

Market Concentration and Price Formation in the Global Cocoa Value Chain



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Market Concentration and Price Formation in the Global Cocoa Value Chain

Final Report

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Executive Summary

This report explores to what extent market concentration in the cocoa value chain is responsible for the widespread poverty of cocoa farmers. The report finds that market concentration among chocolate manufacturers and cocoa processors is not the key cause. Instead, there are two other key reasons why most cocoa farmers live in extreme poverty. The first is the fact that the productivity of cocoa farmers is very low, particularly in West Africa. The second is that there are many cocoa farmers without realistic alternative income options. As a result, these farmers continue to supply cocoa even at very low prices. While raising productivity can help individual cocoa farmers to earn a better income, this cannot be a sustainable solution for all farmers, as this would result in an oversupply of cocoa and an even lower cocoa price. The best solution is to create conditions that would allow cocoa farmers to earn alternative income sources and become less dependent on cocoa.

The key question addressed in this report is whether the low level of farm-gate prices could be related to recent increases in market concentration among large chocolate manufacturers and cocoa processors. We find that the levels of market concentration are moderate and have increased in some cases, driven by economies of scale, scope, and agglomeration. However, there is no evidence that market concentration is excessive or that market power is being abused. There is some evidence of vertical concentration, with strong links between cocoa processors and cocoa traders, but competition still appears to be sufficient, with profit margins generally reported to be low.

While we cannot exclude the possibility that some local cocoa traders abuse their market power vis-à-vis some farmers, for example in remote regions, this is not the key reason why farm-gate prices are low. The main reason is that the supply of cocoa is inelastic in the short run and that cocoa is produced by millions of small farmers. As a result, individual farmers are price takers with little or no bargaining power vis-à-vis local cocoa buyers. In addition, most cocoa farmers have very few options for alternative income generating activities. As a result, they will likely continue to produce cocoa at very low prices.

There is no evidence that market concentration among processors has artificially reduced the world cocoa price below the level that equalizes supply and demand. For most cocoa traded around the world, the world cocoa price determined in futures markets is generally used as a benchmark price, and therefore has a disciplining effect on local cocoa prices. Nevertheless, there are always likely to be ‘pockets’ of local cocoa markets where cocoa traders abuse their market power and farmers receive prices well below this benchmark price.

There is no evidence that a regulated price mechanism in producing countries leads to higher incomes for cocoa farmers than a liberalised price system. One key reason why the average farm-gate price is lower in regulated countries is that national boards take a high percentage of the export price, in some cases more than 30 percent. While part of these cocoa revenues are reinvested in the sector and in general public goods, this has not yet resulted in significantly higher productivity for cocoa farmers in these countries. One of the problems here appears to be the lack of transparency and efficiency of the allocated public reinvestments (e.g. input distribution).

In countries with liberalised cocoa sectors (Cameroon, Nigeria, Indonesia), there is some scope to raise farm-gate prices through increasing cocoa farmers' bargaining power and opportunities to earn alternative income options, which in turn requires better access to market information, training, infrastructure, and finance. As the case of Indonesia illustrates, having more realistic alternatives means that farmers can opt out of cocoa, which likely is one of the reasons why cocoa prices in Indonesia are higher.

In countries with regulated cocoa sectors (Ghana and Cote d'Ivoire), there is scope to raise farm-gate prices by improving the transparency, efficiency and effectiveness of the regulated system. Increasing competition among cocoa traders is less of an issue here since regulated farm-gate prices already provide some protection for cocoa farmers. Nevertheless, an improvement in enforcement is needed in some cases to ensure that farmers indeed receive the regulated farm-gate price, that weights are used correctly, etc.. A more important measure is to increase transparency about the way regulated prices and cocoa taxes are determined, and about the spending of these cocoa tax revenues. Finally, there is scope to improve the quality of cocoa beans, and therefore potentially the price paid for these beans, through more effective public investments and improved quality standards.

At the micro level of the individual cocoa farmer, the most effective way to achieve a 'living income' from cocoa is to increase the productivity of cocoa farming. We estimate that there is still ample scope to raise cocoa productivity through increasing cocoa-specific knowledge, cocoa-specific training, cocoa-specific inputs, and cocoa-specific finance. However, such measures are unlikely to work at the macro level, as raising the productivity of all cocoa farmers would lead to an oversupply of cocoa that would cause farm-gate prices to fall.

At the macro level, the most effective way to raise cocoa farmers' incomes is to create conditions for them to diversify away from cocoa. This does not necessarily mean that all farmers should aim to combine cocoa farming with other types of farming or other income generating activities. Rather, the way forward would be a 'dual transition' whereby the farmers that remain in cocoa would become (much) more productive, while many other cocoa farmers will diversify away from cocoa. Such a transition would require significant improvements in farmers' access to information, training, infrastructure, and finance. Developing a good security net for farmers to make the transition and overcome temporary drops in income will also be crucial. Most likely, cocoa producing governments in West Africa will not be able to make this transition on their own.

Given the importance of diversification as a strategy to reduce poverty among cocoa farmers, stakeholders in chocolate-consuming countries (governments, companies, NGOs) should review the programmes they support that are cocoa specific, because these increase the dependence of farmers on cocoa. Given that world market prices are volatile, this dependence could lead to lower and more volatile farmer incomes and government revenues. The Dutch government is already supporting institutions such as Solidaridad and IDH, the cocoa sector programmes of which increasingly recognise the importance of diversification. Going one step further, cocoa consuming country stakeholders should consider supporting or facilitating the development of diversification strategies of cocoa producing countries through private sector and financial sector development, as opposed to sector-specific development. The type of support could range from financial support to capacity building support to farmers, SMEs, financial institutions, or national governments.

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1 Introduction

Chocolate manufacturing and cocoa processing are concentrated industries dominated by a small number of large multinational companies, and most cocoa farmers in developing countries live below the poverty line. This report explores to what extent market concentration is responsible for the low cocoa prices paid to cocoa farmers. The results show that market concentration among chocolate manufacturers and cocoa processors is not the key cause. Instead, the main reason for the persistent poverty among cocoa farmers is the fact that most of them are price takers, with little or no market power and a lack of alternative income sources. Without such alternatives, they will continue to produce cocoa even at very low prices.

Most chocolate is manufactured, processed and consumed in Europe and the United States. The Netherlands is the second largest cocoa processing country worldwide, with around 15 percent of the world's cocoa arriving in Amsterdam for processing in the Zaanstreek. The vast majority of cocoa is produced by smallholder farmers in economically less developed countries around the equator, mainly in West Africa and Indonesia.

Many NGOs, projects and initiatives have attempted to raise awareness of the often extreme poverty among cocoa farmers, particularly in West Africa. One of these initiatives is called the VOICE network, a network of NGOs that aims to reform the cocoa sector by voicing the concerns of cocoa farmers. The VOICE network publishes the Cocoa Barometer, a document that provides regular information on the recent state of sustainability in the cocoa sector.¹

In 2015, the Cocoa Barometer argued that value added in the cocoa sector is distributed very unequally and linked this to the level of market concentration in the sector.² It was estimated that most money on chocolate is earned downstream in the cocoa value chain, by supermarkets, chocolate manufacturers and cocoa processing companies, with only a small share of the value flowing back to cocoa exporters and cocoa farmers. At the same time, the Barometer showed that there was a high concentration among cocoa processing and manufacturing companies, suggesting that these companies have significant market power in the cocoa value chain.

This apparent link between market concentration and cocoa value distribution caught the attention of Dutch civil society and Parliament. Background to this discussion was the fact that a number of mergers had recently taken place in the cocoa sector, particularly in the area of cocoa processing and cocoa trade. The increase in market concentration that resulted from these mergers could disadvantage cocoa farmers by negatively affecting the farm-gate price.

In April 2015, the Dutch Parliament requested the Minister of Foreign Trade and Development Cooperation to investigate market concentration in the cocoa value chain and its relationship with poverty among cocoa farmers.³

¹ <http://voicenetwork.eu/Publications.html>

² Fountain and Hütz-Adams (2015).

³ Parliamentary Proceedings 2014-2015, 26 485, nr. 206.

This report provides an answer to the questions raised in the study that was commissioned in December 2015 and was awarded to SEO Amsterdam Economics in March 2016.

The outline and key findings of this report are as follows:

Chapter 2 presents the ‘Theory of Change’ for this study in the form of a diagram that indicates the results chain with the corresponding hypotheses to be tested. The key hypothesis underlying this study is that market concentration in downstream segments of the value chain (chocolate manufacturers, cocoa processors) has brought down world cocoa prices and, in turn, farm-gate prices for cocoa producers. The alternative hypothesis is that there are other factors besides market concentration that explain why cocoa farmers live in poverty. These key alternative explanations are low productivity and lack of alternative income sources.

Chapter 3 describes the extent to which there is market concentration in the cocoa value chain. First, we show how production is concentrated in a limited number of countries around the equator. Then we look at the concentration among retailers, chocolate manufacturers, cocoa processors, and cocoa traders. We see that the concentration is particularly high among cocoa processors but also that cocoa manufacturing and the retail sector are concentrated.

In Chapter 4 we then analyse the influence of this concentration on the world cocoa market. We conclude that, due to the existence of liquid and fairly transparent international cocoa spots and futures markets, the opportunities for large cocoa companies to manipulate the world market price are limited. In addition, this chapter studies the transmission of changes in world market prices to farm-gate prices. The supply of cocoa is inelastic in the short run, as a result of which cocoa farmers are ‘price takers’ with little bargaining power. Market concentration among local cocoa buyers and traders could therefore impact farm-gate prices, particularly when farmers – particularly those in remote areas – have limited access to finance, infrastructure, and information. The process of price formation at the national level is described further in Chapters 5 and 6.

In Chapter 5 we explore the national differences in transmission from world market prices to farm-gate prices, by focusing on the different pricing mechanisms and national institutional contexts in the top 5 cocoa producing countries. We identify three different pricing systems among the five largest producing countries: (1) regulated pricing in Ghana and Côte d’Ivoire; (2) unregulated pricing in Cameroon and Nigeria; (3) the Indonesian system of unregulated pricing but with more emphasis on local cocoa processing. This analysis is supported by fieldwork conducted by our local data gathering consultants in Côte d’Ivoire, Indonesia, Ghana, Cameroon and Nigeria, which are summarised in Appendix A.

In Chapter 6 we take a closer look at the situation of farmers by further exploring the determinants of cocoa farmers’ incomes. Farmers’ incomes are based mainly on farm-gate prices but also on cocoa productivity (yield) and the available opportunities to generate income outside the cocoa industry. For example, for Ghana we show that it would require both a significant price increase and a major increase in production to raise farmers’ incomes from the cocoa industry above the extreme poverty line. We show that there is large potential to increase farm productivity but also discuss the reasons why farmers have not invested in these productivity increases.

In Chapter 7 we then discuss the various certification schemes and private sector initiatives that attempt to raise cocoa farmers' incomes. We notice that the main focus of these programmes has been on raising cocoa productivity. This productivity focus, however, poses three problems: (1) it only focuses on the farmer's cocoa income and not at other sources of income; (2) it mostly ignores cocoa price increases; and (3) raising productivity could probably not be the solution for all cocoa farmers as it might lower cocoa prices sector-wide. We therefore argue that initiatives to raise cocoa sector productivity are not the solution for all farmers and that income diversification is needed to reduce income volatility and sustainably lift farmers out of poverty.

In Chapter 8 we conclude with a summary of the key findings and our key recommendations.

Chapter 9 concludes by answering all questions posed in the ToR.

Methodology

The conclusion in this report are based on extensive analysis using a large number of independent sources and methods. First, the existing literature on the global cocoa and chocolate market was studied extensively. Specifically, the research team surveyed all key studies related to the cocoa value chain, price formation, policies and incomes of cocoa farmers. This literature formed the basis for developing the Theory of Change and underpins our conclusions in the different parts of the study. Second, interviews were conducted with key players in the industry as well as other stakeholders. Appendix B contains the list of interview partners. The interviews were aimed at gathering data about the functioning of the value chain, but also at testing hypotheses about the relationship between concentration, pricing, and farmer incomes. Third, fieldwork was performed by local research partners in Cameroon, Nigeria, Ghana, Côte d'Ivoire and Indonesia. This fieldwork was structured on the basis of a detailed template listing characteristics of the value chain for cocoa in those countries such as policies, prices, costs and institutional structures for price negotiation and regulation. The conclusions of the fieldwork and the suggestions for policy recommendations were validated during interviews with numerous stakeholders at the World Cocoa Conference in May 2016.

During the process of conducting this study, the research team benefited tremendously from excellent comments and input provided by the steering group for this study, consisting of representatives from the Dutch Ministries of Foreign and Economic Affairs, NGOs, and industry experts. The research team has remained fully independent throughout the study, and is the only party responsible for the key findings and recommendations of this report.

2 Theory of Change

The ‘Theory of Change’ behind this study starts from the cocoa value chain in which the prices in each market segment are determined by demand side and supply side factors. In each of these markets, the price is determined by the supply from the level ‘above’ (upstream) and the demand from the level ‘below’ (downstream). We will therefore first need to assess to what extent the level of concentration in each market segment affects the price in that segment (see Table 2.1).

Table 2.1 Pricing in the global cocoa value chain

Agents	Price received	Gross revenue
Cocoa farmers	Farm-gate cocoa price	Farm-gate cocoa price
Cocoa traders	Export price	Export price – farm-gate price
Cocoa processors	Processed cocoa price	Price for processed cocoa – export price
Chocolate manufacturers	Wholesale chocolate price	Price for manufactured chocolate - price for processed cocoa
Chocolate retailers	Retail chocolate price	Consumer price for chocolate – price for manufactured chocolate

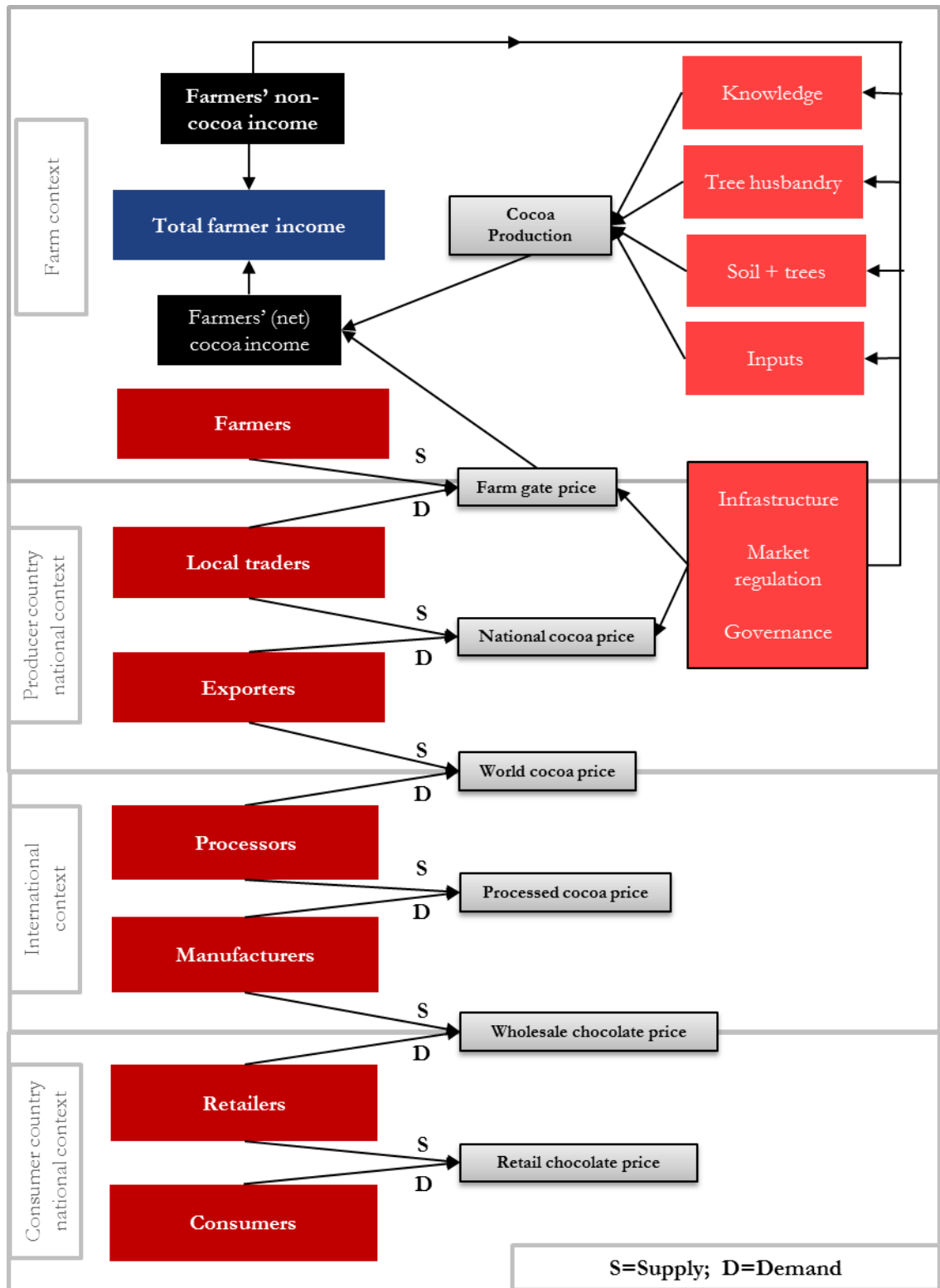
Source: SEO Amsterdam Economics

To assess the impact of market concentration on cocoa farmers’ incomes, it is important to isolate the phenomenon of market concentration and untangle its effect on the world cocoa price and farm-gate prices. The key underlying hypothesis which this study aims to test is the claim that market concentration is a key cause of poverty among cocoa farmers. We have broken this hypothesis down into three sub-hypotheses, which we aim to test one by one:

1. There have been recent increases in market concentration in various segments of the cocoa value chain (Chapter 3)
2. Due to market concentration in the downstream segment of the value chain, downstream companies exert substantial market power over the upstream value chain, thereby depressing world market prices and eventually farm-gate prices (Chapters 4 and 5)
3. Reducing market concentration in the downstream segment can help to increase farm-gate prices in the upstream segment, which in turn can help to alleviate poverty among cocoa farmers (Chapter 6)

As an alternative hypothesis, we also explore the possibility that there are factors other than market concentration that are they key causes of the low incomes received by cocoa farmers. These ‘other factors’ are discussed in Chapter 6 and are represented in the ‘Theory of Change’ diagram in Figure 2.1. One such key ‘other factor’ is cocoa production, as this determines cocoa income together with cocoa prices. Cocoa production or productivity in turn is affected by agricultural practices, fixed assets (such as land and trees, inputs such as seedlines and fertilisers), and knowledge. Another key ‘other factor’ is the non-cocoa income that farmers may be earning from sources other than cocoa. We will pay particular attention to the opportunities for increasing non-cocoa income in Chapters 7 and 8.

Figure 2.1 Theory of Change



Source: SEO Amsterdam Economics

3 Market Concentration in the Global Cocoa Value Chain

Chapter 2 presented the ‘Theory of Change’ (ToC) behind this study, which shows that there are three key determinants of cocoa farmer incomes: (a) the level of farm-gate prices, which is determined by demand and supply at each level within the cocoa value chain; (b) the amount of cocoa produced, which is related to farmers’ productivity; and (c) the availability of alternative non-cocoa income sources. The key hypothesis we aim to test is that market concentration in the downstream segments of the value chain (chocolate manufacturers, cocoa processors) has brought down world cocoa prices and, in turn, farm-gate prices. The alternative hypotheses are that the low level of farm-gate prices is determined by factors other than concentration, or that the other two factors – low productivity and lack of alternatives – are the main reasons for the low cocoa farmer incomes.

In Chapter 3 we start to test the key hypothesis by first exploring the level of concentration in the various segments of the cocoa value chain. We find that the levels of market concentration are moderate and increasing in some cases, driven by economies of scale, scope, and agglomeration. However, there is no evidence that market concentration is excessive or that market power is being abused. There is some evidence of vertical concentration, with strong links between cocoa processors and cocoa traders, but competition still appears to be sufficient and effective, with profit margins generally reported to be low.

3.1 Types of market concentration

The markets for cocoa trading, processing, and chocolate manufacturing have always been concentrated, but there is evidence that market concentration has intensified over the last decade (Squicciarini & Swinnen, 2016). Due to recent mergers and acquisitions, the markets for chocolate manufacturing and processing are now dominated by a handful of companies. Market concentration appears at several levels in the cocoa value chain: in the retail sector, cocoa manufacturing and cocoa processing. In addition, there is a concentration of cocoa production in West Africa, particularly in Côte d’Ivoire and Ghana. In these producing countries, cocoa processing and cocoa export are mainly carried out by large foreign companies.

Concentration has horizontal and vertical dimensions.

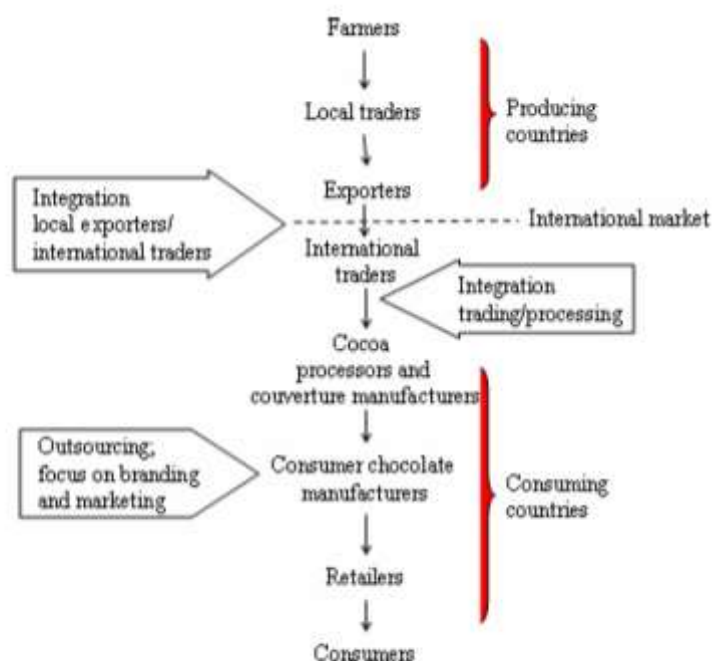
- *Horizontal concentration* occurs in the case of mergers or takeovers involving companies with the same activities in the same market segment, for example two cocoa grinding companies.
- *Vertical concentration* occurs when companies in a certain segment of the value chain integrate (parts of) companies in other segments, for example when a grinding company acquires trading and export activities in more upstream producing countries or manufacturing activities more downstream in the chain. (UNCTAD 2008)

In order to determine whether the extent of market concentration is such that it is potentially causing competitive problems, we use the two traditional measures of market concentration:

1. **The Herfindahl-Hirschman index (HHI).** The HHI takes the sum of the squared market size of all companies in a certain market, which gives a number between zero (indicating perfect competition) and 10,000 (indicating a perfect monopoly). In general, an HHI value below 1000 indicates that concentration is low; a value between 1000 and 1800 indicates that a market is moderately concentrated. HHI values above 1800 are an indication that the market is highly concentrated to such an extent that it raises competitive concerns.⁴
2. **The concentration ratio.** The concentration ratio x (CR x) is the sum of the market share of the x largest firms in a market, which gives a number between 0 percent (indicating perfect competition) and 100 (indicating a market with only one seller). For this assessment this report calculates the CR4 and CR8.

Based on the available data, the value for the concentration ratio's and the HHI are reported for three levels in the cocoa value chain: (a) cocoa traders in West Africa; (b) cocoa processors; and (c) chocolate manufacturers. Unfortunately, recent and complete data on market shares were not available for all markets; hence our findings should be interpreted with caution.

Box 3.1 Concentration in the global cocoa value chain



Source: UNCTAD (2008)

⁴ See for example Motta (2004), p. 235.

3.2 Driving factors behind market concentration

The key driving factors behind concentration in the cocoa industry are economies of scale, economies of scope, and agglomeration. As a result, larger companies have lower average costs, which constitutes a barrier to entry for smaller companies.

- *Economies of scale* occur in most segments of the cocoa value chain because of high fixed costs in the transportation and processing of cocoa, as well as in the manufacturing of chocolate. Fixed costs are high in part because cocoa processing and chocolate manufacturing require significant upfront investments in bulk transport facilities, machinery, and R&D (Fold, 2002). Examples are the use of industrial gas dryers and trucks for inland transport of cocoa beans rather than relying on small all-terrain vehicles (Abbott 2013). Further down the value chain, ADM and Cargill introduced bulk shipping of cocoa beans, used for cereals but adapted for cocoa by these companies. Bulk shipping requires large volumes of export and thus achieves important economies of scale. Shipping cocoa liquor rather than in solid form is also a cost-saving mode that is expanding but only the large-scale traders and processors sourcing large volumes of cocoa beans or butter are able to benefit from these economies of scale (Fold 2002; Ecobank 2014 in Bonjean and Brun, 2016: 244). The practical result of economies of scale is lower average production costs per unit.
- *Economies of scope* occur when the same production methodology can be applied to different products, in which case companies can extend production to other products with relatively low investment costs. We see this in the extension of (former) ADM's and Cargill's activities to other food products, for which they already had the transport, infrastructure and logistics (Bonjean & Brun, 2016).
- *Economies of agglomeration* can also be seen as a driver of market concentration. For example, the three largest cocoa processing companies all have production facilities in the Netherlands, near chocolate manufacturers. Proximity allows manufacturers to transport cocoa liquor which is more efficient than transportation of the semi-finished product in a solid state, which requires re-melting in the chocolate manufacture. This allows for lower transport and processing costs (Bonjean & Brun, 2016).

Economies of scale are an important reason for market concentration. The processing industry in the cocoa market changed radically in the 1990s when Cargill and ADM entered the cocoa sector. They diversified from grains into cocoa trading and processing and quickly gained market share through the acquisition of large European processors. In more recent years, low profit margins have resulted in firms like ADM exiting the cocoa business again, thus intensifying the trend towards market concentration.

Interviews with major processing companies and chocolate manufacturers indicate that the profitability of processing cocoa should be understood in relation to the profitability of companies' other products and services. This can be a reason for a company to divest a product line that has relatively low profitability levels. In addition, the international capital market is a source of external pressure for companies to generate sufficient return on investment. Companies are likely to restructure their portfolio of products and services in case of expected low margins and reduced scope for efficiency gains. For large international corporations, portfolio management in this sense is a continuous process of realignment as indicated by companies like Philips (from lightning and consumer electronics to health care) and Akzo Nobel (from pharmaceuticals to paint).

The bulk chocolate market operates in a highly competitive environment with many substitutes for a chocolate snack. Take-overs of chocolate-makers are generally competition driven: the search for more market outlets (market differentiation) and for more products (product differentiation). Chocolate manufacturers have a portfolio of products that are more or less the same. Business opportunities can result from scale and optimising the assortment of products. There are many substitutes for chocolate, which means that the chocolate branch cannot easily raise prices (interview with chocolate sector stakeholder).

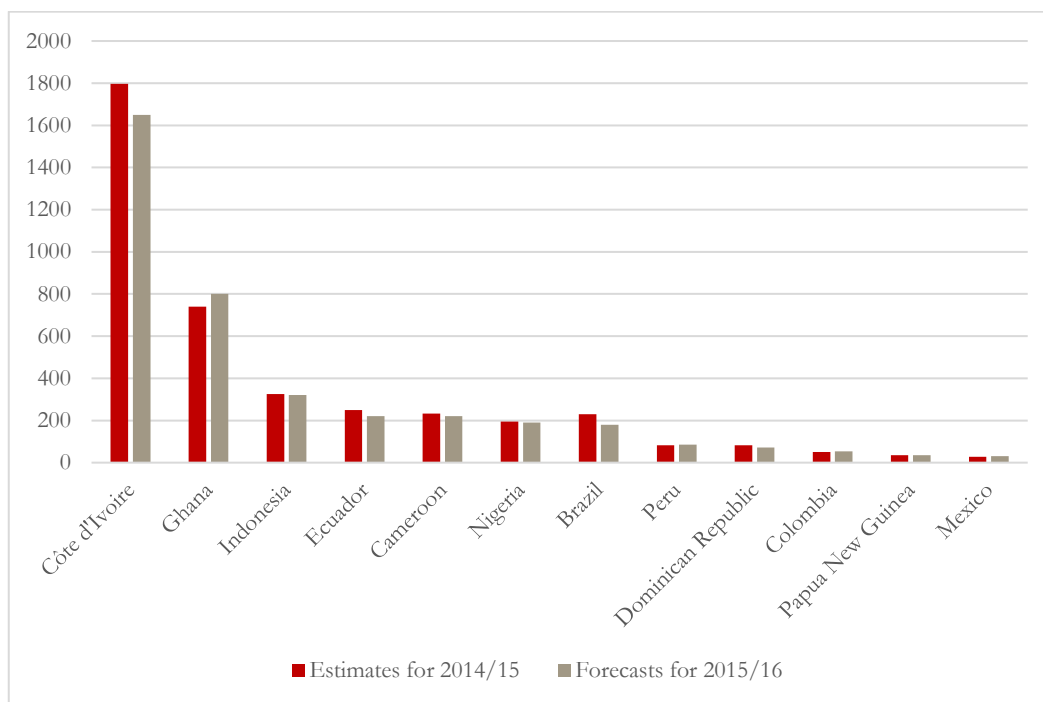
There is a tendency towards vertical integration, both for processors, traders and chocolate manufacturers. In recent years the direct access to sources upstream is mentioned as a driver for increased vertical integration. There is need to secure a reliable supply of cocoa beans to satisfy the demand for processed cocoa in terms of quantity and quality. This manifests itself in chocolate manufacturers trying to establish direct relations with local companies that operate closer to the farmers, including farmers organisations. What can be observed for example in Ghana is that processing companies set up the infrastructure to source cocoa directly from farmers. Another example of vertical integration is traders becoming involved in both local processing and local sourcing to survive as trader in the cocoa business.

Concentration of power in the cocoa value chain is often a side-effect instead of a goal in itself. The over-capacity in processing cocoa into butter and powder has put companies at risk and affected the then leading processors like Petra Foods and ADM (Terazona 2012). These companies have since been taken over by respectively Barry Callebaut and Cargill/Olam.

3.3 Concentration in cocoa producing countries

Cocoa production and processing is highly geographically concentrated. Cocoa can only grow in tropical areas in a small band around the equator. West Africa is the main producing region with 74 percent of the world's cocoa production. Côte d'Ivoire is market leader with 43 percent of world production, Ghana follows with a market share of circa 20 percent and Indonesia is responsible for 8 percent of world production (see Box 3.2).

Box 3.2 Côte d'Ivoire and Ghana produce around 60 percent of the world's cocoa production



Source: ICCO 2016 (cocoa production in thousands of tonnes).

In most producing countries, a small number of players control the export and trade of cocoa. The data suggest that, on average, concentration among cocoa traders is moderate in West Africa. The best data we were able to obtain were from Ecobank (2013), which provide estimates of the market shares among cocoa traders in the West Africa region (Côte d'Ivoire, Ghana, Nigeria, Cameroon and Togo) for 2012.⁵ If we consider West Africa as a single market, the HHI is below the benchmark for a concentrated market (see Table 3.1). The maximum value of the HHI in this region is 886, which is below the 1000 HHI benchmark of market concentration. This conclusion is supported by the fact that the four largest firms have a market share of approximately 50 percent and the eight largest firms one of 70 percent. As Box 3.3 shows, approximately half of all West African cocoa is bought by five multinational companies: Olam, Cargill, Barry Callebaut, Armajaro and Cemoi.

