coffee seedlings across the three countries. The price per plant ranges from a low of US$0.09 in Colombia to US$0.18 in Honduras to US$0.38 in Costa Rica. The significantly lower price in Colombia reflects a government policy to subsidize the renovation of coffee plantations in the country with rust-resistant varieties. This policy accounts, in part, for the significantly lower installation costs in Colombia compared to Costa Rica.

24. The previous analysis provides a detailed breakdown of the structure of costs per hectare. Profitability, however, depends on the relationship between costs, yields and price. We take a step in this direction by examining production costs per kilogram of green coffee produced by sample farmers.

B. Breakdown of costs per pound

25. Table 3 presents the means of the full cost of production per pound of green coffee (scenario 2) for each country as well as the per pound costs by the four cost categories. Consider first the total cost per pound (bottom row of Table 3). On average, sample farmers in Colombia incurred costs of US$1.39/lb of green coffee. This implies that, on average (and assuming that costs do not significantly vary from year to year), farmers in Colombia would

need to receive a price of US$1.39/lb of green coffee in order to break even when considering the full costs of production. If, instead, only cash costs are considered, Colombian farmers would have needed, on average, to receive a price of US$1.00/lb (= 0.79 + 0.21). Per pound costs were quite similar in Costa Rica at US$1.31 and US$0.88 (= 0.65 + 0.23) when including the full costs of production versus only cash costs respectively. Costs per pound were significantly lower in Honduras. When considering full production costs, the Honduran sample averaged US$0.79/lb while the average was only US$0.45 (= 0.26 + 0.19)/lb, when considering only cash costs. On average, farmers in the Honduran sample would thus have required a significantly lower price to break even.

Table 3: Average production costs per pound in 2015/16 (US$/lb)

Cost category	Colombia	Honduras	Costa Rica
Labour costs	0.79	0.26	0.65
Unpaid labour	0.25	0.18	0.05
Input costs	0.21	0.19	0.23
Fixed costs	0.15	0.16	0.37
Full economic costs	**1.39**	**0.79**	**1.31**

26. Figure 3 depicts the magnitude of cash costs versus full economic costs per pound, and Figure 4 provides a breakdown of the full production costs per pound considered in scenario 2.

Figure 3: Full economic costs per pound in 2015/16 (US$/lb)

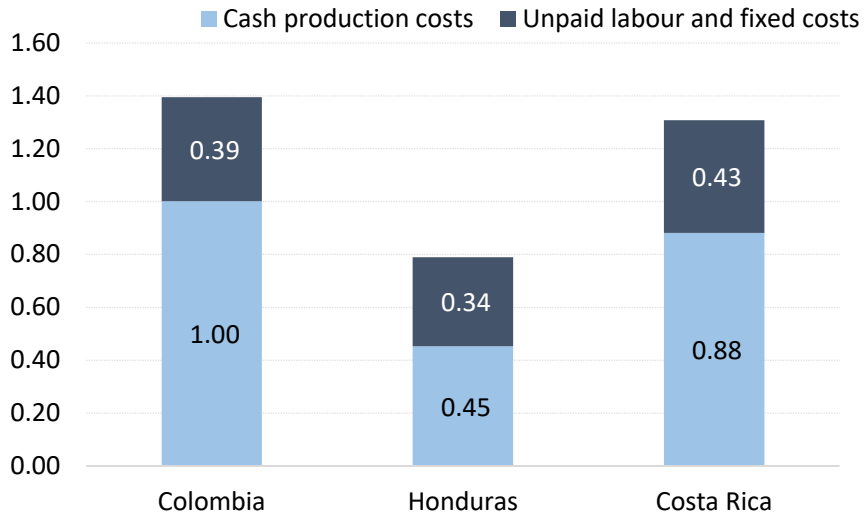
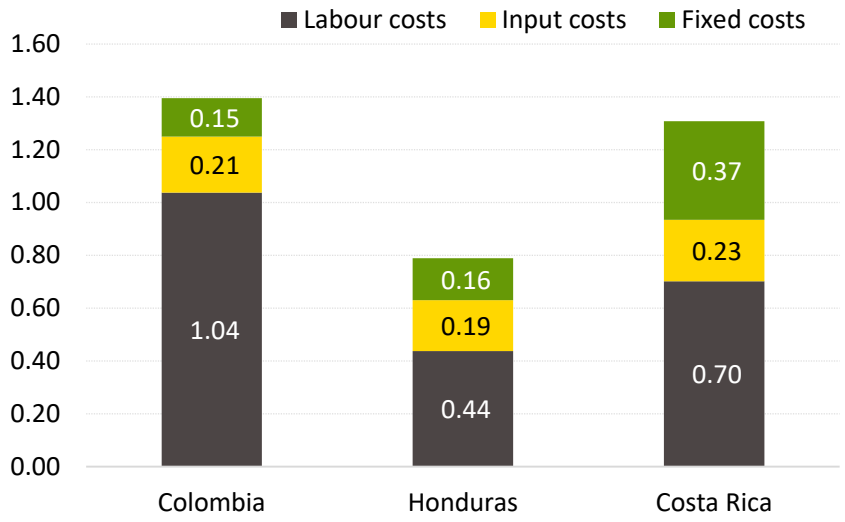


