

# Sustainable competitiveness of the cocoa sector in Ecuador: challenges of integrated socio-ecological governance

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## ABSTRACT

The macro-economic context of cocoa is characterised by a worldwide growth of chocolate consumption, a sectoral industrial concentration, and a renewal of socio-ecological challenges for the production development. To remain competitive, cocoa-producing countries must follow new environmental and social standards. These standards lead to a reduction of the ecological footprint of cocoa due to deforestation, to a reduction in the use of pesticides, and to higher compliance with international labour standards. They also lead, in the expansion of the International Sustainable Development Goals, to modifying the distribution of value in the sectors for farmers, or to protecting the territories of indigenous people. These norms structure the notion of “inclusive competitiveness” and its translation into public policies or action strategies for actors in the cocoa sector. This paper uses a methodological approach developed within the framework of the European Union (Avadí et al. 2021 - VCA4D) that analyses agricultural value chains by combining economic, environmental and social indicators. In Ecuador, this approach is documented by two surveys of 40 actors from the value chain (producers, cooperatives, exporters, industrialists), and 20 institutional actors (ministerial support services, donors, project and program managers, research, certification institutions, etc.). The interviews were carried out in two phases in 2020 and 2021, respectively. This approach also mobilises an in-depth analysis of international secondary databases on the functioning of markets (IICCO, FAO, COLEACP, IFOAM), and national databases on the Ecuadorian cocoa sector and production costs. The results explain why, with an unfavourable production cost differential, Ecuador has improved its competitiveness indicators since 1997. They reveal a break in the trajectory in 2015, which implies a renewed policy of qualitative differentiation of Ecuadorian cocoa to move away from a commodity specialisation. These results highlight the risks of sectoral integration governed by a globalised industry. Moreover, they show the potential for competitiveness that can be mobilised by small producer organisations. Finally, they reveal how the increase in social-ecological impacts are more related to public institutions of governance of socio-organisational norms than to product certification. These results converge to document a globalised governance of investment regulation in the cocoa sector of developing countries. They clarify and debate the conditions for the development of cocoa production in the service of local populations by reducing the extensive exploitation of ecological resources.

**Keywords:** Cocoa, Ecuador, Competitiveness, Socio-ecological, Innovation

## Introduction

The global cocoa market is characterised by a growth in chocolate consumption, a sectoral industrial concentration, and renewed socio-ecological challenges for the development of production. Cocoa-producing countries are thus inclined to follow new environmental and social standards in order to remain competitive. These standards, in a conventional manner, lead to a reduction in the ecological footprint of cocoa associated with deforestation, to a reduction in the use of pesticides, and to compliance with international labour standards. They also lead to the protection of the territories of indigenous peoples in the context of the international Sustainable Development Goals. These standards structure the notion of “inclusive competitiveness” (Temple et al. 2022) and its translation into public policies or action strategies for economic actors and stakeholders in the regulation of the cocoa sector.

This paper uses a methodological approach developed in part as part of a study for the European Union (Avadí et al. 2021 – VCA4D). It analyses agricultural value chains by combining economic, environmental and social indicators. Applied in Ecuador, this approach was documented by two

surveys of 40 stakeholders in the value chains (producers, cooperatives, exporters, industrialists) and 20 institutional stakeholders (ministerial support services, donors, project and programme managers, research, certification institutions), conducted in two phases in 2020 and 2021, respectively. Beyond surveys, the approach mobilised various international secondary databases on the functioning of markets (IICCO, FAO, COLEACP, IFOAM) and national databases on the Ecuadorian cocoa sector and production costs (ESPAC, banks, etc.). It was completed by a restitution of the results to the actors who participated in the surveys in March 2021 and to external academic actors in June 2022. These two phases were structured around a certain number of “feedbacks” which led to the finalisation of collective questions and to solidification of the explanatory coherence of the synthesis on the different diagnoses carried out. In this case, the initial assessment was structured by the complementarity of three diagnoses, respectively environmental, social and economic. The results presented here focus mainly on the economic part.

## **Section 1. The paradox of Ecuadorian competitiveness**

The historical evolution of the two conventional indicators of competitiveness: the share of production in world production in terms of physical production (tonnes) and the value of production (billions of USD), respectively, highlights three main periods featuring distinctive dynamics.

The first period, from 1961 to 1997, shows a generic trend of deterioration in volume and value competitiveness. The second period, from 1997 to 2019, shows an exponential growth of the two competitiveness indicators which are correlated with each other. This growth is explained by the combination of several complementary variables (Avadí et al. 2021). First, the rapid dissemination of a new hybrid variety (CCN-51) resistant to the main phytosanitary constraint in Ecuador, namely the disease moniliasis (Boza et al. 2014). Second, a public investment policy in a national technical training programme for the regeneration by pruning of old cocoa farms. Thirdly, private investment by international firms (Nestlé, Ferrero) in the manufacturing industry for intermediate products (liquor, powder, butter) and chocolates. Finally, there is a context of conversion of former oil palm plantations, as well as of land previously used for extensive livestock farming, into cocoa.