Table 3.1 Concentration among cocoa traders in West Africa is moderate for the region as a whole

	HHI	CR4	CR8
2012	886 (low)	52%	70%

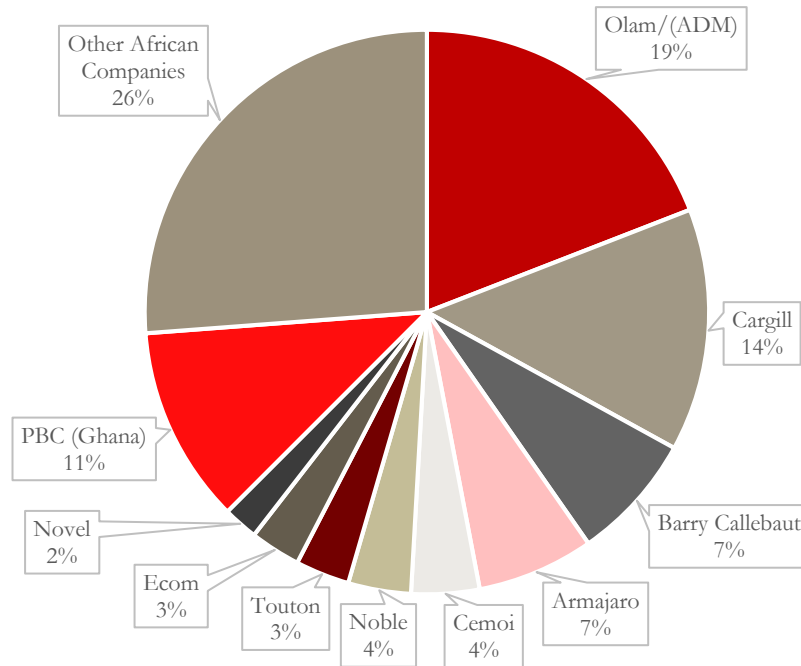
Source: ECOBANK 2013; SEO Economisch Onderzoek, Fieldwork Ghana (2016)

However, the average for West Africa hides the fact that market concentration among cocoa traders is low in regulated countries, and therefore likely high in non-regulated countries. Market shares of traders and price regulation are notably different for the cocoa producing countries of West Africa. While consistent data on the market shares of buying companies per country are not available, Box 3.4 (reproduced from Figure A.9 in Appendix A) shows that the market shares of

⁵ More recent data on the market shares of exporting companies is not available.

international processing firms are relatively low in Ghana.⁶ Assuming the same is true for Côte d'Ivoire, this means that the averages in Box 3.3 underestimate the concentration in non-regulated countries.

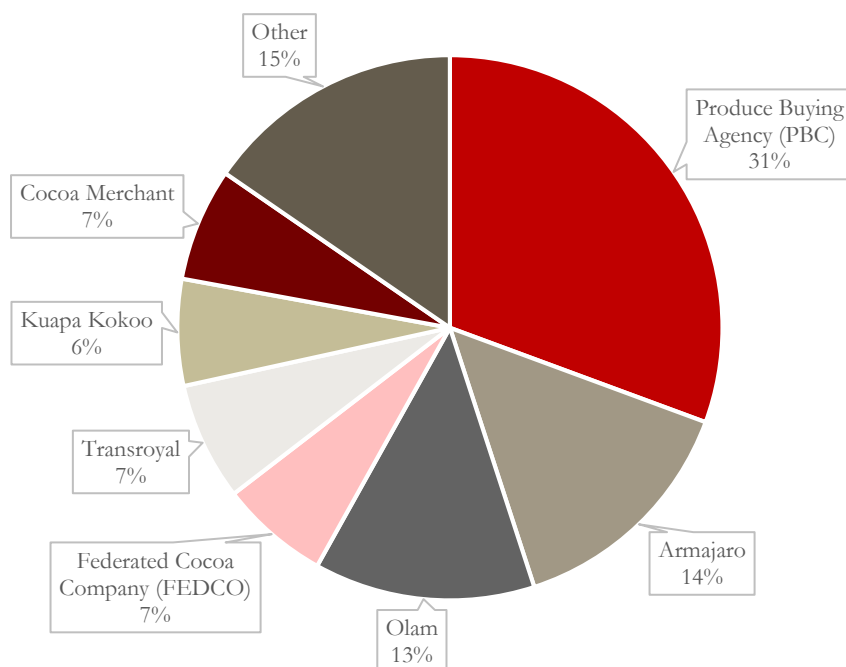
Box 3.3 Five international processors purchased 50% of all West African cocoa in 2012



Source: ECOBANK, 2013

⁶ In Ghana, there are around 40 Licensed Buying Companies (LBCs), of which the government-owned PBC is the largest with 31% market share, followed by Armajaro with 14% and Olam with 13%. Cocobod in turn buys all cocoa from these LBCs (at a fixed price). See Appendix A for more information.

Box 3.4 The market shares of international cocoa traders are relatively low in Ghana.



Source: SEO Amsterdam Economics: Fieldwork Ghana (2016)

There is a high degree of vertical integration between cocoa trading and cocoa processing. Most local processing and exporting companies are part of, or have close cooperation with, large foreign cocoa companies. UNCTAD (2015) states that the pattern of vertical integration is not new to the industry. In the mid-1990s, the end of the system of guaranteed prices and export regulation marked a period of uncertainty for private operators. For local traders, credit access became more costly as risk increased (Bonjean and Brun 2016). The development of joint ventures and other forms of cooperation between local trading companies and international processors was an answer to these two kinds of risks. Domestic firms gained access to foreign capital at lower costs and the foreign processors were able to secure direct access to cocoa sourcing. Recent mergers and acquisitions strengthened this trend towards vertical concentration in countries like Cameroon and Côte d'Ivoire (Squicciarini & Swinnen, 2016). In Ghana, for example, Barry Callebaut recently acquired Nyonkopa, a Licensed Buying Company which is authorised to buy cocoa directly from farmers.⁷ Barry Callebaut states that such acquisitions align with its ambition to gain access to individual farmers in addition to cooperatives.⁸ Alternatively, chocolate manufacturers make exclusive arrangements with LBCs, for example Lindt with ECOM Trading Ghana Limited (AGL). Apart from formal linkages, there are also informal relations that link local activities to multinational companies. For example, local exporters sometimes depend on multinationals for funding and in practice function as shippers for cocoa processors (UNCTAD 2008). Value chain collaboration between farmers organisations and exporters has also become closer. The result is an industry with a “high degree of vertical concentration” (UNCTAD 2015, p. 15). UNCTAD argues that market concentration has become the “new normal” in the cocoa industry. The issue of vertical integration will be investigated further in the subsequent chapters.

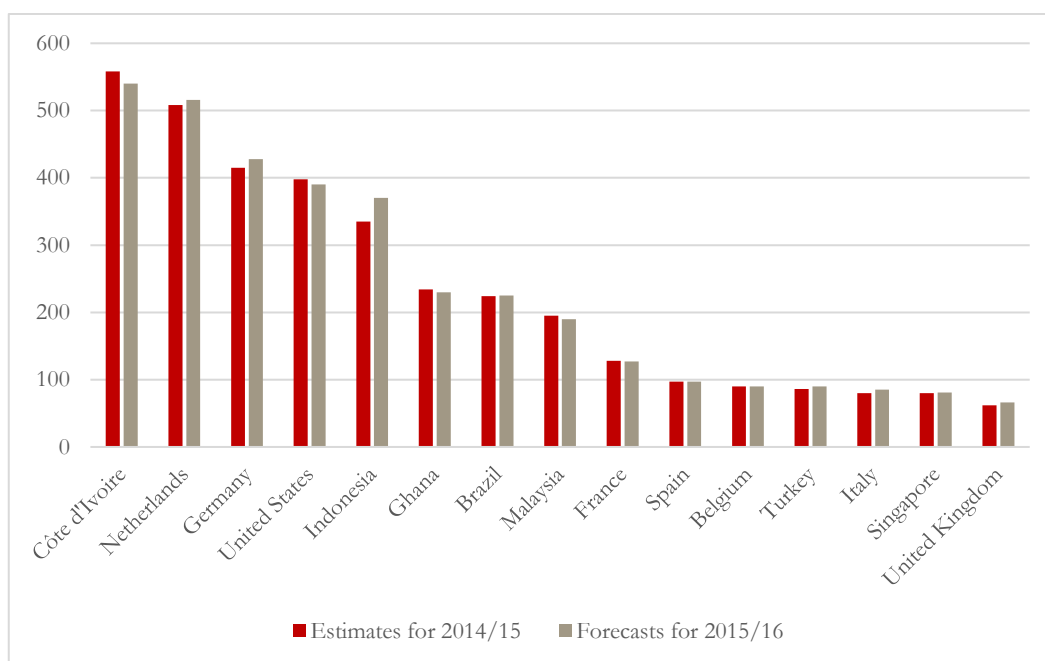
⁷ Callebaut 2015

⁸ Callebaut 2014

3.4 Cocoa and chocolate in the Netherlands

The Netherlands is an important player in the world cocoa value chain, and cocoa is of economic importance to the Dutch economy. The Netherlands is the largest importer of cocoa beans in the world. In Europe, the Netherlands holds a market share of 37 percent. Second and third ranked are Germany and Belgium with 19 percent and 15 percent respectively (CBI 2016).⁹

Box 3.5 Côte d'Ivoire processes the largest quantity of cocoa beans



Source: ICCO 2016 (processed cocoa in thousands of tonnes)

The Netherlands is the world's second-largest grinder, behind Côte d'Ivoire. The large grinding industry in the Netherlands is attributed to the presence of large national and multinational grinders, including Cargill and ECOM Dutch Cocoa who have major grinding installations near the port of Amsterdam, the largest cocoa port in the world (CBI 2016). According to the forecasts of 2015/2016 more than 516,000 tonnes will be processed in the Netherlands, compared to 540,000 in Côte d'Ivoire (ICCO, 2016).¹⁰

The chocolate confectionery sector in the Netherlands is very concentrated with a few large companies dominating the sector. The largest chocolate production facility in the world, owned by Mars, is located in the Netherlands (Veghel). Mars Nederland BV, Mondelēz and Nestlé had a combined market share of 46% in 2014 according to Euromonitor (in CBI 2016). The candy bars and other chocolate snacks of these companies are mostly sold in supermarkets.

West Africa is the main supplying region. The Netherlands imports around 90% of its cocoa beans from West Africa, with the majority consisting of common-grade Forastero cocoa. Côte d'Ivoire

⁹ CBI Product Factsheet. Cocoa in the Netherlands. Accessible at <https://www.cbi.eu/sites/default/files/product-factsheet-netherlands-cocoa-2016.pdf>

¹⁰ Laurent Pipitone (2016), "Outlook for global supply and demand", presentation given at the third World Cocoa Conference, 22-25 May 2016, The Dominican Republic.

is the leading supplier, with a market share of 31%. Other important suppliers are Ghana, Cameroon and Nigeria. Latin American countries supply only 4,3% of the beans. Imports from these countries are growing rapidly, however, having increased by 5,4% between 2013 and 2014. This increase is largely due to increased demand for premium/specialty/fine flavour cocoa, in some cases combined with certification (CBI 2016).

3.5 Concentration among cocoa processors

The market for cocoa processing is the most concentrated market segment of the value chain. UNCTAD (2015) estimates that in 2013 three very large agribusiness companies (ADM, Barry Callebaut, and Olam) controlled around 60 percent of the world's cocoa grindings. Mergers and acquisitions explain the trend towards increased market concentration in this segment. In recent years, the major companies have taken over other cocoa processing companies, as well as companies further upstream and downstream in the value chain (see Box 3.6). The acquisition of ADM by Olam in 2014 enhanced the degree of concentration in this part of the cocoa value chain even further.

Box 3.6 Recent mergers and acquisitions in the processing industry

Cargill

- 2015: acquisition of ADM chocolate
- 2007: Tochoku becomes Cargill Japan Ltd.
- 2005: acquisition of Schierstedter Schokoladenfabrik
- 2004: acquisition of Nestlé cocoa-processing facilities in York and Hamburg
- 2003: acquisition of OCG Cacao
- 2003: acquisition of Peter's Chocolate
- 1992: acquisition of Wilbur Chocolate
- 1987: acquisition of General Cocoa, control over:
 - Gerkens Cacao Industrie
 - Fennema
- 1980: start, cocoa/processing plant in Brazil

ADM

- 2015: ADM chocolate purchased by Cargill
- 2014: ADM cocoa purchased by Olam
- 2009: acquisition of Chokinaq-Schokolade-Industrie Hermann
- 2006: acquisition of Classic Couverture
- 1998: acquisition of ED&F Man Group
- 1997: start, acquisition of Grace Cocoa Company. Control over:
 - Ambrosia
 - deZaan
 - Merckens

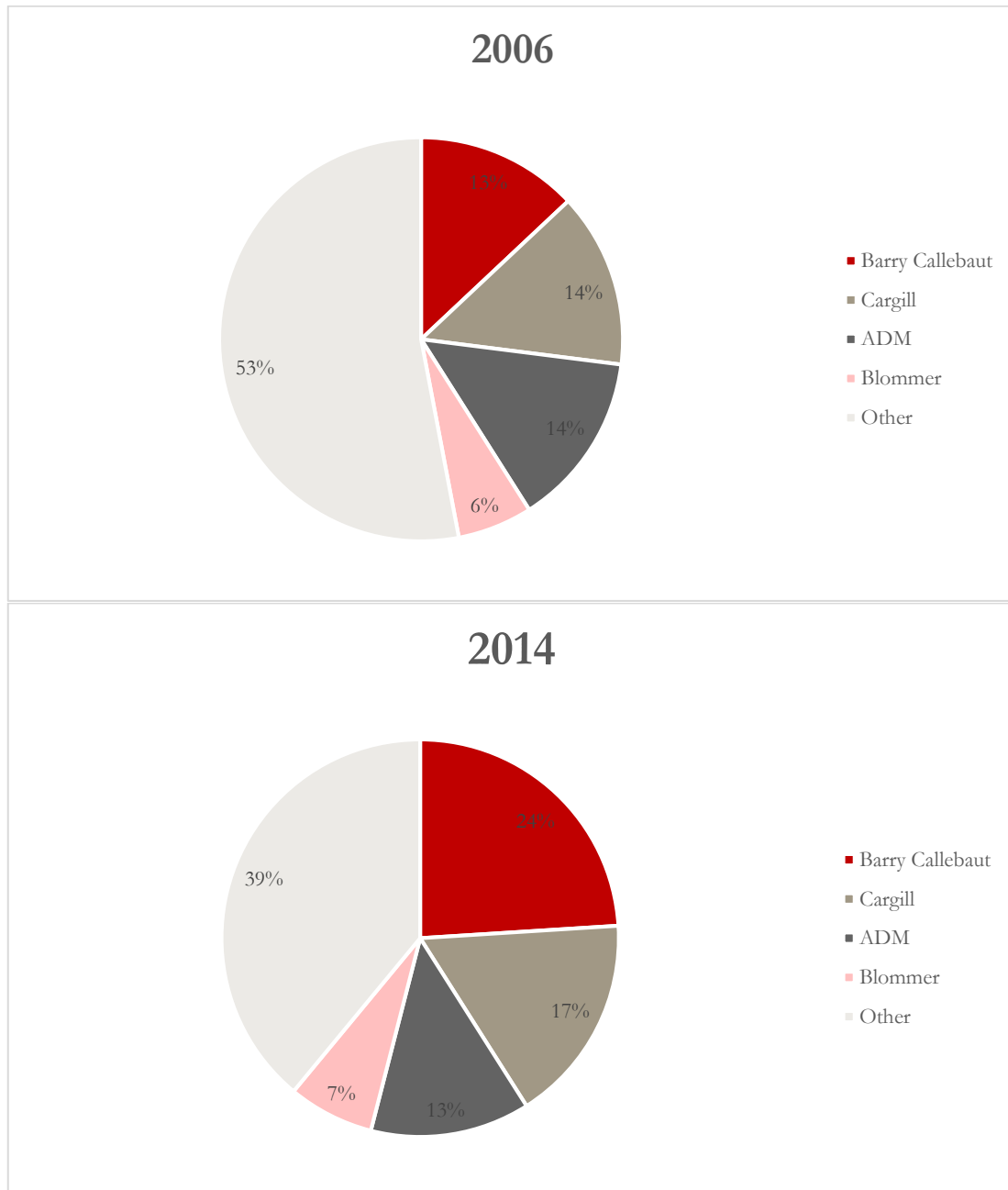
Barry Callebaut

- 2015; acquisition Nyonkopa
- 2013: acquisition Petra Foods
- 2003: acquisition of Confection Holdings and Luijckx Beheer
- 2002: Acquisition of Stollwerck Group
- 1999: integration of Carma
- 1996: Merger of Cacao Barry and Callebaut

Source: Squicciarini & Swinnen 2016, Barry Callebaut 2016

Box 3.7 shows the market shares of the four largest cocoa processing companies. In 2006, these companies together sold 47 percent of the world's processed cocoa. In 2014, their combined market share had increased to 61 percent, with only 39 percent of the world's cocoa processed by other market players. The takeover of ADM cocoa by Olam is not included in these numbers and today Olam is a major player in the market.

Box 3.7 The processing industry is dominated by three large companies



Source: UNCTAD 2008, UNCTAD 2015

Market concentration in the global cocoa processing industry increased between 2006 and 2014. Using data from UNCTAD (2008, 2015), we calculate that the HHI index in the processing sector increased from 724 in 2006 to 1208 in 2014 (see Table 3.2). This is above the 1,000 benchmark, meaning that the market could be classified as moderately concentrated in 2014. Similarly, all concentration ratios increased as well.

Concentration is likely to have further increased since 2014. As several mergers and acquisitions took place since 2014, it is likely that the cocoa processing market has become even more concentrated. The takeover of ADM cocoa by Olam in 2015 in particular might have had a

considerable impact. While data on market shares are not available for 2015, we can assess the impact of the ADM-Olam takeover by assuming, for simplicity, that all other market shares did not change. This suggests that the takeover of ADM by Olam would have raised the HHI to 1312, while the concentration ratios would have increased by another 4 percentage points (see Table 3.2). In other words, even when taking the ADM-OLAM merger into account, the HHI for this part of the market still remains well below the 1.800 benchmark which competition authorities consider as worrisome in terms of the level of concentration.

Table 3.2 Concentration among cocoa processors has increased

	HHI	CR4	CR8
2006	724 (low)	47%	60%
2014	1208 (moderate)	61%	75%
2015**	1312 (moderate)	65%	77%

Source: UNCTAD 2008, UNCTAD 2015

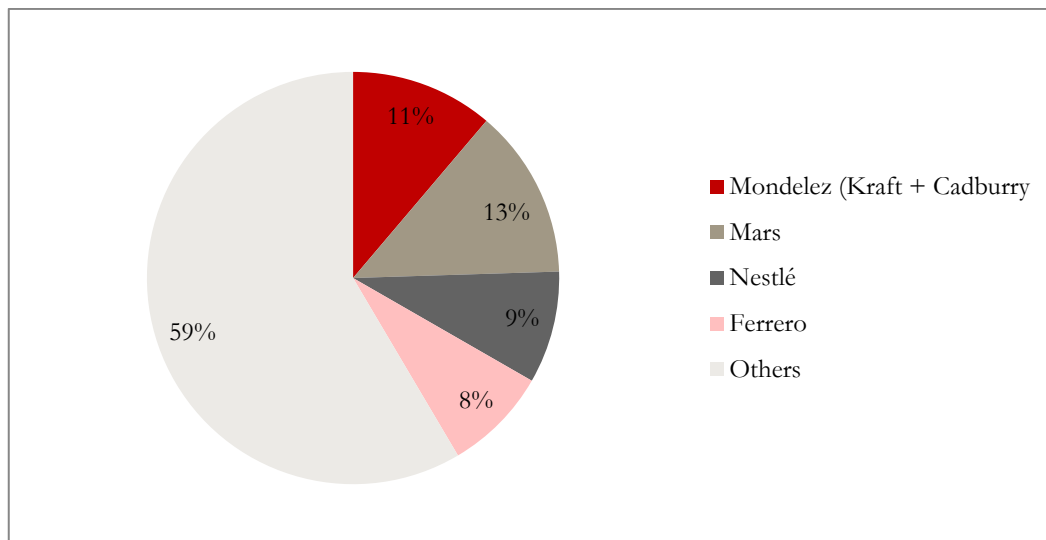
** Rough estimate by SEO Amsterdam Economics.

3.6 Concentration among chocolate manufacturers

The chocolate manufacturing segment is concentrated but to a lesser extent than the cocoa processing segment. The market is dominated by a couple of large chocolate manufacturers, which sell their chocolate in many national markets. The four largest companies, Mars, Mondelez, Nestlé and Ferrero, together account for 41 percent of chocolate confectionery sales in 2013, as shown in Box 3.8 below.¹¹ In recent years, however, there have been major acquisitions among chocolate manufacturers, summarised in Box 3.9. Important events are the take-over of Cadbury by Kraft, the subsequent split-up of Kraft in two different entities, followed by the creation of Mondelez (formerly the snack and candy branch of Kraft). In July 2016, Mondelez in turn made a bid to take over Hershey's. If this acquisition were to succeed, Mondelez would become the largest chocolate manufacturer in the world with a combined market share of circa 16 percent.

¹¹ Fountain and Hütz-Adams, 2015; Potts et al., 2014. Unfortunately, the sources for chocolate industry market shares are not as reliable as those of the processing industry, and some data are inconsistent.

Box 3.8 In 2013 the top 4 chocolate manufacturers have a combined market share of 41 percent



Source: Bonjean and Brun (2016)

Box 3.9 Mergers and acquisitions in the chocolate manufacturing industry¹²

<p>Mondelez</p> <ul style="list-style-type: none"> • 2016: Mondelez attempts to take over Hershey's • 2010: Merger of Kraft and Cadbury into Mondelez
<p>Mars</p> <ul style="list-style-type: none"> • 2015: acquisition of Grupo Turin
<p>Ferrero</p> <ul style="list-style-type: none"> • 2015: acquisition of Thorntons • 2014: acquisition of Oltan
<p>Lindt und Sprüngli</p> <ul style="list-style-type: none"> • 2014: acquisition of Russel Stover

Source: ICCO, UNCTAD, European Commission and other sources

The HHI for manufacturers suggests that concentration in the chocolate industry is relatively low. For the chocolate industry, the HHI index is calculated with the use of data from Bonjean & Brun (2014). For 2013, the HHI is calculated to be 641 (see Table 3.3). This value is below the 1.000 benchmark. By this standard the level of concentration in this part of the market should be considered low. This is supported by the CR4 of 41 percent and the CR8 of 61 percent. There is a

¹² Hoffman 2016, Butler & Farrell, 2015

possibility that market concentration may have increased since 2013 because several acquisitions have taken place. However, the effect of these acquisitions is probably only visible in the margin, given that the acquired firms all had a market share of less than 1 percent.

Table 3.3 Concentration among chocolate manufacturers is moderate

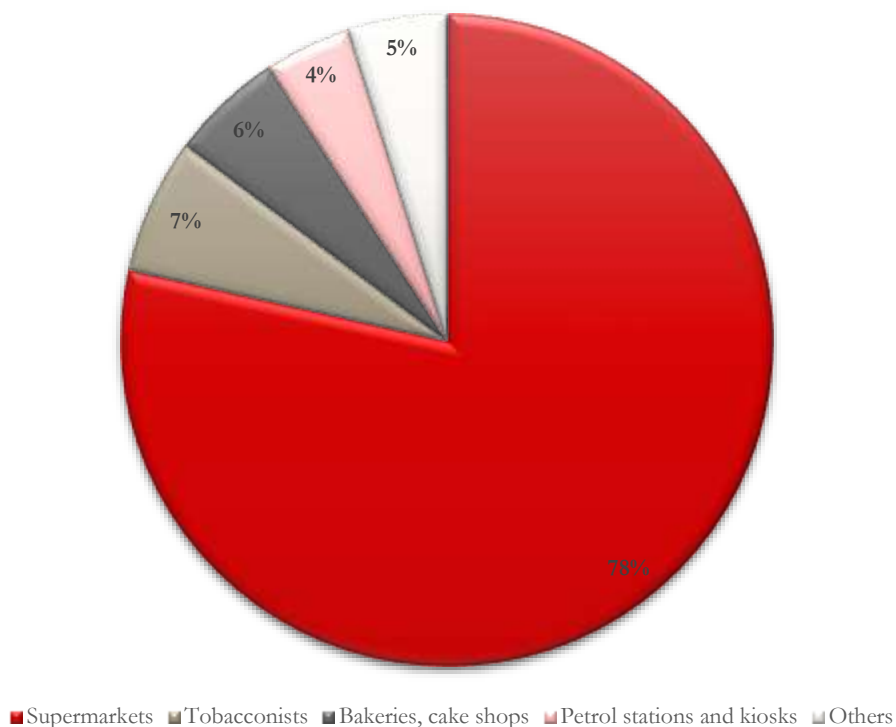
	HHI	CR4	CR8
2013	641 (low)	41%	61%

Source: Bonjean & Brun 2014

3.7 Concentration among chocolate retailers

Chocolate retailers are found downstream in the value chain and sell chocolate to consumers. Chocolate bars are sold in convenience stores, gas stations, wholesales and small food kiosks, but the largest share of chocolate is by far sold in supermarkets. In Japan, the USA and Europe, supermarkets have shares of 75 to 80 in food retails, and shares in other continents are rising rapidly as well (UNCTAD, 2008). For chocolate, these numbers are similar, as we can see from the example of France in Box 3.10.

Box 3.10 Supermarkets in France sell 78 percent of all chocolate



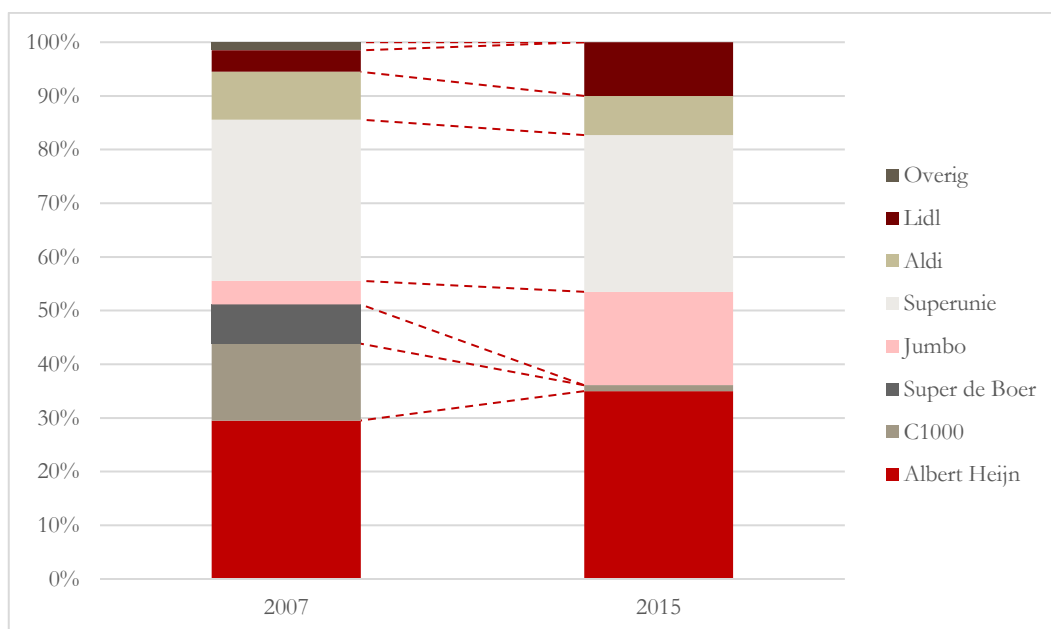
Source: UNCTAD, 2015

The last decade has seen consolidation in the supermarket sector. Consolidation has taken place through mergers and acquisitions at the national as well as the international level. While traditionally the supermarkets were organised around national markets, there has been internationalisation as foreign supermarket groups penetrate domestic markets (UNCTAD 2008).

The Dutch supermarket sector provides an example of consolidated sectors among retailers. In 2007, the two largest supermarkets in the Netherlands were Albert Heijn and the Superunie, a cooperation of many smaller supermarket brands like Coop, Spar and Plus (see Box 3.11). Jumbo quickly gained market share by the takeover of Super de Boer and C1000. In 2015, the retail landscape was still dominated by Albert Heijn as market leader with Lidl and, especially, Jumbo as the two fastest growing challengers. The combined market share of the smaller supermarket brands, working together in Superunie, has remained constant. Recently, the Dutch group Ahold and the Belgian Delhaize have merged, which caused an increase in the Belgian market share of Albert Heijn.¹³

An interesting side issue is that supermarkets develop their own generic brands of chocolate as they generally receive higher margins on these private labels than on branded products.¹⁴ In 2012, the world market share for private label chocolate was estimated at around 4 percent.¹⁵ The future of the private label chocolate is said to create margins through quality and product differentiation, rather than through larger sales through low prices.¹⁶

Box 3.11 Albert Heijn, Jumbo and Lidl increased market shares in the past decade



Source: Nielsen

3.8 Conclusion

Concentration in the global value chain for cocoa has two dimensions: horizontal and vertical integration. This chapter concludes that, along both dimensions, market concentration has increased in the cocoa market. Economies of scale, scope and agglomeration are important explanations of the process of increased concentration.

¹³ Robinson, 2015
¹⁴ Chittcock, 2013
¹⁵ Nieburg 2013a
¹⁶ Nieburg 2013b

The most concentrated segment of the global cocoa value chain is the processing industry, which is dominated by three firms. Market concentration has also increased in the manufacturing industry and the retail sector as a result of mergers and acquisitions.

There is no evidence, however, that market concentration is excessive or that market power is being abused. The estimated level of concentration does not exceed a level that competition authorities consider as high. There is some evidence of vertical concentration, with strong links between cocoa processors and cocoa traders, but competition still appears to be sufficient and effective, with profit margins generally reported to be low.

4 Market power and pricing

Chapter 3 provided an assessment of market concentration within all segments of the cocoa value chain. Our first finding was that economies of scale, economies of scope, and economies of agglomeration are the key drivers behind concentration in the cocoa value chain. This type of cost structure implies lower average costs for larger companies, which may benefit consumers but also constitutes barriers to entry for smaller companies. We then described the level of concentration in different segments of the value chain and provided an overview of recent M&A activity. We found that market concentration is moderate at most levels of the value chain, but there is evidence that concentration has increased in recent years, particularly in the cocoa processing segment.

This chapter will assess whether market concentration has had an impact on the level of world cocoa prices and farm-gate prices. Section 4.1 discusses the impact of concentration on price formation from a theoretical perspective. Section 4.2 discusses cocoa prices, demand and supply trends in a long run perspective. Section 4.3 is about price formation in the cocoa market, and the interplay between the future and spots markets. Section 4.4 examines the transmission between world cocoa prices and farm-gate prices. Section 4.5 concludes.