Figure 4: Cost structure of full economic costs by country in 2015/16 (US$/lb)



27. So far, these costs and break-even points represent the "average" farmer. However, there is high heterogeneity of growers within each country and within each cooperative, which in turn affects the structure of their costs. In the next analyses, this variation is taken into consideration to show the distribution and fraction of farmers breaking-even under different farm-gate prices. This is done in two different manners: i) assuming all individual growers receive the same price; ii) using farmer-specific prices for the year 2015/16.

C. Break-even analysis

Homogeneous prices

28. International coffee prices are highly volatile. Production costs can also experience variation depending on the year and external factors such as changes in input costs, weather shocks, pests and diseases. However, for the purpose of this study, the assumption is that the cost structure of each farmer remains somewhat constant. Therefore, the costs collected for year 2015/16 would provide an approximation of production costs in different coffee years. This allows us to conduct our first exercise, which is to calculate the proportion of sample farmers in each country that would breakeven for a given price received by all farmers.

29. Figures 5, 6 and 7 present the cumulative distribution functions of cash cost and full cost per pound in each of the three countries. Cost per pound is depicted on the horizontal axis. The height of the curve represents the fraction of sample farmers whose cost per pound is equal to or less than the cost on the horizontal axis. The higher (blue) curve corresponds to cost per pound when only considering cash costs, while the lower (red) curve corresponds to full costs of production.

30. For this analysis, the focus will be on the farm-gate prices needed to ensure that 75% of farmers breakeven. In Colombia, if only cash costs are considered, the required farm-gate price is US$1.23/lb. In turn, for the same share of producers to be able to cover the full economic costs of coffee production, they would need to receive US$1.65/lb. In Honduras, given that production costs are considerably lower, 75% of growers would cover their cash expenses with a price of US$0.55/lb, while they would need to receive US$0.93/lb to meet their full economic costs. Finally, in Costa Rica, the price would have to be US$0.99/lb to allow 75% of farmers to breakeven, and US$1.43/lb would permit the same share of farmers to cover their full economic costs.