The third period since 2005 has seen a continuation of the growth in volume competitiveness in terms of international market share. On the other hand, the competitiveness in value terms has started to decline. The analysis of the evolution of the price of Ecuadorian production on international markets explains, in part, the drop in value competitiveness. It confirms a drop in the average price of Ecuadorian cocoa on the world market compared with the past period and especially with the main competing producing countries. The discount can reach more than 300 EUR/tonne. As Ecuador has historically had a reputation for the aromatic quality of its specific cocoa, and as it has just completed a 20-year investment phase in its plantations, infrastructures and techniques likely to improve quality, we describe this price drop as a “competitiveness paradox”.

The explanation of this paradox explores the testing of different hypotheses. One of them explains the following main causal chain. Since 2005, Ecuador, in view of the explosion of exports to Asia, has changed the structure of its specialisation in the international cocoa market. Indonesia, with ~70 000 t in 2019, accounts for 27% of the country's exports. In symmetry, there has been a fall in exports to the US market (-40%) and stagnation on the European market. In reality, the stagnation of exports to Europe in a growing market is equivalent to a loss of market share. Symbolically, Ecuador no longer exports to the Swiss market, one of the most profitable ones. One observation leads to an analysis of the ratio between the weight of exports in value to the Asian market and their weight in volume, which is 4% lower, which confirms a depreciation of the price on this segment of the international market.

In the light of the above observations, the main explanation (probably not the only one) for the paradox is what we call: a “commodification” of Ecuador's international specialisation. This term

refers to gaining market share in volume in commodity markets where the price is low and losing market share in markets where the price is high (for cocoa, the US and Europe).

## **Section 2. The risks of unsustainability of a “commodifying” competitiveness**

### ***2.1. Globalised oligopsonic governance of the global value chain***

The organisation of the global cocoa value chain has an “oligopsonic” structure on the purchase of the raw material, technically constituted by cocoa “beans”. These companies are food multinationals that mainly manufacture industrial chocolate (Mars, Ferrero, Mondelez, Meiji, Hershey, Nestlé), large global traders (Barry Callebaut, Cargill and Olam, as well as non-processing traders such as Sucden and Amtrada Holding) to supply the Asian market. These multi-product multinationals are subject to a priority objective function of maximising financial assets for their shareholders. From the point of view of economic theory an oligopsony (or its symmetric alternative: an oligopoly) favours coordination among buyers to fix the purchase price of the raw material at a threshold that is close to the producer's reservation level. That is to say, at a price below which he is no longer able to pay for his labour and is forced to abandon his production activity. This also means that at this perceived price, the producer is a factor of production, so the extraction of value is maximised, and the income available to him cannot enable him to escape from a form of poverty trap, which is summed up in the ability to “reproduce in order to produce”. The framework for analysing competitiveness structured by a sector leads to an economist's reasoning of “second derivative”, to test how the oligopsonic structuring of cocoa purchases on the world market is reflected (or not) in the market for the purchase of beans in Ecuador, which would be a potential indication of organisational dysfunction in the sector on a national rather than global scale.

For example, in 2019, multinationals present in Ecuador exported 79 663 t, representing 30% of total cocoa bean exports, 26% of semi-finished products and 29% of chocolate export volumes. For this year, only one of them, Olam, individually surpassed the largest national exporter. In terms of concentration, 8% of exporters (including national exporters and multinationals) account for 56% of exports by value. While the concentration of cocoa bean purchases is high, it cannot be described as an oligopsony as in the international market. The qualitative observations of surveys converge to confirm that competition between bean “buyers” remains active within the Ecuadorian sector.

In recent years, transnational companies have been concentrating their internal cocoa purchases in Ecuador by investing in industrial fermentation centres. They are also investing in the manufacture of intermediate products. This strategy secures their supplies on quality channels. It also makes it possible to control the mechanisms of added value formation linked largely to the first stages of bean processing, i.e. fermentation and drying. This strategy certainly generates a relocation of job creation in the producing countries and a territorial integration of the chocolate industrial district (Gonzales et al. 2020). Beyond jobs, investments in the processing of intermediate products also increase the demand for processing equipment and its manufacture in Ecuador. Some are investing in Corporate Social Responsibility (CSR) programmes to improve access to resources (inputs, credit, training), good practices to increase productivity, and information systems to optimise more global sourcing strategies (Ruf et al. 2022).

