Columbia Center
on Sustainable Investment
A JOINT CENTER OF COLUMBIA LAW SCHOOL
AND THE EARTH INSTITUTE, COLUMBIA UNIVERSITY

ENSURING ECONOMIC VIABILITY & SUSTAINABILITY OF COFFEE PRODUCTION

A BRIEFING NOTE

JANUARY 2020

Jeffrey Sachs, Kaitlin Y. Cordes, James Rising, Perrine Toledano, and Nicolas Maennling

ENSURING ECONOMIC VIABILITY & SUSTAINABILITY OF COFFEE PRODUCTION

A BRIEFING NOTE

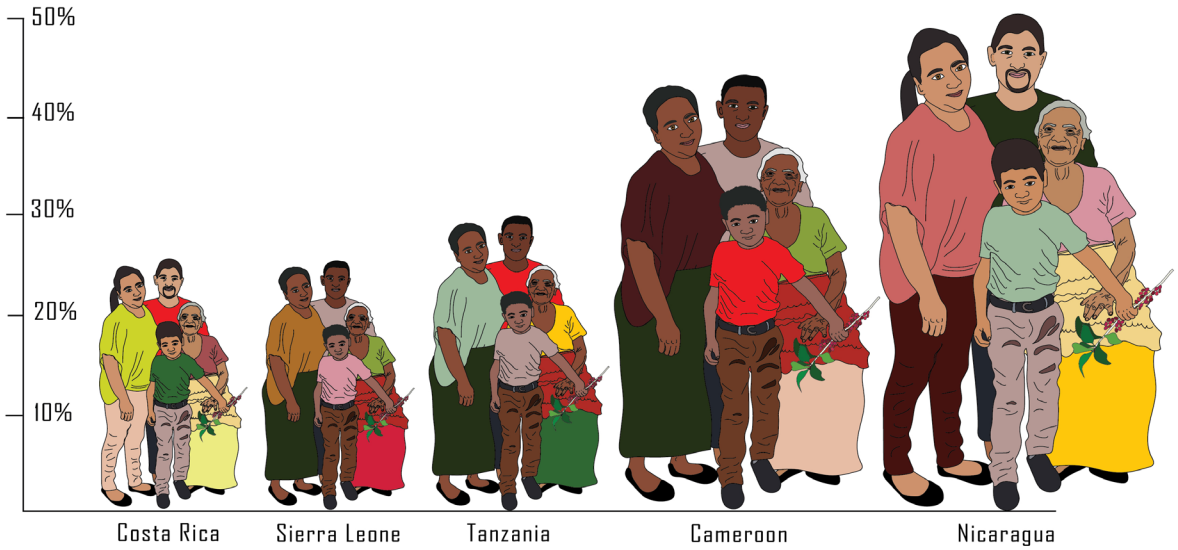
TABLE OF CONTENTS

INTRODUCTION

Coffee is the world's favorite beverage, with an estimated 400 billion cups consumed per year. Coffee provides livelihoods for at least 60 million people, across dozens of countries. Coffee is healthful and protective against many chronic diseases. For these and other reasons, promoting the long-term health, wellbeing, and environmental sustainability of the much beloved coffee sector should be a clear priority.

Yet coffee is experiencing a sustainability crisis, stemming from unsustainable economic, social, and environmental aspects of coffee production. The recent decline in world coffee prices has further squeezed coffee producers, and thrown a tremendous number of producers below the global extreme poverty line of US$1.90 per day. While many consumers willingly

Very low world coffee prices have pushed many farmers below the extreme poverty line



Increase in Proportion of Coffee Farmers Living Under Extreme Poverty Line (US$1.90 / day) Dec 2016-Dec 2018

SOURCE: International Coffee Organization. "Survey on the impact of low coffee prices on exporting counrties: International Coffee Council 124th Session" (March 4, 2019) PICTURE HUMAN RIGHTS.ORG

New Yorkers pay on average
US$3.12 for a cup of coffee . . .

pay high prices for coffee, coffee farmers receive a tiny fraction of that retail price. At these low farmgate prices, coffee production is not economically viable for a significant number, perhaps a majority, of coffee farmers.

The sustained low prices hurt even more as coffee producers begin to bear the brunt of climate change and variability. Climate change is expected to undermine the suitability of coffee across large regions, to decrease coffee bean quality, and to increase the risk of coffee diseases. The coffee industry as a whole has an interest in ensuring that coffee production can adapt to climate change, yet it currently lacks effective industry-wide responses. For now, producers lose the most when climate-induced weather events and diseases wipe out crops or reduce their quality.