Figure 5: Distribution of production costs per pound, Colombia (2015/16)

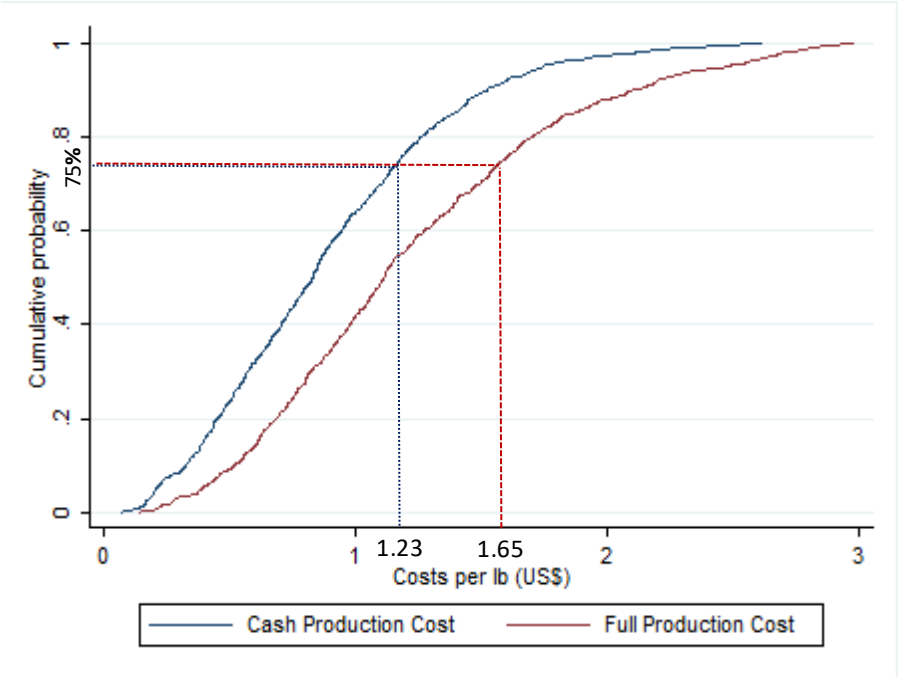


Figure 6: Distribution of production costs per pound, Honduras (2015/16)

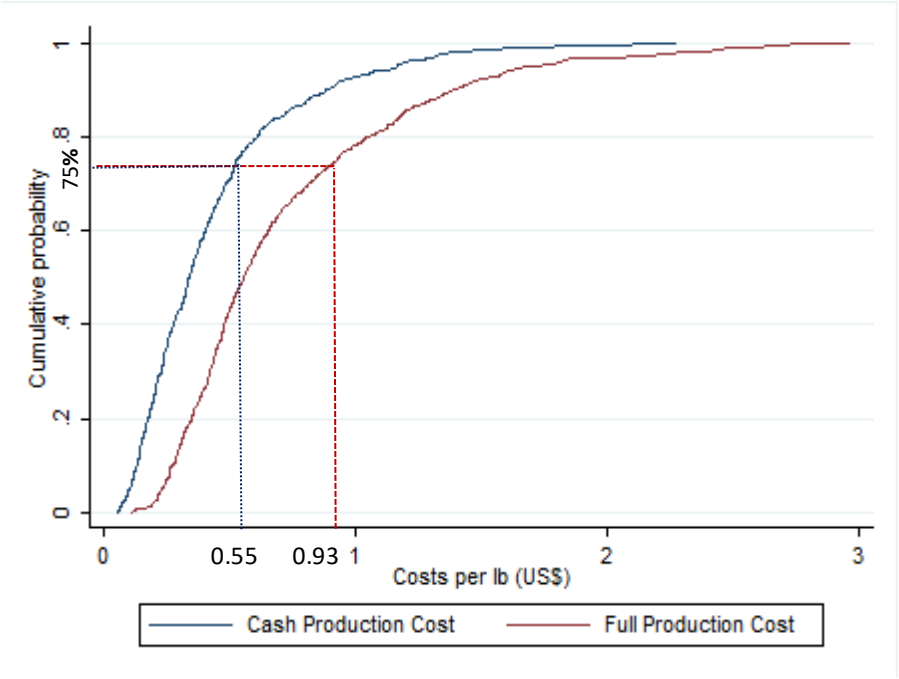
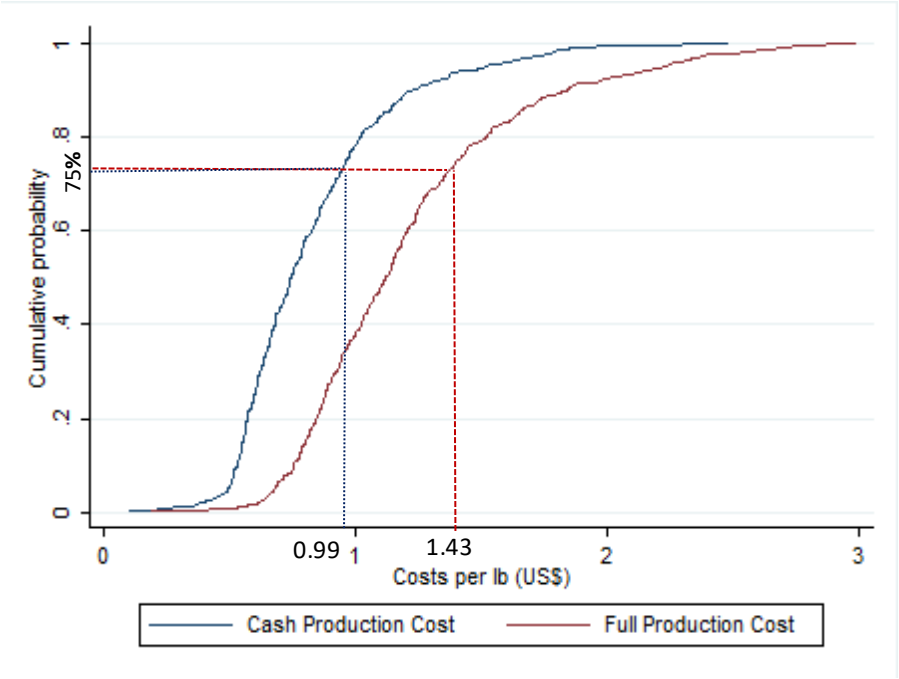