4.1 Impact of concentration on price formation

Competitive markets serve the interests of both consumers and producers. Why is concentration a problem for price formation? This problem is best explained by referring to the competitive market model as a benchmark for microeconomic analysis of how markets operate. This model demonstrates that in theory competition is able to secure equilibrium between quantities supplied and demanded, which benefits both consumers and producers. As a result of competition, consumers are able to enjoy the maximum quantity of consumption at the lowest price. Of course this is a theoretical result pertaining to markets with homogenous commodities, well informed consumers and a sufficient number of producers so that no one is able to control prices. In practice, market structures do not comply to this ideal. The markets for cocoa beans and chocolate reminds us of the fact that in reality markets are sometimes served by a limited number of sellers: they are ruled by imperfect rather than perfect competition. For example, product varieties such as the introduction of different quality grades for chocolate generate a market structure known as monopolistic competition. For chocolate as a bulk product, concentration of suppliers results in an oligopoly. In the theory of industrial organisation the economic impact of competitive distortions is discussed by using perfect competition as a benchmark (Tirole 1988). This section sets up the theoretical framework to address the impact of concentration on price formation in the market for cocoa.

Horizontal and vertical integration enhances market power and can be detrimental to consumers. The previous chapter explained that scale and scope effects motivate horizontal integration in the cocoa industry. The economic impact of increased concentration is mixed. On the one hand the

increased scale of operation enhances cost efficiency as the merged company is able to decrease its average costs (Belleflamme and Peitz 2014). Chocolate consumers should be able to profit from lower prices if scale effects reduce the unit cost of production. Vertical integration in the cocoa industry has additional benefits, as it helps to ensure traceability of resources and quality required by consumers (UNCTAD 2016, p. 18). Moreover, it helps to secure supply of cocoa. However, on the other hand the merged company also obtains a larger market share, which increases market power. Market power points to the ability of firms to determine the market price independently of its competitors and customers. The result is that firms with significant market power are able to set prices at profit maximising levels. This results in a loss of consumer welfare. Consumers pay a higher price for their chocolate bar. In addition, the price increase may imply that some consumers will buy less or stop buying chocolate altogether. Both price and quantity effects are summed up as a loss of consumer welfare. However, market power does not only affect price formation. Market power may also have negative effects on the quality of products and services. Perhaps consumers have a willingness to pay for higher graded chocolate, but suppliers with market power simply do not respond to this demand since they can behave independent of their consumers. Since these anticompetitive effects are felt downstream, the result of this type of market power potentially generates negative effects for both chocolate manufacturers and retail consumers. Indirectly, farmers feel the impact of high prices in the downstream market if this leads to lower levels of demand.

Buying power can possibly affect producers in the upstream market such as cocoa farmers. Market power of an integrated firm is felt by suppliers if the firm is able to exercise buying power. In theory the concentration of cocoa grinders allows them to dictate the conditions for buying cocoa beans from exporting firms, traders and even farmers if (representatives of) grinding companies buy directly at the farm-gate. In antitrust law buying power is treated as an anticompetitive effect on the same footing as selling power. In the extreme case that the integrated firm is the only buyer, the market structure is known as a monopsony. This could potentially have a negative impact on the level of farm-gate prices through the buying power of concentrated processing companies and possibly manufacturers further upstream in the value chain. For example, UNCTAD (2016 p. 18) stresses the problem in the cocoa industry with considerable concentration in the processing segment of the value chain, while the supply segment (i.e. production of cocoa beans) remains typically fragmented among scattered small farmers: “This situation creates an oligopsonic structure in the cocoa market, and therefore a favourable environment for the exercise of market power by well-integrated and big players. As a result, farmers are entrenched in a low bargaining position, which reduces them to “price takers” at a time when they have limited access to finance, market information and agricultural inputs such as improved seeds and fertilisers.”

Anticompetitive practices may result in higher barriers to entry. The potential abuse of market power is not uniquely defined and may involve different types of activities. For example, predatory pricing can be used to deter entry. According to this strategy the firm with market power lowers prices below average cost. This price level suggests that new firms are not able to recoup their costs and hence decide to invest elsewhere. The benefit for the dominant firm is that prices can be raised to profitable levels again when the threat of potential competition has been sufficiently reduced. There have been no legal cases in the cocoa industry to indicate that predatory pricing has been pursued by firms with high market shares in this market.

Joint dominance may also pose a risk to competition. Given these two opposing effects, merger control in American and European antitrust law compares the negative welfare effect of the potential market power of the merged corporation with the increased efficiency that may result from the merger (Motta 2004). In European antitrust law, a merger is forbidden if the merger results in a significant distortion of competition. Since the Nestlé-Perrier merger, coordinated effects of mergers are also under the purview of the merger control. This merger created two companies with more or less the same market share (38 percent each). The European Commission rejected this merger because it feared that the merger would establish oligopolistic dominance. The two firms could tacitly agree to divide the market and increase prices. In general, the European Commission judges that the potential for tacit collusion is high if the following conditions are met:

- The two firms are of equal size and have a comparable cost structure
- The monitoring of prices is relatively easy
- The demand for the product in this market is relatively price inelastic
- There are high barriers to entry

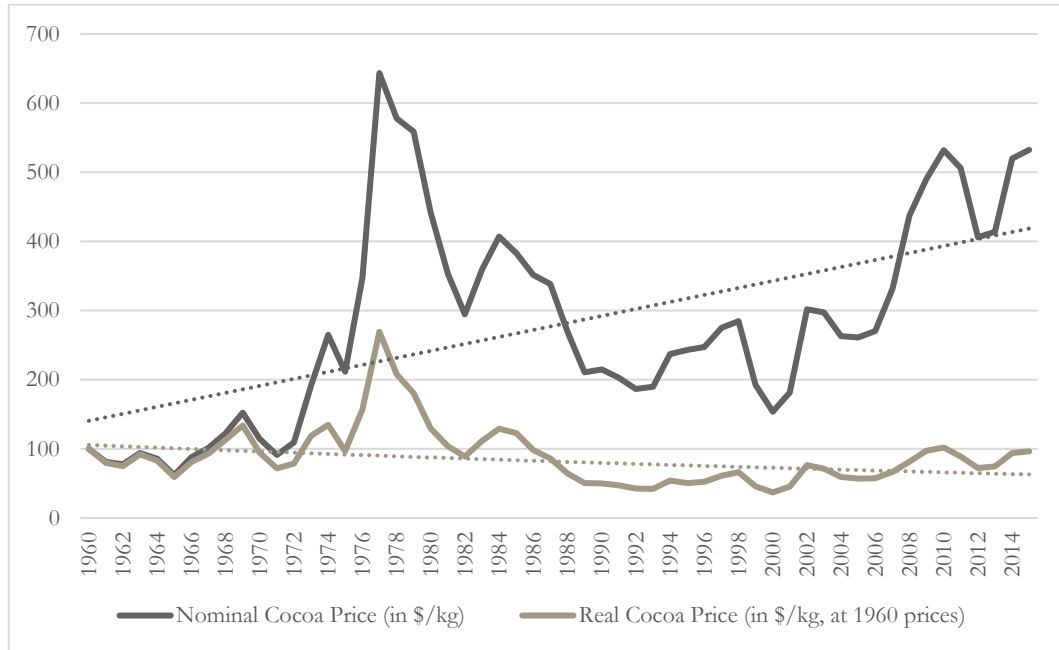
The relevance of this effect to the cocoa industry is that an oligopoly, which exists in grinding and manufacturing, may give rise to joint dominance. In other words, this possibility aggravates the potentially negative impact of concentration.

Countervailing power cushions the anti-competitive effect of concentration. Markets have two sides: supply and demand. Competition is the result of these two forces. This means that concentration on the supply side results in price effects if the buyers are not able to counteract the market power. In contrast, a counteracting force occurs when the downstream market is concentrated as well and thereby is able to exert buying power to offset the selling power of parties in the upstream market. As an extreme example, a single seller may meet a single buyer. In this market the outcome of the transaction between supply and demand may well mimic the result of a perfectly competitive market. The study of the impact of concentration on price formation needs to take into account such countervailing powers. In the market for cocoa, grinders have selling power but may not be able to increase prices as their customers are large manufacturing firms which may have buying power. Alternatively, grinders may not be able to exert buying power on their account if they depend on the selling power of exporting firms and traders. In this latter case, the potentially negative impact of concentration on prices upstream in the value chain for cocoa will not materialise. For this study it will therefore be a relevant question to examine if countervailing powers exist and are able to cushion the impact of concentration on price formation in the value chain.

4.2 Supply, demand, and the world cocoa price

Since 1960, the world cocoa price has increased fivefold in terms of US dollars but remained broadly stable when adjusted for inflation. As Figure 4.1 shows, nominal cocoa prices (in US dollar per kg) increased by an average of 5.8% per year during the period 1960-2015; resulting in a fivefold increase of the price over the whole period. In real terms (i.e. adjusted for inflation), cocoa prices increased by 130% since 1993 but remained mostly constant when taken over the whole period 1960-2015. In 2015, the real cocoa price was nearly at the same level as in 1960.

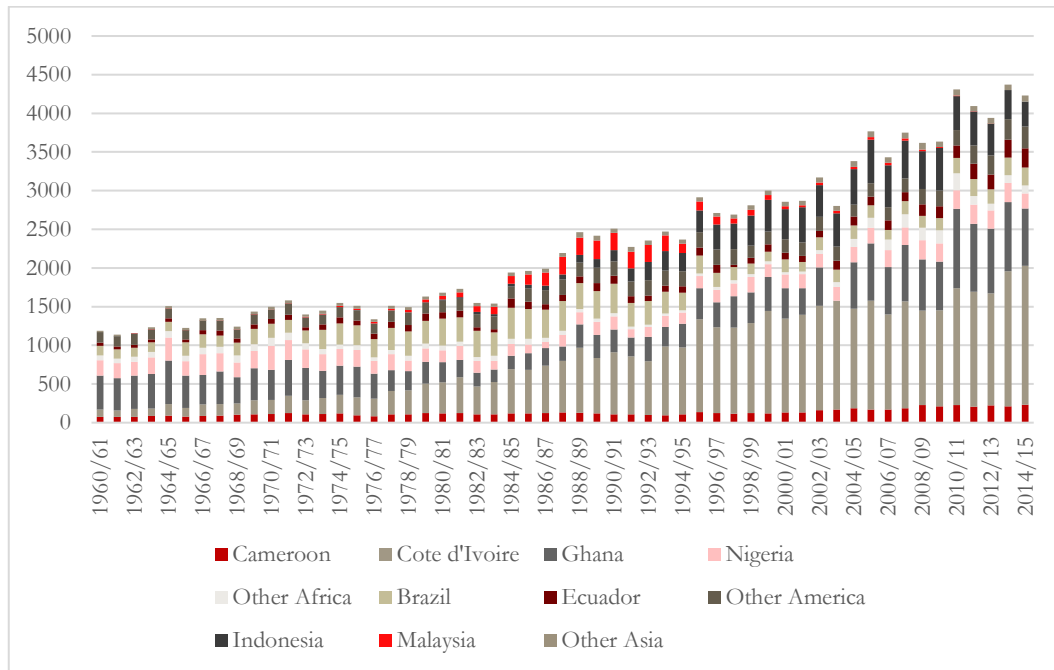
Box 4.1 Cocoa prices have increased in nominal terms, but not in real terms



Source: World Bank 'World DataBank' (based on ICCO prices), 2016. 1960=100

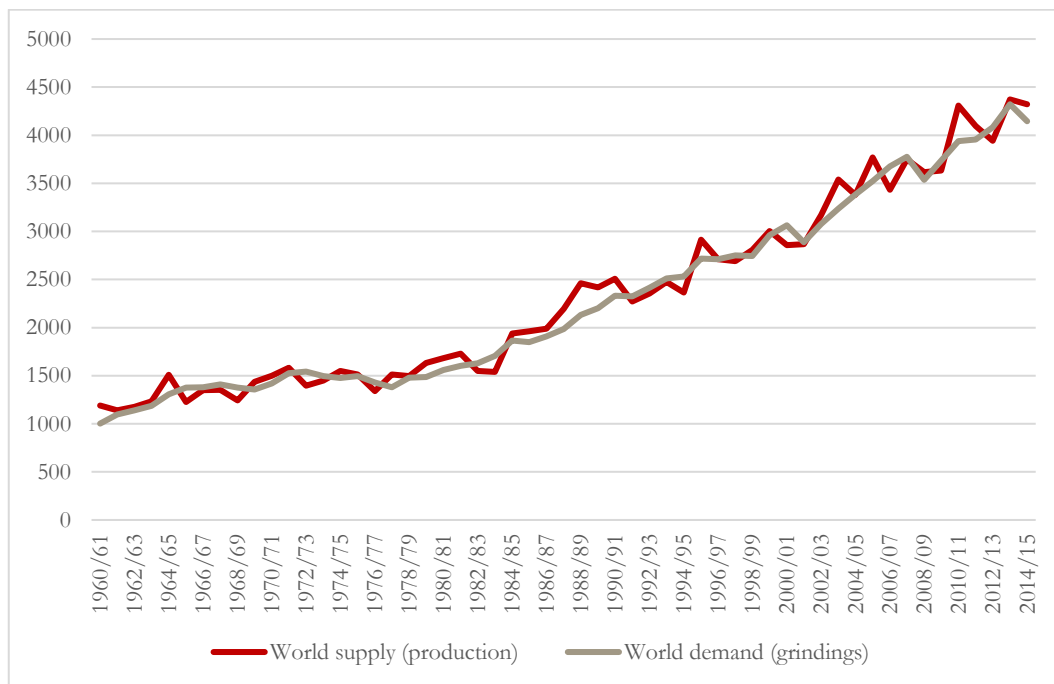
The cocoa price is determined by the interplay of supply and demand, both of which have shown an increasing long-term trend over the past 55 years. Figure 4.2 shows that total cocoa production (supply) quadrupled over the period 1960-2015 with an average year-on-year growth of 2.8%. The key suppliers have been Côte d'Ivoire and Ghana. Figure 4.3 shows that total cocoa grindings (a measure of cocoa demand) increased at the same rate of 2.8% a year and also quadrupled over the period 1960-2015. During the 1960s and 1970s, growth was very slow but saw a significant increase during the 1980s. During 1995/96, world production growth jumped to 23%, possibly due to government-led investment in Côte d'Ivoire, but this was followed again by a stagnation in growth. The year 2000 saw again a significant growth in both supply and demand, with the maximum production of around 4.4 million tonne reached during the 2013/14 season.

Box 4.2 World cocoa supply shows an increasing long-term trend



Source: Gilbert, 2016 & ICCO, 2016. In 1000 tonnes

Box 4.3 World cocoa supply moves in tandem with world cocoa demand

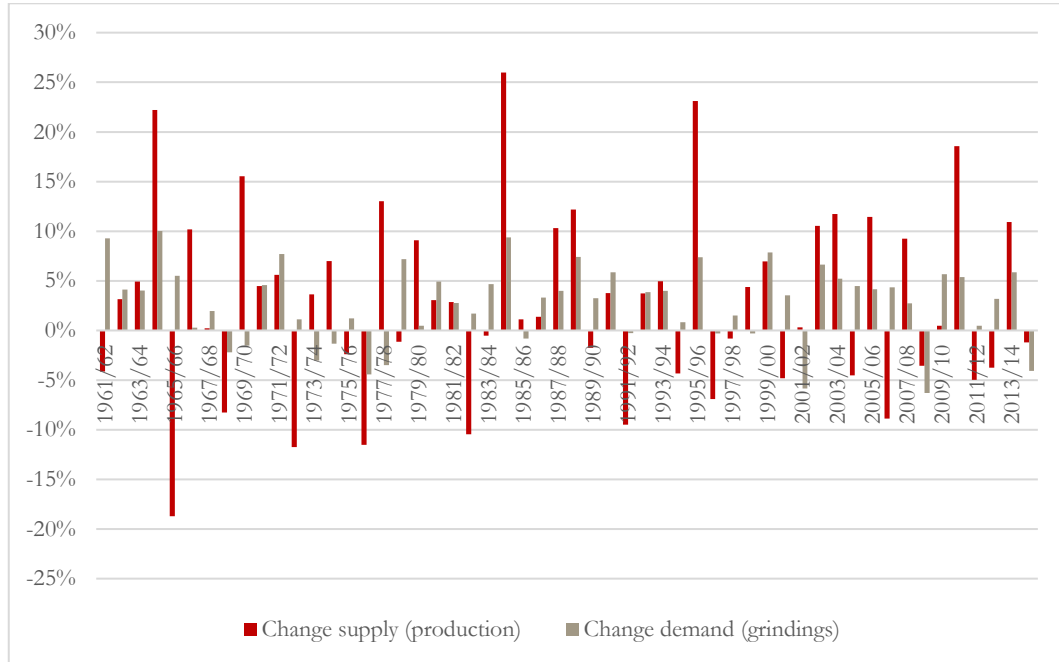


Source: Gilbert, 2016 & ICCO, 2016. In 1000 tons

While cocoa supply generally follows cocoa demand, production can be quite volatile from year to year. The annual change of cocoa production averages nearly 7.5% per year (positive or negative) over the period 1960-2015, and the standard deviation from the mean is as high as 9 percentage

points. As Figure 4.4 shows, there are 17 seasons during which the annual change in production was higher than 10%, with volatility peaks as high as 26% in 1984 and 23% in 1995.

Box 4.4 Supply is more volatile than demand

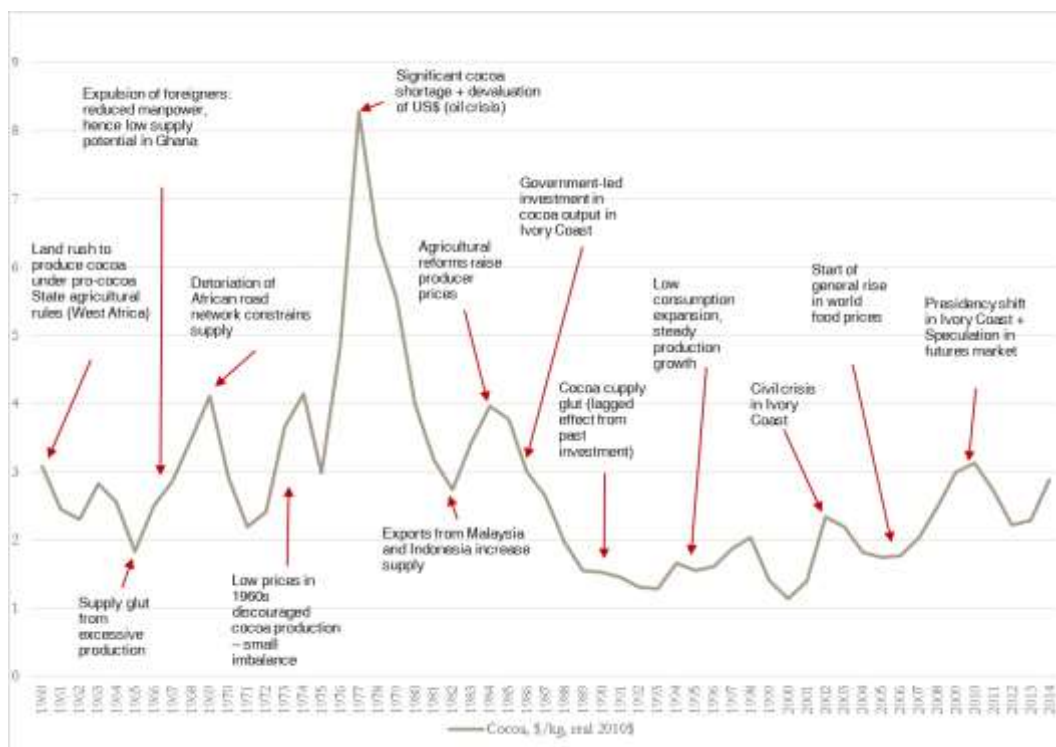


Source: Gilbert, 2016 & ICCO, 2016. Year on year change

There are two main reasons for the volatility in cocoa supply: weather and politics. First, the weather can severely influence a harvest. For example, dry weather patterns in West Africa in August and October can prevent cocoa trees from flowering and can therefore lower production. Second, the domestic political situation in cocoa producing countries can also affect production. For example, the large decline in production during 1965/66 was the result of a military coup d'état in Ghana (and the subsequent expulsion of foreigners), while the recent price increases in 2002 and 2010 were related to civil unrest in Côte d'Ivoire.¹⁷ As Figure 4.5 illustrates, many other political factors have had an impact on short-term volatility in cocoa production and thereby on the cocoa price. Other reasons for volatility in production can include pests and plant disease, infectious disease outbreaks (AIDS, malaria, Ebola), changes in government cocoa investment programmes, or changes in the availability of inputs such as fertilisers. International organisations and governments closely monitor these changes in cocoa production in order to give accurate supply estimates on which prices can be based.

¹⁷ Note that the cocoa price increased strongly during these periods, while the impact on production in Côte d'Ivoire was actually not that significant. This was likely the result of speculation, discussed in more detail in the next section.

Box 4.5 Short-term shocks to the real cocoa price



Source: PwC (2014), Cocoa Price Trends and Prospects.

The supply of cocoa is highly inelastic in the short term.¹⁸ In a model of the cocoa market, Gilbert (2016) estimates the short term price elasticity of cocoa production to be 0.078, which is extremely low.¹⁹ The natural reason for this low short-run inelasticity of supply is that, when farmers plant new trees due to high prices, it takes about 4-5 years for new plantings to become productive. Given that cocoa trees are a long-term investment, farmers will also not easily grub up trees when prices are temporarily low. This is described further in Chapter 6.

Supply is more elastic in the long term. Gilbert (2016) estimates the long-term (4-48 years) price elasticity of cocoa production to be 0.285, which is still somewhat inelastic but more elastic than the short-term price elasticity. Given that the average life span of a cocoa tree is four decades, farmers may still be hesitant to switch to another crop even in the long term, unless they are positive that the other crop will yield a higher income for them in the long run. (See Chapter 7 for more on income diversification).

The demand for cocoa is clearly less volatile than the supply of cocoa. As figure 4.4 showed, the average annual change of demand (positive or negative) is 4% (compared to 7.5% for supply) and there is only one season during which the annual change was higher than 10% (compared to 17

¹⁸ Price elasticity is defined as the percentage change in quantity supplied divided by the percentage change in the price. Inelastic supply indicate that producers are relatively price insensitive. Price elasticity may refer to the supply side (quantity supplied) or the demand side (quantity demanded) of the market.

¹⁹ Actually Gilbert (2016) reports an estimate of -0.078, but this is likely a typo due to the use of co-integration estimates. His definition of the short term is 2-3 years.

seasons for supply!). The standard deviation from the mean is 3.8 percentage points (compared to 9.0 percent point for supply).

The demand for cocoa is also estimated to be inelastic in the short term. Gilbert (2016) estimates the price elasticity of cocoa demand at -0.088 in the very short term (0-1 year) and even less, at -0.029 , in the 'long term' (which Gilbert defines here as 1-4 years). The explanation of the relative inelastic demand for cocoa as a raw produce is that the demand of processors is determined by their processing capacity: it is very costly to have excess processing capacity. As a result, the pricing policy of processors is aimed to secure full use of existing processing capacity. A change in the demand of processors will first and foremost be reflected in an adjustment of their processing capacity, which by definition is a long term development. The key factor is that processors cannot quickly change their demand for cocoa without making costly alterations to their production facilities. This may even involve disinvestment, as ADM's decision to leave the cocoa market in 2014 indicates. From this perspective, Gilbert's calculation of the price elasticity for a period of 4 years may still be classified as relatively short term.

Ultimately the demand for cocoa as raw produce is determined by the demand for chocolate as a retail product and hence by the price elasticity of the demand for chocolate. Gilbert (2016) has not estimated the price elasticity of demand over longer periods of time, and we are not aware of other estimates of the price elasticity of demand for chocolate as a retail product. However, according to several chocolate manufacturers, consumer demand for chocolate is relatively price elastic, even in the short term, to the extent that chocolate competes with other snacks in a broader snack environment (see section 3.2). From an economic perspective, there are sufficient substitutes for chocolate as a retail product, which implies that consumers will switch to other snacks if the price for chocolate increases significantly in comparison to these substitutes. The impact of such changes in demand are first and foremost felt by retailers and only with considerable delay by manufacturers and processors. They will likely use inventories to cushion the impact of short term fluctuations in demand and will only act upon a structural shift in demand if the marginal costs of making adjustments to their production facilities are lower than the marginal revenue of an increase or decrease in sales.

4.3 Price formation in the global market for cocoa

Technically, the world price for cocoa is established on the cocoa futures market. Cocoa is a relatively homogenous commodity which is traded worldwide. This allows us to speak of a global cocoa market establishing the world price for cocoa (Gilbert 2016).²⁰ Pricing in this global cocoa market crucially depends on the London NYSE-LIFFE and the New York ICE cocoa futures markets as points of reference. To explain this connection, it is necessary to distinguish between exchange prices and transaction prices. The price of a cocoa future is the price for a financial contract involving the forward delivery of a specific quantity of cocoa. Transaction prices are set bilaterally between buyers and sellers for the actual delivery of cocoa. In the global cocoa market these transactions are negotiated on the basis of the two major exchange prices. This means that contracts between buyer and seller denominate the quantity deliverable, the futures contract against

²⁰ Of course, quality differences do matter to cocoa pricing. We are here referring to 'fair average quality'. Cocoa with a higher quality will command a premium.

which delivery will be priced, and a negotiated premium or discount relative to the futures price. Such contracts leave room for negotiation so that different cocoa processors will end up paying different prices for cocoa of the same quality, depending on their trading expertise and the timing of delivery. Hence there is no single spot price for cocoa. There are many transaction prices which all use the price of cocoa futures as their point of reference. This central role of the exchanges is typical for all futures-traded commodities (Gilbert 2016).²¹

Commodity futures markets play an important role in the pricing process, as they improve spot price expectations. A future contract fixes the price today for delivery of a commodity like cocoa in the future (Schofield 2007). For cocoa, futures are traded for five delivery dates per year. Both ICE and NYSE-LIFFE trade contracts for delivery in March, May, July, September and December of each year, with delivery specified as the day following the final trading day of the contract. The prices for the futures prior to the expiry date therefore constitute market expectations about the cash price on those five delivery dates. Moreover, futures consist of standardised contracts with prices ‘cried out’ to all buyers and sellers, which makes the price setting process much more visible and transparent than in spot markets.²² The pricing of futures for commodities thus aids the process of price discovery (ICCO 2007). In theory this price reflects all information available to market participants. Economists call competitive markets in this sense efficient.²³

Perhaps even more importantly, futures allow physical traders to hedge their risks as it fixes the price for future delivery. For traders it is commercially attractive to sell cocoa for future delivery in order to guarantee the proceeds from trade and/or production of cocoa beans. Likewise, processors need cocoa as input for grinding in order to satisfy demand for industrial cocoa. Buying cocoa on the exchange fixes the price for future delivery. The exchanges thus play a crucial role in reducing price uncertainty in the market and provide a price insurance function to the cocoa market as traders are able to hedge open positions in the market (Schofield 2007 and ICCO 2007).

One potential downside of futures markets is that they could increase price volatility. The trading turnover on cocoa futures markets is huge and about ten times higher than actual world production. Some market participants and observers therefore believe that speculators move commodity futures markets like cocoa away from their fundamentals thereby distorting prices and exacerbating volatility (World Cocoa Foundation 2012). This problem is worsened by the increasing market share of speculators. Ohemeng et al. (2016) estimate that speculative trading in cocoa futures has increased by more than 400 percent between 1986 and 2005.²⁴ Bohl and Stephan (2013) study six commodity futures markets and conclude that as a result of the intensive financialisation of

²¹ Spatial arbitrage keeps the prices of futures in London and New York fairly close. Since 1960 ICCO calculates a daily indicator price for cocoa beans. This is the average of the quotations of the nearest three active futures trading months on the London NYSE-LIFFE and the New York ICE cocoa futures markets at the time of London close (16:50) and 12:00 noon time in New York. The ICCO price is therefore not a transaction price.

²² In the past, prices were literally cried out in the trading pit, today physical trade has been replaced by electronic bidding mechanisms through the exchange’s clearinghouse.

²³ However, in practice markets do not always comply to this theoretical ideal known as the market efficiency hypothesis.

²⁴ A speculator can be defined as a trader who does not hedge, but who trades with the objective of achieving profits through the successful anticipation of price movements. A hedger is a trader who enters into positions in a futures market opposite to positions held in the cash market to minimize the risk of financial loss from an adverse price change. These types of traders cannot be clearly separated as hedgers sometimes also trade for speculative purposes. See Bohl and Stephan (2013).

commodity markets in the last decade, speculative market shares has shown an “unprecedented increase” with shares up to 30 percent for soy beans and 40 percent for wheat.

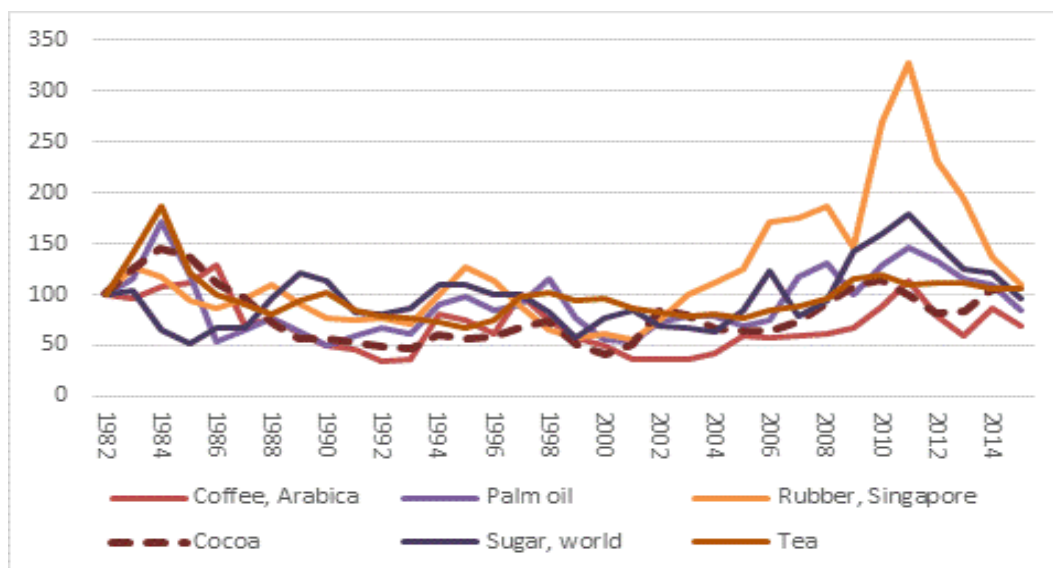
There have been attempts by speculators to corner the cocoa market. In July 2010, Armajaro, a London-based agricultural commodities hedge fund, was forced to buy 240,000 tonnes of cocoa on the London cocoa futures market. This was approximately 7 percent of the world’s physical supply of cocoa, which pushed the price of cocoa to a 33-year high. It is likely that this sale was the result of a failed attempt to control the futures price. There have also been fines for traders who transgressed futures market regulation aimed at securing fair trading. In 2013, Olam received a US\$3 million fine for violating trading regulations on the cocoa futures market.