Although coffee producers shoulder the biggest risks of low prices and climate-induced events, farmworkers in the coffee industry can be even more vulnerable. In the worst cases, workers have been found in "conditions analogous to slavery" — even on certified farms. More generally, farmworkers on both non-certified and certified farms can be vulnerable to exploitation, and many are not paid the required minimum wage.

There are, of course, bright spots within the coffee sector. Highly efficient producers, especially in Brazil and Vietnam, for example, are able to make a profit even at today's low prices. Producers who grow high-quality coffee and who are able to access ethically-minded specialty roasters can command prices significantly above the quoted international price. Some producers have found ways to capture more of the final retail price, including through producer-owned businesses that sell directly to consumers. Yet these remain bright spots juxtaposed against the grim reality faced by producers around the world.

Four years after the adoption of the Sustainable Development Goals (SDGs), and in the face of the ongoing price and climate crises, the coffee sector now stands at a crossroads. Will the coffee sector continue following a business-as-usual trajectory of limited and piecemeal sustainability

. . . Coffee farmers only get
a few cents of it

COLUMBIA CENTER ON SUSTAINABLE INVESTMENT,
"Achieving Sustainable Development in the Coffee Sector"
PICTURE HUMAN RIGHTS.ORG

endeavors, which would ultimately result in further concentration of coffee producers and heightened supply risks? Or will the coffee sector undertake strong concerted efforts to support a more sustainable and resilient future for producers and the sector overall?

Based on our research, we believe there is a clear opportunity for coffee sector actors to work together to achieve greater sustainability within coffee production and in coffee-growing regions. Below, we provide a brief summary of our findings and recommendations.

Coffee Sector Snapshot:
Consolidation at Both Ends of the Value Chain

Beyond the collapse of the International Coffee Agreement's quota regime, the most fundamental reason for lower prices post-1990 appears to be the continued rise of productivity of Brazil and Vietnam. From the 3.7 million tons of coffee added to world production between 1995 and 2017, 83% came from Brazil and Vietnam. Yield rates increased by over 100% in Vietnam and 30% in Brazil during that time period. Those increases contrast starkly with the relatively stable yields for most other coffee-producing countries.

Our model suggests that today's low prices are only moderately lower than the long-term equilibrium. Prices have been further pushed down by a strong US Dollar, a weak Brazilian Real, and, potentially, the increased market power of buyers. While the financialization of the futures market may contribute to short-term price fluctuations, we do not believe that this phenomenon is the main driver for recent low prices.

Alongside low coffee prices, production costs for producers have also increased (particularly sharply since 2010), further squeezing incomes. These low prices and rising costs have increased the concentration of coffee producers. Under a business-as-usual pathway, this consolidation is likely to continue, resulting in less variety in origins, in tastes, and in quality, with a potential dampening effect on demand; lost smallholder knowledge; and heightened supply risks of large-scale disruptions and greater price volatility.

In stark contrast to the millions of coffee producers currently suffering an economic crisis, the roaster and retail sector is flourishing. Total coffee industry revenues are estimated at between $200-250 billion. The profitability of the coffee sector and its growth potential have led to consolidation. In the grocery market segment, brands are increasingly intertwined, and working to sell at higher premiums.

Brand market power and the resulting high margins of leading roasters and retailers have been driven in particular by increased value addition in importing countries, which comes through the development of lucrative "intangible" aspects of coffee. The evidence suggests that a rising share of total coffee-sector income is earned downstream, with enormous markups and returns for intangibles such as brand.

The starkly contrasting situations of profitable downstream actors and suffering upstream ones may lead an important segment of consumers to strongly question whether the brands they trust support producers' economic sustainability. This plausibly could shift some brand loyalty towards companies that are better partners for producers; it may also create an opportunity for producers to capture more of the final retail price through marketing directly to consumers.

Global Supply & Demand
Analytical Model

The world coffee price is determined by global supply and demand. To simplify the reasoning for ease of understanding, it is useful to divide the global supply for Arabica coffee into two parts, Brazil and the rest of the world (ROW). Brazil's coffee sector is composed of a low-productivity and non-mechanized subsector, and a high-productivity and mechanized subsector with a highly elastic supply curve when prices reach a certain level. This is because Brazil has millions of hectares of land that were previously cultivated for coffee production, but are not currently used for that purpose. This land could be returned to coffee production under the right price conditions.

Outside of Brazil, there is considerably less available land to bring into new coffee production and most coffee lands are in mountainous regions that are not suitable for mechanized harvesting. Production is labor intensive and yields are lower. ROW's supply curve is therefore inelastic and the main opportunity for increased production and profitability in ROW is related to higher yields and quality on existing coffee farms.

