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Escaping capitalist market imperatives: commercial coca cultivation in the Colombian Amazon

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ABSTRACT

The illicit coca economy has become a bulwark for smallholder farming in Colombia. This article helps explain why. Analysis of the social relations surrounding coca production in one of the country's most important coca-producing municipalities shows that capitalist market imperatives are weak within this economy. Pressures to increase productivity are muted by fluid access to land, non-interest-bearing debts, and the lack of price competition between producers. Coca-growers are 'improving' production, but they mostly respond to opportunities rather than imperatives. In the context of multiple agrarian crises, the coca economy allows even less well-off producers to survive.

KEYWORDS

coca; Colombia; market imperatives; access to land; credit & debt; exchange relations; production practices; productivity

Introduction

In many ways, the cocaine economy epitomises contemporary capitalism. South American farmers living in marginalised spaces grow the coca required to produce the drug and yet receive a pitiful income compared to major traffickers. A significant portion of the latter's profits end up in luxury real estate and oiling an already well-oiled financial system. And the stereotypical consumers catalysing the sequence are work-addicted stock-market traders in London and New York.

Within Colombia, the world's top cocaine producer, commercial coca production has transformed countless smallholding communities. In many places, monocropping and the use of agrochemicals grew, while subsistence cultivation and non-monetised labour exchange declined. For these and other reasons, the crop is often seen as a bearer of capitalism. This idea is articulated by Antony Dest, who argues that commercial coca cultivation leads to 'enclosure', which he defines as 'the destruction of alternative ways of life in order to consolidate social relations amenable to the expansion of capitalism' (2021, 3; see also Salgado Ruiz 2003; Escobar 2020, 127).

Examples tying cocaine (and illicit drugs more generally) to capitalism and its destructive throes abound. But the aim of this article is to narrate a different strand of the story. Coca cultivation has enabled tens of thousands of Colombia's *campesinos* or peasant farmers to stay on the land and make a living from farming in a context where/when

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the general direction is *un campo sin campesinos* or a countryside without peasants. As indicated by Gutiérrez Danton (2021), that is why coca is known as ‘the resistance crop’ in some areas. It has slowed dispossession and de-peasantisation, and thus rural-to-urban migration, and even generated re-peasantisation, while allowing those who choose to ‘exit agriculture’ to do so ‘on their own terms’¹ (Molano Bravo 2017, 1987, 45–47, 130–132; Hough 2010; Ciro 2016; Gutiérrez Danton 2021).

This article builds on but also goes beyond these initial observations, by examining coca production in Puerto Asís – a municipality in Colombia’s Amazonian department of Putumayo – from an agrarian political economy perspective. It draws on fieldwork notes and interview transcripts (see appendix 1), open-access survey data (referred to as the Observatorio PNIS survey),² and UNODC/Government of Colombia (henceforth GOC) reports, and is guided by the question: to what extent and in what ways do capitalist market imperatives govern the coca economy of Puerto Asís?

The question is derived from the work of Brenner (1977) and Wood (2002), both of whom emphasised the historical specificity of capitalism, identifying market imperatives or compulsions as one of its main distinguishing features. The question is also inspired by Li’s (2014) application of their arguments to contemporary rural history, specifically the emergence of capitalist social relations among the Lauje of Sulawesi. For all three authors, what makes capitalism unique are the systemic pressures producers face to maximise profits by increasing productivity and to reinvest accumulated capital in the production process so as to compete with other producers. As stressed by Marx himself, these systemic pressures are precisely what make capitalism so dynamic but also so alienating and destructive. Indeed, these market compulsions are a key driver of the dispossession and de-peasantisation ongoing in different parts of the world. In this sense, they are also key to understanding how and why coca became ‘a resistance crop’ for so many Colombian *campesinos*.

The article argues that capitalist imperatives have been muted to an extent by the nature of the illicit drug industry (which itself has been shaped by counternarcotics operations designed to destroy it) and the conditions in which it operates in Puerto Asís and, presumably, other parts of Colombia. The coca economy does not punish so-called ‘inefficient’ producers as occurs in many licit crop sectors; it is relatively forgiving, allowing even less competitive producers to scrape by. The first three sections provide necessary groundwork. I start by introducing the market imperatives concept and the three main channels through which they come to life: land, debt and exchange relations. Section 2 provides an overview of the commercial coca economy in Colombia, with special attention to Puerto Asís and the lower Putumayo subregion of which it is part. Section 3 familiarises the reader with the Amazonian frontier context. Sections 4–7 develop the argument (summarised here) in four parts.

¹I thank Patrick Meehan for this turn of phrase.

²The survey was organised by the National University of Colombia Drugs & (dis)order research team, under the direction of Professor Francisco Gutiérrez, and with the input and support of the illicit crop growers’ organisation COCCAM. It was applied in 2019 by the company Metis. Participants were coca growers and pickers in Puerto Asís and Tumaco who signed up to the illicit crop substitution program – PNIS. For the purposes of this paper, I analysed the data from Puerto Asís only. For more information about the survey, including sampling strategy and results analysis, see: Marín, Machuca & Acero (2020) *El PNIS en Terreno: Voces del Campesinado Cocalero*. The questionnaire and full survey results (in Excel) are available on the webpage of the Land Observatory (<https://www.observatoriodeltierras.org/otros-documentos/>), of which the National University is part.

First, I analyse land based social relations in Puerto Asís. These have been defined by the open land frontier and the culture and material needs of the *campesinos* who settled there. The coca economy further facilitated access to land by generating decently paid employment and enabling settlers to live off a small area (this was also encouraged by eradication, which limited coca plot sizes). As of 2020, a migrant wage labourer without any prior savings could become an independent coca producer in less than two years. Fluid access to land reduces producers' subjugation to market imperatives. When farmers are ruined, by counternarcotics operations rather than competition, they often just start again.

Next, I examine access to investment capital and debt relations. The use of credit is quite low, people don't have to mortgage their land to borrow, and coca earnings are typically high enough for people to pay off loans. More importantly, non-interest-bearing debts keep the economy liquid without creating pressure to produce more or more efficiently. Thus, I conclude that debt is not having major 'disciplining effects' in the coca economy of Puerto Asís.

Third, I focus on the organisation of coca leaf and paste markets and exchange relations. Local prices are largely determined by armed groups and the relationships between them. There is no price competition between producers and prices are not determined by average productivity, which reduces the pressure to produce more at lower cost. Furthermore, compared to many licit agricultural value chains, the demands buyers place on producers are minimal.

Having surveyed the underlying mechanisms, explaining why market imperatives are weak in the Puerto Asís coca economy, I go on to scrutinise how this weakness manifests in production practices. *Cocaleros* are 'improving' production. But they mostly respond to opportunities rather than imperatives. Economic forces don't obligate them to continually increase yields and cut costs, but those who do tend to earn more. One indication of this is the enormous variation in yields between households. Another indication is that most interviewees did not know their operating expenses and cut costs haphazardly. Furthermore, the cost-cutting they do is more about securing household income than maximising returns. Finally, households may invest in expanding and enhancing production, but market imperatives don't force them to do so.

Some qualifications and notes on methods

A few clarifications and caveats are in order before proceeding. First, the article does not present a comprehensive evaluation of the cocaine industry's impacts. Among other impacts not explored, is how narco-elites accumulated rural property in Colombia, making it more difficult for *campesinos* to access land, especially in central areas (Ortiz 2003; Reyes Posada 2009; Richani 2012). My argument that the coca economy has facilitated access to land in Puerto Asís should be considered in this broader context.

Second, I do not feign that the coca economy is anti – or non – capitalist. Most coca growers are – to use Wood's terminology – 'market dependent'. They produce commodities, which they must sell to pay for necessities, including much of their food and the land and additional labour power (which are also treated as commodities) they require to

produce coca in the first place. And yet, despite this market dependence, the ‘compulsion to produce competitively’ (Wood 2009, 39) is weak – not wholly absent but weak. My analysis is founded on the idea that capitalist imperatives and social relations do not have to be either absolute or absent. In this sense, it chimes with Ana Tsing’s analyses of places, people, processes and products that are ‘simultaneously inside and outside capitalism’ or that ‘move back and forth between noncapitalist and capitalist forms’ (2015, 84–90, 164–170).

Likewise, I argue, the cocaine economy has simultaneously stimulated and subverted capitalist development in different ways. In various parts of Colombia, ‘it changed labour relations, introduced vast amounts of money and commodified the local economy, permitted new modes of wealth accumulation, and radically transformed the culture of the former subsistence colonos’ (Peñaranda Currie, Otero-Bahamon, and Uribe 2021, 4 – the authors refer to the Caguán region, but similar statements could be made about other areas). But it has also enabled smallholders to resist proletarianisation and – to a certain degree – the un-freedoms implied by capitalist imperatives. To reiterate: the portrait doesn’t have to be all or nothing.

Third, it is not my intention to idealise the coca economy. As argued by Gutiérrez-Sanín (2021), *cocaleros* face ‘tough trade-offs’. Given a viable alternative, most would renounce coca production because of the associated violence, wielded by State forces as well as illicit armed actors, and the legal and financial risks inflicted by the War on Drugs. Furthermore, some claim commercial coca ‘corrupts’ (Gutiérrez-Sanín 2021, 6–7; fieldwork interviews; Ciro 2016). It has had particularly devastating impacts on Afro and indigenous communities in the Pacific region, especially where the crop was introduced relatively late by settlers who arrived with that purpose (see e.g. Velasco 2011; Dest 2021; Tito and Machuca 2022). The coca economy has also contributed to deforestation (though less than mainstream media would have us believe – see Dávalos 2018) and other environmental ills given the chemicals used in cultivation and processing. The ecological effects of forced eradication, manual and aerial, which displace illicit crops and growers to new areas, are likely worse than those of the coca economy itself (Ciro 2018; Armenteras, Rodríguez, and Retana 2013). So, devastation is an important part of the coca story in Colombia, but it is not the focus of this article.

Fourth, some of the structures and processes examined in this paper may be peculiar to the Amazonian region, lower Putumayo or even Puerto Asís. To give one example: the jump from picker to independent producer is more difficult in land-scarce Argelia (Cauca), where 99% of farms are already less than a hectare (Gutiérrez Danton 2021 & communication with author). I have tried to highlight potential contextual peculiarities. Nevertheless, certain questions can only be resolved with systematic comparative analyses that build on detailed case studies such as this one. This is a pending task for drug crop economy researchers. In addition to differences, I suspect we will find commonalities, which help explain why this illicit economy has become a bulwark for smallholder farming in diverse parts of the country.

Fifth, some findings may also be time sensitive. Much of the empirical material derives from interviews conducted between March 2019 and March 2020. The Observatorio PNIS survey data, likewise, is from 2019. In contrast to the pandemic period that followed, at the time, growers did not report difficulty selling their produce nor complain of low prices. Nominal prices were slightly higher compared to other years, though much

lower in real terms.³ Indeed, it was common to hear that coca production was less profitable than in the past due to rising costs. So, it was neither a period of crisis nor of bonanza. That said, many pickers and growers were having a difficult time financially due to eradication under the PNIS illicit crop substitution programme, born of the 2016 peace agreement (for more information about the PNIS, see Acero and Machuca 2021). These conditions most certainly coloured the interviews.