However, a time-series analysis of spot and future prices reveals that the pricing process in the cocoa market operates efficiently without distortion from speculators (Ohemeng et al. 2016). In an extensive empirical study using prices over a twenty-year period, Bohl and Stephan (2013) likewise test whether futures speculation destabilises commodity spot prices for six different commodities. For none of these commodities it can be proven that speculation was able to influence prices, in spite of the strong increase in speculation over the period under examination. Price spikes do occur in commodity markets but there is no evidence that speculation is the cause of price volatility.²⁵ ICCO 2007 provided an econometric test of the relationship between price changes in the futures and spot markets for cocoa. This analysis showed that price changes in the futures market run ahead of the spot market. This suggests that successful speculators react quicker to new information than any other market participant to new information relevant for the market. This provides a price signal to the rest of the market which in fact helps the process of price formation in the cocoa market. ICCO (2007) therefore concludes that speculation in the cocoa market reduces price volatility rather than increases it, which is in line with the conclusion of Bohl and Stephan (2013).

Another indication that there is no systematic bias or manipulation in the world cocoa market is that the world price of cocoa is not more volatile than other world commodity prices. As Figure 4.6 shows, the real price of cocoa is not more volatile than the real prices of coffee, rubber, sugar, palm oil and tea. For cocoa the largest change in price is circa 60 percentage points, which is higher than those of coffee and tea but comparable to the price swings for sugar and palm oil and lower than the volatility of the price for rubber.

²⁵ A well-established result in finance literature is that the volume of trade is positively correlated with price volatility. This is caused by increased heterogeneity of traders in a larger market increase noise in prices.

Box 4.6 The price for cocoa is not more volatile than other commodities



Source: (Global Economic Monitor, 2016); Real price developments (1982=100)

4.4 Transmission of world cocoa prices to farm-gate prices

Futures prices for cocoa can be seen to determine cocoa spot prices. Theoretically, future prices are determined by spot prices, but in practice the causation is sometimes reversed with the price of futures showing price leadership (Schofield 2007). In the cocoa market this seems to be the case, for the reasons described above. This underpins the centrality of the futures prices in the pricing process.

Farm-gate prices appear to show a lagged response to changes in the price of cocoa futures. Table 4.1 reports the results of a study by ICCO (2013), which developed an econometric model to simulate a structural increase of the price of cocoa futures and the effect on farm-gate prices for five cocoa producing countries.

Table 4.1 Farm-gate prices show a lagged response to changes in the price of cocoa futures

	Amount of the price increase*	Time lag**			
		25%	50%	75%	95%
Cameroon	£ 98.5	5 days	14 days	30 days	73 days
Côte d'Ivoire	£ 44.4	41 days	100 days	199 days	404 days
Nigeria	£ 81.4	8 days	15 days	28 days	59 days
Brazil	\$ 84.1	< 0 days	2 days	11 days	35 days
Indonesia	\$ 98.6	4 days	12 days	26 days	61 days

Source: ICCO (2013)

* Note: Increase of the long-run Equilibrium Price at farm-gate after a permanent, overnight price shock of 100 (£ or \$) per tonne on the (London or New York) cocoa futures market.

** Note: Time required by the farm-gate price to register X% of the total increase due to an overnight permanent price shock on the futures market (i.e. 100% indicates that the long-run equilibrium has been restored)

Table 4.1 illustrates that an increase in the price of cocoa futures increase the farm-gate prices by at least 80 percent of the increase in most countries except Côte d'Ivoire. The differences in these equilibrium levels are due to intrinsic variations in the structure, organisation and public policies at these origins. The time lag in the price adjustment process points to short-run inefficiencies in the cocoa producing countries especially in the form of a lack of competition among cocoa traders. However, apparently competitive pressure is sufficiently strong to ensure market efficiency in the long run, which in this case means that farm-gate prices comply to the price level set by the cocoa futures market (ICCO 2013). The empirical investigation by Gayi and Tsowou (2016) suggests that transmission from world cocoa prices to producer prices has generally increased with trade liberalisation in cocoa producing countries. The relatively low price increase passed on to farmers in Côte d'Ivoire is likely to arise from the domestic fiscal policies in force during the 2009-2012 period. With the introduction of fixed prices in 2012 the pass through in this country is likely to have changed. Fixed prices in the regulated markets of Ghana and Côte d'Ivoire will respond to changes in the world market with a lag which depends on the timing of price review in the regulatory system, which works with a yearly cycle. This means that the lag will have a maximum duration of a year after which the regulated price is likely to have adapted to changes in the world price for cocoa.

It is expected that the transmission of the price shock from another market is not symmetric; that a price increase is passed on less than a price decrease. However, data by the ICCO suggests that the transmission is symmetrical and equally strong in both ways. The report concludes that the short-run economic inefficiencies arise from a lack of competition in the domestic market, not from transaction or information costs since these are so small that they can be neglected in the case of cocoa. Whenever a system of export licenses becomes a barrier to entry in domestic cocoa marketing, it limits the competition among domestic cocoa buying agencies and thereby reduces the speed of transmission of the price shock.

4.5 Market structure and competitive assessment

High concentration levels in different segments of the global value chain for cocoa may pose a threat to pricing. Chapter 3 concludes that the level of horizontal and vertical concentration in the global cocoa market is moderate and increasing. Our competition assessments of the cocoa market demonstrate that the current levels of concentration do not yet pose a threat to price formation. In terms of competition policy, the potential impact of concentration on competition depends on the extent of the relevant market. This is the market for which anti-competitive behaviour or a merger may have consequences. The definition of the relevant market has two dimension: which product is traded in this market and what is its geographical dimension? According to the European Commission the following *product* markets for the cocoa industry constitute separate markets:

- Procurement of cocoa beans by traders and grinders from the cocoa producing countries;
- Semi-finished cocoa products like cocoa liquor, cocoa butter and cocoa powder. These three markets stand out as separate markets;
- Industrial chocolate.

For each of these products the relevant *geographical* dimension is delineated:

- Procurement of cocoa beans is a worldwide market, given that the transportation costs are only a small fraction of their bulk sales prices regardless of origin and destination;
- Semi-finished goods are assumed to be sold on an European market, although the Commission recognises that this market could potentially be worldwide (again pointing to relative limited transportation costs);
- Industrial chocolate is likewise sold in the European market.

The next question to be answered in a competitive assessment is whether mergers between companies raise concern in relation to horizontally and vertically affected markets. For this purpose, the market shares of the merging companies in the relevant markets are added up. Concerning the Barry Callebaut-Petra Foods merger, the European Commission concluded that the combined market shares of the two companies remain “rather moderate” under all possible market definitions with a maximum share of circa 30 percent. The decision did note that Barry Callebaut is market leader in industrial chocolate within the European market with a market share in the range of 45 to 55 percent. However, the target company – Petra Foods – was not active in this market. Moreover, the investigation showed that affected competitors and clients confirmed that they would continue to have sufficient alternatives, suggesting that the merger did not negatively impact the degree of effective competition.²⁶ In particular, the Commission concluded “regarding the horizontal overlap in relation to semi-finished cocoa products, the proposed transaction does not give rise to serious doubts in the relevant upstream market.” (European Commission 2013, p. 11). As a result, the Commission did not raise objections to the proposed merger.

Table 4.2 The market shares of Barry Callebaut and Petra did not raise competitive concerns with the European Commission

Share of supply 2012		Cocoa liquor	Cocoa butter	Cocoa powder
Worldwide	BC	10-20%	5-10%	10-20%
	Petra	0-5%	10-20%	10-20%
	Combined	10-20%	20-30%	20-30%
Europe	BC	10-20%	5-10%	10-20%
	Petra	<1%	10-20%	5-10%
	Combined	10-20%	10-20%	10-20%

Source: European Commission 2013.

However, when Cargill planned to take-over the processing capacity of ADM in 2015 the resulting combined market shares did raise concerns. The European Commission approved the merger but required remedies in the form of the sale of ADM’s industrial chocolate plant in Mannheim, Germany. The Commission argued that “the transaction as notified would reduce competition in the already concentrated market for industrial chocolate and risked increasing chocolate prices for customers located near the parties’ German plants, especially for small and mid-sized customers” (European Commission, 2015). Unfortunately, the Commission did not publish this decision, only its verdict. Consequently, this study cannot profit from the Commission’s estimates of the market shares in the market for industrial chocolate in the post-merger situation. However, the Cargill-ADM merger does demonstrate that subsequent mergers and increased concentration may meet

²⁶ European Commission (2013).

stronger objections from the European Commission and possibly stricter remedies to keep the market power of the major companies under control.

High market shares and product differentiation inhibit competitive pricing in the different segments of the cocoa market. Empirical studies of the market structure and pricing in the different segments of the global cocoa chain help to put the competitive assessment of the Commission in perspective. For example, Bonjean and Brun (2016) highlight the bipolar structure of the cocoa industry. They conclude that market shares in the processing industry are high, but this does not mean that the companies in this market are able to set prices for semi-finished products and couverture above the competitive price. They meet countervailing power in the form of the multinational companies operating in the manufacturing industry, which is likewise concentrated. However, the empirical analysis of Bonjean and Brun (2016) also demonstrates asymmetric price adjustment in the retail market for chocolate. Retail prices generally rise with increases in the price of cocoa beans, but do not decline to the same extent when the price of cocoa beans decreases. This is an indication of market power which the authors relate to the manufacturing industry. This market segment is best described as ruled by monopolistic competition. Chocolate manufacturers engage in a strategy of product differentiation through branding of their products. In economic terms this means that manufacturers are able to exploit the relatively low price elasticity for chocolate brands in the retail market, which leads to non-competitive prices.

For the purpose of this study it is important that the impact of market power is felt in the retail market by end-consumers. There is no indication that the processing industry earns excessive profit margins as a result of non-competitive pricing aimed at the upstream market. Abbott (2013) reports that “multinationals argue that their margins represent real costs rather than rents”. However, there is no public data to support this conclusion. Abbott (2013) observes that the multinational companies may play a positive role in the negotiating process. They are often seen as “the villains” in value chain analysis but several of the more successful marketing innovations in cocoa are the result of activities of multinationals such as partnerships between these corporations and farmers organisations. Abbott even concludes that “the most successful cooperatives maintained partnership relationships with multinational firms. They obtained premiums to quality of high volumes of sales when they successfully maintained these relationships. They also received logistical support.” (Abbott 2013, p. 280).

Table 4.3 Pricing in the global cocoa value chain

Agents	Price received	Gross revenue	Extent of the market	Concentration	Market power*
Cocoa farmers	Farm-gate cocoa price	Farm-gate cocoa price	Regional/national market	Very low	Very low
Cocoa traders	Export price	Export price – farm-gate price	National market	Moderate/High in some countries	Cameroon: high Nigeria: high Indonesia: low Ghana: low Côte d'Ivoire: low
Cocoa processors	Processed cocoa price	Price for processed cocoa – export price	World market	Moderate	Limited because of efficient future markets
Chocolate manufacturers	Wholesale chocolate price	Price for manufactured chocolate - price for processed cocoa	World market	Low	Limited as a result of countervailing power of processors
Chocolate retailers	Retail chocolate price	Consumer price for chocolate – price for manufactured chocolate	National market	Low	Limited as a result of countervailing power of manufacturers

Source: SEO Amsterdam Economics

* Market power refers to the capacity of sellers with a high market share to determine price formation in the market as a whole.

4.6 Conclusion

This chapter described the channels that allow market players in concentrated markets to affect price formation in either downstream or upstream markets. This analysis lists the theoretical possibilities to connect the issue of market concentration in the global value chain for cocoa with price formation. The chapter then investigated whether such problems did, in fact, emerge in the cocoa market.

We have four main conclusions:

- First, supply shocks are found to be the most important cause of price volatility in the cocoa market. In the long run, however, supply and demand reside in equilibrium.
- Second, the futures price for cocoa aids the process of price discovery and thus helps to stabilise prices in the spot market. In this regard, speculation cannot be seen as a source of disruption for cocoa prices. In general, the futures market for cocoa operates efficiently and is not controlled by dominant market players.
- Third, the futures market provides a price signal to the spot market and therefore to farm-gate prices in the upstream market. In the long run, farm-gate prices tend to equalise with the price level set by the futures market but in the short run there are inefficiencies in the price setting process that could be linked to a lack of competition among cocoa traders. Furthermore, liberalisation of the cocoa market in several countries has improved the efficiency of the price setting process, which means that as a result of increased competition farm-gate prices tend to equalise more quickly with the world price level set by the futures market.

- Fourth, we found that results from empirical studies on the potential exercise of oligopsony or oligopoly power through the cocoa value chain have been inconclusive. The competitive assessments of the European Commission of the recent mergers and acquisitions in the cocoa sector demonstrate the concern for the increasing concentration in particularly the processing part of the industry. However, these assessments did not consider the level of anti-competitive concentration from the point of view of European anti-trust law. Remedies imposed on the Cargill-ADM merger demonstrate that subsequent mergers and increased concentration may meet stronger objections from the European Commission and possibly stricter remedies to keep the market power of the major companies under control.

5 National cocoa pricing mechanisms

The previous chapter showed that there is no strong evidence that market concentration has an impact on the world market price for cocoa, given that the futures market plays a central role in the price setting process and appears to operate efficiently. Based on statistical analysis, the transmission from changes in the world cocoa price to changes in farm-gate prices is generally realised in the long run, albeit with short-term inefficiencies. However, empirical research indicated that local market concentration could hinder the transmission of world market prices to farm-gate prices, as a result of information asymmetries and a lack of bargaining power on the part of farmers.

In this chapter, we explore how different national price mechanisms in producing countries affect the transmission of world cocoa prices to farm-gate prices. We will first look at the origins of national cocoa pricing mechanisms, followed by a comparative analysis of the current different price-mechanisms that are used. We divide the cocoa producing countries in three groups: 1) countries with fixed farm-gate prices (Ghana and Côte d'Ivoire); 2) countries where prices are determined by market forces (Cameroon and Nigeria); and 3) a country where prices are set by import prices (Indonesia). We also look into national differences in the bargaining position of cocoa farmers with respect to local cocoa buyers and traders.

5.1 Introduction

In this chapter we discuss how national cocoa pricing mechanisms differ across five major cocoa producing countries: Côte d'Ivoire, Ghana, Cameroon, Nigeria, and Indonesia.

The summaries, comparisons and analyses presented in this chapter are based on short periods of qualitative field studies that were carried out by local experts in each country, and coordinated, validated and complemented by KIT and SEO. The fieldwork took place during April-July 2016 and was complemented by interviews with key stakeholders during the ICCO's Third World Cocoa Conference that took place in the Dominican Republic in May 2016. For further details on price formation by country, see Appendix A.

Origins of national cocoa pricing mechanisms

The differences in national pricing mechanisms are in part determined by colonial history (Gilbert 2009) and by the reforms that later on took place in the different cocoa producing countries. Prior to the reforms of the 1980s, Ghana and Nigeria operated marketing boards, Côte d'Ivoire operated a 'caisse de stabilisation' and Cameroon adopted a hybrid model:

- Countries with a British colonial history (Ghana, Nigeria) traditionally had national marketing boards for export crops such as cocoa. These marketing boards, which were set up and regulated by the government, effectively nationalised and monopolised the buying and selling of cocoa.
- In countries with a French colonial history (Côte d'Ivoire, and Cameroon to some extent), the buying and selling of commodities typically remained with the private sector. However, the

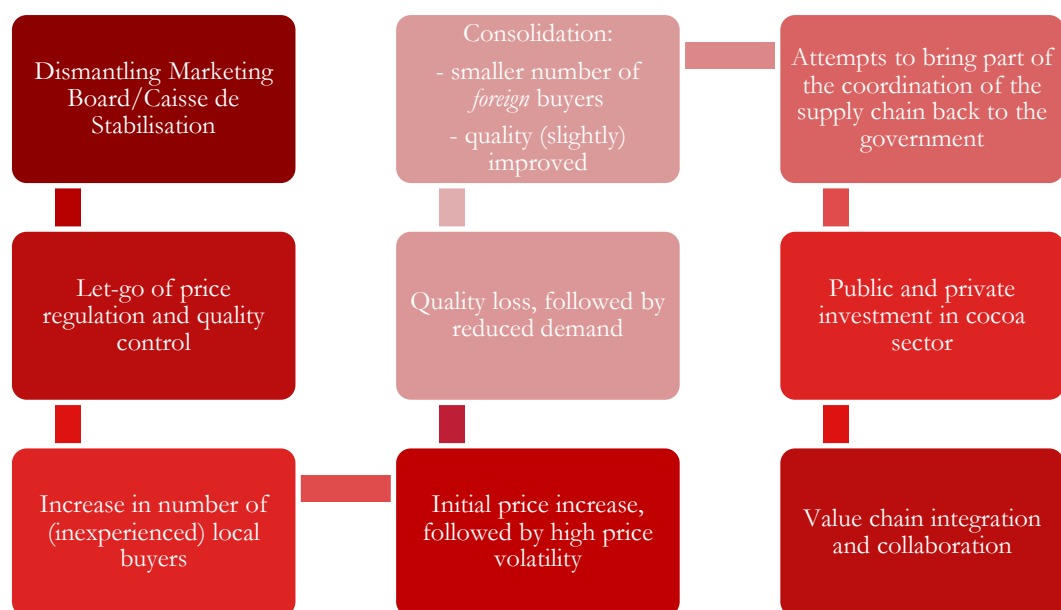
state intervened by setting producer (farm-gate) and export prices, issuing export licenses and granting exclusive regional purchasing franchises to private companies. These interventions also aimed to stabilise prices through a ‘stabilisation fund’ (caisse de stabilisation).

- In the former Dutch colony, Indonesia, a highly competitive ‘hands-off’ system was introduced. This non-intervention policy was supported by the Indonesian Cocoa Association (Askindo).

The low cocoa prices of the mid-1980s were an incentive for liberalisation; it was hoped that reforms would increase producer prices, by improving the efficiency of the cocoa related activities and by reducing the costs of inefficient marketing and pricing systems (Laven 2010). All major West African cocoa producing countries implemented some market reforms, albeit in different ways. Major liberalisations took place in Nigeria (1986), Cameroon (1991 and 1994) and Côte d’Ivoire (1998-2002). Ghana implemented a more modest liberalisation in 1992-93 (Gilbert 2009).

Nigeria and Cameroon witnessed an almost complete withdrawal of the state from the sector (Gilbert 2009). In both countries, reforms were introduced rapidly and affected prices, quality, costs of inputs and the organisation of trade. Figure 5.1 summarises how Nigeria and Cameroon moved from a regulated to a liberalised market.

Box 5.1 Moving from regulated to non-regulated markets



Source: Laven 2010

Following the reforms described above, Cameroon and Nigeria now have nearly fully liberalised cocoa sectors. The price stabilisation mechanism was abandoned in both countries, implying that farmers are no longer protected against high price fluctuations.

In Côte d’Ivoire and Ghana, the cocoa sector is currently regulated. While Côte d’Ivoire regained control over the sector after a period of liberalisation, Ghana resisted the pressure to fully liberalise

their market and opted for a gradual approach towards liberalisation (also referred to as ‘modest liberalisation’).

In Côte d’Ivoire, after a period of liberalisation, inefficiencies and political turbulence, the government launched new cocoa reforms in 2011 to regain control of the sector and with the aim of raising farm-gate prices and increasing cocoa productivity. To this purpose, the government established a central body, *le Conseil du Café-Cacao* (CCC), in January 2012, with representatives of all stakeholders, responsible for the management, regulation, development and price stabilisation of cocoa.

In Ghana, with the gradual reforms, the regulated price system remained intact, but overhead costs decreased and some competition was introduced in the internal market. While the Cocoa Marketing Company, a subsidiary of the state-owned marketing board COCOBOD, maintained a monopoly over external marketing, internal marketing was liberalised. This liberalisation of internal marketing introduced private Licensed Buying Companies (LBCs) as competitors to the state-owned Produce Buying Company (PBC) that had a monopoly on buying cocoa from farmers; PBC is currently still the largest LBC. The reluctance to introduce full-fledged market reforms appears to be related to the high dependence of the Ghanaian economy on cocoa export revenues. In Ghana, COCOBOD falls under the Ministry of Finance.

In Indonesia, the cocoa sector is liberalised and the government plays a marginal although **increasing role**. Domestic cocoa processing and chocolate manufacturing have been stimulated through a 10% export tax on unprocessed cocoa beans, introduced in 2010. This tax has given a substantial boost to the local processing industry and has intensified trade relations between farmers and exporters, as domestic demand for Indonesian cocoa by local processors increased. Indonesia has since then become a net cocoa-importing country.

Current roles of governments, companies and farmers organisations

As a result of the reforms discussed above, the roles of governments (G), companies (C), and farmers organisations (F) are now quite different across the five major cocoa producing countries. They are summarised in Table 5.1 below, which shows the following:

- For the two largest cocoa producing countries (Côte d’Ivoire and Ghana) the market is regulated and the involvement of the government is high. In Ghana, for example, the government is involved at all levels, except in providing financial services to farmers.
- In Côte d’Ivoire, the government has recently regained more control over the sector (after a period of liberalisation) and the *Conseil du Café-Cacao* sets the minimum price and coordinates the marketing and quality. In Côte d’Ivoire you see a sharper division between roles of governments and companies, and a larger involvement of cooperatives.
- The involvement of governments in non-regulated markets, like Cameroon and Nigeria, has decreased with the introduction of marketing reforms. In these countries the role of governments is currently limited to collecting (local) taxes, extension services, financial services, research, distribution of seedlings, and rehabilitation. In the case of Nigeria, the government tries to regain control over the coordination of the supply chain.
- The increasing involvement of private sector partners in the provision of services is clearly demonstrated in most countries. In all five countries except Nigeria, Public Private Partnerships

(PPPs) have emerged. In addition, international companies invest in more direct trade relations with local buyers and/or farmers organisations.

- In the more liberalised countries, the role of farmers organisations is overall higher. This is particularly the case for Indonesia, and to a lesser extent for Nigeria (Fieldwork data).

Table 5.1 Public (government, G), private (companies, C) and farmers organisation (F) roles

	Ghana	Côte d'Ivoire	Indonesia	Cameroon	Nigeria
Finance of the crop (pre-finance)	G, F	F	C, F	C	C
Futures trade	G	G, C	C	C	?
Price formation	G	G	G, C, F	C, F	
Price stabilisation	G	G			
Quality control	G	G		C	C, F
Transport (to warehouses)	G, C	C	C, F	C	
Purchase cocoa beans (domestic trade)	G, C, F	C	C, F	C	C, F
Purchase cocoa beans for local processing	G, C	C	C	C	C
Purchase cocoa beans for international trade	G	C	C	C	C
Warehousing	G	C	C, F	C	C
Certification	G, C, F	C	C, F		C, F
Training of farmers	G, C, F	G, C	C, F	G, C, F	F
Financial services to farmers	C, F	C, F	C, F	C	G
Distribution of seedlings	G, F	F	C, F	G, C	G
Distribution of inputs	G, F	F	C, F	G, C	G
Sustainability programmes	G, C, F	G, C, F	C, F	C, F	C, F

Source: Fieldwork data 2016

5.2 Comparison of pricing mechanisms

In this section we discuss in more detail how pricing mechanisms differ across the five most important cocoa producing countries, and how these different local and national pricing mechanisms influence the world market price and vice versa.

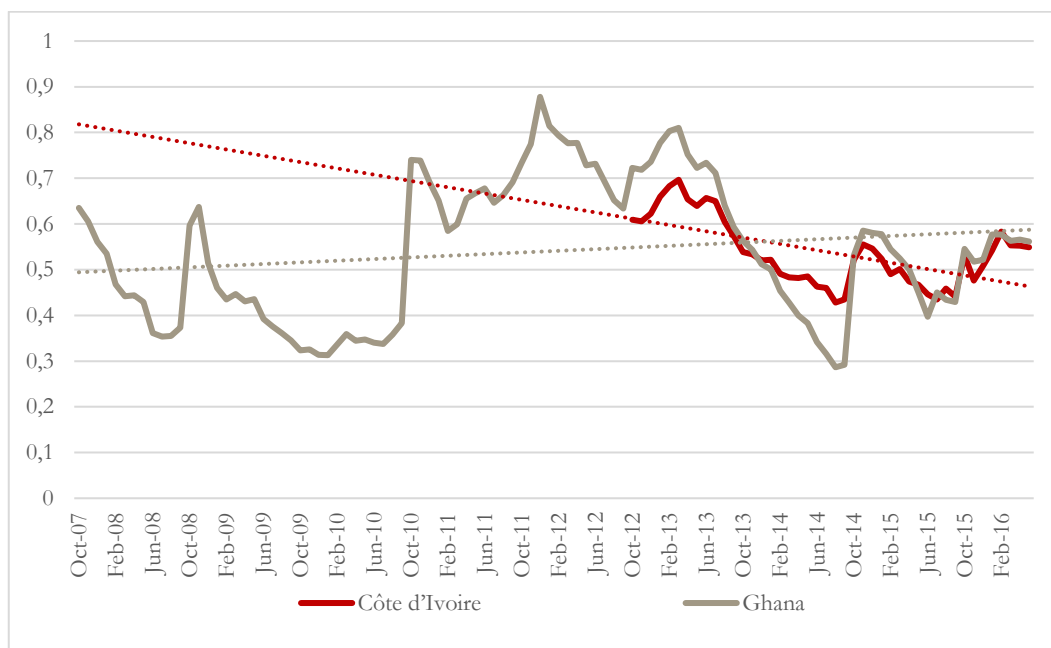
In order to answer these questions, we have structured our five countries in three groups: 1) countries with fixed farm-gate prices (Ghana and Côte d'Ivoire); 2) countries where prices are determined by market forces (Cameroon and Nigeria); and 3) a country where prices are set by import prices (Indonesia).

Fixed farm-gate prices in Ghana and Côte d'Ivoire

Markets in Ghana and Côte d'Ivoire are regulated. The governments of Côte d'Ivoire and Ghana both guarantee a fixed annual farm-gate price for cocoa farmers and they have a stabilisation fund. The fixed farm-gate price is announced at the start of the cocoa harvesting season in October and is maintained for the period of one year. When world cocoa prices increase during the cocoa

harvest, revenues are saved in this fund and when prices decline the fund is used to compensate farmers (Quarmin et al., 2014; Mulangu et al., 2015; Malan, 2013). It is questionable if the funds will be large enough to stabilise prices, considering the large volumes of cocoa production, particularly in Côte d'Ivoire. Figure 5.2 illustrates that despite these stabilisation mechanisms in Ghana and Côte d'Ivoire, the share of the world market price received by farmers has been volatile.

Figure 5.2 In regulated markets, the share of the world market price received by farmers has been volatile.



Source: National authorities; SEO Amsterdam Economics

In Côte d'Ivoire, the new marketing mechanism to set minimum prices was introduced in 2011 by the CCC as part of a new set of reforms. This involves the forward sale of 70% to 80% of the next year's crop through twice daily auctions, which allows the establishment of a benchmark price for the next crop year and ensures a guaranteed minimum share of 60% of the CIF price to farmers. ICCO prices, which can be taken as a proxy for FoB prices, indicate that farmers received 53% of the ICCO price in 2014/2015, which amounted to 3057US\$/tonne in the 2014/2015 cocoa year.

Since 2001, the farm-gate price in Ghana is determined by a multi-stakeholder platform called the Farm-gate price Review Committee (PPRC). For 2014/2015 the farm-gate price was set at 70% of the FoB. If we again take the ICCO price as a benchmark, farmers in Ghana received only 48% of the ICCO price in 2014/2015.

In both countries the farm-gate prices in regulated systems are considerably lower on average than in countries with non-regulated prices. A rough estimate indicates that farm-gate prices in Ghana and Côte d'Ivoire have on average been about 20% to 25% lower than in other cocoa producing countries.²⁷ This finding may be in contrast with farmers' perceptions, as the farm-gate price in regulated markets increased over time, reflecting price developments in the world market.

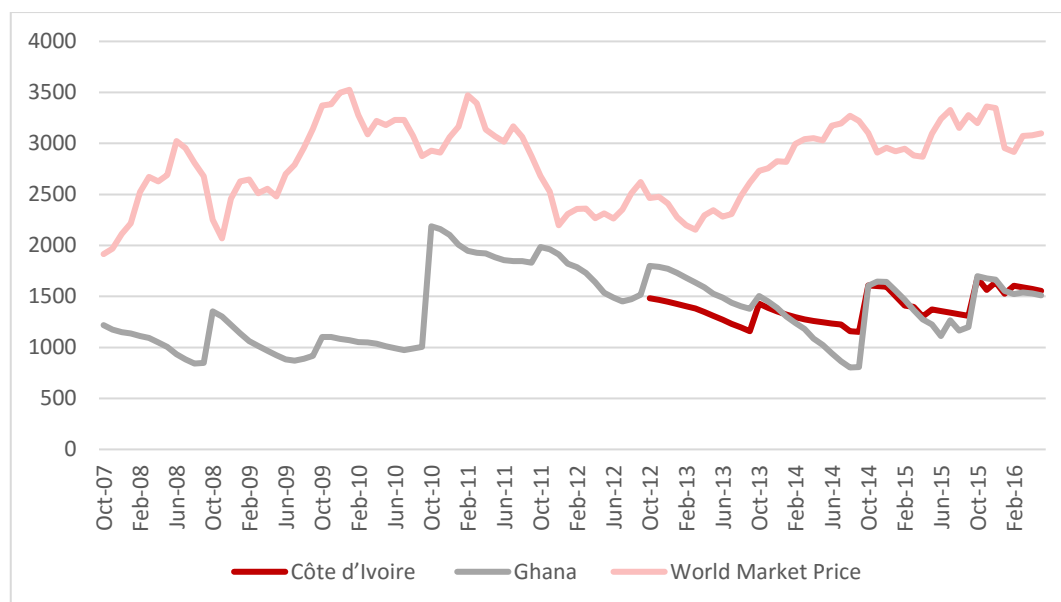
²⁷ Farm-gate prices in both Côte d'Ivoire and Ghana have been consistently lower than those in Cameroon over the past 15 years. Prices in Nigeria were even higher than those in Cameroon in almost all periods until 2007/8, but there are no data for Nigerian farm-gate prices after that year.

One key reason for the lower average farm-gate prices in regulated systems is that in these countries taxes are high; the national boards take a high percentage of the FoB export price. While part of these cocoa revenues are reinvested in the sector and in general public goods, this has not resulted in significantly higher productivity for cocoa farmers in regulated markets. Moreover, there is a lack of transparency and efficiency of the allocated public reinvestments (e.g. input distribution in Ghana). In Côte d'Ivoire there are indications that, instead of the farmers, an 'elite' benefits from reforms (e.g. allocation of export-licenses to influential friends/relatives).

Before the introduction of the new reforms, there was a concentration in trade in Côte d'Ivoire, particularly among foreign exporters. The foreign exporters drove out local independent exporters, whose market share fell significantly (from 43% in 1997/98 to < 30% in 2010/11). During the 2010/2011 marketing year, the world's three leading cocoa multinationals, Cargill, ADM and Barry Callebaut, purchased over 40% of the Ivorian cocoa production (Bonjean and Brun, 2016: 344). Part of this production was grinded by these same companies in the country of origin and another part was exported and further processed in cocoa consuming countries.