### ***2.2. The risks of de-qualifying Ecuador's socio-ecological quality***

The exponential growth of Ecuadorian production, based largely on the industrial success of varietal innovation supported by new hybrids, allowed rapid gains in competitiveness between 1961 and 1997. The break that has occurred since then raises questions about the risks of sustainability posed by the pursuit of international specialisation in co-modification markets. We qualify these risks, which are in the process of being realised, on three dimensions.

The first dimension is the reinforcement of a structural specialisation in a “commodity” for which price trends in real terms have been structurally declining since the creation of the international cocoa market (admittedly with cyclical variations over 20 to 30 years). On these markets, the distribution of added value cannot be to the benefit of the producing countries without collective capacities to regulate supply (Daviron and Ponte 2002). However, cocoa production cannot be mechanised. It is therefore labour-intensive, which is the main production factor. In an emerging country such as Ecuador, where the cost of labour linked to the inter-sectoral integration of the economy is increasing, the “scissor” effect of the price of labour increasing and the real price of cocoa decreasing can only degrade the gross margin captured by the actors in the Ecuadorian sector. A drop in the gross margin of the sector is not conducive to an improvement in its distribution to the benefit of small producers (smallholders), who are the least organised. The change in international specialisation observed presents a structural risk of impoverishment for small cocoa producers in Ecuador.

The second dimension is linked to the search for economies of scale generated by the current strengthening of the concentration of the sector, of which the multinationals are a major vector. Indeed, the amortisation of industrial fermentation facilities, raw material manufacturing plants and even chocolate (the latter being in fact very marginal) leads to the search for a year-round supply. From this point of view, the geography of cocoa production in Ecuador is an asset that few countries have. Indeed, it allows production to take place successively from April to June in the dry zone (thanks to irrigation), from May to October between the coast and the Andean zone, which is completed by the supply in the Amazon region in February and May. In fact, multinationals and exporters are increasing their purchase of cocoa from the Amazon region, even though the cost of procurement is slightly higher due to transport, in order to keep their facilities in operation. During an initial period, the expansion of Amazonian cocoa production had little impact on deforestation, as it was achieved by converting former livestock land into cocoa. The surveys conducted confirm that the Amazon region is beginning to be colonised by hybrid varieties intended to supply the commodity market. Indeed, the performance of the hybrid varieties planted is to rapidly increase yields provided they are grown in full sun (Boza et al. 2014). They are not adapted to a mode of agroforestry production that historically structures the forms of production of native communities and the sources of varietal biodiversity of cocoa itself.

The third risk is to continue to marginalise the supply of national varieties of cocoa, or “*Cacao Fino y de Aroma*” (fine and flavour cocoa: CFA), which gives Ecuadorian cocoa and chocolate its specific reputation in the international market. Ecuador actually concentrates ~65% of the world's production of this specific cocoa, which is highly sought after by the major fine chocolate houses. It is the historical marker of the quality of Ecuadorian cocoa.

The risk of losing this specificity of origin is already clearly underway (Torres et al. 2017). Thus, to producers, cocoa from national varieties sells for less than hybrid cocoa, or mixtures of qualities and origins are made, partly to reduce Cd concentrations, of which there are areas in the country with high concentrations in cocoa soils.

However, current CFA cocoa production, with <10 000 tonnes and <4% of the national supply, is provided by small-scale producers who predominantly produce in agroforestry systems (Coq-Heulva et al. 2017, Castañeda-Ccori et al 202), mainly in the Amazon region (Pokorny et al. 2021). It constitutes an opportunity for competitiveness based on more sustainable indicators (Jagoret et al. 2017, Torres et al. 2014) avoiding the continuation of the risks that were previously qualified. We analyse, through the prism of the methodological framework mobilised, the strategic variables for activating sustainable competitiveness based on regaining economic value through quality and not through “commodified” volumes.

## Conclusion

In this context of “oligopsonic” governance of the global value chain, the challenge for Ecuador's sustainable competitiveness is not to increase market share growth in “volume” but to requalify production in volume through market share gains in “value”. The sustainability objective is to achieve this requalification without destroying ecological resources, of which the rainforest is a central resource, which are needed by future generations and local communities. It is also to ensure that the creation of related value contributes to the territorial development of the producing rural areas to reduce social inequalities. Finally, it is to invest in the inclusive innovation of small producers. The analysis of the structure of the sector in Ecuador, while revealing a strong concentration, does not confirm an oligopsony. It highlights the central role of small producer organisations in activating a qualitative recovery of competitiveness. By identifying the obstacles and levers that make these producer organisations viable, the results contribute to structuring the inter-professional organisation of the sector.

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