This analytical model allows us to ask and answer three important questions. First, what happens if ROW improves its coffee farming techniques? Output in the ROW rises, while production in high-yield Brazilian farms contracts by the same amount. The world price remains unchanged. Second, what happens if high-yield Brazil further improves its technologies? Production in high-yield Brazil expands, while production in ROW and in low-yield Brazil contracts, and world coffee consumption rises at a lower world price. A similar outcome occurs if the Brazilian Real experiences a real depreciation compared with the dollar and euro. Third, what happens if world demand increases? The increase in supply is met by high-productivity Brazilian coffee production with supply from low-tech ROW remaining unchanged.

We also revised the model to account for imperfect competition in the coffee industry: in particular, potential market power in the roaster-retailer segment of the market. This is a valid concern, given increasing concentration in the roaster-retailer component of the market, as well as the increased intertwining of brands through various branding and sales agreements.

At the farm gate, the big difference between a competitive buyer and a monopsonistic buyer of coffee is that the monopsonistic buyer has the incentive and the ability to put downward pressure on the price paid to the producers. When a market faces a monopsonistic buyer, it may set a minimum price without endangering the quantity purchased. Since the monopsonist can no longer push the farmgate price lower, it would buy up the entire quantity available; doing so will still earn it a net profit.

Although there is probably little monopsonistic power vis-à-vis Brazil's high-tech producers given that their supply elasticity is quite high, it may be true that coffee producers in ROW are facing increased monopsonistic pressures. If these pressures exist, creating a minimum price linked to the Brazil high-tech farmgate price might be a workable and beneficial solution for ROW producers.

Global Supply & Demand
Empirical Model

To quantify the relationships illustrated in our analytical model and to test for potential climate change impacts, we developed quantitative coffee supply and demand models. These are grounded in

high-resolution data, account for regional differences, and are projected under climate change.

The empirical results are as follows:

• Under a business-as-usual scenario, by 2050, average warming in coffee-producing regions will be 2.8 °C (up from 1.5 °C today), and the average temperatures in 90% of the tropics will exceed the current 1-in-100 year annual temperatures heat events.

• By 2050, we project 75% of suitable land for Arabica coffee production and 63% of land for Robusta coffee production to be lost. In 20 countries, including Honduras and India, the remaining suitable land will be less than the land currently under coffee cultivation.

• If prices remain unchanged, average yields are projected to decrease by 7% and planted area to be reduced by 13% by 2050. Total production of Arabica coffee declines by 10%, but production of Robusta coffee increases due to yield increases in Vietnam.

• Considerable yield gaps exist, and closing these would increase both total production and the share of the market held by countries other than Brazil and Vietnam. Improving agricultural practices and engaging in renovation and rehabilitation of coffee trees could increase global Arabica coffee production by 18% and Robusta coffee production by 16%.

• If coffee were to return to areas that it previously occupied, global production could increase by 60%.

Over the next decades, significant changes to coffee demand will also occur, driven by expanding consumption in emerging markets, the rise of capsule use, and continued activity in the specialty market. As a result, total consumption is expected to increase by 26% by 2030, under a business-as-usual scenario, with most of the demand increases coming from developing countries.

We do not expect a significant recovery of prices without intervention. Despite the combined effects of climate change and increased demand, the potential for low-cost production in Brazil is expected to prevent prices from rising more than $1/kg.

Without efforts to close yield gaps, 76% of the predicted increase in demand will be provided by Brazil and Vietnam, therebyk further concentrating coffee production in these two countries and reducing variety in origins and quality.

Addressing Coffee Sustainability

Coffee's sustainability crisis has thrown into stark relief one indisputable fact: the current structure of the coffee industry is not working well for most producers. In light of this reality, we make several recommendations.

1. National Coffee Sustainability Plans

We suggest that each coffee-producing country develop a National Coffee Sustainability Plan (NCSP), that accounts for differentiated needs, challenges, and opportunities within the country's coffee sector. At their core, NCSPs would offer clear strategic plans for supporting producers, promoting sustainable coffee production, and aligning producing regions with the SDGs.

The design of NCSPs should be done through multi-stakeholder, participatory, inclusive, and transparent processes. We suggest that they could be prepared by multi-stakeholder Country Coffee Platforms (CCPs) in each coffee-producing country.