The available statistical evidence suggests that the transmission of world market prices to farm-gate prices is slow, possibly due to inefficiencies in the system of export licenses and a lack of competition. In Ghana, the CMC maintained the monopoly on export; there is no competition. COCOBOD does not allow LBCs to become involved in the export of cocoa, despite the fact that some LBCs meet the official criteria for exporting (Laven 2010). In Côte d'Ivoire there are also inefficiencies in the system of export licenses. In Côte d'Ivoire there has been criticism on how CCC allocates export-licenses to local entrepreneurs; there are indications that the criteria for handing out export licenses are not well defined and opened the door to abuse and overbidding. Figure 5.3 illustrates how the real farm-gate price develops in Côte d'Ivoire and Ghana, and how this relates to developments in the world market price.

Figure 5.3 Farm-gate prices in Côte d'Ivoire and Ghana are below the world market price*



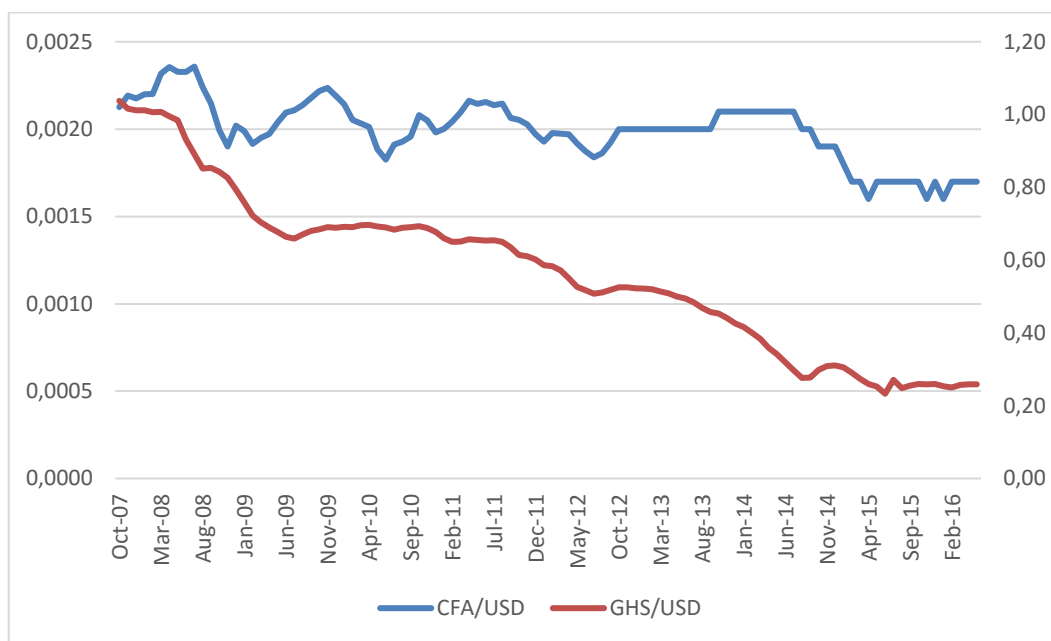
Source: National authorities; SEO Amsterdam Economics

* Real farm-gate prices in USD of a metric ton cocoa

One major benefit of a regulated price system is that it increases stability by protecting farmers against sharp price changes or sharp exchange rate fluctuations during the year in which the price is fixed. In practice, such exchange rate valuation effects can be quite significant. The Ghanaian cedi, for example, has shown a significant appreciation trend in recent years (Figure 5.4). Côte d’Ivoire, however, is part of the CFA franc currency union which has a fixed exchange rate to the euro, therefore making exchange rate risk less of an issue in Côte d’Ivoire.

Another benefit is that a fixed price protects farmers against abuse of market power. Just as a minimum wage, a minimum cocoa price can help to prevent excessively low farm-gate prices. For example, there is anecdotal evidence that Ivorian farmers in certain remote areas now receive a substantially higher share of world market prices than under the previous liberalised system (Interview with NGO 2016).

Box 5.3 CFA franc/US dollar and Ghanaian cedi/US dollar exchange rate



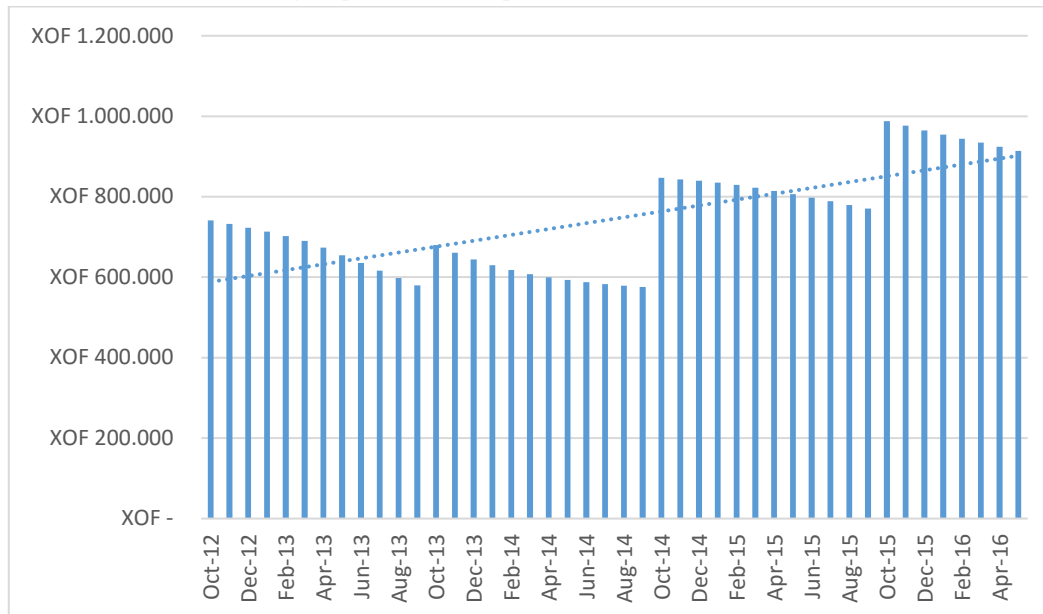
Source: Oanda, 2016

Another downside of a fixed farm-gate price is that it is not adjusted for inflation. Both Côte d’Ivoire and Ghana have a relatively high monthly inflation level, namely 1.89% in Côte d’Ivoire and 1.14% in Ghana. The real value of the fixed farm-gate price therefore shows a monthly decline for both Côte d’Ivoire (Box 5.3a) and Ghana (Box 5.3b).

It must be noted that most of the cocoa is sold in the first 6 months after the fixed price is determined. Due to inflation after six months the farm-gate price has lost 10.6% of its value in Côte d’Ivoire and 6.58% in Ghana.

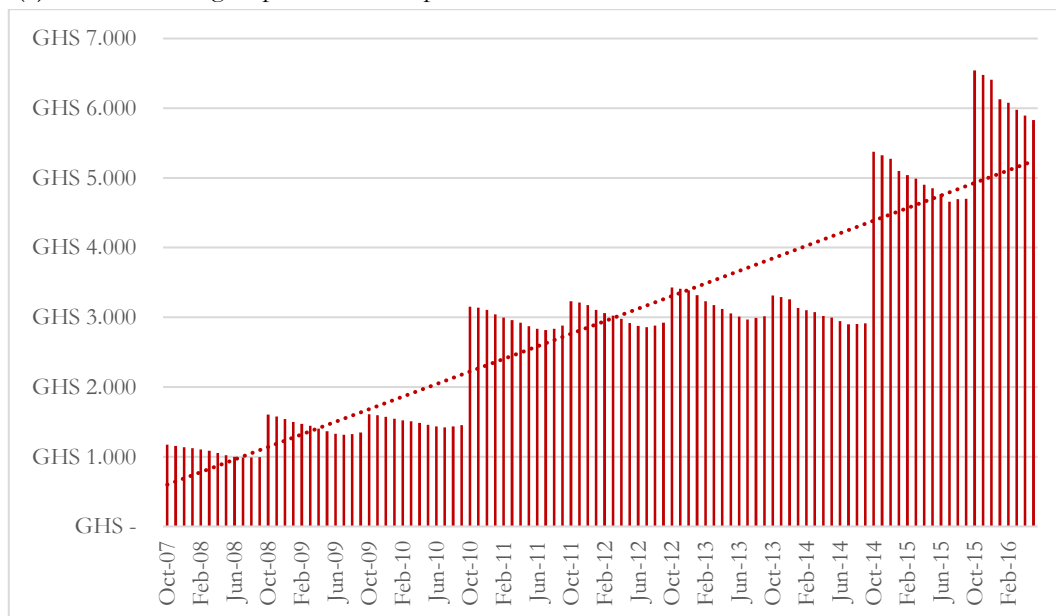
Box 5.3 The real value of annually fixed farm-gate prices decreases during the year due to national inflation

(a) **Côte d'Ivoire:** Farm-gate price of cocoa per ton corrected for domestic inflation.



Sources: Le Conseil du Café-Cacao (2013, 2014, 2015), Bloomberg (2013), IRIN (2012), Institut National de la Statistique (2016)

(b) **Ghana:** Farm-gate price of cocoa per ton corrected for domestic inflation.



Sources: Ministry of Finance Ghana (2012 and 2014), Ghana Cocoa Board, 2015, Spy News Agency, 2013; The African Report, 2011; Ghana Statistical Service (2016)

Both in Ghana and in Côte d'Ivoire companies invest in their suppliers and develop (more) direct trade relations. Most companies have their individual sustainability programmes but they also participate in PPPs and more coordinated efforts like CocoaAction. Together they support hundreds of thousands of cocoa farmers with training, access to inputs and investments in

community development. Such initiatives potentially improve the position of farmers and their income. The impact of these programmes has not yet been documented.

The percentage of certified cocoa in Côte d'Ivoire and Ghana is relatively high. If we consider UTZ, the total certified cocoa volume in Ghana increased by 28% to 169,057 tonnes in 2015 due to an increase in certificate holders, from 28 in 2014 to 37 in 2015. In Côte d'Ivoire in 2015 the total volume of production of certified cocoa was around 487,000 tonnes and reflected a slight reduction in production compared to 2014.²⁸

Certified cocoa fetches a premium, on top of the producer price. Increasingly organised farmers are certified for the production of sustainable cocoa, although these certified farmer groups still form a minority. Certified farmers receive a (voluntary) premium. The height and distribution of the premium, which is added to the farm-gate price, is negotiated between cocoa farmers, certificate holders, and possible other business partners. Research conducted in 2010 indicated that in Ghana it is common that farmers receive at least 50% of the premium. This premium is not always paid in cash to the farmers, but can also (partly) be put in a social fund (Laven and Boomsma 2010).

Prices determined by market forces: Nigeria and Cameroon

The farm-gate prices in Cameroon and Nigeria are relatively high: respectively 72.6% of the FoB and between 65-70% of the FoB. According to ICCO prices, these percentages are even higher: respectively 80% of the ICCO price (2014/2015) and 75% of the ICCO price (2007/2008).

In Cameroon and Nigeria there is no public price mechanism: prices are determined by market forces. In both countries, farmers are price-takers; cocoa exporters set the quality standards and the price, using the world market price as a benchmark. Exporters set their own price to local traders (local buyers), after removing the assumed operating costs (including transport costs, salaries, warehousing, etc.). At the village level, the local trader negotiates the price with the farmer (organisation), after removing its assumed operating costs.

In both Cameroon and Nigeria, there is a high concentration of export companies. Export has become dominated by a small number of foreign traders. There is anecdotal evidence that exporters sometimes strategically decide not to participate in certain markets to avoid 'overheating the price'.

Concentration does not seem to hamper competition. The price competition between exporters contributes to a relatively good transmission of world market prices to farm-gate prices; changes in the world market price translate relatively quickly into farm-gate prices. There is no evidence that market concentration among exporters in Cameroon and Nigeria leads to lower farm-gate prices on average; farm-gate prices in liberalised countries are higher than in regulated countries.

In liberalised countries, with no public price mechanisms, price information systems are important. In Cameroon a price information system has been put in place by the government, but it is not sufficiently updated; a price range (min and max) is given daily by the official information system, but the effective farm-gate price is set on the spot within that price range. Farmers may be well-informed about the price interval but they are not strong enough to obtain the maximum price. In Nigeria, according to farmers organisations that were interviewed, the price information system

²⁸ <https://www.utz.org/wp-content/uploads/2016/04/Statistics-Report-Cocoa-2015.pdf> (26-09-2016)

used to be exploitative but has improved with the entering of local village buyers from the farmers' own communities and by giving farmers real time price information through cellular phones.

In Nigeria, the world price is more transparent than before, but the reasons for price differences between communities remain rather unclear. In Nigeria, prices can vary from location to location and throughout the buying seasons. Variables that influence prices include the concentration of cocoa in a certain region and the available volumes.

Increasingly, international buyers and farmers organisations are setting up value chain arrangements in Nigeria and Cameroon. These arrangements aim to consolidate 'exclusive' supply relations, through offering 'free' services (such as inputs on credit, or training) in exchange for cocoa. The majority of the farmers, however, is not organised and sells the cocoa to local traders.

The percentage of certified cocoa in Cameroon and Nigeria is relatively low, but increasing. In Nigeria, for example, the certified volume of UTZ cocoa increased by 16% to 70,777 tonnes and we see that more traders are investing in UTZ Certification programmes in Nigeria.²⁹

Both in Cameroon and Nigeria there is still some level of involvement by the state, for example as funder and service provider to farmers with the aim of increasing the volumes of cocoa production. For Cameroon it is estimated that around 20% of the farmers are reached by these public services (e.g. training). In Nigeria, the government aimed to revive its role and has been putting structures in place to financially support the cocoa sector. However, these schemes are ineffective. The government is also involved in service provision to farmers, such as financial services, the distribution of inputs and seedlings, but the impact of these investments is questioned: "whether these services ever reach farmers, we don't know" (Fieldwork 2016).

Prices set by import prices: Indonesia

When Indonesia introduced a system of export taxes on raw cocoa beans in 2010, this decreased margins for exporters and middlemen but did not lower prices for farmers. Because of this tax incentive for processed cocoa exports, the cocoa processing industry flourished to such an extent that Indonesia became a net importer of cocoa in 2014/2015. The taxation of unprocessed cocoa exports in Indonesia has resulted in the use of the Cost Insurance Freight (CIF) benchmark for farm-gate prices instead of the FoB benchmark, leading to higher prices for Indonesian cocoa farmers.

Currently, the farm-gate price in Indonesia is around 80% of the world market price, which is higher than the farm-gate prices in the West African cocoa producing countries. Although prices are high, farmers are still considered to be price-takers. Processors are the price-setters.

Processors in Indonesia are a mix of local and international companies. Cargill and Barry Callebaut have the largest factories; together they control between one third and one half of the processing capacity.

²⁹ *ibid*

In Indonesia the volumes of certified cocoa have been increasing. For example, in 2015 the total volume of UTZ cocoa was 53,000 tonnes. The total certified cocoa volume increased due to a large increase in the number of farmers in a group.³⁰

Certified cocoa fetches a premium, on top of the producer price. Most farmers associated with a cooperative also receive a premium since their cocoa is often certified. This premium goes partly to the cooperatives (about 30% in the case of an interviewed cooperative) to pay for the cooperative's operational costs. The rest is paid to the farmers, to cover certification requirement costs, and as an incentive to produce certified cocoa.

Farmers can sell their cocoa through different marketing channels. Collective marketing generates higher prices, but payments are usually 2 or 3 months delayed. Farmers can also sell wet beans to village traders who pay immediately, but prices are relatively low. Some farmers sell their wet cocoa beans directly to a processing company. The farmers are offered loans in order to allow them to invest, which encourages them to stay loyal to a particular company (Rifin, 2015).

In Indonesia, chocolate manufacturers are investing heavily in sustainability programmes, like Mondelez, Mars, Nestlé. Often, this is done in PPPs, involving international companies that source and process locally (e.g. OLAM) and NGOs, like Swiss Contact and Indonesian partners, like VECO Indonesia.

Despite the relatively high farm-gate prices and the substantial investments in the cocoa sector, cocoa production has dropped considerably over the last 8 years and a large number of farmers are opting out of cocoa. There are statistics that indicate a reduction of around 40%. Production declined from around 600,000 tonnes (2007/2008) to around 370,000 tonnes (forecast 2015/2016). The farmers that have remained in cocoa are likely medium-sized farmers who depend heavily on cocoa. This group seems willing to invest in cocoa in the future.

The higher farm-gate prices and the decline in cocoa production in Indonesia are likely partly the result of the fact that Indonesian farmers have better alternatives and therefore a higher 'reservation income'. Other possible explanations are the higher production costs and the higher incidence of pests and diseases. The fact that farmers have better alternatives in Indonesia is, in turn, related to a more developed institutional environment (better infrastructure, education, financial sector, business climate). As a result, farmers have more opportunities to opt out of cocoa farming when incentives are too low to make the necessary investments in cocoa production.

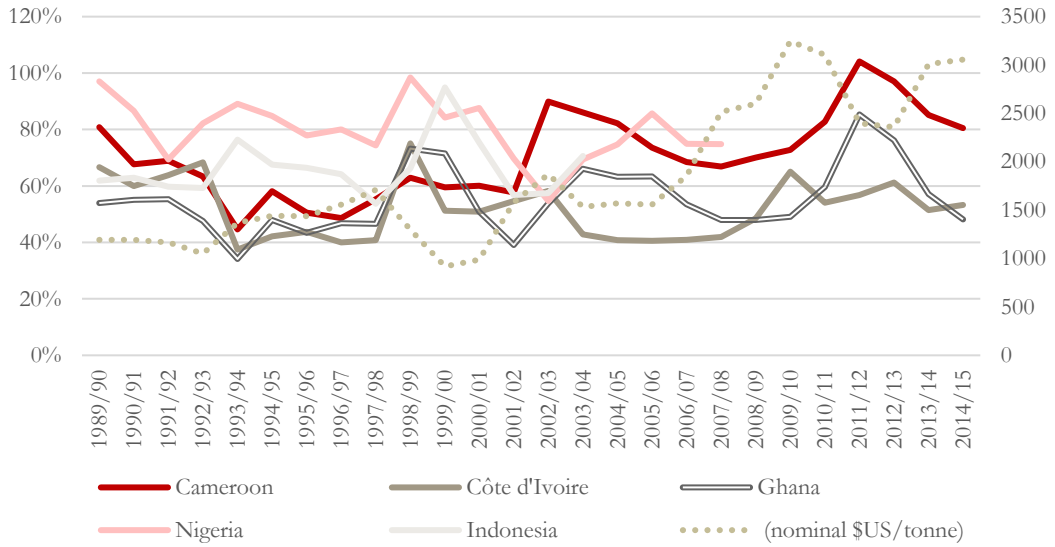
Comparing the different pricing mechanisms

Farm-gate prices in liberalised countries are considerably higher than in countries with regulated pricing mechanisms. Farm-gate prices in the major cocoa producing countries Côte d'Ivoire and Ghana are about 50% of the ICCO price (Box 5.4). In recent years, farm-gate prices in Cameroon and Ghana (and to a smaller extent in Côte d'Ivoire) have decreased as a percentage of the ICCO price, most likely because the ICCO price (in US\$/tonne) increased faster than farm-gate prices, suggesting an incomplete transmission.

³⁰ *ibid*

In all countries farm-gate prices are volatile but there is a difference in price fluctuations. The effectiveness of price stabilisation mechanisms depends on fluctuations in exchange rates and inflation. This explains why price fluctuations in Ghana are higher than in Côte d'Ivoire.

Box 5.4 Comparing farm-gate prices in the different cocoa producing countries



Source: ICCO. Farm-gate price as a percentage of the world price (left axis); world price in \$US (right axis)

Table 5.2 illustrates (potential) advantages and disadvantages of the different pricing mechanisms used in the different countries.

Table 5.2 Comparison of pricing mechanisms

Country	Price mechanisms	Price Benchmark	Advantages	Disadvantages	Consequences for farm-gate prices
Nigeria	Price determined by market forces.	World market price	Higher than in regulated price systems	World market price volatility	High farm-gate price
				Exchange rate fluctuations	No price stability
Cameroon	Price determined by market forces. To an extent there are arrangements in place between farmers organisations and traders to agree on prices, volumes, quality and sometimes services.	World market price	Higher than in regulated price systems	Medium price volatility	High farm-gate price
				Exchange rate fluctuations (but less relevant because of peg to Euro)	Some price stability
Ghana	The farm-gate price is fixed annually by a multi-stakeholder committee (PPRC). Price stabilisation fund	FoB price	Annual protection against world market price volatility	Lower than prices in unregulated systems	Low farm-gate price
				No exchange rate gains due to significant exchange rate depreciation	Price stability during one year
				Not adjusted for inflation	
				No price differentiation for quality	
				High taxes (and lack of efficiency on expenditures)	
Côte d'Ivoire	The minimum farm-gate price is fixed by the multi-stakeholder Conseil du Café-Cacao (CCC). Price stabilisation fund	CIF price	Annual protection against world market price volatility	Lower than prices in unregulated systems (but higher than Ghana)	Low farm-gate price
				Not adjusted for exchange rate depreciation (but less relevant because of peg to Euro)	Price stability during one year
				Not adjusted for inflation	
				No price differentiation for quality	
Indonesia	Government tax on unprocessed cocoa (10%)	Import price	Relatively high farm-gate price for cocoa sold both for export and for local processing. For local processing farm-gate price is relatively the highest - CIF of imported cocoa as benchmark, compared to FOB in all countries.	World market price volatility	High farm-gate price
					No price stability

Source: SEO Amsterdam Economics

Table 5.2 compares the different pricing mechanisms. Based on the data the following conclusions can be drawn:

1. There is a relation between price regulation and farm-gate prices. In regulated markets, farm-gate prices are considerably lower than in liberalised markets. There is statistical evidence which suggests that the transmission of world market prices to farm-gate prices is relatively slower in regulated countries than in liberalised countries.
2. Governments of cocoa producing countries can change the functioning of markets and influence prices. The following examples illustrate this:
 - In Indonesia, the import tax on unprocessed cocoa has increased farm-gate prices, after the country had become a net importer of cocoa beans.
 - In Côte d'Ivoire the way the government allocates export licenses seems to have led to overbidding, which involves a risk of creating a disconnect between prices paid on the internal market and the international market.
 - In Ghana, the quality control system results in uniform quality beans, which is rewarded on the world market.
3. In regulated markets, the government takes considerable margins of the FoB/CIF price. These government cocoa revenues are generally used for (a) covering the operational costs of the regulated system; (b) financing public investments into the cocoa sector; (c) and financing the general government budget. However, a lack of efficiency and transparency about the exact distribution and use of these cocoa revenues, and the high costs involved in 'controlling' the market, suggest that for farmers the costs of regulated systems outweigh the potential benefits.
4. The effectiveness of price stabilisation mechanisms depends on fluctuations in exchange rates and inflation. This explains why prices in Côte d'Ivoire fluctuate less over time than in Ghana.
5. If farm-gate prices are fixed in local currency this leads to additional vulnerability when currencies depreciate. Fixing the price in USD or EUR would imply that the real incomes of farmers are protected to some extent against shocks to domestic inflation that result from exchange rate volatility.
6. In liberalised markets, exporters (international traders) and (international) processors determine quality standards and prices, taking the world market price (or, in the case of Indonesia, the import price) as benchmark.

5.3 Bargaining power of cocoa farmers

The overall majority of cocoa farmers in all cocoa producing countries is not organised. Many existing farmers organisations, cooperatives, or groups are weak. In Côte d'Ivoire, for example, there are many cooperatives in operation but the majority of them is weak and has shown to have little bargaining power. Increasingly farmer groups are set up to gain access to inputs or certification, for example in Indonesia and Ghana, and these informal groups do not have any bargaining power. There are few examples of strong farmers organisations in cocoa producing countries. Some of the more successful ones are supported by the private sector or by NGOs.

In regulated markets, price negotiation is not possible. The farm-gate price in regulated countries is relatively low. In regulated markets, potentially, farmers organisations (farmer groups) could bargain for services, particularly those that are eligible for certification. Certification has increased competition among buyers. Buyers compete on the basis of direct payment, services, and

community development and try to develop more direct trading relationships with organised farmers and grant them access to certified markets. This potentially supports farmers in fetching higher incomes (e.g. through a price premium or higher productivity levels). In Ghana the number of farmers organisations has been particularly low, but it has been increasing since certification.

Collective marketing does not necessarily result in higher prices (particularly in countries where the farm-gate price is fixed), but it may give access to favourable marketing channels. The benefits of being a member of a farmers organisation potentially include:

- Higher premiums for certified cocoa
- More (tailor-made) services, such as training
- Access to inputs (on credit)
- Investments in community development

Farm-gate prices are relatively higher in liberalised markets, but the farmers are still price-takers. The concentration among exporters and processors is generally high. In Cameroon, for example, there are only four large exporters and there is only one large processor. There are examples of exporters making different price arrangements, however, there are also examples of farmers bargaining for better prices.

In liberalised countries such as Cameroon and Nigeria the bargaining power of farmers organisations is overall weak. Farmers organisations can sometimes bargain higher prices through collective marketing when (i) the quality is high; (ii) the volumes are high (when there is concentration of production in certain regions); (iii) the transaction costs are low (favourable location); (iv) the cocoa is certified.³¹ However, collective marketing does not automatically result in higher prices for farmers, as it goes hand-in-hand with an increase in costs.

In Cameroon, there are a number of limiting factors that reduce farmers' bargaining power:

- Farmers are often in need of immediate finance and are prepared to sell even when prices are too low.
- Sometimes farmers take “interest-free” loans from buyers, which are repaid in cocoa. This reduces the freedom to sell to other traders at a potentially higher price (Kamdem et al., 2010).
- Farmers organisations sometimes have difficulty establishing themselves and, if they do, they face problems in organising themselves to market the products of their members. A number of other farmers organisations, on the other hand, sometimes operate very effectively and obtain relatively high prices though acquiring only a relatively small share of the quantities produced by their members.
- There is no clear understanding between farmers and buyers about the meaning of “quality”; buyers are the ones who decide on how to classify the quality. This is also a form of market power since the quality of cocoa can affect the price (Fieldwork Cameroon 2016; Fule, 2013).

In liberalised countries an information system is important, but it is not enough by itself to increase their bargaining power. For example, in Cameroon a price range (min and max) is given by the official information system daily, but the effective farm-gate price is set on the spot within that

³¹ Certified cocoa gets a premium price, on top of the producer price. This premium goes partly to the farmers (for Ghana it is estimated that farmers get around 50% of the premium (Laven and Boomsma 2012)).

price range. Farmers may be well-informed about the price interval but they are not strong enough to obtain the maximum price.

Trade arrangements between farmers organisations and exporters potentially help to solve certain market failures (such as a lack of access to finance or a lack of access to input markets), but also result in increased dependence of farmers on specific buyers and can therefore lower their bargaining position. In Cameroon and Nigeria, value chain arrangements are increasingly agreed upon between exporters and farmers organisations to consolidate 'exclusive' supply relations, through offering 'free' services in exchange for cocoa.

The tendency that (international) buyers invest in value chain relations in the different cocoa producing countries, to secure access to cocoa, has resulted in many projects and interventions put in place by individual companies and through partnerships. The potential impact of these investments (that focus mainly on productivity and rehabilitation) has not yet been sufficiently documented. Expected benefits may be premiums, higher levels of productivity, logistical support, and access to financial services or inputs. A potential risk is that partnerships between farmers and large multinationals potentially lock farmers in captive relationships. This further reduces the already limited bargaining power of farmers.

5.4 Conclusion

This chapter described the origins of national pricing mechanisms and compared countries with fixed farm-gate prices (Ghana and Côte d'Ivoire) to countries where prices are determined by market forces (Cameroon and Nigeria) and a country where prices are set by import prices (Indonesia). This chapter then considered the bargaining power of cocoa farmers in the different countries. Our conclusion is fourfold. First of all, farmers are price-takers and even the ones that are organised have very limited bargaining power. Secondly, the theoretical benefits of price regulation do not outweigh the costs of regulated systems; the average farmer in Ghana and Côte d'Ivoire receives considerable lower farm-gate prices than the average farmer in liberalised cocoa producing countries. Thirdly, one key reason for the lower average farm-gate prices in regulated systems is that in these countries, national boards take a high percentage of the FoB price, without being held accountable for transparent and efficient allocation of public expenditures. Lastly, we learned that farmers in Indonesia have benefited from the tax on unprocessed cocoa, which contributed to relatively high farm-gate prices. However, cocoa production has dropped considerably in Indonesia, indicating that a rather large number of farmers have greater opportunity of opting out of cocoa farming.

6 Alternative Determinants of Farmers' Cocoa Income

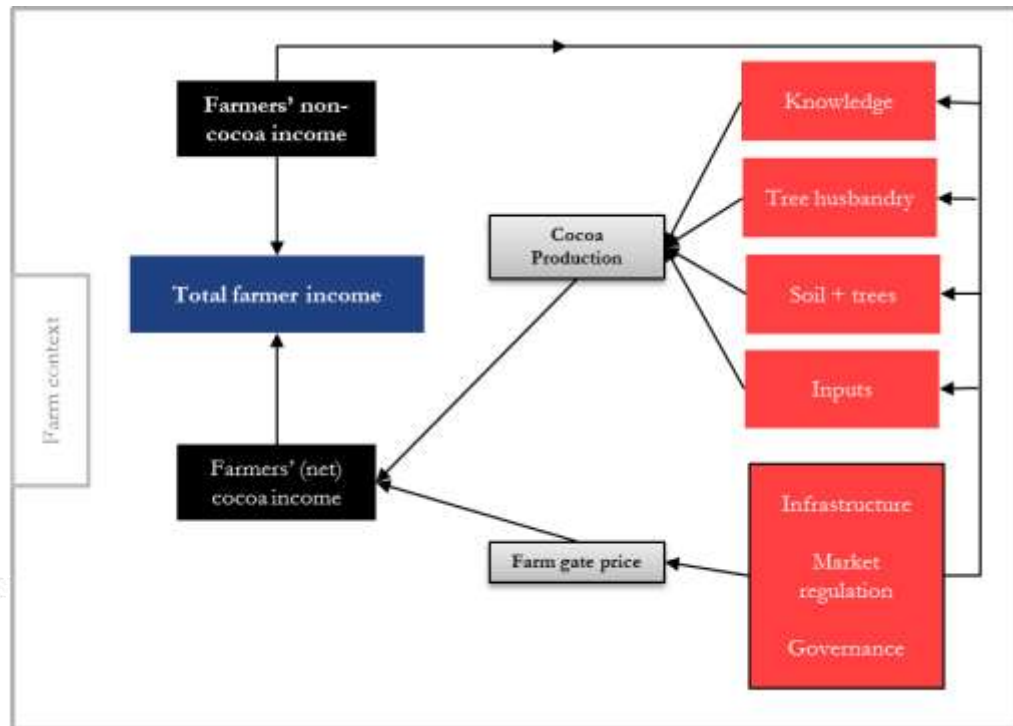
In chapters 4 and 5 we learned that there is very limited scope to raise average farm-gate prices through competition policy. While reducing market concentration in certain pockets of the value chain could help certain cocoa farmers receive a higher farm-gate price, the average farm-gate price would not increase significantly as it is determined by world demand and world supply. Farmers are price takers and even the ones that are organised have very limited bargaining power. We also learned that the average farmer in Ghana and Côte d'Ivoire receives lower farm-gate prices than the average farmer in liberalised cocoa producing countries. One key reason is that in regulated countries, national boards take a high percentage of the FoB price, without being held accountable for transparent and efficient allocation of public expenditures.