Finally, this brings me to a few notes and reflections on research methods. I formed ideas for this article gradually, during and after fieldwork undertaken in 2015 and 2019–2020. The 2015 fieldwork was part of a collaborative project with a human rights NGO. The NGO facilitated access to interviewees. Interviews were mostly focused on land conflicts and the impacts of oil operations. However, the coca economy and the War on Drugs came up during conversations and I was immediately fascinated by some of the accounts people gave, like how the coca boom had led to fragmentation of farms rather than land concentration. Fieldwork trips in 2019–2020 were undertaken for an international multi-institutional project – ‘Drugs & (dis)order’ – with the broad aim of better understanding the links between illicit drug economies, development and conflict/peacebuilding. During this period, I worked as part of a larger research team. The team had already started fieldwork when I joined the project. They accessed interviewees initially by contacting Community Action Committee (JAC) leaders and later using a snowball strategy. We also met people during public meetings, especially relating to the PNIS. In addition to attending meetings and conducting interviews, we learned from countless informal conversations. We returned to the same *veredas* or subdistricts and built rapport with some participants, which gave us the confidence to ask difficult questions. People were extremely generous with their time, allowing us to discuss different issues in depth. For the most part, I did not feel my position as a female and a foreigner disadvantaged me as an interviewer. People were perhaps less suspicious and more open with me because of this. Nevertheless, and though my Spanish is fluent, I occasionally missed things that a local probably would not have.

Notwithstanding the relationships we built, certain topics were difficult to inquire about. For example, people were often willing to discuss how the buying worked in the past, when the FARC-EP rebels were still in arms, but were reluctant to detail (or sometimes simply didn’t know themselves) how the market had been re-organised since the 2016 peace deal. The bloody post-peace agreement conflict between the *Frente Carolina Ramírez* and *Comandos de la Frontera* was germinating at the time. (The few interviewees who named these groups – many were too scared – called them the dissidents or 1st front and the Mafia or the 48th front, respectively.) These limitations are reflected in section 6.

There are other gaps in the data too. As suggested above, interviews were not aimed at uncovering how capitalist market imperatives function within the coca economy and many questions arose after fieldwork had taken place. For example, I wish I had consistently inquired about producers’ bookkeeping habits or lack thereof. I tried to fill some gaps by requesting relevant interview transcripts and/or fragments from colleagues, which inevitably has drawbacks. (I was sole or co-interviewer for 43 of the 54 interviews analysed for this article; the remaining 11 were conducted by other members of the team

³In 2019–2020, interviewees reported prices of \$2.4–\$2.5 million COP for a kilo of paste. In comparison, they recalled prices of \$2 million in the late 1990s and \$1.8 million in 2007/2008 (similar prices are reported by Jansson 2006). A UNODC graph shows that the national average fluctuated around \$2 million between 2006 and 2012. Note that \$2 million pesos in the year 2000 is equivalent to about \$4.9 million in 2020 (see dineroeneltiempo.com).

– see [appendix 1.](#)) I also consulted UNODC reports and other studies. Still, there are many unknowns about the coca economy and the data is often contradictory, something I try to be forthright about. With all these caveats laid out, the next section introduces the concept that frames the article.

Capitalist market imperatives

Brenner (1977) and Wood (1994; 2002) developed the argument that market compulsions or imperatives - as opposed to opportunities - are a distinguishing feature of capitalist social relations. Their aim was to challenge popular narratives about the history of capitalism, especially the idea that it resulted naturally from expanding trade. In doing so, they demonstrated that production for exchange and the exploitation of wage labour are insufficient indicators - on their own - of capitalist production. The question for these authors is not whether production for markets using wage labour occurs but how and under what conditions (see also Li 2014; Carlson 2018).

So, what does it mean for a farmer – specifically – to be subjugated to capitalist market imperatives? In extreme cases, it implies being obligated to continually transform production practices. For example, the producer may have to plant a new variety of seed due to changes in buyers' preferences. This may mean paying for seeds year after year, abandoning inter-cropping, or being tied to certain agrochemicals. The same producer may simultaneously face falling prices, obliging them to cut costs, perhaps by working longer hours to avoid paying for hired help. The producer who doesn't shift to the new variety may be unable to sell their produce, while the producer who doesn't reduce expenditures may be left in the red. Eventually, they will be forced to adapt or exit the economy in question. This imagined scenario will be familiar to agrarian scholars but perhaps in association with other concepts. As shall become clear, the 'market imperatives' framing allows us to connect the dots in distinctive ways.

What is perhaps insufficiently explicit in Wood's and Brenner's accounts is that market dependent farmers are compelled to produce for exchange, but that doesn't necessarily mean they are compelled to produce competitively. And the pressures producers face may be diminished or augmented by different factors including the conditions under which they access land and investment capital, and the way the market/value chain they are participating in is organised.

The cited authors concur that how farmers access land is *the* key determinant of their subjugation to capitalist imperatives (Brenner 1977; Wood 2002, 2009; Li 2014). As Carlson articulates: '[w]here possession of the land is mediated by market competition, producers are compelled by market forces to engage in capital accumulation in order to systematically raise productivity and assure their economic survival' (2018, 707–708). In Brenner's and Wood's accounts of the transition to capitalism in 16th-17th century rural England, it was the replacement of customary tenancy arrangements with a competitive rent system that obligated farmers to increase production (for markets) and productivity. In Li's (2014) account of the transition in the highlands of Sulawesi, it was the introduction of cacao, and the consequent erosion of customary land institutions and closing of the land frontier, which set market compulsions into motion.

Debt is often the mechanism through which people's 'possession of land' is made 'dependent on competitive production' (phrase from Wood 2009, 43). The power of

debt is most palpable when owner-farmers use their land as collateral, as the threat of dispossession compels them to ensure their rate of return exceeds interest rates. But even when a producers' land is not immediately at risk, debt can still augment pressures to increase productivity (Gerber 2014; see also Li 2014). Lorenza Arango describes 'the disciplining effects of debt' on cacao farmers in northern Colombia. They reported more attention to financial calculations in daily decision-making, reducing household consumption, increasing production by investing in additional parcels, working extra hours to maintain the additional parcels, working harder/faster, and adopting new more productive varieties and technologies – all to service their debts (Arango Vásquez 2020). So, though debt relations are evidently tied to land relations, they are also, as Julien-François Gerber put it: 'an essential lever in the transition from market as opportunity to market as compulsion' (2014, 736) in their own right.

Access to investment capital is the other side of the same coin. In Li's account, the newly created land-poor and landless of Sulawesi were unable to borrow or save to pay for (more) land and even those that had land often lacked the money to put it to work (2014, 145). In this sense, borrowing may be freeing as well as suffocating. Ultimately this depends on the nature of the debt relations in question. Borrowing is more likely to be experienced as an opportunity rather than an imperative, for example, if credit comes with low or even no interest or if one earns enough to pay a loan without sacrificing other expenditures.

Finally, whether and to what degree producers are *compelled* to transform their production practices is determined by the way value chains and commodity markets operate and are organised. Price competition is more vicious in some markets than others, and chain structure and power relations shape who shoulders the burden of price slashing – whether it be the retailers, wholesalers and traders, processors, or producers (see e.g. Ponte 2001; Hough 2010; Amanor 2012; Purcell 2018). But it's not just about prices. Quality standards imposed by regulators and buyers also force producers to transform production (see e.g. Selwyn 2007; Thiers 2019). Commodity markets and value chains are, in turn, shaped by political decisions and larger economic processes. For example, the financialisation of commodity markets from the 1990s led to increasing inequality of income and power within many value chains (see e.g. Newman 2009; Purcell 2018).

Of course, from a mainstream economic perspective, strong market imperatives and resulting class or social differentiation and market-led dispossession are normatively good. More efficient producers should, from this viewpoint, replace less efficient ones. But among other problems - like how efficiency is defined and measured (e.g. in terms of price, quality, jobs generated, amount of land used, or ecological footprint) and if those producers that 'win' within this system really are more efficient or just favoured by the powers that be - is the harm this generates in people's everyday lives, either through what they sacrifice trying to stay on the treadmill or what they lose when they fall off it.

An introduction to commercial coca production in Colombia

Coca cultivation increased in Colombia at the end of the twentieth century. Its successful proliferation partly reflects the crops' properties. The shrub is relatively robust and different varieties can grow in diverse climates and soils, including highly acidic types

like in the Amazon. It can remain productive for up to 15 years (though productivity declines after year 4–5 and crops are often eradicated before maturity). And while coca doesn't provide returns until the second year after planting, henceforth it offers a regular income, as it can be harvested every two or three months throughout the year (fieldwork interviews; UNODC & GOC reports).

Perhaps even more important are the socio-economic advantages, associated with the way the cocaine economy is organised. Producers can process the leaves into paste or base themselves,⁴ which tends to give higher returns.⁵ (The final stages of processing, in which the paste is turned into cocaine, are more complex and are typically undertaken by drug-trafficking organisations.) The paste is non-perishable and has a high value to weight ratio, making it easy to store and transport, which is important since most coca is grown in relatively inaccessible areas. Intermediaries often travel to remote subdistricts to make purchases, reducing producers' exposure to legal problems, as well as their transport costs. Finally, the market risks of coca production are lower than for other cash crops due to the *relative* stability of demand and prices (UNODC & Acción Social 2011, 72–73; fieldwork interviews). Indeed, *cocaleros* tend to earn more than their counterparts who do not grow coca (*ibid*, 7, 95; also Gutiérrez-Sanín 2019), despite extreme inequality within the cocaine value chain, with farmers receiving less than 1.4% of total income generated by the industry (*ibid*, 79).

While some narco-elites were involved in production in the early years of Colombia's coca economy (Molano Bravo 1987, 64–69; Ramírez 2011, 61, 43–44), this became increasingly rare over time. The FARC-EP rebels, who had initially rejected coca cultivation altogether, later forbade industrial-scale crops and placed limits on the number of hectares any one person could grow – at least, in some areas (Espinosa 2004, 143; Torres 2018, 151). Meanwhile, the government stepped up its counternarcotics efforts, increasing the risks associated with coca cultivation (fieldwork interviews; UNODC & GOC reports). In any case, the cocaine economy has been organised so that the big money is to be made in international trafficking, not coca production. And, so, the latter was left to the little fish.

Most of Colombia's coca is grown by owner-operator farmers who self-identify as *campesinos* (Marín Jaramillo, Machuca Pérez, and Acero Vargas 2020, 14; on the intertwining of *cocalero*, *campesino* and *colono* practices and identities see Molano Bravo 1987; Ramírez 2011; Espinosa 2004; Ciro 2016). I use the term 'owners' loosely; around half of farmers do not have legal title to their land but consider themselves 'owners' nonetheless (for a discussion of this issue, see Thomson, Parada-Hernández, and Acero 2022; for data, see appendix 2). They grow coca in relatively small plots, totalling less than 2 hectares, and on farms of less than 50 hectares (see appendix 2). Note that *campesinos* in Colombia's southern and eastern lowlands with recent settlement histories and relatively low population densities have – on average – larger farms than peasants in the Andean regions. This does not imply wealth. The government-defined Agricultural Family Unit

⁴Base has higher purity than paste and typically fetches a better price. Nevertheless, I refer generically to 'paste' since the growers we spoke to did not distinguish them, and the UNODC/GOC claims base had disappeared by 2019 (2021, 54). That said, a few interviewees did mention 'oxidated merchandise', which is probably like base.