Figure 7: Distribution of production costs per pound, Costa Rica (2015/16)



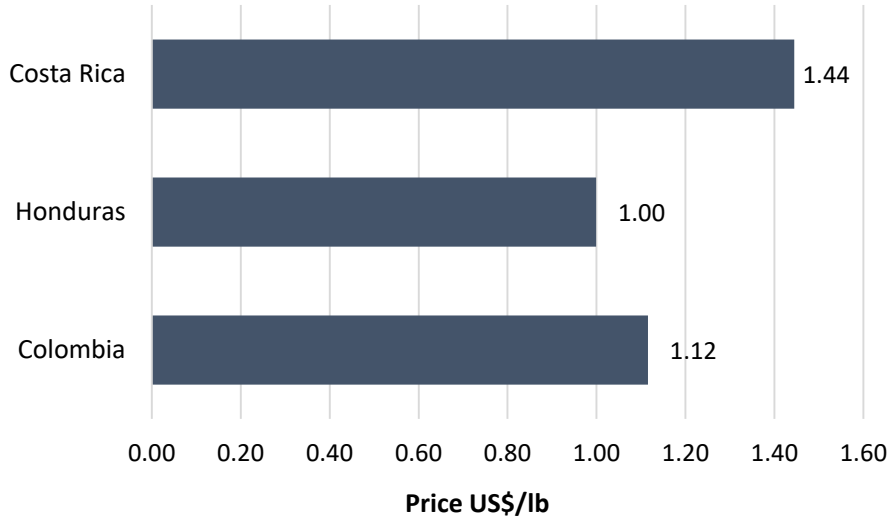
31. Thus far, we have identified the price that farmers need to receive so that 75% at least break even. How do these prices compare to prices actually received by farmers? As a first step to answer this question, we consider the average farm-gate prices in coffee year 2015/16 reported by these Member countries to the ICO. These prices were US$0.88/lb in Honduras; US$1.25/lb in Costa Rica and US$1.19/lb in Colombia. The results are not encouraging. In Costa Rica and Honduras, the ICO reported price is below the price identified above that is

required to cover full economic costs for 75% of farmers, but above the price required for 75% of farmers to cover only cash costs. In Colombia, the ICO reported price is even below the price required in order to cover only the cash costs for 75% of producers. This suggests that the long-term sustainability of coffee production is threatened in all three countries, and that, in Colombia, producers face short-term challenges to profitability.