In chapter 6 we move from the national context into the farmer context, by exploring factors other than the farm-gate price that affect cocoa farmers' incomes: productivity and alternative income sources. We show that cocoa farmers are extremely poor in all producing countries except Indonesia. For the example of Ghana, we show that it would require both a significant price increase and a major production increase to lift farmers' incomes from cocoa above the extreme poverty level. We show that there is significant potential to increase farm productivity, but also discuss the reasons why farmers have not invested in these productivity increases. At the end of the chapter, we explain why production increases may help increase cocoa farmers' incomes at the micro level, but cannot be the key to poverty reduction at the macro level.

6.1 Introduction

Based on the above discussion and our Theory of Change, we will in this chapter identify the most important ways in which the very low incomes earned by cocoa farmers can be raised in other means than by an increase in the farm-gate price. Figure 6.1. shows an excerpt from our Theory of Change focussing on the determinants of farmers' incomes.

Box 6.1 Determinants of farmer's incomes according to the Theory of Change



Source: SEO Amsterdam Economics

A cocoa farmer's income theoretically consists of two key parts: cocoa income and non-cocoa income. One part is the cocoa income, which is a multiplication of the farm-gate price for cocoa (depending on factors such as remoteness, quality and quantity) and cocoa production, minus the costs of production. The second part is other income, which can be either agricultural or non-agricultural.

This chapter explores the various ways in which farmers' incomes can be increased. This is generally possible in three key ways:

- Increasing the farm-gate cocoa price
- Increasing cocoa farming productivity (higher cocoa production at lower cost)
- Increasing non-cocoa income

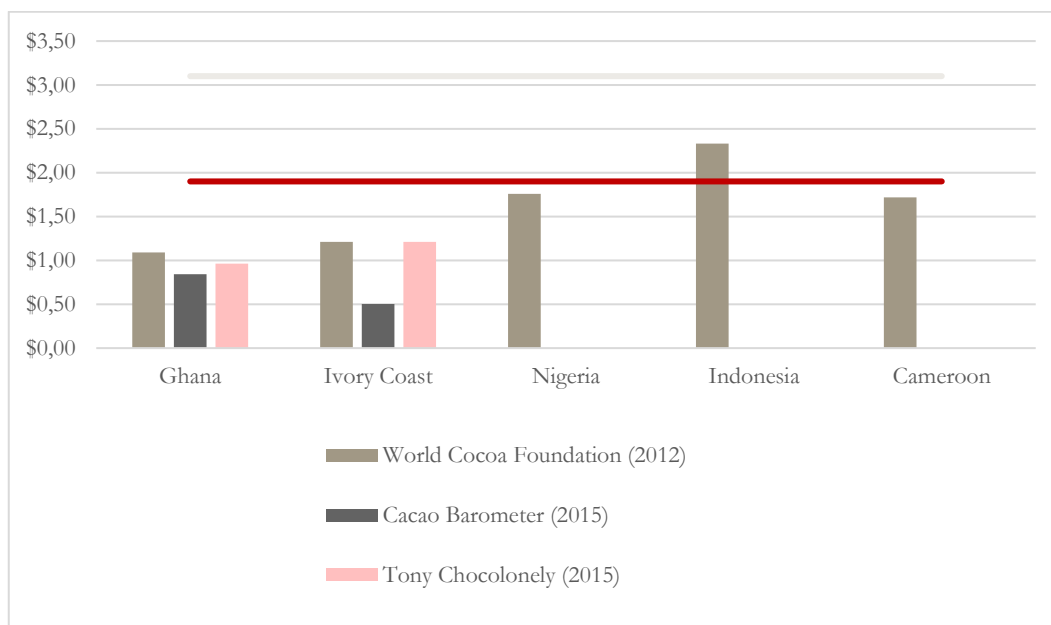
In this chapter, we first focus on the impact that higher cocoa prices and cocoa production can have on an individual farmers' cocoa income. We then consider ways in which farmers can diversify their activities in order to increase their income from other sources. Finally, we study the possible consequences of increasing production, not on the farmer as an individual but on the sector as a whole.

6.2 Cocoa farmers' income estimates

Cocoa farmers' incomes in 4 out of the key 5 producing countries are below the international (extreme) poverty line. The only exception is Indonesia, which is likely because of the more

developed institutional environment (better infrastructure, education, financial sector, business climate). As a result of these and other factors, farmers in Indonesia are more productive and have better alternative options for income generating activities. Farmers in Ghana and Côte d'Ivoire are less diversified (with roughly 85 percent of income coming from cocoa) and appear to have the lowest incomes among the main 5 cocoa producing countries.

Box 6.2 Average per capita income of cocoa farmers lies below \$2 per day



Source: SEO Amsterdam Economics

The international poverty line used by the World Bank is \$3.10 per day, and \$1.90 per day for extreme poverty. These numbers correspond to the previously well-known \$2 a day (2005 PPP) poverty line and the \$1 a day extreme poverty line (measured in 1985 with international prices and adjusted to local currency using purchasing power parities) which represent the mean of the poverty lines found in the poorest 15 countries ranked by per capita consumption, i.e. the extreme poverty line typical of the poorest countries in the world. Note, however, that different countries have different national definitions of poverty, and consistent comparisons across countries can be difficult. National poverty lines generally tend to be higher in richer countries, where the concept of “poverty” tends to be defined using more generous standards than in poor countries.³²

The concept of a poverty line is different from that of the concept of ‘living income’. A ‘living income’ is considered a basic human right for everyone. The concept of a ‘living income’

³² Since the World Development Report 1990, the World Bank has aimed to apply a common standard in measuring extreme poverty, anchored to what poverty means in the world's poorest countries. The welfare of people living in different countries can be measured on a common scale by adjusting for differences in the purchasing power of currencies. The previous standard of \$1 a day was chosen for the World Development Report 1990 because it was typical of the poverty lines in low-income countries at the time. The international poverty line defined by the World Bank has been periodically updated using new PPP price data to reflect changes in the cost of living across the world. The last change was in October 2015, when the World Bank adopted \$1.90 as the international (extreme) poverty line using the 2011 PPP. Prior to that, the 2008 update set the international poverty line at \$1.25 using the 2005 PPP. Poverty measures based on international poverty lines attempt to keep the real value of the poverty line constant across countries, as is done when making comparisons over time.

originates from the United Nations Covenant on Economic, Social, and Cultural Rights, article 7.³³ The ‘living income’ concept is a widening of the previous concept of a ‘living wage’, extended to people that do not earn a wage but are self-employed, e.g. small-scale farmers. (Nikol, 2015). A possible definition of a ‘Living Income’ is: “The aggregate of household incomes that should be sufficient to allow for i) a life of decent quality for all household members according to time- and place specific standards, ii) economic growth, and iii) economic resilience” (Nikol, 2015, p. 12). In other words, living income is an income that gives farmers a decent living and fulfils the needs of a farmer’s family. On top of that, the family should be able to recover from (economic) shocks and should have room to improve its economic situation. (Appelman 2016, p.7).

For the purpose of this chapter, we will compare cocoa farmers’ incomes to national and international poverty lines rather than to the wider concept of ‘living income’. The main reason is that the concept of ‘living income’ is still widely debated and thus far no national ‘living income’ benchmarks have been developed or agreed, while accepted definitions for national and international poverty lines do exist. Another key reason for simplifying the living income concept is that the exact level of the poverty line or living income benchmark that we would use to compare cocoa farmers’ incomes is not necessarily relevant for our analysis, because we are mainly interested in gauging the relative importance of different factors that affect cocoa farmers’ incomes.

6.3 Effect of price/production increase on farmer income

To illustrate the relative importance of increasing cocoa price or cocoa production, we have worked out a numerical example for one country, namely Ghana. Based on averaging estimates from different sources, the daily income per person for an average Ghanaian farmer family³⁴ is estimated at \$0,95 per day. This is slightly above the Ghanaian national poverty line which is set at \$0,94, as we can see in the first bar of figure 6.3. However, it is still well below the international extreme poverty line defined by the World Bank (even when adjusted for Ghanaian purchasing power).

As an extreme benchmark, we calculate by how much farmers’ incomes could increase if the farm-gate price were equal to the FoB price, i.e., if there were no trade costs and nothing was withheld by the government (or by cooperatives or firms). In recent years, Ghanaian cocoa farmers received on average between 70-75% of the national FoB price. Assuming that they receive 100% of the FoB price, which is obviously not a realistic scenario, their income would increase by around 1/3, but would still not exceed the extreme poverty line if their productivity and all other factors remained the same. This benchmark is indicated in the second bar of figure 6.3.

³³ This article states the rights of everyone to “(i) fair wages and equal remuneration for work of equal value without distinction of any kind, in particular women being guaranteed conditions of work not inferior to those enjoyed by men, with equal pay for equal work; (ii) a decent living for themselves and their families in accordance with the provisions of the present Covenant” (United Nations, 1966).

³⁴ An average Ghanaian farmer family includes five persons (based on an average of fieldwork and a literature review, see table 6.1). Only the income of the farmer is included in the calculation of the household income.

Similarly, we assess the hypothetical case of what would happen if cocoa farmers' productivity were to increase to the maximum feasible level. This is done based on estimates by one of our private sector sources, who expects to be able to nearly double the yield from 420 Kg/Ha to 800 Kg/Ha within 5 years by improving production methods and inputs. (Theoretically, a higher yield could also be achieved by increasing the scale of production, but our source does not believe that this is feasible in practice.) Naturally, increasing productivity also implies higher input costs, which rise from \$300/ha to \$500/ha.³⁵ Our calculations show that, when farmer productivity increases to this maximum level while input costs rise and prices remain the same,³⁶ the income for Ghanaian cocoa farmers increases by 82 percent, from \$0,95 to \$1,75 per day. This is a higher income than that from the farm-gate price increase, but it is still not above the extreme poverty line. Also, this higher income does not reflect an increase in labour costs.

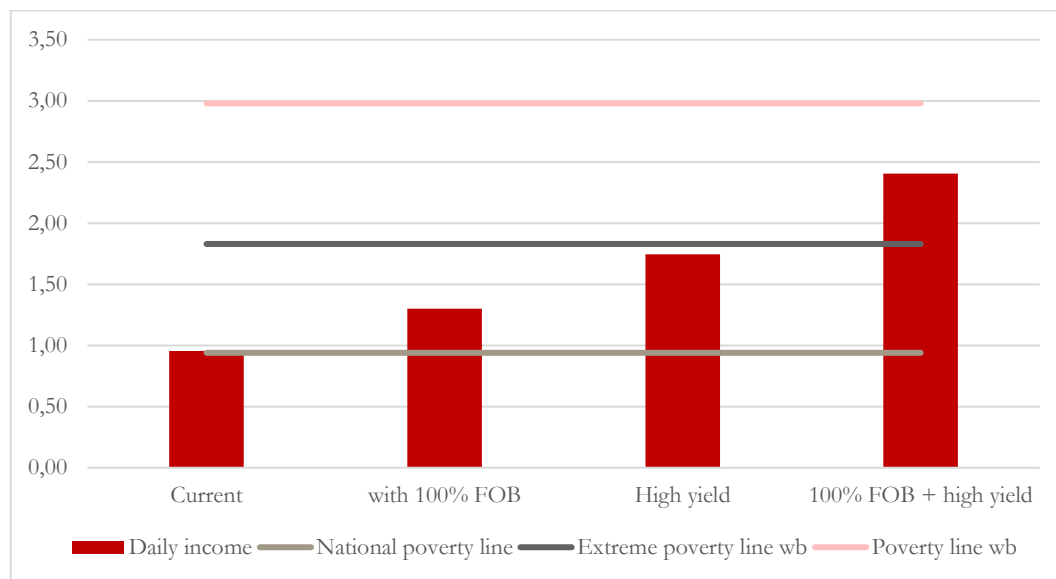
As a third scenario, we combine the higher price scenario with the higher yield scenario. If the current Ghanaian farm-gate price would increase towards the FoB price and the farmer would have a yield of 800 Kg/Ha, his income would rise substantially towards \$2,41 per day. This would lift the farmer above the extreme poverty line of the World Bank.

In summary, this example for Ghana shows that removing domestic market imperfections and adopting optimal production methods can significantly increase cocoa farmers' incomes. However, neither policy by itself would be sufficient to raise cocoa farmers' incomes above the extreme poverty line. It is only when both (extreme) policies are combined that one can expect the income of farmers to be raised above the national poverty line.

³⁵ These input costs do not include the (opportunity) cost of the working time spent by farmers.

³⁶ Note that we only explore here the "micro" impact of increased productivity at the individual farmer level. However, if all farmers were to raise their productivity, world supply would increase and there obviously would be a negative impact on the world cocoa price. In the next chapter, we will explore these "macro" implications.

Box 6.3 In order to raise cocoa farmer incomes in Ghana above the poverty line, a combination of policies will be needed



Sources: See Table 6.1

Table 6.1 Data sources for Ghana income estimates

Variable	Unit	Estimate				Source
		Current 2015/16	100% FOB	High yield	100% FOB + High yield	
Farm size	Ha	2,47	2,47	2,47	2,47	Average from field work, Cocoa Barometer, Tony Chocolonely, LEI-UTZ impact measurement, Living Income consultation paper, Hainmueller (2011)
Yield	Kg/Ha	420	420	800	800	Average from field work, Cocoa Barometer, LEI-UTZ impact measurement, Living Income consultation paper, MARS, FAO statistics. Without Tony Chocolonely (potential yield). For double yield Tony Chocolonely's input costs estimation (800)
Production (total)	Kg/hh	1037,4	1037,4	1976	1976	farm size * yield
FOB price	\$/kg	2,36	2,36	2,36	2,36	COCOBOD - http://tinyurl.com/h3ecnsa
Farmgate price	\$/Kg	1,75	2,36	1,75	2,36	COCOBOD - http://tinyurl.com/gqfap3k
Revenue cocoa	\$/hh	1815	2448	3458	4663	production * farmgate price
Input costs	\$/hh	300	300	500	500	Average from field work, Cocoa Barometer, Living Income consultation paper, without Tony Chocolonely (potential yield). For double yield Tony Chocolonely's input costs estimation (500)
Cocoa income	\$/hh	1515	2148	2958	4163	cocoa revenue - input cost
% Cocoa of income		85	90	93	95	Average from Cocoa Barometer, Tony Chocolonely, World Cocoa Foundation, LEI-UTZ impact measurement, Living Income consultation paper, rounded off to 85%
Non-cocoa income		227	227	227	227	15% of cocoa income in 'current' situation
Household income	\$/year	1743	2376	3185	4390	cocoa income + non-cocoa income
Household size	person	5	5	5	5	Average from field work, Cocoa Barometer, Tony Chocolonely, World Cocoa Foundation, GHSS, Cocobod annual report, Living Income consultation paper
Daily income	\$/person/day	0,95	1,3	1,75	2,41	total household income / number of hh members / 365
National poverty line	\$	0,94	0,94	0,94	0,94	Ghana Statistics Office - http://tinyurl.com/hvg3882
\$ Extreme Poverty line WB	\$	1,9	1,9	1,9	1,9	World Bank
PPP extreme poverty line	\$PPP	1,83	1,83	1,83	1,83	World Bank, adjusted for purchasing power in Ghana - http://data.worldbank.org/indicator/PA.NUS.PPP
Poverty line WB	\$	3,1	3,1	3,1	3,1	World Bank
PPP poverty line	\$PPP	2,98	2,98	2,98	2,98	World Bank, adjusted for purchasing power in Ghana - http://data.worldbank.org/indicator/PA.NUS.PPP

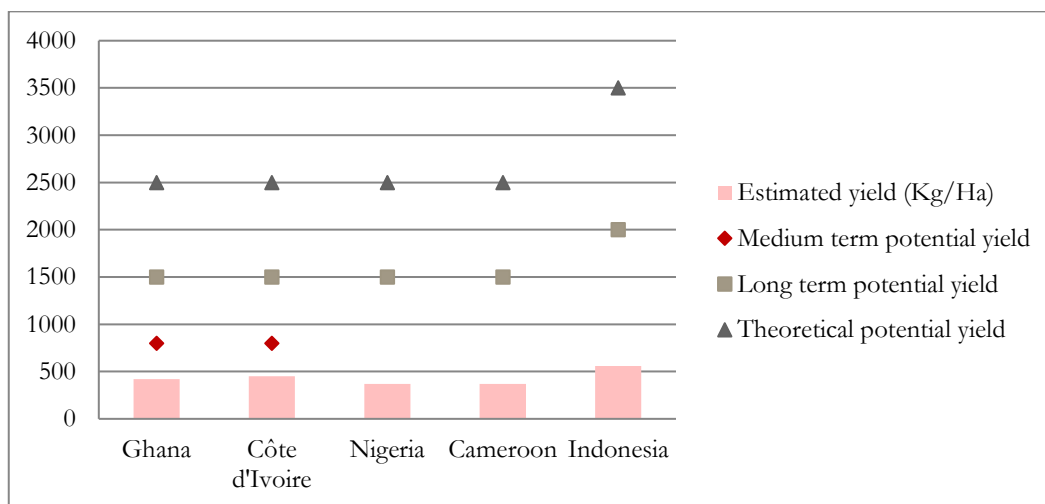
6.4 Agricultural practices and potential productivity

As we just learned, farmers' incomes from cocoa can best be raised by a combination of higher prices and higher cocoa production. While the cocoa price has been the main topic of this report thus far, we will now focus on production.

Increasing cocoa production by increasing scale appears to be unrealistic for an individual farmer. Cocoa production can naturally be increased by increasing acreage, i.e., by expanding cocoa farms and increasing the amount of land used for cocoa. However, this is not possible for the vast majority of farmers due to land shortages or the absence of a market for land, e.g. due to constraints and challenges related to land property rights. Here, we therefore focus on increasing cocoa production for a given amount of land, that is, increasing cocoa yields.

In most countries, current cocoa yields (typically expressed as cocoa production in kilogram per hectare) are very low compared to potential yields, especially in West Africa. As Figure 6.4 shows, estimates of potential yields differ widely but could be expressed in terms of medium, long-term, and 'theoretical' potential yields. One of our interviewees (2016) estimated that farmers in Ghana and Côte d'Ivoire could have a yield of 800 Kg/Ha in 5 years, following significant support and training programmes. Another respondent (2016) mentioned potential yields of 1500 Kg/Ha in West Africa and 2000 Kg/Ha in Indonesia. Other sources, however, indicated yields obtained on research plots in optimal circumstances of 2000 Kg/Ha in Ghana (Asamoah et al., 2015) or even 3500 Kg/ Ha in Malaysia (Zabawi et al., 2009).

Box 6.4 Estimated yields are far from potential yields



Source: Asamoah et al., 2015; Zabawi et al., 2009.

Increasing cocoa yields requires agricultural practices to enhance soil fertility and tree productivity. In Africa the traditional way to gain a cocoa plot was to cut down forest and plant cocoa trees in the fertile ground (Neilson, 2007). Currently, cocoa trees are ageing and land becomes scarcer. This asks for new production methods. Cocoa plants are vulnerable to pests and diseases and require special husbandry to obtain high cocoa production. Besides this, it is important for cocoa trees to

have fertile soil. Much research has been done on cocoa farming innovations which shows ways in which cocoa productivity can be increased, among which are the use of agricultural inputs (fertilisers, pesticides), the use of high yield cocoa trees, and the application of certain agricultural practices. The following list gives an overview of the most important Good Agricultural Practices (GAPs) that increase cocoa production:

Table 6.2 Good Agricultural Practices (GAPs) help to increase cocoa production

Planting material	Use productive, high yield plants Propagation (multiplication) of plants in seed gardens and nurseries through seeds, grafting, cuttings, somatic embryogenesis, etc.
Tree husbandry	Shading (using shade trees in order to shelter plants from direct sunlight) Land tillage to improve soil structure Planting in a suitable pattern and density Irrigation and water management technologies Pruning and thinning (removal of unwanted branches from a cocoa tree)
Soil fertility	Stimulate soil organic matter through manure application Apply organic and inorganic fertilisers in the right way Liming to stimulate the soil nutrient absorption
Weed and Pest control	Manual and mechanical control of weeds Chemical or biological agents fighting insects, fungi and weeds Pest control: pests and diseases forecasting, Integrated Pest Management
Cocoa harvest, post-harvest and on-farm processing	Right time of harvesting Using the right tools for harvesting (not damaging the cocoa pods) Right fermentation process (length, turning of beans) Right drying process (direct sunlight, immediately after fermentation, right duration)

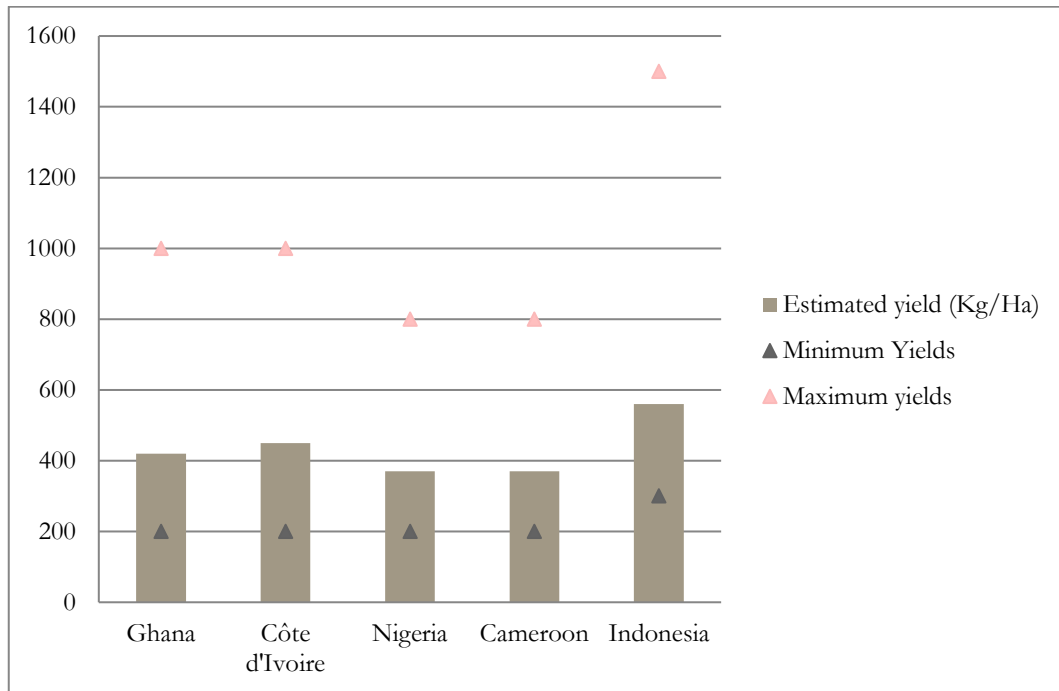
Source: Cocoa Sustainability Partnership (2013), ICCO (2000), ICCO (2009)

Obtaining higher yields demands making effective combinations of these practices (a package of services/inputs) and setting priorities (NewForesight 2013, Aneani 2012). New tree varieties, for example, need good husbandry including fertiliser and pesticides in order to result in the yields promised, and the right fertiliser needs to be applied in the right quantities at the right time in order to be effective.

The extent to which these agricultural practices are applied makes a great difference in yields, as can be seen for both farms and countries. Box 6.5 shows us the estimated yields of 4 cocoa producing countries, including the differences between the lowest and highest yields in these countries. We see, for example, that minimum yields in Ghana are around 200 Kg/Ha, while much higher yields of around 1000Kg/Ha also exist. The average yield in Ghana then lies around 420 Kg/Ha. Yields in Côte d'Ivoire vary in a comparable range, although the average yield is slightly higher. Nigeria and Cameroon perform worse with lower yields. Indonesia has noticeably higher yields with an average of around 560 Kg/Ha, while the highest yields even lie around 1500 Kg/Ha.

The relatively higher productivity levels for cocoa farmers in regulated countries are not substantial (and in absolute terms considered to be low), despite the policy to reinvest part of the cocoa revenues in the sector and the efforts of the private sector (including PPPs) to reach out to farmers with, for instance, certification, training, inputs and (financial) service.

Box 6.5 Farmers in Ghana and Côte d'Ivoire have only slightly higher average yields than farmers in Nigeria and Cameroon, while Indonesian yields are a lot higher



Source: Fieldwork (2016), Fountain and Hütz-Adams (2015), Ingram (2014), Ingram (2013), Fountain and Hütz-Adams (2014), FAO (2016), Aamoah et al. (2015), NewForesight (2013), Kamdem (2013), World Cocoa Foundation (2012)

The main reason why current yields are higher in Indonesia (and, reportedly, also in Malaysia and Vietnam) is because of the high quality of the planting material and the high adoption rates; compared to the material in Asian countries, the planting material promoted in West Africa is inferior and not made available at a large scale. The Asian countries have successful plant breeding programmes and higher adoption of clonal cocoa, which has a much higher and more uniform performance. In West Africa, plants are much older (Interview Chocolate Manufacturer, June 2016).

A second reason why yields are higher in Indonesia is because Indonesian farmers have adopted better agricultural practices on average. Even if the older African trees may have better yields, their performance is far from optimal due to the lack of good agricultural practices. West African farmers hardly improve soil fertility, which reduces yields significantly. Important agricultural practices like pruning and pest and disease control are significantly better in Asia as well (Interview Chocolate Manufacturer 2016). In Ghana, for example, only about one third of all farmers uses fertilisers, while the share of farmers using fungicides against black pod disease or the application of weed control (manually or with herbicides) is even lower, at 7.5% and 3.7%, respectively (Aneani et al., 2012).

Moreover, seasonal change in Indonesia is much less of a factor than in West Africa. Again, this could be overcome with better agricultural practices like irrigation and fertigation (the appliance of fertilisers through an irrigation system), but this is not done in Africa.

In summary, yields in Indonesia are higher than in West Africa because of a combination of slightly better climatic circumstances, higher soil fertility, better tree varieties and better agricultural practices.

6.5 Determinants of adopting good agricultural practices

In the previous section we learned that cocoa trees are vulnerable to diseases and require good husbandry and fertile soil to be productive. Cocoa production around the world is constrained by various problems. Table 6.3 presents an overview of these problems.

Table 6.3 Each country has its own challenges³⁷

Cocoa origin	Annual Pest/disease loss	Annual soil fertility loss	Other challenges
Côte d'Ivoire	24%	28%	<ul style="list-style-type: none"> • Lack of sector support • High tax rates • Limited land for further expansion • High % of aging cocoa trees
Ghana	29%	25%	<ul style="list-style-type: none"> • Limited land for further expansion • High % of aging cocoa trees
Indonesia	49%	15%	<ul style="list-style-type: none"> • Poorly flavoured beans • Low rates of postharvest fermentation • Major losses from Cocoa Pod Borer
Cameroon	50%	23%	<ul style="list-style-type: none"> • Sector neglected in favour of oil and gas industry
Nigeria	50%	23%	<ul style="list-style-type: none"> • High % of aging cocoa trees • Major losses from Black Pod

Source: see footnote³⁸

In theory, there is an agronomical solution for each of these problems. In practice, however, it proves to be hard for most smallholder farmers to execute these solutions, especially in West Africa. The question is: why do African farmers not apply these agricultural practices on their farms?

Farmers do not adopt new technologies for various reasons. Issues identified are, in short:

- Farm size: small farms have less means to afford farm technologies and less return on investment. Larger farms are associated with higher technology uptake.
- Risk and uncertainty: technology may not lead to higher production, or investment may be risky due to other factors (weather, pests, no timely availability of crucial inputs, price fluctuations).
- Land tenure: farmers do not have secure land ownership.
- Supply constraints: markets or governments do not provide inputs, or do not provide them on time or at an affordable price.
- Credit constraints: lack of access to finance.

³⁷ Van Grinsven (2009)

³⁸ Van Grinsven (2009)

- Literacy rate in rural areas is low and farmers are often poorly trained in methods.
- Low producer prices (Dormon 2004).

Smallholder farmers cannot afford agricultural investments. Farmers are poor to begin with and agricultural inputs are expensive. Cocoa farms are very small, which makes the costs of agricultural investments high compared to the potential production increase on the small farm (Boahene 1999). Certain farming techniques such as pruning, spraying, and the application of fertiliser require extra labour. However, labour is increasingly scarce in cocoa growing areas which raises the costs of hired labour on the farm (Asamoah 2015). This means that cocoa farmers cannot afford (applying) new farm technologies themselves.

While farm investments are costly, farmers deal with risk and uncertainty. One can never be sure beforehand whether or how much production will increase because of the investment, and return on investment can be threatened by pests, bad weather or low cocoa prices (Lawal&Oluyole 2008, Quarmin 2013). In addition to this, an investment in new high-yield trees only pays off after 3-5 years when the cocoa tree starts to mature, a time gap that often cannot be bridged. Investments in cocoa rehabilitation often mean that for a certain period of time the income from cocoa is limited (or even absent), while higher labour investments need to be made. For many farmers this scenario will be unattractive and/or unaffordable (Interview with international chocolate manufacturer).

Supply and credit markets in West Africa malfunction. Supply of fertilisers is often not on time, not of the right quality or not available in small enough quantities for smallholder farmers (Chianu et.al. 2004) Credit for trees or inputs could solve this problem, but it is often unavailable (Obuobisa-Darko, 2015) because these markets do not function properly either. For a commercial actor it is unattractive to provide credit to farmers because the loans and thus the revenues are too small and the transaction costs and the risks are too high. Public 'free' distribution of inputs is often not the answer to supply market failures. In other countries, for example Ghana, the government distributes fertiliser and chemicals for 'free' (effectively paid from gross and net FoB price). This public system has a number of consequences for the application of technologies and inputs. First of all, farmers are used to get inputs for free. This has contributed to a 'wait-and-see' mentality; farmers tend to wait for the free product. Secondly, free distribution of seedlings, fertiliser and other inputs have distorted the (private) market for trading inputs. Thirdly, the government has failed to deliver and distribute inputs effectively and timely (COCOBOD 2013).³⁹ Claims in production increase have been made by the government, but it has been argued that this increase is primarily the result of more land being used for cocoa production, instead of higher productivity levels.

Labour also becomes scarcer in certain cocoa growing regions. Because of the meagre opportunities in cocoa farming, the youth of Ghana migrates from the farms to urban areas to look for employment opportunities (Dormon 2004). This again affects the cocoa production, because labour becomes scarce and hired labour unaffordable for cocoa farmers (Mahama 2013).