⁵The proportion of growers who process their own leaves varies. In the Putumayo/Caquetá region, according to UNODC/GOC data, 68% processed in 2005, this fell to 36% in 2011, and rose to 52% in 2016 (2020, 97). The latter is close to the 2020 national average of 57% (2021, 54). Variation is often due to the availability and cost of processing inputs. It can also be a response to changes in law enforcement activities or buyers' preferences (2011, 74; 2018, 83–86; 2019, 79).

(UAF) in Puerto Asís, for example, is 70–90 hectares, meaning a family there with 50 hectares is land-poor, according to government standards (for more information about the UAF, see Thomson 2019).

Excepting harvests, coca farmers mostly rely on their own and family members' labour.⁶ Colombian media suggests children often work on their parents' crops, but this is not a pillar of coca production in Puerto Asís. The *cocaleros* we met were very precious about their children's education, which is seen as a way out of coca cultivation and – sometimes – agriculture more generally. The labour of spouses is more important. Women usually tend to the food gardens, chickens and pigs and cook meals for the family and hired hands. But they may also work on the coca crop and sometimes keep their own separate plot (fieldwork interviews; on women in coca production, see Parada-Hernández and Marin-Jaramillo 2021; on the importance of education to *cocaleros*, see Gutiérrez-Sanín 2021, 6; Ramírez 2011, 68–70).

Almost all *cocaleros*, including small producers, rely on hired labour for leaf collection. Harvesting 1 ha of coca typically requires 4–5 workers over 2–3 days. Because the leaves must be processed shortly after being picked (in Colombia, they are processed fresh, rather than being dried first), the harvests must be completed in this intensive manner.

Raspar, the word used to describe coca harvest work, literally translates as 'to scrape'. Workers gather portions of the shrub between their legs and then scrape or strip the leaves from the branches with pulling motions. The *raspachines* (roughly, the 'scrapers') are the most salient group within the coca economy, other than the growers. The fact they are seen as a group – like the sugar cutters or the coffee pickers – is itself indicative. In fact, in Puerto Asís, people differentiate between *raspar* and *jornalear* or other casual waged farm work.

Harvest work is paid piece rate, so to make a living *raspando*, one needs agility and stamina. The going rate in Puerto Asís in 2019/2020 was \$8,000 pesos per *arroba* (12.5 kilos) of leaves. César (I use pseudonyms throughout), a seasoned coca-grower, said the best workers harvest around 10 *arrobos*, leaving them with \$80,000 a day, more than double minimum wage.⁷ A group of *raspachines* told us they typically take home \$50,000, noting that they preferred to work half days.⁸

Many, perhaps most, owner-farmers also do wage work, as *raspachines*, *jornaleros*, processors and farm cooks.⁹ This, however, is not the stereotypical semi-proletarian household, since *cocaleros* sell their labour to other *campesinos* – especially neighbours – and because wage labour is generally secondary. Survey data from 2010 indicates that coca-growing households in Putumayo-Caquetá got 30.6% of their income from wage labour (the average across four regions was 18.2%) and 48.2% from selling 'transformados', in this case meaning coca paste. The sale of animals or animal products and

⁶According to one study, a hectare of coca requires 60 days of hired labour per year on average (UNODC & Acción Social 2011, 76). Supposing four harvests a year with 4 workers over 3 days, most of these days (48 of 60) are for harvest. In the Observatorio (2019) survey, just 12 of 111 growers in Puerto Asís reported 'having workers in their charge' when they joined the program – 1–4 maximum and in all cases for coca production.

⁷In Colombia, legal minimum wage is a monthly figure. As of 2020, it was \$877,803 (about €208), which works out at about \$36,000 (about €8.5) a day, given that until recently the legal work week was 48 h over 6 days. Note that, as of 2020, 70% of workers in Colombia's rural areas earned **less** than minimum wage (Cifuentes 2022).

⁸In the Observatorio (2019) PNIS survey, 28 pickers in Puerto Asís reported wildly different earnings, ranging from \$10,000 to \$130,000 per day, creating an average of \$40,000.

⁹More than half of (ex-)cultivators surveyed (63 of 107) reported having worked as *raspachines* (Observatorio, 2019). Unfortunately, I do not have data on participation in other forms of wage labour.

unprocessed agricultural goods accounted for 8.2% and 9.7% respectively (UNODC & Acción Social 2011, 92–93).

An introduction to the Amazonian frontier context

Coca put down deep roots in Colombia's Amazonian lowlands. Here the discussion is limited to lower Putumayo, especially the municipality of Puerto Asís. But *some* of the sub-regions' characteristics - e.g. recent land clearance and settlement processes; deficient infrastructure/services and corresponding practices of self-provisioning; the FARC-EP's role in coca economy governance - are common to other parts of the Colombian Amazon, notwithstanding their distinctive histories (for Putumayo see Ramírez 2001/2011 and Torres 2012; for Ariari - Meta see Torres 2018; for La Macarena - Meta see Espinosa 2004; for Caquetá see Ciro 2016; Hough 2010 and Ferro Medina 2002; for Guaviare see Molano Bravo 1987).

Lower Putumayo is an area of recent 'colonisation'. Most peasant settlers or *colonos* arrived from the 1940s and especially the 1980s onwards, fleeing from violence, in search of land, and/or lured by the opportunities afforded by logging, small-scale mining, hunting, oil operations and - later - coca cultivation. The dynamics of the sub-region are defined by this recent settlement history. For example, Community Action Committees (JACs) are strong and the use of *mingas* or collective workdays to build or improve local infrastructure is common - this is at least partially an inheritance of the settlement experience.

Such community-level institutions were reinforced by the FARC-EP. This guerrilla group strengthened their influence in Putumayo in the early 1990s and, in addition to promoting the JACs, began imposing their own rules and regulations. Many of their governance activities focused on the coca economy. Among other things, they put a stop to the murder of harvesters and sharecroppers by greedy 'bosses'; forbade payment for labour with drugs and their use more generally; acted as arbiters in disputes over coca crop ownership; and promoted subsistence cultivation to counter the problems associated with coca mono-cropping (Gutiérrez Danton and Thomson 2020; Ramírez 2011). As discussed below, they also began to regulate leaf and paste prices. The incursion of anti-subversive paramilitaries in the late 1990s destabilised the FARC-EP's coca governance. Still, the rebels held sway in many (sub)districts until their demobilisation in 2017. Arguably, the vestiges of FARC-EP governance continue to shape the coca economy in lower Putumayo, five years on from their disarmament and despite the consolidation of new groups.

Another distinguishing characteristic of lower Putumayo is the lack of a well-defined landed elite. In other parts of the country and of the Amazon region, the traditional land-owning class led or followed the *colonos* into the agrarian frontier, accumulating property and power as they went (LeGrand 1986; on Caquetá see Ciro 2016 and Hough 2010; on the Ariari see Torres 2018). This was not so in Puerto Asís and surrounding areas (fieldwork interviews; Torres 2012; but cf. Devia Acosta 2004 on the Orito area).

More broadly, there is no easily identifiable ruling class. It is common knowledge in Colombia that the cattle ranchers control Meta, the banana (wo)men predominate in Urabá, and the elites of Valle del Cauca are tied to the sugar industry. But it's not immediately obvious who rules Puerto Asís. If you ask *cocaleros*, they usually refer to 'the

merchants'. Regional politicians are often named too. The petroleum industry tends to get overlooked because those who make most money from it directly are outsiders, not 'their' elites. The power of regional narcos is usually implied. The qualifier 'regional' is important because the wealthiest and most powerful narcotraffickers do not typically reside nor invest in lower Putumayo (also Torres 2012, 50), meaning the area has not been so affected by the narco-fuelled land concentration that dramatically transformed other parts of Colombia.¹⁰ Regional narcos are reported to invest more in retail/wholesale businesses than in agricultural enterprises, as well as departmental and municipal elections – indicating the intertwining of merchant, narco and political power.

Legal commercial agriculture was and still is extremely limited in lower Putumayo and especially Puerto Asís. Before coca production took off in the 1980s, farmers in the municipality sold maize and rice to the State marketing board, IDEMA, which was slowly dismantled and eventually liquidated in the 1990s (fuelling the expansion of coca, according to some interviewees), and/or produced mainly for subsistence, selling surpluses on local markets. Notwithstanding some successes with palm-hearts, pineapple, black pepper and cacao, there has been no other major crop boom in the municipality. And, in many subdistricts, coca and extensive cattle ranching (the latter, for those with sufficient land) have long been the only viable commercial farming ventures. As a point of contrast, in Andean zones, coffee farmers started to grow coca – much later – in response to falling prices (Acero 2016; Gutiérrez Danton 2021; Dest 2021). So, while *campesinos* in other regions suffer(ed) 'adverse incorporation', those in lower Putumayo endure(d) 'market exclusion' – that is until the arrival of coca.

Following on from the above, credit systems, input markets, labour regimes, intermediary networks, and shared production knowledge have developed around the coca economy. Many families in Puerto Asís, even entire subdistricts, have been growing coca for more than forty years. According to María, those born in the municipality after the 1970s are 'children of coca, because when we were small, we started to discover that coca cultivation is a way to improve ones' quality of life [...] we grew up with that idea'. Again, this may be contrasted with, say, areas in the coffee-axis where coca was grown for a brief period, and thus did not become part of the cultural imagination and socio-economic fabric in the same way.

Some *cocaleros* in Puerto Asís keep other licit cash crops too, but these are often just relics of failed substitution programmes past. Many also grow plantain, yucca, maize and – to a lesser extent – rice for household consumption, for feeding their chickens and/or pigs, and for sale on local markets. To simplify slightly, there are subsistence farmers who grow coca and *cocaleros* who grow subsistence crops (Molano Bravo 1987; Torres 2012, 50–51). In Puerto Asís, the latter seem to dominate. In fact, some stopped subsistence cultivation altogether during the early years of the coca boom but later returned to it, encouraged by peasant organisations, as well as the FARC-EP.

Overall, crops - illicit and licit - are said to account for just 8% of land use in Putumayo's farms. Most cleared land in the department is used for cattle pasture (UNODC & Acción Social 2011, 10, 61 86). The remaining area is accounted for by *rastrojo* or land previously

¹⁰Again, the qualifiers are important. Narcotraffickers have acquired land in Putumayo. According to interviewees, narco-paramilitary alias 'Macaco' had hundreds of hectares in Puerto Asís, which were later confiscated by the government and (re-)distributed to peasants. Nevertheless, the scale of the issue is not comparable to other regions where narcos' investments caused rural property price rises and land scarcity.

used for cultivation with foliage regrowth and full-growth forests (*ibid*). It is common for farms to be interspersed with *rastrojo* and uncleared lands that are claimed as 'owned' nonetheless. Some farmers consciously maintain forests, especially around water sources. Others keep forested land because they cannot use it for production, due to capital and/or labour restraints. Only relatively wealthy land speculators/grabbers can afford to deforest large areas that they are not going to use.