B. Heterogeneous prices

32. While assigning the same price to each individual grower is useful to provide an idea of the international prices required to make coffee production sustainable, it is an oversimplification because farmers – even within the same cooperative – may receive different prices. In order to overcome this and make full use of the richness of the data, gross margins are constructed using farmer-specific prices for year 2015/16. The gross margin is defined as the price per pound of green coffee received by the farmer minus the farmer's cost per pound (either cash cost or full cost). The main difference with the previous analysis is that for this case, quality differences are accounted for. That is, a given farmer receives a different price for the sale of certified[8], conventional and low-quality coffee. To provide an idea of prices in the studied coffee regions, the average farm-gate prices received by producers are displayed in Figure 8.

Figure 8: Average farm-gate prices 2015/16 (green coffee)



33. Turning to the gross margin analysis, Figures 9, 10 and 11 show the rate of profitability, or lack thereof, for farmers in each country. 34% of farmers in Colombia fell below the break-even point when considering only their cash expenses. If unpaid labour and fixed costs are taken into account, 53% of farmers are operating at a loss. In Honduras, the situation is not

[8] The certifications in these areas included Fairtrade, Fairtrade/Organic, Rainforest Alliance, UTZ, 4C, Nespresso AAA and Starbucks C.A.F.E. Practices.

as dire. 10% of producers are not meeting their cash expenses, while 25% are below the break-even point when full economic costs are considered. In Costa Rica, the distribution is similar to the Honduran case, with only 9% of growers failing to cover their cash expenses, and 28% are failing to break even when all costs are accounted for.

34. The major differences between Colombia and the two other countries can be explained as follows: in year 2015/16, Colombian farmers produced a considerable amount of low quality coffee, which they sold at a discounted price. On the other hand, Honduran farmers in the study regions remained competitive despite receiving significantly lower prices because their production costs are very low. Costa Rican farmers have higher yields per hectare, which decreases their production costs per pound, and also receive better prices than their Latin American peers.