Additionally, it is because of a lack of knowledge that farmers do not take up new technologies. New cocoa technologies are spread by extension services, which are often limited in scope,

³⁹ http://unctad.org/meetings/en/Presentation/SUC_GCF2013_18-03-2013_Ebenezer-TEI-QUARTEY.pdf (19-9-2016)

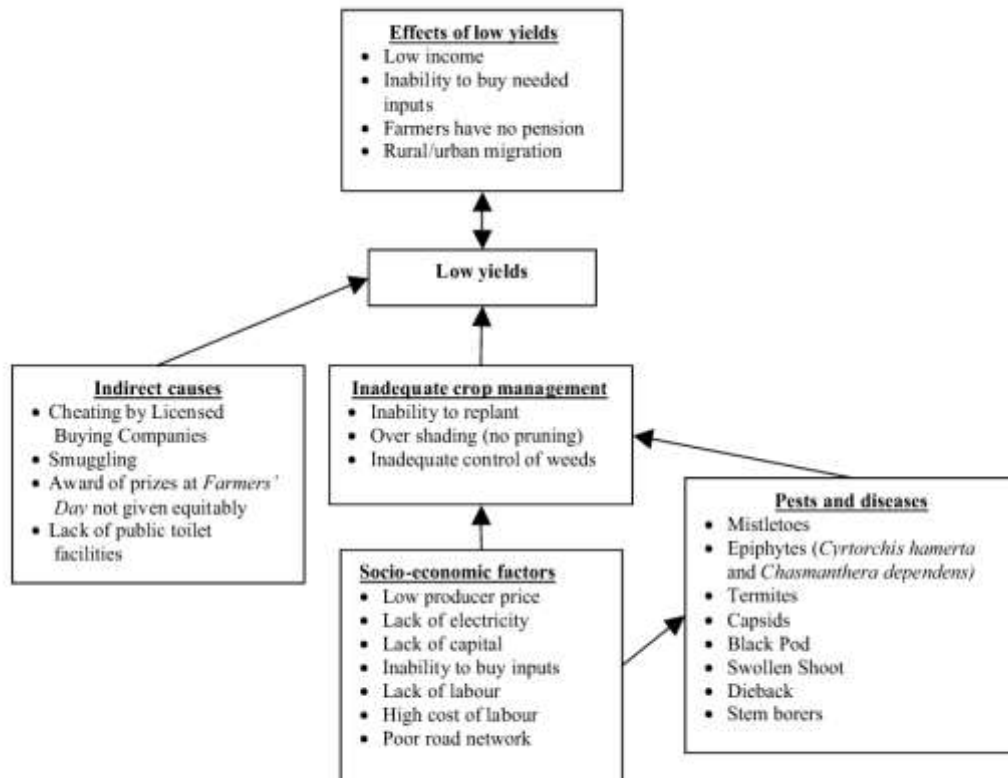
frequency, or quality. It has been argued, for example, that the quality standard of current cocoa GAP training, offered for example in Farmer Field Schools, is not adequate (Interview with Chocolate Manufacturer 2016). Extension services may not reach the more remotely located farms, they may visit very rarely, or the techniques with which they teach may not stimulate farmers to take up the new technologies. Farmers that have had (more) visits of extension services are more probable to use farm technologies (Aneani 2012, Boahene 1999, Asamoah 2015).

The farm-gate cocoa price also plays an important role in farm investment. Higher cocoa prices not only enable a farmer to invest in the cocoa farm for the next season, it also increases the return on investment. Although adaptation on farms is slow (dealing with credit constraints and the long time it takes before crops start to produce), farmers do rationally invest in crops and activities that give the highest return on investments. Higher producer prices stimulate and enable farmers to invest in their cocoa farms and achieve higher cocoa yields (Dormon 2004, interview with stakeholder). In other words, if cocoa does not bring in the money, farmers will not put in the effort.

Farmers' share of the world price has been consistently lower in Côte d'Ivoire and Ghana than in Latin America, Asia and other African countries (ICCO 2016). Hence it could be that low farm-gate prices not only prevent farmers to invest in their cocoa production, simply because they do not have the money, but that it also discourages farmers to invest in cocoa production because they do not view it as worth it.

Besides direct causes, farmers in Ghana mention indirect causes that explain relatively low yields, such as cheating with weighing scales and smuggling. In a participatory qualitative study, Dormon et al. (2004), together with cocoa farmers, made an overview of the factors hampering farmers to increase production. This overview is shown in Box 6.6, which reflects many factors such as the low farm-gate price, the lack of capital and the inability to buy inputs.

Box 6.6 Factors hampering farmers to increase production



Source: Dormon et al, 2004

The combination of these factors result in the fact that West African farmers do not take up these agricultural practices, or not in the right way or the right combination. Some farmers, for example, only use some of the techniques to avoid high costs and risks, while, as argued before, it is very important to combine all techniques to have a good result (NewForesight 2013 Aneani 2012).

Although technology adoption is low among farmers in general, there are certain characteristics of farmers that increase the probability that a farmer will make use of the latest techniques. As stated before, farm size is positively related to technology uptake, meaning that farmers on larger farms take up more technologies than others (Aneani 2012). Older farmers are less inclined to adopt new technologies (Asamoah 2015, Lawal&Oluyole 2008); it is unknown whether this is because they have more trouble to adopt technologies or because they tend not to invest in their farms because of their old age. Higher educated farmers tend to take up farm technology earlier, because they have greater capabilities to understand new techniques (Aneani 2012). Taking these facts into consideration, it most likely requires a higher investment to turn a farmer with 3 hectares of cocoa land, without good planting material, and with a lack of knowledge into a profitable farmer than it would, for example, with an educated farmer that owns a plot of 5 hectares and who just replanted his/her farm with new variety seedlings.

There are already some private sector partners, NGOs and researchers that start exploring how interventions can anticipate on differences among farmers. This can contribute to developing

tailor-made (and more effective) services or put in place selection mechanisms to attract more entrepreneurial farmers.

6.6 Beyond the focus on productivity

Thus far, we have focused on the micro-economic impact of either increasing farm productivity or the farm-gate price of cocoa. The previous chapter showed that the combination of increasing price and productivity could probably raise the incomes of cocoa farmers in countries like Ghana above the extreme poverty line. Many private sector initiatives and certification schemes have focussed mostly on productivity enhancements at this 'micro level' of individual farmers or small groups of farmers. Moreover, they often have a tendency to focus mostly on the most entrepreneurial farmers.

While substantial higher cocoa production could help reduce poverty at the micro level of the individual farmer, this will not work at the macro level. If, in a theoretical scenario, all cocoa farmers around the world would raise productivity towards a level that could sustain a household but the world demand for cocoa remains unchanged, then basic economic theory predicts that the world price for cocoa would drop dramatically. While the net effect on cocoa farmers' incomes depends on the elasticities of supply and demand, it is highly unlikely that higher production will lead to higher incomes if productivity is enhanced at a macro scale, e.g. through national public investment programmes.

There are three key reasons why the current focus of value chain initiatives on productivity enhancements might not be the most effective way to raise farmers' incomes: (1) they could cause cocoa supply growth to outpace cocoa demand growth, in which case the world cocoa price would fall; (2) they further increase farmers' dependence on cocoa (by providing cocoa-specific training and inputs), leading to increased income volatility and a lower bargaining position; (3) they can further lower farmers' bargaining position by increasing farmers' dependence on the programmes of specific companies, which may make it more difficult to sell other companies.

In order for increases in cocoa sector productivity to be effective at raising farmers' incomes, they will need to be combined with income diversification strategies in order to reduce farmers' income volatility and sustainably lift farmers out of poverty. The combination of professionalisation and income diversification will be needed to sustainably raise farmers' incomes and reduce their vulnerability to global changes in the cocoa and other markets.

6.7 Income diversification

"A consensus has emerged that diversifying income sources is the only way to truly address declining and volatile incomes among commodity-dependent households. (Gibson 2007)

Thus far, we learned that productivity enhancements can be an effective way to increase (net) cocoa income at the micro level, but that this cannot be a solution for all cocoa farmers at the macro

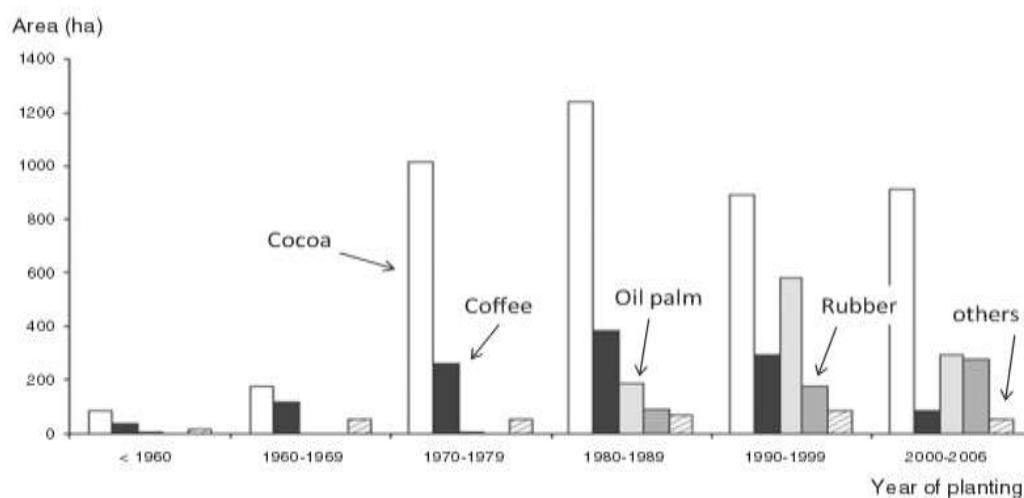
level. However, there are opportunities to increase farmers' incomes beyond cocoa and potentially spread risks: income diversification.

Income diversification as a potential strategy to increase and stabilise farmers' incomes and to protect them from price risks seems to be an increasingly popular option among cocoa researchers and experts. Ingram (2013) advises to support farmers in diversifying their income and professionalising farmers with the most potential. Waarts (2015) also advises to increase farm sizes and diversify sources of income in order to raise cocoa farmers' incomes.

Diversification is beneficial for farmers because other income sources could generate higher or more stable revenues, increasing income. Also, cocoa production is very seasonal, causing income boosts during harvests but deficits during lean times. Combining cocoa production with other sources of income could stabilise income over the year. Crop diversification also helps to maintain food security, especially during phases when cocoa trees are not yet productive. Lastly, diversification is beneficial for farmers because it spreads the risk (of diseases, low prices, etc.) of agricultural production over several crops, thereby diminishing food or income shocks for farmers (Schrotch and Ruf, 2013). Economic diversification can also be important at country level, to make sure that the national economy of a country is not too dependent on one commodity. The national economies of Ghana and Côte d'Ivoire are currently severely hit when shocks in cocoa production or prices arise. This could be diminished when the economies of these countries are more diverse.

Many cocoa farmers already diversify their incomes. Feasible diversification in the short and medium run for farmers is mostly to grow other cash or food crops or to engage in off-farm income generating activities. Our sources (Cacao Barometer, a chocolate manufacturer, World Cocoa Foundation, LEI-UTZ) show that for cash income, farmers depend for 80% to 90% on cocoa production. However, a study of Aneani et al. (2011) shows that 79% of the cocoa farmers in Ghana grows at least one other crop next to cocoa. The largest group (36%) grow one extra crop, while others grow two, three or even more crops outside cocoa. Popular crops are food crops like plantain, cassava and maize, and cash crops like oil palm and citrus. Ingram (2013) found that farmers are diversifying into crops with a more regular income, like rubber.

Not only do cocoa farmers grow other crops, they also rationally switch crops depending on market circumstances. Anecdotal evidence indicates that in Côte d'Ivoire, many farmers have already changed into growing oil palm and rubber to diversify their incomes when cocoa prices were low. Moreover, Schrotch and Ruf (2013) describe how Côte d'Ivoire changed from a rural economy dominated by cocoa and coffee into a more diversified economy with palm oil and rubber. In Ghana, during low cocoa prices in the 1970s and 80s, farmers (partly) switched to oil palm and citrus. In Indonesia, many farmers stop growing cocoa and switch back to rice or to oil palm because of the outbreak of the cocoa pod borer disease.

Box 6.7 Planting rate of tree crops in Côte d'Ivoire

Source: Schroth & Ruf, 2014

Cocoa farmers can also diversify in off-farm activities to diversify their incomes. A popular activity in Ghana is artisanal gold mining (which is highly destructive for cocoa production). Hilson and Garforth (2012) describe how rural poverty and declining returns from agriculture have caused many (particular young people) to choose the cash income from gold mining. This does not necessarily mean that farmers stop farming completely: many combine gold mining with farming. In some cases the family keeps farming while the head of the household is away mining, in other cases farming is only done seasonally and income from mining is used to buy fertilisers for farming. Another way of non-farm income diversity is basically moving out of the village into urban areas to look for opportunities there. This rural-urban migration pattern is reported widely (Lawal 2014, Mahama 2013, Dormon 2004). However, it is unclear how this pattern exactly takes place, whether it is temporary or permanent, whether economic ties with the farmer household remain intact, etc.

Nevertheless, it is not easy for farmers to diversify incomes. Many farmers do not see cocoa production as a viable option for the future but 'feel stuck' in cocoa farming. They have few opportunities to change their income sources. Other tree crops can bare the same risks as cocoa, especially when a high number of farmers switch to these crops at the same time. For example, the world market prices for rubber and palm oil prices have recently fallen and are nearly as volatile as those of cocoa. Also, crop diversification requires access to knowledge, markets, infrastructure and investments, which leads to the same risks and problems as investing in cocoa productivity described earlier in this chapter, while at the same time cocoa income diminishes (Gibson 2007). Also the fact that many cocoa farmers inherited a cocoa farm from their relatives and that their ancestors have long held this profession, can motivate farmers to remain in the business. Finally, it is possible that user rights (using the farm) are linked to property rights (having cocoa trees on the farm).

6.8 Conclusions

This chapter described the alternative determinants of cocoa farmers' income. In this chapter we first looked at estimates of farmer's income and the potential impact of a price or production increase. This chapter looks into agricultural practices and production and determinants of adopting good practices. The conclusion is threefold. First, removing domestic market imperfections and adopting optimal production methods can significantly increase cocoa farmers' incomes. However, neither policy would be sufficient enough on its own to raise cocoa farmers' incomes above the extreme poverty line. Second, increasing cocoa yields requires agricultural practices to enhance soil fertility and tree productivity. Getting higher yields demands making effective combinations of good practices and setting priorities. Third, there can be various reasons why farmers do not adopt new technologies, such as farm size and land tenure arrangements, risk and uncertainty, supply and credit constraints and illiteracy. Finally, the farm-gate cocoa price also plays an important role in farm investment. Higher cocoa prices not only enable a farmer to invest in the cocoa farm for the next season, it also increases the return on investment.

7 Current value chain initiatives to raise cocoa farmers' incomes

In Chapter 6 we learned that cocoa farmers are extremely poor in all producing countries except Indonesia, and that it requires a combination of price and productivity increases to lift a cocoa farm household's income above the extreme poverty line. We then focused on productivity increases and showed that there is a lot of potential to increase the productivity of cocoa farming. We also explained the barriers that many cocoa farmers in West Africa experience in enhancing productivity. At the end of the chapter we explained why production increases are not the key to lift farmers out of poverty, and why income diversification is needed to make cocoa a viable income option.

In this chapter, we provide an overview of the various initiatives that have been put forward to help farmers overcome these barriers. We discuss private sector initiatives, certification schemes and policies of the Dutch government that all attempt to raise cocoa farmers' incomes. We will see that the main focus of most of these programmes is on raising cocoa productivity, and we will argue that this focus is not in the best interest of farmers. Instead, income diversification is needed to reduce income volatility and lift farmers out of poverty in a sustainable way.

7.1 Private sector initiatives

In recent years, a large number of private sector initiatives have been developed to enhance the productivity, quality, and sustainability of cocoa production. These initiatives have been partly justified as being a response to the general 'fear' that cocoa supply could be falling in the future, as cocoa farmers do not sufficiently invest in agricultural practices (such as planting new cocoa trees) that would ensure a stable and sustainable level of cocoa production. Obviously, this fear may well be unfounded in the long run as a shortage of cocoa would lead to higher cocoa prices which in turn would make such investments profitable again. The main problem, as outlined in the previous chapter, is that the 'agronomy of cocoa' is such that price developments take a long time to impact investment decisions, and investment decisions take a long time to impact cocoa prices.

Twelve of the major cocoa processors and chocolate manufacturers have taken major steps to sustainably source their cocoa. Mars, Hershey and Ferrero commit to source 100 percent sustainable cocoa in 2020. Cadbury is also committed to 100% sustainable cocoa (without setting an end-date). Mondelez commits to sustainable sourcing of two premium brands. The commitments of sustainable processors are significantly lower, but the target was set at 2015: Cargill committed to 25% sustainable cocoa by 2015, just like (former) Petra Foods, (former) Armajaro and Ecom. The retailers again committed 100% sustainable cocoa products for their private label only (NewForesight 2013). An industry-wide total of around \$1 billion is disclosed by the 10 largest

chocolate producers and cocoa processors for spending on cocoa-sustainability programmes.⁴⁰ A brief overview of company initiatives is given in Box 7.1.

Box 7.1 Private sector cocoa sustainability initiatives

- Mondelez: Cocoa Life <http://www.cocoalife.org/>
- Nestlé: Cocoa Plan www.nestlecocoaplan.com
- Hershey's:
 - Hershey Learn to Grow
 - https://www.thehersheycompany.com/en_us/responsibility/good-business/creating-goodness/learn-to-grow.html
 - Cocoa Link
 - https://www.thehersheycompany.com/en_us/responsibility/good-business/creating-goodness/cocoa-sustainability/cocoa-link.html
- Mars: Sustainable Cocoa Initiative
 - <http://cocoasustainability.com/>
- Cadbury: the Cadbury Cocoa Partnership
 - http://trade.ec.europa.eu/doclib/docs/2008/march/tradoc_138097.pdf
- Starbucks Cocoa Practices
 - <https://www.scsglobalservices.com/starbucks-cocoa-practices>
- Lindt: Source Trust (in cooperation with other partners)
 - <http://www.sourcetrust.org/>
- Purdy's Classe program
 - <http://docplayer.net/3597205-Classe-program-quarterly-report-funded-by-purdy-s-chocolates.html>
- Cargill:
 - <http://www.cargill.com/wcm/groups/public/@ccom/documents/document/na3050295.pdf>
- Cemoi, Blommer and Petra Foods: Processor Alliance for Cocoa Traceability and Sustainability (PACTS)
- Petra Foods: SEEDS
 - http://delfilimited.listedcompany.com/newsroom/20121017_173220_P34_9FADE5445E9CE03948257A9A00289553.1.pdf
 - http://www.petrafoods.com/corporate_sustainability.html

Sector-wide examples

Cocoa companies increasingly become aware that farmers need access to finance in order to increase investment in the cocoa sector. Local financial institutions typically would not provide finance to individual farmers, or only at unaffordable high rates, due to asymmetric information, high risk premiums, and correlated commodity price risks. An example of such a private sector initiative is the 'Access to Affording Funding for Cocoa Farmer Cooperatives' funded by Cargill, the Ivorian bank SIB, and the International Finance Corporation (IFC). This initiative provides affordable loans for trucks for cocoa farmer cooperatives in Côte d'Ivoire. The funding is available to graduates of the Cargill Coop Academy, a dedicated educational programme for managers of

⁴⁰ <http://www.wsj.com/articles/chocolate-makers-fight-a-melting-supply-of-cocoa-1452738616>

cocoa farmer cooperatives. The main benefit is that cocoa farmers can transport their cocoa beans to market more easily and reliably. 43 cooperatives are thus far participating in the initiative and 78 new trucks have been leased in the first year alone.⁴¹

Chocolate, Biscuits & Confectionery of Europe (CAOBISCO) aims to support a fair, balanced and sustainable supply chain. CAOBISCO and its partners in the cocoa supply chain, including the origin country governments and local authorities, are working together to address the complex challenge of achieving sustainable cocoa farming. Their aim is to allow cocoa growing communities to sustainably improve their livelihoods and well-being while producing sufficient cocoa with the quality required by the cocoa and chocolate industry to manufacture products and meet the needs of the consumers. Naturally, CAOBISCO represents the interests of its members, which are strongly opposed to any measures which are discriminatory in nature such as the so-called “sugar tax” or “fat tax”.

The European Cocoa Association (ECA) is a trade association that groups the major companies involved in the cocoa bean trade, processing, warehousing and related logistical activities in Europe. Together, ECA members represent two-thirds of Europe’s cocoa beans grinding, half of Europe’s industrial chocolate production and 40% of the world’s production of cocoa liquor, butter and powder. On behalf of its members, ECA monitors and reports on developments impacting the cocoa sector, both at regulatory and scientific levels.⁴²

The Federation of Cocoa Commerce (FCC) was established to serve the growing trade in physical cocoa. The central purpose and role of the Federation of Cocoa Commerce is to provide a comprehensive contractual and operational framework within which the interests of all sectors of the cocoa trade and industry are fairly represented.

CAOBISCO, ECA and the FCC are committed to working towards more sustainable cocoa that complies with requirements for the benefit of consumers, manufacturers and farmers. A sustainable cocoa supply chain calls for high standards of quality and productivity resulting in cocoa that is safe for consumer consumption, complies with manufacturers’ quality requirements, and meets the growing global demand. Over the last few years, CAOBISCO, ECA, and FCC have worked on defining Good Agricultural Practices for food safety in cocoa.

In 2013 CAOBISCO, ECA and FCC joined forces by setting up a *Joint Research Fund* that operates under a *Joint Cocoa Quality & Productivity Working Group*. This working Group is currently administered by ECA. On average three projects (that typically run over a two to five year timespan) are administered through the Fund. Current projects include: Cocoa Bean Quality Requirements Guide; Research on occurrence and mitigation of cadmium in cocoa; and Detection of Cocoa Swollen Shoot Virus (CSSV). The joint WG has a regular exchange of information and cooperates in this work with cocoa producing countries governments, research institutes, the International Cocoa Organisation (ICCO) and the European Commission.

⁴¹ <http://www.cargill.com/news/releases/2015/NA31913260.jsp>

⁴² <http://www.eurococoa.com/>

In addition to their private initiatives, cocoa sector companies have also organised themselves through World Cocoa Foundation initiatives such as Cocoa Action.⁴³ Cocoa Action is a collaboration among an alliance of eleven of the world's leading cocoa and chocolate companies.⁴⁴ It aims to improve the livelihoods of cocoa farmers in Ghana and Côte d'Ivoire and to enable transformation towards an economically viable cocoa sector. Cocoa Action focusses on six themes:

- Planting material
- Fertiliser and soil fertility
- Community development
- Government and donor alignment
- Innovation and future forms of agricultural extension work
- Shared commitment to measuring progress and impacts

Other examples can be found in Appendix A

Certification

One way in which sustainable cocoa production can be stimulated is through visible, measurable, third party schemes that allow independent auditing and monitoring of cocoa in the chain from producer to retailer with a traceable system. Examples are UTZ, Fairtrade, Rainforest Alliance, Certified Organic and EU Biolabel. See further below.

Certification can be an important means to achieve sustainability and it is not easy to make a clear distinction between private sector initiatives and certification programmes. Almost all private sector initiatives comprise to a certain extent certification of the company's produce, or collaboration with certification bodies. Certification schemes as UTZ work closely together to make cocoa production more sustainable. Companies sometimes voluntarily pay a price above the world market price by way of an incentive to comply with certification. This premium can be paid either in cash or in kind for example by providing fertilisers and training. Generally, these premiums do not appear to be significantly higher than a few percentage points. Part of the premium is often reserved for covering the investments costs involved in certification (IOB, 2014).

Focus on productivity

The previous chapter showed that farmers need both a major price increase for their cocoa *and* a substantial increase in productivity in order to make a decent living out of cocoa. When looking at certification and private sector initiatives, it appeared to us that, although many mention price premiums under certain conditions, none of them (except Tony Chocolonely) actually offer substantial and guaranteed higher prices for farmers (Appelman 2016). Many of the abovementioned public and private value chain sustainability initiatives have a major focus on enhancing cocoa sector productivity. This appears to be driven in part by the concern expressed by many companies that the growing world demand for cocoa will outpace world supply and would lead to cocoa shortages. We suspect this anticipation on cocoa scarcity underlies many of the private sector cocoa productivity enhancing programmes.

⁴³ Other World Cocoa Foundation initiatives include the WCF African Cocoa Initiative (www.worldcocoafoundation.org/wcf-african-cocoa-initiative) and other programmes: www.worldcocoafoundation.org/our-work/programs/

⁴⁴ <http://www.worldcocoafoundation.org/about-wcf/members/>

7.2 Certification

Certification schemes can be used to ensure the application of certain principles in agricultural commodity production. Their key objective is to promote sustainable production practices in the cocoa supply chain and to improve the livelihoods of cocoa farmers. The main cocoa certification schemes are Fair Trade, Rainforest Alliance and UTZ. Although they operate in similar ways, their focus and their requirements differ. Rainforest Alliance and UTZ both focus on increasing farmers' yields through higher productivity; Fair Trade focusses on sustainable trade relations (KPMG, 2012). In the Netherlands, certified chocolate sales in 2012 were estimated between 11.4% to 40.4% of total chocolate sales. Certified chocolate includes UTZ, but also Rainforest Alliance, Fair Trade and organic cocoa (Dutch Ministry of Foreign Affairs 2014).

Fair Trade

The first certification initiative, Fair Trade, was founded in 1988. It is focussed on supporting small cocoa farmers by providing a fixed minimum price and a premium to farmers that meet certain social and environmental requirements. These requirements include human working conditions, absence of child labour, sustainable use of forests, fertilisers and pesticides and a prohibition on creating new cropping areas by clearing existing forests.

Fair Trade premiums are distributed via farmers organisations. Farmers that are connected to these organisations decide how these premiums are spent, e.g. on improved infrastructure, health care, computer facilities, equipment, training and education, or by payments to farmers. Fair Trade cooperates with farmers organisations rather than directly with farmers for two reasons: (1) it is easier to access farmers organisations; (2) support the organisation of and cooperation between farmers can increase their bargaining power (PBL, 2015).

Rainforest Alliance

The Rainforest Alliance certification scheme focusses on enhancing biodiversity and improving the working conditions of cocoa farmer and eco-friendly production methods. The first includes improved welfare and living conditions of farmers and workers, safety and health care and the right to become a union member. Rainforest Alliance works with individual farmers as well as with farmers organisations. Cocoa producers are allowed to use Rainforest Alliance certification if at least 30% of their production is sustainable (Oorschot et al., 2015 and Rainforest Alliance, 2012).

UTZ

The UTZ scheme aims to increase yields and quality through improved production methods, which enables farmers to receive a better cocoa price. In order to become certified by UTZ, farmers need to meet social requirements (e.g. meet ILO working conditions, eligibility to health care, housing and education for cocoa farmers and their families) as well as environmental requirements (e.g. minimising the use of pesticides and improving the use of land). Better land use and increased productivity lead to higher yields and might reduce the urge to clear rain forests. Furthermore, there are transparency requirements for the value chain: the origin of chocolate should be made clear to consumers. A mandatory premium should be paid for UTZ certified cocoa, but the height of this premium is to be negotiated by farmers and traders (Oorschot et al., 2015).

Impact of certification on farmers' income

The evidence on the impact of certification on farmers' income is somewhat mixed. Most studies focus on output indicators (e.g. the number of people trained) rather than outcomes (income). One general finding appears to be that certification might lead to higher prices for cocoa, but it imposes higher input costs at the same time (IOB, 2014). Hence, the net effect is often not clear.

There is not much clear evidence on the impact of certification on farmer's income. For example, a recent impact study of UTZ shows that farmers have seen an increase in productivity (since obtaining a UTZ certificate), but a control group of non-certified farmers also experienced a productivity increase in the same period. These farmers received training provided by government agencies or sector-wide programmes. It is therefore not possible to attribute productivity increases to the UTZ certification programme alone (UTZ 2013).⁴⁵ In a study on the impact of UTZ certification in Côte d'Ivoire, Ingram (2014) finds that certification might have an impact on incomes. Participation in UTZ certification programmes appears to increase incomes. Farmers that participate longer have higher incomes, mainly due to higher efficiency and productivity levels. In another study on the impact of UTZ in Ghana, Waarts (2015) actually found no difference between the incomes of certified farmers and non-certified farmers. An impact study of a Cargill-Solidaridad programme, of which UTZ certification was an important part, found that the certification premium was a very important motivation for farmers to become a member of the programme. Farmers participating in the programme seemed to earn a higher income from cocoa than other farmers. 85% of the farmers interviewed indicated that higher cocoa production had resulted in higher incomes for them. More than half of the farmers got a premium, but they did not receive higher prices for their cocoa.

Some studies do find a positive effect under certain circumstances. A meta-study by KPMG (2012) showed that in 11 out of 22 studies, certified farmers and their families receive a higher net income as a result of higher prices, improved yields and better market access. But the impact of certification depends highly on local circumstances and diminishes if certified producers need to sell their products on the conventional market due to a decline in demand (KPMG, 2012). Kessler et al. (2012) found both positive and negative effects of certification on farmers' income. Like IOB (2014), they found that certification might lead to higher prices and higher costs at the same time. While Fair Trade certified farmers do appear to earn a higher net income from cocoa, it is difficult to causally attribute this to certification (Kessler et al., 2012). In addition, it is often not clear to what extent farmers organisations spend the premium they earn and to what extent individual farmers benefit (Oorschot et al., 2015).

A study on the impact of UTZ certification in Ghana found a positive but insignificant difference in total household income for certified and uncertified farmers (LEI, 2014). They found that the average premium for UTZ certified cocoa in this case equalled 0.04 USD per kilogram. However, some of the certified cocoa was not sold as certified cocoa, and in such cases, farmers did not receive a premium. The average percentage of certified cocoa that did yield a premium was estimated at about 45%.

⁴⁵ UTZ Impact Report March 2013.

In addition to the mixed but mildly positive evidence reported above, several other concerns have been expressed regarding certification schemes:

- **“We have to be careful that we do not certify poverty”** (Interview cocoa sector organisation). A recent impact study showed that the income from cocoa is slightly below the USD 1.25 poverty line, while the total household income is slightly higher per household member (USD 1.40). It remains a challenge for farmers to make a living out of cocoa. Although productivity increased along with both the income from cocoa and the total household income, both are still very low (UTZ 2013).
- **“We have to be sure that certification is relevant for farmers”** (Interview international chocolate manufacturer). What is argued to be important is to ensure that farmers are well-informed at the beginning of the cocoa season on the amount of cocoa they can sell as certified against what price. So farmers get options and can choose the scheme that is most appealing to them.
- **“Certification alone is not enough to protect our affordable luxury, chocolate”** (Website Solidaridad⁴⁶). The belief in a market transformation approach, working simultaneously with farmers, cocoa and chocolate companies, service providers, consumers and governments, is adopted by both private sector companies, certifiers like UTZ⁴⁷ and implementing partners.

7.3 Dutch policies to raise cocoa farmers' income

Given its prominent role in the global cocoa value chain, it is perhaps not surprising that the Dutch government appears to have the interests and ability to play a leading role in working towards sustainable cocoa and living incomes for cocoa farmers. This section discusses the various channels through which the Dutch government has already aimed to do so thus far.

ICCO

The Netherlands is a member of the International Cocoa Organisation (ICCO). This organisation is chaired by cocoa producing and cocoa consuming countries every other year. The Netherlands has been chairing ICCO in the 2015/2016 cocoa year and the Dutch government has played an active role in facilitating and funding the ICCO World Cocoa Conferences.

Price stabilisation

Between 1974 and 1993, the Netherlands had been involved in several International Cocoa Agreements, building a buffer stock to stabilise prices. The rationale behind this stock was that by jointly buying and selling cocoa, countries would be able to maintain a stable price on the world market. Because of the limited effect of this system and the liberalisation of trade, it was decided to liquidate the stock in 1993 (Laven and Pelders 2010).