Finally, dependence on the coca economy is compounded by deficient infrastructure and services. *Campesinos* deplore the lack of investment in things like a licenced slaughterhouse, technical assistance, and especially transport systems. Many subdistricts are connected only by river, and fluvial transport is costly. The roads that exist are mostly dirt or gravel tracks that communities - organised into JACs - paid for and built themselves. Many farmers have also invested coca money in diesel-generators or solar panels and motorised pumps to take water from ground wells and streams/rivers. In sum, there is a strong tradition of self-provisioning and a strong resentment towards the State, which from their perspective extracts Putumayo's oil wealth and spends copious amounts on counternarcotics and other warfare but neglects the needs of people who live in the region (Ramírez 2011, 146–147; Acero and Thomson 2021; fieldwork interviews).

Access to land and land-based social relations on a diminishing frontier

In this section I show that access to land in Puerto Asís has remained relatively fluid despite the agrarian frontier moving eastward and amidst/after one of the most important crop booms in recent Colombian history. In fact, the coca economy has facilitated access to land in Puerto Asís, endowing the same economy with certain egalitarian qualities that dampen the effects of coca growers' market dependence.

Peasant settlers enclosed *baldíos* or untitled State lands de-facto, including indigenous territories, as they settled them. The first to an area would typically lay claim to more land than they could clear, let alone farm. They would then sell the uncleared land cheaply or give it away for free. 'Why would people do that?' we asked. For frontier settlers, the answer is obvious: they wanted the population to grow, so there would be more money to buy a motorboat for the community, more hands to build a school or dig a path, people with whom to exchange labour, to turn to in case of an emergency, and to talk to and spend time with. And, besides, some would say: 'what would anyone do with so much land?' Thus, initial land concentration didn't usually last long. If settlers didn't share their land, new arrivals would go further into the jungle and stake a claim of their own. This suited neither. People needed and wanted neighbours (on frontier colonisation in Colombia more generally, see LeGrand 1986; Molano Bravo 1987).

Few and far between had the capital to purchase, clear and plant land outright. They worked on others' coca farms until they had saved enough to acquire land and plant a crop of their own. This is the typical story of settlers and second-generation migrants from the 1980s onwards. Some were given land, as already noted. And sellers would often accept deferred payment. Neighbours often helped newcomers in other ways too, by lending them tools, giving them seeds or cuttings, and offering them yucca and plantain to eat. Still, establishing a farm from scratch is costly and time-consuming

and most had to save to cover these costs. Work in the coca economy enabled them to do this.

The dynamics of land access have been changing. New hamlets are not proliferating across the landscape, as they once did during the oil and coca boom years of the 1960s-1970s and 1980s-1990s, respectively. Land is not regularly gifted to newcomers anymore. Those who want land for free or very cheaply must go further east and into neighbouring Puerto Leguizamo. Some do this, often with the aim of saving up coca earnings to buy land in a more central location. But many prefer to settle in established hamlets, and – despite said changes – it is still possible to access land in these areas.

There are still people who have more land than they can work and who are willing to sell. And, though many remark on the rising cost of land, so long as the farm in question isn't too close to the municipal capital, prices remain reasonable. In El Lulo (a pseudonym), which is relatively well-connected - a 60-minute motorbike journey from town in dry season when the dirt road is in good condition - a hectare cost \$1-\$2 million in 2020 - the equivalent of between 1.1 and 2.3 months of minimum wage earnings. It is reportedly more difficult nowadays to find a seller that will accept a fully deferred payment. But many still accept *part* of the money later, meaning *campesinos* with some savings, but not the full amount, can nevertheless acquire land without the mediation of banks and without paying interest. Finally, and importantly, casual waged work and sharecropping still pay enough for the landless to save and purchase their own plot (within less than two years), even if it's just a small one to start with. In brief, the Putumayan Dream is still alive in Puerto Asís, despite the lulling of frontier dynamics, which have shifted to the adjoining municipality. I could dedicate pages to analysing why and how access to land has been maintained in Puerto Asís (*manuscript in progress*), but here I limit myself to a few points.

Farmers can earn a decent income with one or two hectares of coca. And there are disincentives and obstacles to growing more than this. One reason coca plot sizes remain relatively small is the War on Drugs. In fact, average plot sizes have shrunk over the years (see [appendix 2](#)), largely in response to forced eradication. (To minimise loss due to eradication, farmers also fragmented their plots -planting 2 or 3 areas with half a hectare in different locations instead of 1 larger area - and relocated them to less visible zones.) But other factors contribute too. Darío explained:

One can't have a lot [of coca]. It's hard nowadays. The workers, now an arroba costs 8,000 and the day costs 30,000 and the food is expensive, and gasoline, acid too, everything one needs for the chemistry [...] So, if you have a lot, you spend a lot [...] In contrast, having a little [coca], you do better. [...] To have more than enough food, one hectare, you don't need more. [...] And with one hectare you can do the work yourself. You have to look for harvesters, but everything else you can do yourself. [...] That's when there's something [money] left over [- when you do the work yourself].

So, most growers make do with small coca plots. As a point of contrast, farmers would need *at least* 15 hectares of pasture to earn the same amount from cattle ranching as they do from 1 ha of coca.¹¹ (Doña Emma said to live from cattle ranching one would

¹¹One study calculated net earnings from 1 ha of extensive cattle ranching at \$60,000-\$80,000 per month (Roa 2018). It seems this figure is for dairy rather than meat production, and regional differences apply. Nevertheless, it is indicative. Estimated net income from 1 ha of coca varies. I used the figure of \$1 million, which is in between the high estimates provided by our informants and the low estimates in UNODC reports (see [appendix 3](#)).

need minimum 50 hectares to keep 40 cows.) Note that, according to interviewees, this land concentrating venture is the only legal farming activity in Puerto Asís that is profitable at present. To reiterate: unlike licit sectors (at least those currently viable), the coca economy encourages and enables people to live off small areas of land.

Ironically, forced displacement seems to have further facilitated access to land in Puerto Asís. Tens of thousands of people fled Putumayo in the 2000s (Unidad de Víctimas 2013). They fled violence and the impoverishment caused by constant eradication. Many sold their farms to those who stayed, typically neighbours who ended up with more land than they could/can use. Some hamlets never recovered from the depopulation. In extreme cases, even the school was forced to close. So, like in the early years of colonisation, many farmers want more neighbours, and land markets reflect this fact. It is important to stress that forced displacement typically had the opposite effect in Colombia, enabling long-term property concentration as existing and aspiring elites accumulated abandoned plots. The dynamics of the coca economy, combined with the limited form of land commodification in Puerto Asís, were central to preventing this from occurring.

As should be clear, land in Puerto Asís is treated as a commodity to be bought and sold. Nevertheless, for the most part, it is still valued more as a means of production than a financial asset. (Unfortunately, oil operations are changing this in some places.) Put differently: land in Puerto Asís has not – so far – been widely financialised; it has not reached the highest level of commodification. This doesn't mean there are no speculative land hoarders, but the practice is not common enough to push prices above the productive value of the land, like in other areas (Benítez Vargas 2005; Richani 2012).

One reason for this partial commodification is the comparative lack of elite interest in the region. There are a few cases of land grabbing, but nothing like the marked accumulation that has occurred elsewhere. This is a puzzle difficult to solve, because the most obvious potential explanatory factors – soils not favourable for industrial production, deficient infrastructure, a long and strong history of FARC-EP presence – have not prevented such processes from occurring recently in nearby Caquetá and Guaviare (see [Ciro 2018](#); [Arenas 2018](#); [Olaya 2019](#); [Volkhausen 2019](#)). It is entirely possible an elite-led land rush in lower Putumayo is looming, which would evidently put a swift end to the Putumayan Dream.

Notwithstanding the ease of access just outlined, there are landless people in Puerto Asís.¹² Antonio, for example, grows organic sugarcane in a rented field. Land is expensive in the hamlet; its near town, just off one of the few paved roads in the municipality. Land was cheaper where he used to live, but his sugarcane venture didn't work there, as it was too remote. Those farmers we spoke to who had been in Putumayo a long time but didn't have their own land were generally people who exited the coca economy, or never participated in it, for one reason or another. In many cases, they had land but sold it to start a new venture or lost it due to bankruptcy (see section 5).

There are, of course, also many landless coca-pickers. Often, they are working towards buying their own land. But not all pickers pick because they are landless. And not all aspire to be growers. We asked a small group why they worked as pickers rather than growers. One woman answered: 'As a grower, you must find a cook, gasoline, a chemist, harvesters.

¹²An official estimate showed that in 1983 only 4% of the municipality's farmers were landless. I thank Camilo Acero for this information. Unfortunately, recent indicative data is not available.

But if you pick, you get your \$50,000 and that's it. A grower gets more, but its more work'. Another said she's good at picking, so she stuck to it, noting that she used to have her own crop but that it was fumigated. Later she divulged that if the situation didn't improve (picking work had dried up because of the substitution programme), she would plant her own crop again, on her family's farm. Finally, the young man in the group said he had been attached to picking work but recently established a shared crop with an uncle. For these three, *la raspa* was a choice; they were not obligated to pick because they lacked access to land.

In conclusion, the coca economy in Puerto Asís thrived in a context of *relatively* egalitarian land access and has contributed in important ways to maintaining this access. This, in turn, has dampened the pressures of market dependence and limited processes of social differentiation. Those who lose everything may start again. And they often do. Countless farmers whose livelihoods were destroyed, not by competition, but by counter-narcotics policies, simply returned to wage work until they have saved enough to buy and/or plant a new plot. Unfortunately, if land prices continue to rise relative to real wages, the coca economy may be re-organised around a stable population of landless workers and, thus, lose the unusual – if imperfect – democratic traits it has had until now.

In this section I have addressed access to land for those who do not have it or who have lost it; another question is whether smallholders are able to retain their farms. The role of coca in this regard is even more remarkable because it is so widespread (beyond Puerto Asís). Historically, Colombia's *colonos* have been dispossessed of the lands they settled through force and fraud but also due to their inability to service debts with intermediaries and merchants. The result has been a devastating cycle of land clearance – dispossession/displacement –renewed land clearance (Molano Bravo 1987, 45–46; LeGrand 1986). As explained by Molano Bravo (2017), 'coca arrested this cycle' by 'freeing' *colonos* from debt traps and, thus, from 'the forced sale of their plots'. It is to debt relations I turn next.

Access to investment capital and debt relations in the local coca economy

As noted in section 1, debt relations are often central to the imposition and intensification of market imperatives. Is debt having such effects in the coca economy of Puerto Asís? In this section I argue it is not, for several reasons.

Overall use of credit is quite low. In 2010, just 10% percent of surveyed coca-growers in Putumayo-Caquetá reported taking out loans, with an official bank (est. 65%) or informal lenders (est. 35%) (UNDOC & Acción Social 2011, 56). The 2019 PNIS survey suggests use of credit is now higher, but still not the rule, in Puerto Asís: 31.4% (38 of 121) of farmers reported active borrowing, from the Agrarian Bank (26 of 38), private banks (8 of 38) and cooperatives (4 of 38).¹³ The survey data does not disaggregate between loans used for coca production and loans used for other purposes, which means that actual coca-related borrowing may be even less.