Figure 9: Gross margins of Colombian farmers in 2015/16

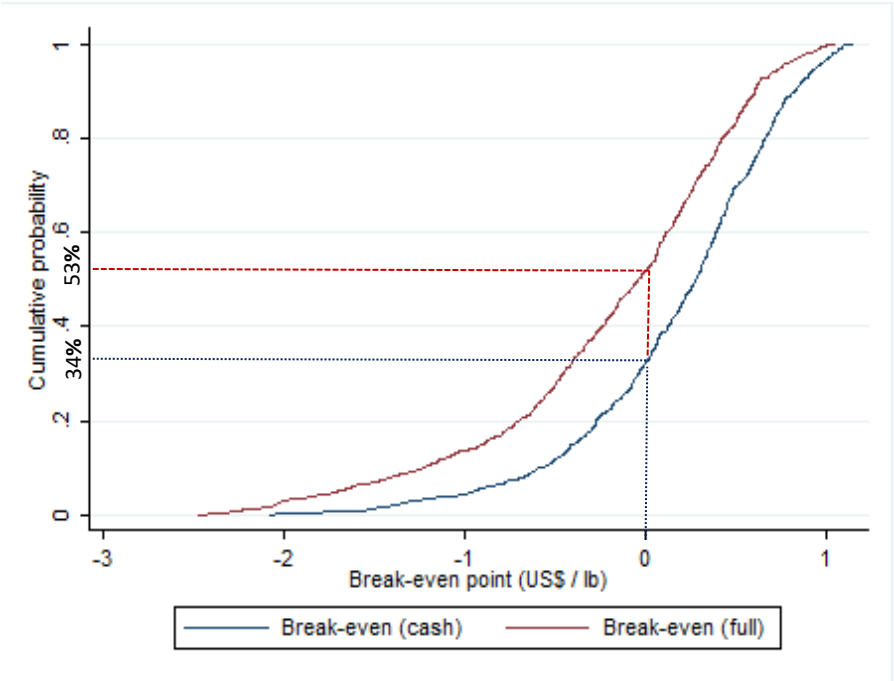


Figure 10: Gross margins of Honduran farmers in 2015/16

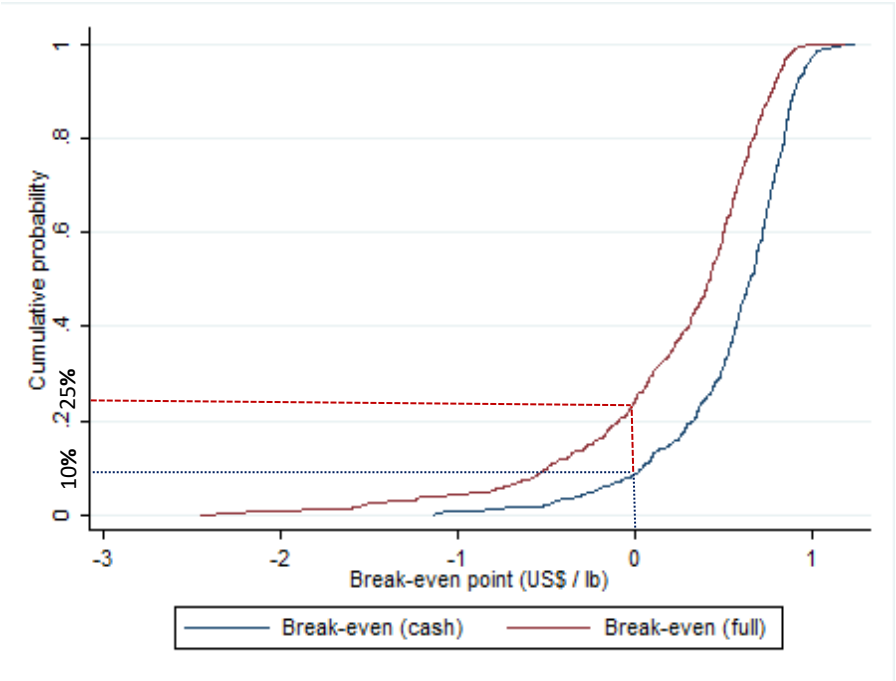
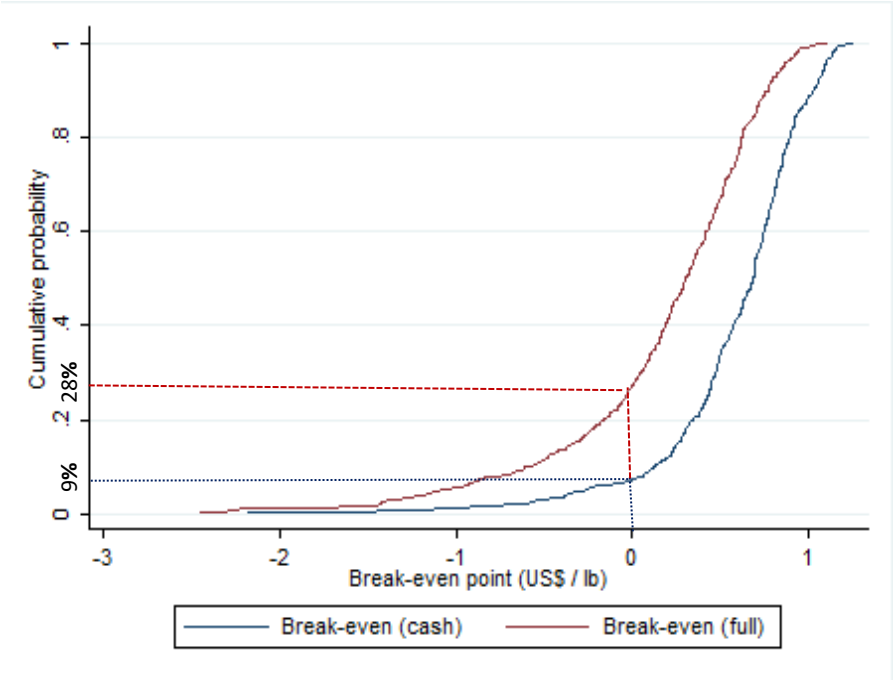