There is not a one-size-fits-all approach for NCSPs. However, each NCSP should include a focus on the following collective goods:

(a) developing and implementing comprehensive climate change adaptation strategies, including insurance options;

(b) ensuring on-farm financing options at attractive rates for producers;

(c) strengthening on-farm support to viable small- and medium-scale producers with a focus on increasing their profitability;

(d) implementing other improvements to the enabling environment for producers, such as formalizing and protecting land rights of small-scale producers;

(e) supporting producers' market opportunities;

(f) providing income support to the poorest farmers during periods of sustained low prices;

(g) helping to support broader realization of the SDGs in coffee-growing regions; and

(h) strengthening capacity to enforce compliance with labor laws, and to monitor and prevent deforestation and other environmental harms.

The activities to be undertaken under NCSPs should be designed and implemented using a gender-sensitive approach. Implementation and monitoring of many activities could also be facilitated through the use of mobile applications, new technologies, and other innovations.

2. A Global Coffee Fund Underpinned by a Multi-Stakeholder Approach

A Global Coffee Fund (GCF), financed by the main coffee industry actors and used to leverage additional public sector funding, would enable stakeholders to implement activities under the NCSPs. The GCF would be a key pre-competitive initiative of the coffee sector to fill critical financing gaps for sustainability investments in coffee-producing regions. The GCF would multiply, at a far greater scale, the public-private efforts that have been undertaken by specific companies within their own coffee supply chains, and would ensure the necessary financing for more robust and comprehensive sustainability efforts. The pre-competitive industry funding would be complemented by:

1) increased funding by bilateral and multilateral donors,

2) increased commitments in the national budgets of coffee-growing nations, and

3) commercial investments by the private sector within their own value chains.

The GCF is not charity. Rather, it is an avenue for downstream and midstream actors such as roasters, retailers, and traders to fulfill their co-responsibility for achieving a sustainable coffee sector and to shoulder more of the risks that currently fall too heavily on producers alone.

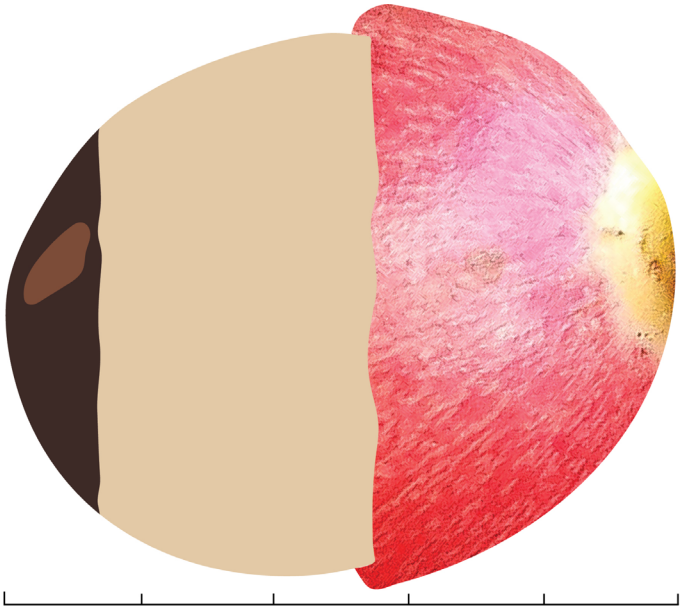
The operations and governance of the Global Coffee Fund would integrate strong oversight through a multi-stakeholder Governing Board, local ownership of planning through the CCP, and independent expert support. Governance mechanisms would be designed to guard against corruption and fraud. To minimize redundancy and the need to develop entirely new bureaucracies, the GCF could potentially be hosted by one or more existing multi-stakeholder initiatives focused on coffee sustainability.

Our estimates suggest that the amount of money needed to make considerable progress on implementing activities under the NCSPs is in the region of US$10bn per year. We provisionally suggest a goal of raising $2.5bn per year through pre-competitive private sector contributions to the GCF. Using the 2018 global export number of 7.3bn kg of green coffee, this would amount to 34 cents per kg of green coffee contributed to the GCF, which is in the range of 0.25-0.50 US cents per cup. In other words, the targeted level of funding would require no more than half a US penny per cup sold.

Taken together, the various contributions would result in a 25% allocation of the overall funding goal for each main source of funds: the GCF, donors, producing-country governments, and competitive private sector investments. Such an approach would embody a public-private partnership grounded in equally shared responsibility between the public and the private sectors.