Another factor to consider is that small producers do not necessarily have to offer a land title as collateral for loans. Even those that have formal titles (around 40%, see [appendix 2](#)) often prefer not to use them in their loan applications precisely to avoid land loss

¹³Interestingly, none reported borrowing from money lenders, agri-supply shops or other commercial establishments, though all three types of lenders were explicitly listed in the questionnaire (Observatorio, 2019).

(Thomson, Parada-Hernández, and Acero 2022, 10). This clearly weakens the disciplining power of debt.

In addition, many rural areas in Puerto Asís have no access roads, addresses or internet, making it difficult for banks to chase their debtors. Aldemar and Rosa, an elderly couple, borrowed \$4,300,000 in the mid-2000s, which they invested in cattle and coca. They lost both due to fumigations and thus were unable to pay ‘a single peso’. They said the bank has never bothered them about this debt.

This is not to say that farmers do not feel anxious about unpaid loans. Still, the compulsion to increase production and productivity to service a loan is clearly weakened when the threat of land loss is not present and when a bank cannot easily hound the borrower. Informal money lenders may find it easier to collect debts than banks. Nevertheless, as highlighted above, the data suggests most growers do not rely on such loans.

So how do *cocaleros* cover their initial outlays and operating costs? Carlos told us that he never borrowed money for coca production, that he preferred to cover his costs with waged work. María, like many others, said she and her partner simply used the earnings from one harvest to pay for operating expenses until the next. César, likewise, explained that he doesn’t borrow to produce. When he established his crops, in the late 1980s, he paid for the land clearance and planting with money he made cooking on a large coca farm. There are many stories like these. Hasan said he and his wife funded their initial investments ‘*jornaleando*’ and with earnings from a rented crop. Like others, he emphasised eschewing nights out in town, echoing the widely held view that many have not done so well because they squandered their earnings. In short, in good times the coca economy has offered decent incomes, allowing labourers, renters, sharecroppers, and especially owner-farmers, to cover their expenses and save/invest, albeit in small amounts (also Gutiérrez-Sanín 2019; Thomson, Parada-Hernández, and Acero 2022).

Notwithstanding the above, most coca farmers face financial problems from time to time. A small number of *cocaleros* reported turning to their buyers in such situations. They did not complain about being forced to sell at below market prices due to these debts, nor about extortionate interest rates. Hence, it seems that lending by buyers and ‘interlocking contracts’ are not a systematic form of exploitation in the Puerto Asís coca economy, the way they are in the opium poppy and other crop economies of Myanmar and Afghanistan (see Goodhand 2005; Pain et al. 2022; Meehan 2022).

The most prominent form of borrowing in the coca economy – often overlooked, as farmers put this practice in a different category to loans – is probably shop credit. The farm supplies shops, known as *veterinarias*, allow known coca producers to pay for their inputs belatedly and/or in instalments. A few growers reported being charged \$1,000-\$2,000 (about €0.25-0.50 in 2020) extra for the products they bought on credit. But others said they were not charged any form of interest. And those who were said that motivated them to change suppliers. One shop-owner commented that they face constraints when trying to charge extra and that, to maintain loyal customers, they must also do things like give away tools as gifts or host parties.¹⁴

In general, liquidity problems in Puerto Asís are often avoided through non-interest-bearing debts, meaning they are not a significant source of pressure to produce more or more efficiently. As noted earlier, people may accept payments for land in instalments,

¹⁴I thank Camilo Acero for these insights on the *veterinarias* and for sharing relevant interview fragments.

at no extra cost, so long as the buyer is trusted. Some will also accept deferred payments for seeds. Importantly, this also applies to wages (workers are often willing to wait for their pay until after that harvest's produce has been sold), which account for most of growers' production costs. These types of relations, which are an alternative to borrowing from banks or money lenders, also weaken the 'disciplining effects' of debt.

Again, I do not wish to imply that debt is unimportant in the coca world. But *cocaleros* present the relationship between debt and coca in a positive light. Some say the advantage of coca over other crops is precisely that it facilitates access to informal credit. Many more stress that coca is the only crop with returns high enough to pay-off (formal and informal) debts. Ironically, people often rely on coca incomes to service loans for licit ventures that failed (also Thomson, Parada-Hernández, and Acero 2022). Darío proudly reported that he knew better than to invest the whole loan he was given for cacao production in cacao, investing in coca too; his neighbours, on the other hand, invested it all in cacao and went bankrupt. He told us: 'With the [coca] plants, thanks to God, I didn't even feel it [the loan pressure]'. We did not hear a single story of someone losing their land due to coca-related debt. Of course, this doesn't mean such stories don't exist. But it is indicative that quite a few people spoke of debt-induced dispossession linked to *licit* agricultural enterprises. They were farmers who did not have coca crops to fall back on, as explained by Darío and Carlos. For these and all the reasons laid out above, I conclude that debt is not bringing market imperatives to life within the Puerto Asís coca economy.

The organisation of local coca markets and exchange relations

Market compulsions are often channelled through price competition and buyer demands. But both these mechanisms are weak in the Puerto Asís coca economy. Buyers demand a minimum quality but otherwise take a 'hands-off' approach. And price competition (when and where it exists) is restricted to trading.

Ultimately, it is the armed groups and drug trafficking organisations, and the relationship between them, that decide the payment farmers receive for their coca leaves and paste. For example, in lower Putumayo, there were times when the FARC-EP dictated what traders had to pay producers and – to make these fixed prices viable – put pressure on the narcotraffickers who purchased from the local traders to also pay more (Gutiérrez Danton and Thomson 2020, 14–15; Jansson 2006). In other regions, too, the rebels regulated leaf and paste prices, trying to ensure they didn't fall too low (Espinosa 2004, 143; Ferro Medina 2002). That said, how much farmers received for their 'merchandise' also depended on the taxes they imposed, and some report that prices rose when the FARC-EP stopped controlling them and when the paramilitaries and allied buyers entered the area (fieldwork interviews).

It's impossible to generalise across space and time. In some contexts, the FARC-EP themselves acted as intermediaries and obligated farmers to sell to them; in others, they let commission agents do the buying but forced them to pay a certain price; and in others, still, they left prices alone and simply taxed the buyers. Local/regional drug trafficking organisations, the ELN rebels, anti-subversive paramilitaries, neo-paramilitaries, and those groups formed after the FARC-EP disarmament in 2017 all had/have their own methods for organising coca markets. The interactions between these groups also had/have an impact. Note, for example, that the FARC-EP had to put pressure on narcotraffickers

to make their price floors work. Any attempt to describe Colombia's coca leaf and paste markets is encumbered by the fact they are highly location-specific, even within a municipality, and constantly changing (fieldwork interviews; Jansson 2006; Gutiérrez Danton and Thomson 2020).

A gram of paste can cost double from one region to the next (UNODC/GOC reports). Even within Puerto Asís, one interviewee explained, you might get \$1,700 for a gram in one place and \$2,600 for the same gram in another. Such fragmentation is sometimes considered an indication of uncompetitive market structures. It is a system that favours profit through arbitrage rather than competitive production (see Wood 2002, 2009; cf. Jan and Harriss-White 2012). In some ways, this serves coca producers. They are not forced to compete amongst themselves, as prices are not driven by changing productivity averages. And though intermediaries may try to take a larger cut by paying producers less, this was/is often prevented by competition between them (the buyers) or, at times, by price floors imposed by rebels. Furthermore, producers may travel in search of a better deal (though this is risky, especially if an armed group has forbidden it, but also due to law enforcement) or, when they can afford to wait, store their paste until prices in their area rise again (UNODC/GOC reports; fieldwork interviews).

Overall, prices tend to a level that permits most producers to get by and some to thrive. This means a grower can gain from reducing costs and boosting yields but won't go bankrupt if she or he fails to do so. There is a limit to this: a certain level of productivity is required to earn a living from coca and there have been times when prices were so low even the more innovative households suffered. Some even exited coca production altogether (Molano Bravo 1987; Espinosa 2004; Ramírez 2011; Gutiérrez Danton 2019; fieldwork interviews). Still, in 2019-2020, price levels provided some slack and, according to growers, circumstances then were more difficult than in the past because costs had been rising.

Of course, this is not 'fair trade', nor a deal struck between equals. Coca farmers are price takers – at least, in Puerto Asís (on collective price bargaining in Argelia, see Gutiérrez Danton 2019; 2021). They are the weakest link in the chain, and, as noted earlier, receive just 1-2% of what consumers pay. In this sense, exchange relations in the global cocaine economy are clearly exploitative. It's just that because of the prohibition premium, even less endowed producers can survive, despite extreme inequality.

So, price competition is not driving improvements in productivity but, up to a point, buyers *have* imposed changes by demanding improvements in quality (purity) and by paying extra for produce above the minimum. It is also plausible that narcotraffickers encourage and fund the development of new coca varieties, which appear periodically. One grower said he prioritises varieties with higher alkaloid content because 'the mafia' demand it. Another said the variety doesn't matter so long as you produce quality merchandise. The point is growers do respond in small measure to imperatives. And yet, compared to other global agricultural supply chains in which farmers' production practices are dictated by the requirements of processors, retailers or traders (Selwyn 2007; Julia and White 2012; Thiers 2019; Amanor 2012), control of coca production by actors upstream and downstream is minimal. So far, coca growers in Puerto Asís have retained significant autonomy as regards to their production decisions.

Productivity and proceeds

Coca growers are frequently adapting their production practices. They have (re-)planted their plots with new varieties that offer higher yields, higher cocaine alkaloid content, and/or resistance to pests and aerial fumigations. They often try new agrochemicals, with different application methods. And many have their own tricks and techniques. Some even take out loans to invest in enhancing productivity. For example, one couple borrowed \$1.3 million to buy a stationary spraying machine, which makes fumigation easier and saves on chemicals. In short, coca producers are innovative and flexible. Nevertheless, they mostly respond to opportunities rather than compulsions.

One indication that changes are mostly driven by opportunities rather than imperatives is the variation in yields between households. Amalia and Santiago are what might be called reluctant *cocaleros*. They started growing coca in the late 1990s, stopped for 8 years and returned to it in 2016 after one of their sons was hospitalised. At the time we interviewed them, they had 1 ha and were producing around 100 *arrobas* at each harvest. César, in contrast, has been cultivating coca non-stop since the late 1980s. He is notably proud of his prowess as a *cocalero* and claimed to get up to 450 *arrobas* per hectare. Even considering that Amalia and Santiago reported getting more grams of paste per *arroba* of leaves than others, César's overall yields are more than double theirs; he produces about 8 kilos of paste per hectare at each harvest, while they produce around 3. In a more competitive economy, Amalia and Santiago would probably have to adapt their practices or exit production. But the prohibition premium allows them to survive and even to secure decent returns on investments of household assets and labour. (Note: many we spoke to reported much higher yields than the national averages listed in the UNODC/GOC reports – see [appendix 3](#)). To reiterate: the fact some can get by producing 6 tonnes (of leaves per ha per year) suggests that those who produce 12 or even 30 have improved yields in response to opportunities, rather than imperatives.