Figure 11: Gross margins of Costa Rican farmers in 2015/16



V. CONCLUSION AND NEXT STEPS

35. This report contains first insights from an ongoing analysis of production costs and profitability using detailed information obtained from a large sample of coffee growers in Colombia, Costa Rica, and Honduras.

A. Main findings

36. In this sample of Arabica-producing countries, a large variation in production costs can be found. Sample farmers in Honduras spent significantly less per hectare than their Costa Rican and Colombian counterparts. In this country, cash outlays represent 64% of full production costs, as compared to 73% and 70% in Colombia and Costa Rica respectively. This is primarily due to the fact that unpaid family labour represents a significantly higher fraction of total labour costs in Honduras.

37. The breakdown of production costs into labour (paid and unpaid), inputs and fixed costs demonstrates that labour represents the highest share of costs for each of the countries. The highest fraction of labour costs is found in Colombia (75%), followed by Costa Rica (57%) and Honduras (56%). Within the category of labour, harvest is by far the most important task.

38. A key result from the break-even analyses (using ICO reported prices and farmer-specific prices for 2015/16) is the struggles faced by Colombian farmers to cover their costs. At farmer-specific prices, one-third of the farmers in the Colombian sample did not cover their cash outlays. When the full costs of producing coffee are considered, a staggering 53% of farmers are operating at a loss. These producers thus face both short- and long-term challenges to profitability.

B. Limitations

39. A shortcoming of this analysis is the reliance on cross-sectional data collected in year 2016/17. Indeed, the cost structure of farmers can change due to individual decisions and practices, or in response to agroclimatic shocks, the age of trees, and variations in prices of inputs and outputs. A panel dataset would provide a more robust estimation of costs and also prove useful in examining changes in variables that change over time, such as coffee yields and prices.

40. It is also worth remarking that this study was conducted in important coffee regions in each of the three countries. Thus, the coffee sector in these areas has received more public and private support than in other regions where this crop is less prominent. This also translates, for the most part, into higher yields. Therefore, these results cannot be generalized at the country level.

C. Next steps

41. Future work include extending the analysis by taking advantage of additional information contained in the dataset that can help to explain observed differences in production costs and profitability between individual producers within and across regions and countries.

42. The next stage of the analysis will identify the factors driving efficiency of production and profitability. The econometric analysis will both shed light on and quantify the association between production costs and fixed characteristics at the household, farm, and plot levels. Such characteristics include: household size, age, gender and education, farm size, production system/technology, dependence on coffee farming, age of coffee plants, plant density, shade cover, and coffee varieties. Moreover, the links between farming decisions, such as the adoption of Voluntary Sustainability Standards, investments in the production of high quality coffee and increasing yields and profitability will be examined.

43. Some of the driving questions will be: How does the composition of costs change with these different strategies? Does producing higher quality coffee compensate for the additional costs involved, if any? How much do costs increase by adding a sustainability standard? The final results will provide a robust estimate of the cost-effectiveness of investing in these production practices.

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