While these private sector and public sector funds would be roughly equal at the global level, money from the GCF would not have to be distributed in equal proportions for each participating country. Such an approach would enable the GCF to support all coffee-producing countries, while also taking into consideration the country-specific needs and funding opportunities that each country has (e.g., government budgets, private sector competitive investments), as well as prioritizing the SDG gaps in the poorest places and for the poorest producers

Farmers only receive the premium price for a fraction of their sustainably produced coffee



PICTURE HUMAN RIGHTS.ORG

COLUMBIA CENTER ON SUSTAINABLE INVESTMENT, "Achieving Sustainable Development in the Coffee Sector"

and workers.

The scale of contributions suggested for the GCF is much higher than the current sustainability spend within the coffee industry, yet it is entirely reasonable as a fraction of the overall value of the industry, particularly given the significant benefits that would accrue to coffee industry actors if a sustainable coffee future were realized. We suggest that the largest roasters, retailers, and traders should be both the forerunners in contributing to the fund, as well as the entities that contribute the most. These actors have outsized impacts on the industry, should have particularly strong interests in a sustainable coffee future, and proportionally have the largest responsibilities for ensuring the long-term sustainability of coffee value chains.

Taken together, the National Coffee Sustainability Plans and the Global Coffee Fund provide a means to implement the strategic locally owned actions within countries and the significant investments throughout the sector that are necessary for a sustainable coffee industry and thriving coffee producers.

3. Increasing Producer Profits

The coffee industry has changed significantly in recent years, which has created new challenges for many producers, but which has also opened up new opportunities. In particular, the high consolidation of the industry, and the mainstreaming of e-commerce technologies and mobile applications for farmers, provide unique conditions to depart from the traditional coffee business model that has become increasingly unsustainable for many coffee producers.

We suggest that producing countries as a group seriously examine two options for capturing more of the retail price of coffee. The first, as mentioned above, is implementing a minimum price linked to the farmgate price of the high productivity sector in Brazil. The second is supporting producers to harness the potential of new technologies to improve their incomes. E-commerce has the potential to reduce market concentration by providing a means for producers to add and capture more value through more direct-to-consumer sale models. Although currently niche, direct-to-consumer models have potential to scale with sustained institutional support. This could include aggregating producers for economies of scale, and making the administrative and logistical aspects feasible for many producers. Some of the institutional support needed could potentially be undertaken by producer associations. This could include, for example, identifying and negotiating better rates with existing entities and companies that could provide necessary services, such as transport or distribution. Because online retail is fiercely competitive, producers can be at a disadvantage given the high consumer loyalty to major brands. To break through the competition, significant offline investments would have to be made by producers and supporting institutions on marketing, quality control, and logistics.

Way Forward

Coffee sector actors have acknowledged deep sustainability concerns, particularly in light of the ongoing price crisis and deepening climate crisis. Multiple calls for global collective action have been made. In this report, we address these calls, and we recommend strategies that provide ambitious yet achievable pathways for making coffee truly sustainable.

We very much welcome feedback on the ideas presented herein and we look forward to continuing to build our analysis in partnership with producers, industry actors, and the many other stakeholders focused on making coffee sustainable.

Columbia Center
on Sustainable Investment
A JOINT CENTER OF COLUMBIA LAW SCHOOL
AND THE EARTH INSTITUTE, COLUMBIA UNIVERSITY

Acknowledgments

This briefing note is the Executive Summary of a longer report: Jeffrey Sachs, Kaitlin Y. Cordes, James Rising, Perrine Toledano, and Nicolas Maennling, "Ensuring Economic Viability and Sustainability of Coffee Production," Columbia Center on Sustainable Investment (October 2019), available at: http://ccsi.columbia.edu/work/projects/coffee/. The report was commissioned by the World Coffee Producers Forum, and sponsored by the Colombian Coffee Growers Federation (Federación Nacional de Cafeteros de Colombia - FNC), the Agence des Cafes Robusta d'Afrique et de Madagascar (ACRAM), African Fine Coffees Association (AFCA), the Inter-American Development Bank (IDB), the International Coffee Organization (ICO), Promecafe, and the Secretary of Agriculture and Rural Development in Mexico (SAGARPA). Additional work, particularly to develop the simulation model and corresponding climate scenarios, was funded separately by Lavazza. Any views expressed are the authors'. A complete list of acknowledgements is included in the full report.

Suggested Citation

Jeffrey Sachs, Kaitlin Y. Cordes, James Rising, Perrine Toledano, and Nicolas Maennling, "Briefing Note: Ensuring Economic Viability and Sustainability of Coffee Production," Columbia Center on Sustainable Investment (October 2019).

ccsi.columbia.edu

Columbia Center on Sustainable Investment

Jerome Greene Hall
435 West 116th Street
New York, NY 10027
Phone: +1 (212) 854-1830
Fax: +1 (212) 854-7946