In addition to significant variation between households (and regions – see UNODC/GOC reports), fluctuations in yields over time could also be a clue that *cocaleros* are not compelled to produce competitively. The UNODC/GOC's longitudinal productivity study shows that national average yields (for both kilos of leaves and cocaine per hectare) fell between 2005 and 2015. And though they started to rise again from 2015/2016 onwards, as of 2020, they had still not surpassed those reported in 2005 (2019, 51; 2021, 11). The most likely explanation for the period of decline is reduced crop maintenance and use of agrochemicals, meaning *cocaleros* responded to a price squeeze (due to rising costs) and increased investment risk (due to law enforcement activities) by sacrificing yields.

While producers can be in no doubt about their yields, their accounts of costs and thus net earnings are vague. When we asked how much they invested in establishing their crop and how much they spent between and at each harvest, most interviewees began listing off different expenses, trying to calculate a total on the spot. There is a striking contrast here to the indebted cacao farmers, described by Arango Vásquez (2020), who counted every penny. *Cocaleros* certainly cut costs, especially when input prices rise. But their approaches to cost-cutting are typically haphazard, as shown by the fact many do not know their operating expenses. Arguably, this is yet

another suggestion that the prohibition premium weakens the disciplining effects of markets.

Andrés was one of few who offered up information with confidence: if well planted, a hectare will give 200 *arrobas* at each harvest, equating to circa \$12 million in revenues and, if one is careful with spending, about \$8 million in net earnings. María gave quite different numbers, but she too had evidently done the maths before: one hectare, if cared for properly, can generate 300 *arrobas*, which converted into paste is worth about \$16 million, but one actually ends up with about \$6.5 million after each harvest, because some \$9.5 million go on expenses. María's costs are higher than her counterparts, causing her to have lower returns even than Amalia and Santiago, despite higher yields. Interestingly, María reflected that not everyone analyses their finances (especially production costs) carefully:

for that reason, sometimes people are momentarily blinded by coca, we think that it gives good money, but if we analyse properly, it doesn't. [...] the only favourable thing is that it guarantees you will have enough to purchase the basics [*la remesa* ...] the work you put in, the time you have dedicated [to the crop] is what you get out of coca production, but if one had to pay for that [your own labour time], I don't think there would be anything left.

So, how can and do *cocaleros* cut costs to boost earnings beyond the minimum described by María? In 2010 hired labour represented 77% of production costs in Putumayo-Caquetá (UNDOC & Acción Social 2011, 75). Day labourers and especially harvesters rarely accept below the going rate. Even if growers had the power to push labour costs down, it is not typically in their interest to do so because so many of them work as *jornaleros* and *raspachines* themselves. Furthermore, *raspachines* are already paid piece rate, so there is no room for cutting costs by increasing productivity at harvest, when the largest amount of hired labour is used. Ultimately, the easiest way growers reduce costs is by increasing their own labour time to reduce the amount of hired hands required.

A significant component of labour costs in the coca economy is food, as crop owners are expected to provide meals for workers. Growers can try to save on this, but do so at their own peril since, according to our informants, the most common source of conflict between crop-owners and workers is insufficient or poor-quality food. Those who skimp on meals may find it difficult later to recruit pickers.

After labour, the next largest expense is agrochemicals. The same study reports inputs as 21% of production costs pre-processing (UNDOC & Acción Social 2011, 75). This may have increased since; coca-growers frequently comment on the rising costs of inputs. Sometimes, the response is to use less. According to UNODC/GOC data, pesticide and fertiliser usage in coca crops fell by 50-60% across Colombia in the 2000s, at least partly for this reason. The fall in usage may also reflect reduced maintenance activities more generally as farmers relocated their coca to lands further away from their homes to evade law enforcement (*ibid*, 7, 71, 76; UNODC & Minjusticia 2011, 86-87).

Processing inputs are even more costly than those used for cultivation, so when their prices rise, some growers simply abandon their laboratories and sell their leaves unprocessed. This is one of the main reasons the number of *cocaleros* who produce their own paste fluctuates so significantly over time (see footnote 5). Again, it seems that changes in production practices are more about managing risks (financial and legal) and securing the household income than maximising returns.

In the 2019 Observatorio PNIS survey, 106 (former) growers reported getting 50% or more of their earnings from the sale of leaves or paste; within this group, estimated monthly incomes varied wildly from \$200,000 to \$7,000,000, with a group average of \$1,180,000. The variation can be accounted for by whether or not they process their own leaves, the size or number of coca plots owned, even growers' own calculation errors, but in large part it is due to differences in production practices, especially those with implications for costs and yields or *'el rinde'*, as *cocaleros* say. For César, it's all 'according to the love one has for the plant. If you say 'I want my plants to be good and so I am going to invest' [...] then you will make a profit. [...] If you planted and just fertilised once [...] well no'.

So how do those who earn above household subsistence costs spend their proceeds? Investment in their children's education is the priority; 76 of 107 of the PNIS survey respondents reported spending their coca earnings on this (Gutiérrez-Sanín 2019, 2021; Observatorio 2019). Many also purchase household appliances and vehicles. A smaller number (38 of 107) reported investing their coca earnings in licit agricultural ventures or land acquisitions. Unfortunately, we do not have data about how many reinvest(ed) in coca production, but it's reasonable to assume the numbers would be at least on par. The point, argued above, is that they are not compelled to do so. They are not obliged to reinvest their proceeds to 'stay in the game', but those who choose to may earn more than their counterparts.

Conclusion

Campesinos in Colombia struggle to make ends meet in licit agricultural economies. Despite increasing productivity, Colombian coffee producers can't keep up with competition from Brazil and Vietnam. Many have been forced to give up and sell their land (Hough 2010; Acosta 2019; Bonilla 2019; Teixeira, Nguyen, and Symmes Cobb 2019). Some 15,000 potato producers, unable to shoulder rising agrochemical costs and the huge cuts taken by intermediaries, are expected to exit the subsector in 2022 alone (Quinchía 2022). Dairy farmers have been in and out of crisis since a handful of trade agreements came into force that reduced import tariffs (El Nuevo Día 2022; Name 2021). *Panela* sugar cane, maize, cacao and rice producers face similar misfortune (Nagles 2021; El Tiempo 2012, 2020; La 2017; Nieves 2019; Portafolio 2014).

In comparison, the coca economy is relatively forgiving. *Cocaleros* in Puerto Asís certainly endure problems such as rising input expenses. But they are not forced to recurrently cut costs in the same way. They are not obliged to continually (re-)invest in transforming production to remain competitive. They do not live under the constant threat of becoming landless labourers or having to migrate to the city in search of work. And they haven't completely lost control over the farming process and their own time. The coca economy provides some slack, but coca-growers are by no means rich. Only some can accumulate capital and never in large amounts. And though comparatively less burdened by the market imperatives, *cocaleros* live with other anxieties, including the threat of forced eradication and violence. And yet tens of thousands of households have turned to this illicit economy, to subsist, to keep farming the land or, at the very least, to help their children exit agriculture on better terms.

Is it possible to build agrarian alternatives with the unique boons of the coca economy but without all its destruction? Of course, the prohibition premium is not only difficult to replicate, but also undesirable for other reasons. But there are other ways of securing relatively stable and decent farm-gate prices and that don't affect the poorest consumers, like reversing increasing inequality within value chains. And illegality alone does not account for the remarkable traits of the coca economy in Puerto Asís. As explained above, relative freedom from the market imperatives also arises from fluid access to land and non-interest-bearing credit, among other factors. Global and domestic power relations, however, tend to block fundamental and innovative interventions. The recent election of Gustavo Petro and Francia Márquez (her victory as vice-president is just as significant) rises hopes for transformative agrarian reform. A true transformation of the agrarian political economy in Colombia would mean the coca economy no longer has to serve as the bulwark of smallholder farming.

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Ethics statement

All interviewees gave full consent, including permission for anonymised interview data to be used for non-commercial purposes. For 2018–2020 fieldwork and interviews, ethical approval was obtained under the Drugs & (dis)order project, subject to SOAS University of London oversight and procedures. The 2015 fieldwork and interviews were subject to a prior ethical review process and approval by the Social Sciences and Arts Cross-School Research Ethics Committee (SS-ARTS C-REC) at the University of Sussex.

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Appendix 1 – Interview Metadata

Interviews from 2018-2021 form part of a larger dataset, created by the Universidad Nacional de Colombia under the leadership of Professor Francisco Gutiérrez, for the Drugs & (Dis)order project (<https://drugs-and-disorder.org>), funded by the U.K. Global Challenges Research Fund. In Putumayo, interviews were conducted by Camilo Acero, Mónica Parada, Frances Thomson, Diana Machuca, Howard Rojas, Gustavo Posso and Linda Ordoñez.

I, the author (Frances Thomson), participated in most of the interviews analysed for this article. However, my analysis also draws on several interviews at which I was not present. Camilo Acero kindly granted me access to some coding documents containing fragments from these interviews. I have not read the full transcripts. These interviews are listed at the end of the second meta-data table.

All interviews from 2015 were conducted by me (Frances Thomson), the author, as part of my doctoral research project “The political economy of land and dispossession in Colombia”, funded by the UK Economic and Social Research Council (ESRC) and the University of Sussex.

2015 Interviews

Interview Code	Interview Date	Location of Interview (Municipality)	Number of Interviewees	Gender of Interviewee(s)	Profile of Interviewee(s)	Interviewee's home municipality	Interviewee's home sub-district (code)	Pseudonym(s) used in article
PUT-PA-2015-06-13-a	June 13 2015	Puerto Asís	2	M/F	Both are community leaders	Puerto Asís	16	
PUT-PA-2015-06-13-b	June 13 2015	Puerto Asís	1	F	Community and regional social leader	Puerto Asís	16	
PUT-PA-2015-06-14-a	June 14 2015	Puerto Asís	1	M	Young community leader	Puerto Asís	20	
PUT-PA-2015-06-16-a	June 16 2015	Puerto Asís	10+	Mixed	Residents of two different rural subdistricts within the Amazon Pearl	Puerto Asís	18; 19	
PUT-PA-2015-06-17-a	June 17 2015	Puerto Asís	1	M	Campesino, community leader	Puerto Asís	21	
PUT-ND-2015-06-18-a	June 18 2015	Puerto Asís	1	F	Regional indigenous leader	ND	ND	
PUT-VG-2015-06-20-a	June 20 2015	Orito	3	M/M/M	Three indigenous leaders from different cabildos but of the same resguardo.	Villagarzón	NA	
PUT-PA-2015-06-20-a	June 20 2015	Orito	3	F/M/M	Three indigenous leaders from various cabildos in the same area.	Puerto Asís	22; 23	
NAR-IP-2015-06-20-a	June 20 2015	Orito	2	F/M	Two indigenous leaders from the same area.	Ipiales	NA	
PUT-VG-2015-06-20-b	June 20 2015	Orito	1	M	Campesino, environmental activist, leader of an environmental association.	Villagarzón	NA	
PUT-OR-2015-06-20-a	June 20 2015	Orito	4	M/M/M/M	All are residents of the same indigenous cabildo, two are teachers.	Orito	NA	
PUT-PC-2015-06-20-a	June 20 2015	Orito	1	M	An indigenous leader from Puerto Caicedo.	Puerto Caicedo	NA	
PUT-PC-2015-06-20-b	June 20 2015	Orito	3	M/M/M	All indigenous leaders from three different cabildos within the same area.	Puerto Caicedo	NA	



2018-2021 Interviews

Nacional Interview Number (represented as "E" then number)	Other Interview Code	Interviewers present (Initials)	Interview Date	Location of Interview (Municipality)	Number of Interviewees	Gender of Interviewee(s)	Profile of Interviewee(s)	Interviewee's municipality of residence	Interviewee's sub-district (code) of residence	Pseudonym(s) used in article
102	Same person as 16	CA; MP; FT	March 30 2019	Puerto Asís	1	F	Farmer, regional social leader, ex-coca producer	Puerto Asís	16	
103		C7A; MP; FT	March 31 2019	Puerto Asís	4	M/M/M/F	3 JAC presidents and ex-coca producers and 1 urban social leader and teacher in many sub-districts	Puerto Asís	2; 3; 6	
152		FT; MP; HR	June 29 2019	Puerto Asís	1	M	Farmer, Ex-coca producer	Puerto Asís	24	
153		FT; HR; GP	July 1 2019	Puerto Asís	1	F	JAC president, community leader	Puerto Asís	9	
195		CA; FT	September 27 2019	Puerto Asís	-	-	Notes from a meeting of peasant leaders from different municipalities discussing the problems of the substitution program	NA	NA	
196	I1 (same person as LQ2 or 252)	FT; CA	September 26 2019	Puerto Asís	1	M	Farmer, JAC vice-president, coca producer	Puerto Asís	2	Carlos
251	LQ3	FT; CA	February 8 2020	Puerto Asís	2	F/M	Farmers (couple), ex-coca producers	Puerto Asís	2	Amalia and Santiago
252	LQ2 (same person as I1 or 196)	FT; CA	February 7 2020	Puerto Asís	1	M	Farmer, JAC vice-president, coca producer	Puerto Asís	2	Carlos
253		FT; CA	February 6 2020	Puerto Asís	1	F	Farmer, social org leader, JAC	Puerto Asís	1	Maria

(Continued)

Continued.

National Interview Number (represented as "E" then number)	Other Interview Code	Interviewers present (Initials)	Interview Date	Location of Interview (Municipality)	Number of Interviewees	Gender of Interviewee(s)	Profile of Interviewee(s)	Interviewee's municipality of residence	Interviewee's sub-district (code) of residence	Pseudonym(s) used in article
	LQ1 (same person as I20)						president, ex-coca producer			
255	LQ4	CA; FT; GP	February 8 2020	Puerto Asís	1	M	Farmer, ex-coca producer	Puerto Asís	3	Don Pablo
258	LQ6	CA; FT; HR	March 7 2020	Puerto Asís	1	M	Farmer, Afro community leader, ex-coca producer	Puerto Asís	5	Fermin
259	LQ5	CA; FT; HR	March 5 2020	Puerto Asís	1	M	Farmer, coca producer	Puerto Asís	4	César
260	LQ7	FT; CA	March 8 2020	Puerto Asís	1	F	JAC president, ex-coca producer	Puerto Asís	6	
265	LQ10	CA; FT; HR	March 10 2020	Puerto Asís	1	M	Farm administrator, ex-coca picker	Puerto Asís	1	
266	LQ13	CA; FT	March 12 2020	Puerto Asís	1	M	Elderly farmer, ex-coca producer	Puerto Asís	2	Edgar
267	LQ12	CA; FT; HR	March 12 2020	Puerto Asís	2	F/M	Elderly farmers (couple), ex-coca producers	Puerto Asís	2	Aldemar and Rosa
268	LQ14	CA; FT; HR	March 12 2020	Puerto Asís	1	M	Farmer, coca producer	Puerto Asís	2	Darío
269	LQ15	CA; FT	March 13 2020	Puerto Asís	1	M	Farmer, coca producer	Puerto Asís	2	Andrés
274	I12	FT	September 24 2019	Puerto Asís	1	M	Farmer, ex-coca producer, ex-coca leaf trader, social leader	Puerto Asís	17	Hasan
276	I10	FT	June 28 2019	Puerto Asís	1	F	Farmer, JAC president, ex-coca producer	Puerto Asís	8	Doña Emma
277	I16	FT; JAG	September 15 2019	Valle del Guamuez	4	F/M/M/M	Farmers, inhabitants of the same rural district, all involved	Valle del Guamuez	ND	Fernando

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Nacional Interview Number (represented as "E," then number)	Other Interview Code	Interviewers present (Initials)	Interview Date	Location of Interview (Municipality)	Number of Interviewees	Gender of Interviewee(s)	Profile of Interviewee(s)	Interviewee's municipality of residence	Interviewee's sub-district (code) of residence	Pseudonym(s) used in article
I20 (same person as LQ1 or 253)	CA; FT		February 6 2020; March 10 2020	Puerto Asís	1	F	in social orgs, one is a regional leader, ex-coca producers	Puerto Asís	1	Maria
I3	FT; GP		July 1 2019	Puerto Asís	1	M	Farmer, social org leader, JAC producer	Puerto Asís	9	
I4	FT; HR; GP		July 1 2019	Puerto Asís	1	M	Retired farmer	Puerto Asís	13	
I5	FT; JAG		September 11 2019	Puerto Asís	1	M	Farmer, JAC vice-president, ex-coca producer	Puerto Asís	7	
I6	FT; JAG		September 11 2019	Puerto Asís	1	M	Carpenter, coca picker, ex-coca producer	Puerto Asís	7	
I7	FT; JAG		September 11 2019	Puerto Asís	1	M	Farmer, ex-coca producer	Puerto Asís	7	
I8	FT; JAG		September 12 2019	Puerto Asís	3	F/F/M	Farmer, JAC secretary, coca producer	Puerto Asís	7	Ramiro
I9	FT; JAG		September 12 2019	Puerto Asís	2	M/M	All coca-pickers and inhabitants of the same rural subdistrict	Puerto Asís	10	
I11	FT; HR; GP		July 2 2019	Puerto Asís	2	F/M	Both farmers, JAC members and ex-coca producers – inhabitants of the same rural subdistrict	Puerto Asís	11	
209	HR		September 2019	Puerto Asís	1	M	Farmers (neighbours), one is a long-time social org leader, the other an ex-coca producer	Puerto Asís	12	Ángela and Antonio
				Puerto Asís			Farmer	Puerto Asís	ND	

(Continued)

Continued.

Nacional Interview Number (represented as "E" then number)	Other Interview Code	Interviewers present (Initials)	Interview Date	Location of Interview (Municipality)	Number of Interviewees	Gender of Interviewee(s)	Profile of Interviewee(s)	Interviewee's municipality of residence	Interviewee's sub-district (code) of residence	Pseudonym(s) used in article
214		HR	March 3 2020	Puerto Asís	1	M	Farmer, ex-coca producer;	Puerto Asís	ND	
21		CA	August 5 2018	Puerto Asís	2	M; F	Both farmers, JAC members and ex-coca producers	Puerto Asís	27	
FQ-EF-CUL 1		CA; LO	June 2021	Puerto Asís	1	M	Farmer, JAC member; coca producer	Puerto Asís	2	
FQ-EF-CUL2		CA; LO	June 2021	Puerto Asís	1	M	Farmer, coca producer	Puerto Asís	2	
FQ-EF-CUL3.2		CA; LO	June 2021	Puerto Asís	1	M	Farmer, JAC member; coca producer	Puerto Asís	2	
FQ-EF-CUL4		CA; LO	June 2021	Puerto Asís	1	M	Farmer, JAC member; coca producer	Puerto Asís	2	
FQ-EF-Pro-1	Same person as FQ-EF-CUL 1	CA; LO	August 2021	Puerto Asís	1	M	Farmer, JAC member; coca producer	Puerto Asís	2	
FQ-EF-Pro-2	Same person as FQ-EF-CUL 2	CA; LO	August 2021	Puerto Asís	1	M	Farmer, coca producer	Puerto Asís	2	
FQ-EF-Pro-3	Same person as FQ-EF-CUL 3.2	CA; LO	August 2021	Puerto Asís	1	M	Farmer, JAC member; coca producer	Puerto Asís	2	
FQ-EF-Pro-4	Same person as FQ-EF-CUL 4	CA; LO	August 2021	Puerto Asís	1	M	Farmer, JAC member; coca producer	Puerto Asís	2	

FT - Frances Thomson; CA- Camilo Acero; JAG - José Antonio Gutiérrez; LO - Linda Ordoñez
 MP - Mónica Parada; DM- Diana Machuca; HR- Howard Rojas; GP- Gustavo Posso



Appendix 2 – Table with land data

Coca plot sizes, coca farm sizes and cocalero's relationship to the land they farm

	Colombia - national averages over time	Regional averages over time –Putumayo & Caquetá (UNODC reports typically mix data for these two departments)	Puerto Asís, Putumayo (Data from the 2019 Observatorio PNIS Survey)
Coca plot size data	2.04 ha in 2000 1.1 ha in 2005 0.58 ha in 2010 0.96 ha in 2017 (UNODC & Acción Social, 2011, 19; UNODC & Minjusticia, 2011, 41; UNODC & GOC, 2018, 23)	2.59 ha in 2000 0.57 ha in 2005 0.36 ha in 2010 0.85 ha in 2017 (UNODC & Acción Social, 2011, 19; UNODC & GOC, 2020, 96) ALTERNATIVE DATA: 0.7 ha in 2005 0.8 in 2012 1.3 in 2017 (UNODC & GOC, 2018, 74)	Average: 1.14 ha Median: 1 ha Min: 0-0.2 ha Max: 10 ha (Question 116) Less than 1 ha: 45 1 to 3 ha: 57 3 to 5 ha: 3 5 to 10 ha: 2 Total: 107 respondents (Question 102)
Coca growers' farm sizes – per cent of farms within certain range, measured in hectares	1-3 ha: 22% 3-5 ha: 14% 5-10 ha: 32% 10-50 ha: 26% Above 50 ha: 6% - data from four regions (UNODC & Acción Social, 2011, 61)	1-5 ha: 16% 5-10 ha: 37% 10-50 ha: 36% Above 50 ha: 11% (UNODC & Acción Social, 2011, 61)	1 ha or less: 19 1.1-3 ha: 17 3.1-5 ha: 18 5.1-10 ha: 20 10.1-50 ha: 30 50.1-100 ha: 3 Above 100 ha: 0 Total: 107 respondents (Question 113) 1-5 ha: 50% 5-10 ha: 18% 10-50 ha: 28% Above 50 ha: 0.2% Note that 29 of 107 respondents said they have one additional plot of land and 1 said she/he had 3 further plots. (Question 108)
Coca growers' relationship to their land	"Occupied with title" - 40% "Occupied without title" - 51% "Collective property" - 7% "Rented" and "Other" - 2% - data from four regions, drawn from a graph (UNODC & Acción Social, 2011, 59)	NO DATA	"Poseedor" or possessor: 0 "Proprietario" or owner: 88 "Arrendatario" or renter: 9 "Terreno familiar" or family plot: 5 "Terreno prestado" or borrowed: 3 "Parecelero": 2

ALTERNATIVE DATA:

- "Owned with title" – 13%
 - "Occupied without title" - 66%
 - "Rented" – 17%
 - "Sharecropped" – 1%
 - "Other" – 3%
- (UNODC & Minjusticia, 2011, 13)

- Total: 107 respondents (Question 103)
- YES- Name appears on 'certificate of freedom and tradition', indication of legal title: 45
- NO- Name does not appear on 'certificate of freedom and tradition', indication of informal ownership: 43
- Not applicable (not landowner): 19
- Total: 107 respondents (Question 106)
- Owned with & without title- 82%
- Owned with title – 42%
- Owned without title – 40%
- Rented – 8%
- Family plot – 5%
- Borrowed plot – 3%
- Other – 2%

Information about sources:

- UNODC & Acción Social, 2011 – compares coca-producing and non-coca producing households in coca-growing areas. The report presents data from geospatial analysis, surveys and workshops conducted in 2010, as well as data from the government/UNODC's annual censuses conducted since the year 2000. The 2010 surveys covered four regions: the Pacific, Meta-Guaviare, Orinoquía, Putumayo-Caquetá. In the latter region, the survey included 324 "production units" with and without coca.
- Other UNODC/government data is taken from their annual census reports, which include information from their productivity study that began in 2005. As of 2021, four phases of this study had been completed. Varying numbers of surveys and 'harvest tests' were applied in each region, in each study phase, comprising a range of years. In the case of Putumayo-Caquetá, 240 surveys were conducted in 2005, 210 in 2008 (though these were limited), 240 in 2012 and 300 in 2017.
- UNODC & Minjusticia, 2011 – presents information from phases I (2005) and II (2006-2010) of the productivity study referred to above. The researchers used probability sampling; 1,389 coca producing "units" from across Colombia were covered in the first phase and 1,146 in the second (pp. 4-5).
- Data for Puerto Asís comes from a survey applied in 2019 by Metis on behalf of the National University of Colombia Drugs & (dis)order research team, under the direction of Professor Francisco Gutiérrez and with the input and support of the illicit crop growers' organisation COCCAM. The survey was applied to a sample of coca growers, pickers and a smaller number of non-coca growers (412 participants total) in Puerto Asís (n = 206) and Tumaco (n = 206) who signed up to the illicit crop substitution program – PNIS, which was born of the 2016 peace agreement. For more information see: Marín Jaramillo, M., Machuca Pérez, D. & Acero Vargas, C. (2020) "El PNIS en Terreno: Voces del Campesinado Cocalero". The questionnaire and full survey results (in Excel form) are available on the Land Observatory webpage (<https://www.observatoriodeterras.org/otros-documentos/>).



Appendix 3 – Table with production data

COSTS, YIELDS AND RETURNS TO HOUSEHOLD INVESTMENTS 2018-2020*

Sources	María	Carlos	Amalia & Santiago	César	Andrés	UNODC/GOC data ⁱ
<i>Initial Phase – first two years</i>						
Est. cost of planting 1 ha ⁱⁱ	\$3.2 million	\$3.5 - 5 million	\$4.5 million	\$2.4 million	ND (But it costs circa \$6 million to buy 1 ha of coca already established)	\$3.5 - 4 million *Data from 2011 publication
Time to first harvest ⁱⁱⁱ	12 months	14 months	8-9 months	8 months	ND	8-9 months *Data from 2011 publication
First harvest yields per ha	ND	50 arrobas	15 arrobas	70 arrobas	ND	30-40 arrobas *Data from 2011 publication
First harvest production of paste in kg/gm	ND	1 kilo	450 grams	1.25 kilos	ND	ND
Est. time to recover initial investment	3 harvests; 24 months	24 months	4-5 harvests	ND	ND	18-24 months *Data from 2011 publication
<i>Full production phase – after first 2 years</i>						
Time between each harvest	3 months	2.5-3 months	2 months	2 months	2 months	3 months ^{iv}
Yields per ha per harvest – arrobas (12.5 kilos) of leaves	300 arrobas	250-300 arrobas	100 arrobas	300-450 arrobas	200 arrobas	125 arrobas ^v
Number of arrobas for 1 kilo of paste	ND	25-40 ^{vi}	33.3 ^{vii}	25-56 ^{viii}	ND	37.4 ^{ix}
Kilos of paste per harvest	ND	6 - 7.5 kilos	3 kilos ^x	8 kilos ^{xi}	ND	3.3 kilos ^{xii}
Est. paste price per kilo	ND	\$2.5 million \$2.8 - 3 for 'oxidada'	ND	\$2.4 million \$3.3 for 'oxidada'	ND	\$1,660,000 ^{xiii}
Est. revenue before costs	\$16 million	\$23 million	\$7.2 million ^{xiv}	\$24,000,000	\$12,000,000	\$5,478,000 ^{xv}
Est. costs ^{xvi} (maintenance, harvest, processing)	\$9.5 million	\$9-10.5 million	\$3.3 million	\$8 million	\$4 million	\$4,120,380 ^{xvii}
Est. net income from 1 ha of coca	\$6.5 million every 3 months	\$10-12.5 million every 2.5 months	\$3.9 million every 2 months ^{xviii}	\$16 million every 2 months	\$8 million every two months	\$1,357,620 every 3 months ^{xix}
Return to household labour and assets ^{xx}	.40	0.54	0.54	0.66	0.66	0.247
Sources	LQ1	LQ2/I1	LQ3	LQ5	LQ15	UNODC/GOC

ⁱFor this UNODC column, I used the most up-to date data available (from 2018-2020) and national averages where possible. Information for the top four rows, on the initial phase, are from the 2011 UNODC & Acción Social study (p. 73) because I could not find more up-to date information for these cells.

ⁱCalculations vary significantly in part because people omitted certain costs. For example, the only calculation that includes the cost of land clearance (\$600,000 for 1 ha) is the one given by Carlos (at \$5 million per ha) in a first interview. Only Amalia mentioned the cost of feeding hired labour. And César did not include the cost of chemicals. Another source of divergence is the cost of hired labour for land preparation, planting, and initial fumigation/fertilization. Some, like Santiago and Amalia, simply told us the cost of the labour (\$2 million including food); others calculated the number of *jornales* needed – 12 (Carlos), 20 (César) or 30 (María) – and multiplied that by a day rate of between \$30,000 and \$40,000. The price of seeds people reported also varied significantly, between \$10,000 per *arropa* and \$40,000 per *arropa*, or between \$500,000 and \$1.6 million total. Most people said you need 50 *arrobos* of seeds per hectare, only César diverged from this, stating he used 40 *arrobos*.

ⁱⁱThis depends on the variety of coca, and soil quality and/or the amount of fertilizer used.

ⁱⁱⁱThe national average is 4 harvests per year (UNODC & GOC, 2021, 49).

^vI calculated this number using the national average of 6.4 tonnes of leaves per year per ha and 4.1 harvests annually (*ibid.*, 2021, 11, 49). Few reports offer disaggregated data, showing yields per ha per harvest, instead of per year. Data from the late 2000s shows a national average of 1,000 kilos per harvest (according to harvest tests) or 900 kilos per harvest (according to coca growers' own reporting), which works out at 80 and 72 *arrobos* per harvest per ha respectively. Figures for the Putumayo-Caquetá region are the same as the national average. Yields were lower in this period than they were in 2005 (UNODC & Minjusticia, 2011, 43).

^{vi}Carlos explained that with the Blanca Lisa variety one can get a kilo of base with between 25 and 30 *arrobos* of leaves, while with other varieties you need 35–40 *arrobos* for a kilo. Later he explained that 1 *arropa* gives you 25 grams.

^{vii}I calculated this number based on their report of extracting 450 grams from 15 *arrobos*.

^{viii}César says there is a variety they are calling 'Juana' or 'Sacapobres', which roughly translates as 'uplifts the poor', that gives 40 grams of oxidated merchandise per *arropa*, which works out at around 25 *arrobos* for 1 kilo. Nevertheless, at other moments he suggested getting 8 kilos from 400 *arrobos*, 6 kilos from 300 *arrobos*, and 1.25 kilos from 70 *arrobos*.

^{ix}I calculated this number using the national average of 2.14 kg of paste per metric tonne of leaves (UNODC & GOC, 2021, 52–54).

^xI calculated this number based on their reporting getting 100 *arrobos* at each harvest and 450 grams of paste from 15 *arrobos*.

^{xi}This is the number of kilos per harvest he himself reported, assuming he got 400 *arrobos*.

^{xii}Calculated by dividing 125 (*arrobos*) by 37.4 (number of *arrobos* required for a kilo of paste). Elsewhere, UNODC/GOC researchers estimate that 1 ha of coca will give 10.7 kilos of cocaine paste per year (2019, 81), which works out at just 2.65 kilos per harvest, assuming there are 4 per year.

^{xiii}\$1.66 million pesos per kilogram was the national average in 2018 (UNODC & GOC, 2019, 12). More recent UNODC censuses do not include national average nor Putumayo prices. It is worth noting that there is significant regional and temporal variation. For example, in the three years before the pandemic, prices in the South of Bolívar are said to have fluctuated between \$1.6–\$2.1 million per kilo, while prices in Catatumbo are said to have remained relatively stable at around \$2.4 million during this same period (UNODC & GOC, 2021, 16–17). In the Argella-El Tambo (Cauca) subregion, prices oscillated between \$3 and \$3.5 million per kilo in 2019, whereas in the rest of the Pacific region they ranged from \$2 to \$2.2 million per kilo that year (UNODC & GOC, 2020, 78).

^{xiv}I calculated this number, assuming they get 3 kilos at each harvest (as above) and are paid \$2.4 million per kilo – a lower price, as reported by our informants.

^{xv}Calculated by multiplying 3.3 (kilos per ha at each harvest) by \$1,660,000 (the average price per kilo).

^{xvi}A few interviewees disaggregated the costs. Amalia and Santiago estimated spending \$1 million between each harvest on chemical inputs, nothing on hired labour for maintenance (they do this work themselves), \$800,000 on harvest labour (100 *arrobos* at \$8,000 per *arropa*), \$400,000 on food for 4–5 raspachines over 2 days and \$1 million on gasoline for processing (they did not mention the cost of other processing chemicals). María mentioned that chemical inputs for crop maintenance could cost anywhere between \$1.5–2 million between each harvest. César spends around \$3.2 million for harvest labour costs alone (400 *arrobos* at \$8000 per *arropa*), excluding food expenses. He estimates spending another \$2.25 million just on gasoline for processing.

^{xvii}UNODC/GOC researchers estimate that it cost \$1,248,600 COP to produce 1 kg of paste in 2018, including chemical inputs, services and hired labour (2019, 81). Unfortunately, they do not provide an estimate of costs between and at each harvest. An imperfect solution was to multiply this figure by 3.3, which is the estimated number of kilos produced per harvest, as above.

^{xviii}I calculated this figure assuming they get \$7.2 million in revenue, as explained above.

^{xix}This works out at circa \$452,540 per month. I calculated this figure using the other UNODC data shown in the column. It is very similar to that provided by UNODC/GOC researchers directly:

they estimate that coca growers who processed their own leaves into paste earned, on average, \$399,300 per month in 2018.

^{xx}This is total revenue minus total costs (or net income) divided by total revenue. My calculations here do not include initial investment costs (which are recovered 18–24 months after planting),

nor have I subtracted the costs of 'unpaid labour' – that of the grower and, in some cases, that of her/his family.