Dutch cocoa sustainability initiatives

Between 2004 and 2007, the Dutch government provided a subsidy of EUR 12 million to projects that contributed to sustainable development of the cocoa sector. These projects also aimed to

⁴⁶ <http://www.solidaridadnetwork.org/news/together-we-can-secure-the-future-of-cocoa-farming>

⁴⁷ UTZ on the need for sector change: <https://www.utz.org/what-we-offer/sector-change/>

foster capacity and institution building in countries of origin; innovations in the area food quality; improving the well-being of employees working in the cocoa sector and their families; and reducing the environmental impact of the cocoa sector. The subsidy was derived from the Dutch part of the revenues generated through the sale of the cocoa buffer stock (Laven and Pelders 2010).

The Dutch government has been both initiator and funder of multi-stakeholder meetings that promote sustainable cocoa. This includes the Round Tables for Sustainable Cocoa, the WCCs, the Chocoa Festival, and activities that are initiated under these platforms, such as the knowledge portal for sustainable cocoa.

The Dutch government is funder of public-private partner research activities and projects that promote sustainable cocoa. For example, for the period between 2013 and 2017 The Netherlands Embassy in Ghana invested in the Cocoa Rehabilitation and Intensification Programme for Ghana (CORIP). Another example is the ‘Topsector’ framework of the Ministry of Economic Affairs, which funds research by public private partnerships of research institutes, companies and the government. Examples of co-financed projects within the Agri and Food sector are a LEI study on the impact of UTZ Certification of cocoa in Côte d’Ivoire (WUR 2015). Another example is the RVO Facility for Sustainable Entrepreneurship and Food Security (FDOV). This facility generally encourages public-private partnerships in the field of food security and private sector development in developing countries. An example of a project within the FDOV framework that is relevant for the cocoa sector is the Access to Sustainable Markets and Food Security for Nicaragua’s Coffee and Cocoa producers.

The Dutch government has helped cocoa sector stakeholders to formally strengthen their commitment to promote sustainability in the cocoa sector through a Letter of Intent. On 4 March 2010, this letter was signed between private sector representatives, NGOs, knowledge institutes and the Dutch government to express their intention to ensure that by 2025 all cocoa consumed in The Netherlands is guaranteed sustainable.

Following the signing of the Letter of Intent, a ‘ChocoWorkingGroup’ was established, operating as the national cocoa stakeholder meeting, to enhance cooperation among Dutch stakeholders. This ChocoWorkingGroup is initiated and facilitated by the government, with the aim of monitoring implementation of the Letter of Intent. The Working Group brings together organisations which have signed the Letter of Intent as well as others committed to the objective. It continues to meet on a regular basis. In addition, it has drawn up a National 10 Point Action Plan.

This Dutch declaration (Letter of intent) was received with scepticism by some, as the largest processing companies did not sign the letter, and the targets were perceived as being unrealistic. Another critique has been that it “forced” other countries like Germany to come up with something similar (Interview cocoa sector organisation). Unlike the Netherlands, which pledged to achieve 100% certified sustainable cocoa by 2025, Germany has not adopted any deadline for achieving 100% sustainable cocoa (50% in 2020 and 70% in 2025).

However, the Dutch letter of intent (as well as a similar German Covenant) have been put forward by others as an example for other cocoa consuming countries. These initiatives are effective in

increasing the demand for sustainable and traceable cocoa (Interview certification body). The Dutch letter, through its action plan, has resulted in a supportive role of the government in promoting consumer festivals to promote the Dutch consumption of sustainable and quality cocoa.

In January 2015, the Dutch Government announced a new strategic partnership agreement between the Dutch Ministry of Foreign Affairs and NGOs: “Dialogue and Dissent”. In total 25 partnerships have been formed. Both Solidaridad and UTZ have been selected as partners. The Dutch Ministry of Foreign Affairs signed a strategic partnership with Solidaridad in the amount of €32 million for the years 2016 - 2020. The aim of this partnership is to work on capacity building for a sustainable sector transformation (both socially and environmentally) in selected agricultural, mining and industrial sectors, including cocoa. Programmes will be set up in Ghana and other countries to encourage public and private policies for a transformation to an inclusive and sustainable sector (Solidaridad, 2015). Furthermore, the Dutch Ministry of Foreign Affairs signed a partnership with UTZ in the amount of €18 million for the years 2016 – 2020. This partnership also aims to improve local stakeholder capacity to contribute to sustainable and social development (UTZ, 2016).

Sustainable Trade Initiative (IDH)

In 2008 the Dutch government initiated the Sustainable Trade Initiative (Initiatief Duurzame Handel, IDH) together with private companies, NGO's and trade unions. IDH aims to develop sustainable value chains from developing countries at economic, social and environmental levels. The initiative is not specific to cocoa and also includes other commodities such as cotton, coffee, tea, cocoa, timber and fish. For cocoa, IDH is active in Côte d'Ivoire, Ghana, Indonesia, Nigeria, Cameroon and Vietnam. IDH is funded by the Netherlands, Switzerland, Denmark and Norway (IOB, 2014).

The overall IDH cocoa programme (2008-2015) involved EUR 20 million, of which IDH contributed with EUR 7 million (IDH 2013). Table 7.1 provides an overview of IDH public and private partners. Other partners include certification bodies, NGOs, sector organisations and research institutes.

Table 7.1 Sustainable Trade Initiative Partners

Private partners		Governments
ADM	Mars	Côte d'Ivoire
AFAP	Mondelez	Ghana
Barry Callebaut	Multi-Trex	Nigeria
Blommer	Nestlé	Cameroon
Cargill	OCP	Vietnam
Continaf	OLAM	Indonesia
Ecom	FACTS/Cemoi	Switzerland
Ferrero	SEAP-CI	The Netherlands
FMO	US Global Business Group	
Hershey's	Yara	
Intertek		
LDC		
Lindt		

Source: IDH, 2015

Between 2008-2012, the IDH cocoa programme reached nearly 170,000 farmers with training on certification, producing a total of around 477,000 tonnes of certified cocoa (IDH, 2013). In this period IDH focussed on stimulating certification and improving production methods through forming public private partnerships to finance sector plans (IDH, 2013). IDH was the main public financier of the Cocoa Improvement Programme (CIP). This CIP was formed in 2007-2008 by UTZ, Solidaridad, Mars and Cargill and included the development of a new UTZ standard for cocoa and the training of farmers to become certified.

In 2012, new IDH programmes were started that went beyond certification and focussed more on productivity and quality. The largest of these programmes was the Cocoa Productivity and Quality Programme (CPQP). Traders and companies within the chocolate industry could apply for projects on training, certification and cocoa plantation management. Solidaridad was responsible for monitoring and reporting on this programme (IOB, 2014).

In 2016, IDH initiated a new programme, the Cocoa Learning and Innovation Program (CLIP), which includes a new focus on diversification of farmer income, in addition to raising cocoa productivity. In CLIP, which will last from 2016-2020, IDH and partners strive to improve the livelihoods of 20,000 cocoa producing households by 2020 by developing innovative prototypes in key focus areas that are not necessarily cocoa sector specific: (1) Increasing farmer productivity and facilitate eligibility for loans; (2) Community development: empowerment of women in cocoa and combatting malnutrition and (3) Tackling deforestation and provide incentives for sustainable land use.

IDH, the Royal Dutch Embassy in Jakarta, and the Swiss state secretariat for economy (SECO) together with companies funded the Cocoa Sustainability Partnership (CSP). This PPP aims to provide a significant income increase for 60,000 farmers and to improve chocolate quality. Part of the programme is providing farmers with training on financial products which helps them become eligible for bank loans. It also trains financial institutions about risks in the cocoa sector. Furthermore, agricultural savings and credit cooperatives are created.

8 Recommendations

In the previous chapters, we have shown that there are three key reasons for the fact that many cocoa farmers live in poverty. First, farm-gate prices are low. Second, productivity in cocoa farming is well below potential. Third, cocoa farmers have few alternative sources of income. In this section, we present recommendation that address these three areas.

In this section, we first present our key recommendations that could result in higher farm-gate prices in non-regulated countries (section 8.1) and in regulated countries (section 8.2). For countries with non-regulated cocoa sectors (Cameroon, Nigeria, Indonesia), our main recommendation for raising farm-gate prices is to increase cocoa farmers' bargaining power. This could be done through well-functioning farmers organisations, better access to market information, infrastructure, and finance. For countries with regulated cocoa sectors (Ghana and Côte d'Ivoire), our recommendation for raising farm-gate prices is to improve the transparency and efficiency of the regulated system.

Section 8.3 discusses the sector-specific measures that could be taken to raise cocoa productivity. These measures generally involve increasing cocoa-specific knowledge, cocoa-specific training, cocoa-specific inputs, and cocoa-specific finance. However, an important point is that such measures are likely to work only at the micro level and not at the macro level, as raising the productivity of all farmers could lead to an oversupply of cocoa that would cause farm-gate prices to fall.

Section 8.4 goes one step further and makes recommendations for a structural transformation that would enable a significant part of cocoa farmers to switch from cocoa production to alternative occupations and more remunerative income earning activities. We thus envisage a 'dual transition' whereby the farmers that choose to remain in cocoa would become (much) more productive, while others choose to complement or substitute cocoa farming with other activities. Such a transition would require significant improvements in farmers' enabling environment, including through better access to education and training, infrastructure, finance, and land. Given that many farmers in cocoa producing countries, particularly in West Africa, may not be able to make this transition on their own, significant support from stakeholders in chocolate consuming countries will be crucial.

Section 8.5 explores how the Netherlands and other cocoa consuming countries could help by (i) facilitating this 'dual transition'; (ii) strengthening and continuing to implement anti-trust policies; and (iii) increase accountability and transparency in the sector; and support higher standards for sustainable cocoa and their enforcement.

Finally, section 8.6 discusses some policy recommendations that are unlikely to be effective in raising farm-gate prices.

8.1 Measures to increase farm-gate prices in non-regulated cocoa producing countries

Increasing farmers' bargaining power

For countries with non-regulated cocoa sectors (Cameroon, Nigeria, Indonesia), the best way to raise farm-gate prices is to increase cocoa farmers' bargaining power. This could be done through well-functioning farmers organisations, better access to market information, infrastructure, and finance.

One obvious way for farmers to increase their bargaining power is collective marketing through farmers organisations. Cocoa farmers naturally lack bargaining power because the number of cocoa farmers is very large compared to the small number of cocoa traders. Farmers organisations can obtain higher prices through collective marketing, provided they have sufficient capacity. NGOs, governments and private sector partners can stimulate collective marketing and build up this capacity. Collective marketing can be successful if the volume and quality of the cocoa is high, transaction costs are low, or the cocoa is certified.⁴⁸

Setting up well-functioning farmers organisations can be challenging and takes time. The majority of cocoa farmers in all cocoa producing countries are not yet organised. While setting up farmers organisations could improve their bargaining power and lead to higher farm-gate prices, it does not automatically increase farmers' net incomes as it goes hand-in-hand with an increase in costs. Building up the capacity of already existing farmers organisations or farmer groups could be less costly and more realistic.

Certification can facilitate the transition from informal farmer groups to more formal farmers organisations with bargaining power. Certification has contributed to an increase in the number of farmer groups, as group membership is an official requirement for farmers to access certification. With some further support, these groups can potentially turn into well-functioning farmers organisations with (some) bargaining power. Certification bodies could also look into this, and explore strategies to contribute to well-functioning groups that could collectively negotiate, for example, higher shares of the premiums attached to certified cocoa.

Farmers organisations (particularly those that are backed by NGOs and private sector partners) can also be effective in raising farmers' incomes in ways other than through higher cocoa prices. Farmers that become members of a group benefit not only from higher prices as a result of collective marketing and bargaining but benefit also from, for example, the improved access to savings, services, inputs and certification. This can contribute ultimately to higher incomes for farmers, for example, via an increase in productivity.

General institutional and financial sector development could also help to increase farmers' bargaining power, either through farmers organisations or individually. Farmers can negotiate better prices when they have access to real-time market information (to be aware of the latest global

⁴⁸ Collective marketing can also be challenging for other reasons. For example, we have seen in Cameroon that farmers organisations that operate effectively and fetch high prices sometimes struggle to acquire a large share of the quantities produced by their members.

price developments), transportation (to increase market access and the number of potential buyers), storage facilities (e.g., to postpone sales if price offered is considered too low), and finance (e.g., to not be forced to sell below the ‘fair’ market price out of an immediate need for cash).

Increasing competition among international and local cocoa traders

While this report has not found evidence of excessive concentration or abuse of market power by large chocolate or cocoa companies, there are indications that concentration among cocoa traders in cocoa producing countries is high in some cases. Most cocoa traders are linked to a few large international cocoa processing companies through vertical integration (combining processing with sourcing). Barriers to entry, particularly for smaller cocoa traders, tend to be high due to significant economies of scale in cocoa exporting and trading, which reinforces concentration. We also found that both international and local cocoa traders attempt to strengthen their position by means of vertical integration: becoming involved in other value chain activities such as processing and local sourcing.

The high concentration among cocoa exporters reduces the bargaining power of local traders or “middlemen”. The latter often have implicit or explicit contracts to sell to a particular exporter or to another set of intermediate traders operating in a particular cocoa production area. When it comes to selling their cocoa, the bargaining power of local traders is generally low. It happens that local buying companies or their agents often work on a mandate of export companies and sometimes this is even required by law (e.g., in Cameroon). In such situations, local buying companies do not have an option to choose to which exporter they want to sell their cocoa.

The same local traders have more bargaining power when it comes to buying cocoa. They negotiate prices with farmers and sometimes can exploit their bargaining power by offering farmers prices that are below the regional market price. Farmers that live in more remote areas (with fewer or no alternative selling options) or farmers with an immediate need for cash are vulnerable to abuse. We found anecdotal evidence that sometimes farmers are paid below market price when their farming communities are served by only one cocoa buyer.

There is scope to raise farm-gate prices by (i) increasing competition among international traders/exporters, and (ii) increasing competition among local traders. Both measures require improved monitoring and regulation of competition in cocoa producing countries, and potentially a strengthening of domestic competition agencies and policies. We would recommend to conduct further research into this issue and explore whether there is a demand for support from consuming country governments or NGOs into this area.

Improve the quality of cocoa beans through public investment or regulation

Another possible measure to increase farm-gate prices is to improve the quality of cocoa beans through clear quality standards and access to a marketing channel that rewards quality. There are examples of farmers organisations that are able to fetch slightly higher prices if they aggregate high volumes of higher quality cocoa. What can be a challenge is a lack of understanding between farmers and buyers about the meaning of “quality”; ultimately buyers are the ones that decide what the quality is. This leads to arguments and distrust since the quality of cocoa can affect the price. Without clear incentives, farmers are not likely to invest in higher quality beans.

There is a growing demand for specialty cocoa (and specialty chocolate), also in the Netherlands. The growing demand for premium chocolate in the Netherlands is driven by a shift on the part of Dutch consumers towards more exclusive confectionary products, as well as by the increasing attention to the health benefits of chocolates with higher cocoa content (and less sugar). As a result, sales of premium products such as specialty and fine flavour chocolate and chocolate with a sustainability label are rising (Euromonitor in CBI 2016).

Transitioning to specialty cocoa and processing could be a way for some cocoa farmers or possibly some countries to retain more value added and thereby achieve higher incomes. Since the total market share of high quality chocolate is expected to remain small, however, this cannot be a solution for all farmers.

8.2 Measures to increase farm-gate prices for regulated producing countries

Increase the transparency of farm-gate price determination

One of our key findings has been that the lower farm-gate prices in regulated countries are not obviously offset by higher benefits from this system. Cocoa yields in Ghana and Côte d'Ivoire were reported to be slightly higher than in non-regulated countries, but not sufficiently so as to offset the considerable lower farm-gate prices that result from high taxes. While there might be other benefits that are less easy to quantify, at a minimum we can say that there is no clear evidence that farmers in regulated cocoa sectors are better off than farmers in non-regulated cocoa sectors.

In order to gain a better public understanding of the costs and benefits of the regulated system, a key recommendation would be to increase the transparency regarding the determination of farm-gate prices as a percentage of the world price. In Ghana, the composition of the FoB price and the allocation into before-tax and after-tax prices is determined by a multi-stakeholder platform. Upon request this price information can be made available. Although reasonably transparent, it is not clear for example how prices are being composed and why there is a difference between gross and net prices. In Côte d'Ivoire, the transparency about the determination of farm-gate prices is even worse than in Ghana.

Increase the transparency and efficiency of cocoa tax revenue spending

More transparency would also be required regarding the determination of cocoa taxes in regulated countries and the spending of these cocoa tax revenues. It is natural that farm-gate prices in regulated countries are lower than in liberalised markets, due to the fact that part of cocoa export revenues are taxed, and part of these tax revenues are used to support the regulated system. But the fact that cocoa farmers' incomes are lower in regulated countries seems to indicate that either the tax rate might be too high, or the tax revenues are not spent effectively (or a combination of the two).

The lack of transparency and efficiency of these expenditures is a serious concern. In Ghana, for example, serious concerns have been expressed about the effectiveness of public expenditures on subsidised inputs, as there are clear indications that the provision of services is best handled by the

private sector. Apart from inefficiencies, another concern is that political interference is very common in the distribution of inputs. For example, in the mass spraying programme, political district heads are in charge of the task forces. This explains at least partly why inefficiencies are not being solved, as the fear is that ‘unpopular’ measures will reduce political support for the government.

Governments in regulated countries should consider decreasing their role in input distribution and the provision of other services, and leave these activities to private sector partners. This failure to deliver goes at direct cost of the farmers. A problem is that governments are not held accountable. This can partly be explained by the sovereignty of these countries, but it also reflects weak collective bargaining power of farmers.

More generally, more research will be needed to study the costs and benefits of cocoa sector regulation in Ghana and Côte d’Ivoire. A complete social cost-benefit analysis into this issue was beyond the scope of this report, however.

8.3 Measures to increase the productivity of cocoa farming

In Chapter 6 we showed that current cocoa yields are well below potential, especially in West Africa. How much cocoa a tree can yield is determined by a combination of climatic circumstances, soil fertility, tree varieties and agricultural practices. For most smallholder farmers, especially in West Africa, it is difficult to adopt better agricultural practices because of the small farm size, problems with land tenure arrangements, risk and uncertainty, supply constraints (e.g. inputs not delivered on time), credit constraints and of course the low level of farm-gate prices.

This leads to a number of recommendations that would work at the micro level, but not at the macro level. The next section, 8.4, discusses which reforms could work at the macro level.

Offer effective combinations of practices

Obtaining higher yields requires making effective combinations of practices: a package of services or inputs. New tree varieties, for example, require good husbandry as well as fertilisers and pesticides. Providing an effective combination of practices requires a functioning supply chain of inputs that can be delivered at the right place, at the right time, with the right quality, in the right quantities, and at affordable rates.

Cocoa producing country governments can learn from different experiments with rural service centres and support the successful scaling up models. For example, under the Cocoa Rehabilitation and Intensification Programme in Ghana, funded by the Dutch Embassy in Ghana (2013-2017), a number of rural service centres are being piloted. These service centres aim to provide and facilitate access to farmers’ good agronomic practices training, information, technology use, fertilisers, credit and other inputs as well as technical support necessary for the intensification of cocoa production

systems.⁴⁹ Another example is the Cocoa Development Center introduced by MARS in Indonesia and Côte d'Ivoire.

Improve farmers' access to key resources

Without access to land, labour and finance, it is not possible for farmers to increase productivity levels. Most farmers have only access to small plots of land. Small farms have less resources for investment and typically a lower return on investment from farm technologies. Farmers who do not own land but work on land as, for example, caretakers or labourers, have even less means to make on-farm investments, and also have less incentives to do so (as the return on their investment is low or even insecure). Larger farms are associated with higher technology uptake.

Access and control over larger plots of land is very challenging for many farmers, particularly for women and the youth. Pursuing land reforms and developing land registration systems are therefore important conditions for increasing higher productivity **levels**. Other initiatives that can help to improve access to land are the development of land oriented services, such as land mapping services, land-conflict mediation etc.

Labour becomes scarcer in certain cocoa growing regions. Because of the meagre opportunities in cocoa farming, youth in Ghana migrates from the farms into urban areas to look for employment opportunities (Dormon 2004). This has affected cocoa production in some areas, because labour has become scarce and hired labour unaffordable for cocoa farmers (Mahama 2013). This has raised concern about the relationship between additional yields and additional workloads. There is a need for more research in this area, particularly as it will be very important for the future approach concerning productivity and for the living income debate.

Supply and credit markets in West Africa do not function. Farmers often do not make certain investments into inputs or better agricultural practices because of a lack of access to savings, small loans and seed money. If this cannot be provided by social networks, private commercial banks or microfinance institutions, it is sometimes provided by the government or by private companies, sometimes even in kind. In the long term, having a more developed financial system (including with credit bureaus that monitor credit history etc.) would resolve these market failures.

Increasingly, private sector actors and NGOs are becoming active in the provision of financial services. There are already some promising experiences with input on credit schemes and the set-up of village saving and loan associations (VSLAs). It is recommended to learn from these practices and build on them. Obtaining credit from a private buyer, which is repaid in cocoa, can involve a risk for farmers as it reduces the freedom to sell to other traders at a potentially higher price, which reduces the bargaining power of farmers even further. In order to be effective, making financial services available should go hand in hand with building the financial capacity of farmers (men and women) to make well-informed investment decisions.

⁴⁹ <https://www.solidaridadnetwork.org/publications/call-for-proposals-to-establish-cocoa-rural-service-centers-in-ghana> (27-09016)

8.4 Measures to increase alternative opportunities for farmers

At the macro level, the most effective way to raise cocoa farmers' incomes is to create conditions for them to diversify away from cocoa to alternative (or additional) income sources. This does not necessarily mean that all farmers should aim to combine cocoa farming with other types of farming or other income generating activities. Rather, the way forward would be a 'dual transition' whereby the farmers that choose to remain in cocoa would become (much) more productive, while many other cocoa farmers will choose to diversify. Income diversification is needed to reduce income volatility and can also help to raise farm-gate prices. avoid

Generally, this 'dual transition' involves a combination of productivity growth and diversification. On the one hand, there is ample scope to increase cocoa yields, including through increasing the scale of production.⁵⁰ On the other hand, income diversification is needed to reduce income volatility and to ensure that the total amount of cocoa production does not rise faster than cocoa demand, as this would lead to a drop in the world market price.

It has been recognised for some time that the way forward is a transition to a situation with "fewer cocoa farmers, who produce more cocoa, using less land". There is no single roadmap on how this 'transition' can be achieved and how this can be done in an inclusive and participatory way so as to be politically feasible. Scenarios vary from building more large plantations, increasing the level of farmers organisation, or increasing smallholders' (collective) land size, to exploring alternative farm models, income diversification strategies and more general investments in rural and agricultural development. What is key to each scenario is the need to increase farmers' access to information, education, infrastructure, and finance.

Rather than providing sector specific support, cocoa producers' governments should develop rural development strategies that would create the general market conditions under which farmers themselves can make well-informed decisions to either remain in cocoa or diversify. Such conditions would include, for example:

- **Improving access to information and training**, including about other crops and other income-generating activities
- **Strengthening rural infrastructure**: improving access to roads, transport, storage, and telecommunications
- **Developing quality input markets**: making sure farmers have access to seeds, good planting material, fertilisers, pesticides, etc. (not just for cocoa but for other crops as well)
- **Improving access to land**: Pursuing land reforms and developing land registration systems are therefore important conditions for making the transition. Other initiatives that can help to improve access to land are the development of land oriented services, such as land mapping services, land-conflict mediation etc.

⁵⁰ It is important to take into account gender roles when approaching farmers to invest in their farms. Whether or not investing in cocoa is perceived as a business case depends also on decision-making in the household and the aspirations of a family. For example, it has been argued that in Indonesia the bigger decisions in the household are made by women. So, if you want to convince a male farmer, you need to involve the household and take a family approach.

- **Improving access to finance:** provide access to savings, small loans, and possibly grants to encourage investments in productivity and attempts at diversification.
- **Strengthening social safety nets:** as the transition is likely to result in temporary drops in income.

Most likely, cocoa producing governments in West Africa will not be able to make this transition on their own. Significant support from stakeholders in chocolate consuming countries (governments, international organisations, companies, NGOs, and consumers) will therefore be needed. The next section discusses some measures that could be taken by consuming governments in this regard.

8.5 Potential roles of Dutch and EU governments

Support the 'dual transition'

Given the importance of diversification as a strategy to reduce poverty among cocoa farmers, consuming country stakeholders (governments, companies, NGOs) should critically review the development institutions, programmes, and projects they support that put too much focus on one sector or one commodity. By supporting one specific commodity sector, such as cocoa, such programmes can increase the dependence of countries, farmer communities, and individual farmers on this specific commodity. This may seem useful during periods when commodity prices are high, but world market prices are volatile, and a change in external conditions can change the entire outlook for the sector. In that case, the increased dependence could in fact lead to lower, or at least more volatile, farmer incomes and government revenues.

The Dutch government is already supporting institutions such as Solidaridad and IDH, the cocoa sector programs of which increasingly recognise the importance of diversification and diversified incomes. While the cocoa sector programmes run by these institutions traditionally focussed on certification and raising productivity, they now have an increasing focus on the importance of innovation and entrepreneurship. For example:

- IDH's new Cocoa Learning and Innovation Program (CLIP), which started in 2016, aims to support industry and producing country governments with the development of new business models. Moving "beyond the delivery of the productivity package",⁵¹ CLIP aims to work with promising and entrepreneurial farmer groups and cooperatives to drive innovation in the areas of farm and cooperative financing, community development, women's empowerment, malnutrition and sustainable land use. By 2020 CLIP aims to have well-established proof of concepts, co-developed with the industry. The programme acknowledges that diversification increases the resilience of farmers and can protect them against price volatility and crop failure.
- With the start of the new global partnership, Solidaridad now focuses on sector transformation towards an inclusive and sustainable economy. The new programme, which runs from 2016-2020, focusses on four innovation areas, one of which focuses on the service sector to develop, test, finance and coach new small businesses. By aiming to increase the likeliness of success of new market entries in cocoa producing areas, Solidaridad aims to contribute to diversified livelihood options in these areas and to rural employment, particularly for the youth.

⁵¹ <http://www.idhsustainabletrade.com/cacao-the-cocoa-learning-and-innovation-program>

Going one step further, cocoa consuming country stakeholders could consider supporting or facilitating the development of national strategies of producing country governments to diversify away from agriculture. While cocoa-specific or agricultural-specific training or finance can help to increase cocoa yields or agricultural productivity more generally, more general support may be needed to increase the menu of alternative options available to cocoa farmers and their children. Farmer households' limited access to education, training, market information, infrastructure and finance is preventing such broader diversification. Consuming country governments could also potentially play a mediating role here by facilitating discussions among producing country governments and farmers on possible partnerships to promote a general diversification strategy, not necessarily limited to rural economic development.

One way to support the transition is for consuming country governments to support development programmes aimed at general private sector and financial sector development, as opposed to sector-specific development. This could be done through bilateral donor programmes such as the Dutch Good Growth Fund, bilateral development finance institutions such as FMO, or through bilateral donor support for multilateral development banks such as the World Bank, IFC, or the African Development Bank. The type of support could include financial or capacity building support to farmers,⁵² SMEs, financial institutions, or national governments.

Finally, Dutch and other governments could support further research into the feasibility of substantially increasing the productivity of those cocoa farmers that remain in cocoa. For example, they could bring together Dutch or EU expertise on cooperative systems and scaling through collectivism to get new insights on the potential benefits of scale in cocoa farming. They could also promote and support relevant research and projects related to professionalisation and collaborate with ICCO on the exploration of alternative, innovative cocoa farming models. Finally, they can support research that explores how scaling and efficiency can go together with diversification (e.g., explore the lessons learned from Latin American countries, where farmers do invest in cocoa and where larger plantations offer possibilities for innovation and economies of scale).

Strengthen and continue to implement anti-trust policies

Given that the key conclusion of this report is that market concentration among manufacturers and processors is not the key cause of the persistent poverty among cocoa farmers, stricter anti-trust policies are likely not the key solution to this problem. Generally, there appears to be sufficient competition even within the concentrated chocolate manufacturing and cocoa processing industries, given that high market shares on the demand side of the market are generally balanced by high market shares on the selling side of the market. In this way, countervailing power can still ensure effective competition in the global market for cocoa. This is also confirmed by the observation that "none of the average margins in the supply chain are exorbitant" (Cocoa Barometer, p 38).

If excessive concentration of manufacturers or processors within Europe were to become a serious concern in the future, anti-trust policies would need to be executed at the European level. Within

⁵² Capacity building initiatives could also include programs to increase farmers' empowerment, enabling them to become more autonomous, better informed, and able to make well-informed decisions about their future livelihoods. In such programmes, it is key to be inclusive and involve both men and women, male and female youth, farm owners as well as labourers.

the EU, the execution of anti-trust law lies with the European Commission. At the national level within the EU, the oversight on competition law is in the hands of national competition authorities, which are often public bodies with an independent status. Anti-trust law prohibits cartels and the abuse of dominant position. In addition, mergers between key cocoa companies need to be scrutinised by the competition authorities due to the risk that mergers may reduce effective competition.

EU law defines a threshold in terms of annual turnover.⁵³ A merger is assumed to affect the internal market if the parties concerned have a combined aggregate worldwide turnover of more than EUR 5,000 million and the aggregate Community-wide turnover of each of at least two of the undertakings concerned is more than EUR 250 million. Above this threshold, the European Commission must be notified of the proposed merger and the Commission will launch an investigation to assess the impact of the merger on the competitive landscape. The goal of this investigation is to assess whether the merger will impede effective competition in the common market. Below the threshold, national competition authorities may wish to investigate the proposed mergers for negative impact on the degree of effective competition. This investigation is based on national competition law, which in Europe is strongly based on EU law, but which may have different rules depending on the country in question.

Continuing to enforce strict anti-trust policies is important to prevent excessive market concentration among chocolate manufacturers and cocoa processors in the future, given that significant economies of scale and scope will likely continue to provide incentives for further mergers and acquisitions. Correct implementation of the existing anti-trust legislation should form an effective backstop to mergers and acquisitions that lead to excessive concentration, and therefore prevents a further in-crease in the level of concentration in especially the processing part of the cocoa market.

Increase accountability and transparency in the sector

Chocolate manufacturers, cocoa processors, sector organisations and NGOs increasingly agree that an equitable and just cocoa sector requires a shared accountability among public and private institutions. In interviews, many stakeholders indicated that there is a lack of transparency and accountability on the operations of both companies and governments in cocoa producing countries. High political and economic interests are often involved, which constrains both individual companies and governments in holding each other accountable.

While the sovereignty of nation-states implies that any opposition to the functioning of governments should come from within these countries, there are several measures that could be taken by Dutch and EU governments with regard to improving accountability. First, they could explore ways to broaden existing private sector accountability mechanisms, such as the UN mechanisms for accountability of companies, and the UN ‘grievance mechanisms’ through which farmers can file complaints and report slavery-like abuse, as used in the textile industry. Second, they could explore ways to increase value chain accountability through transparency requirements⁵⁴

⁵³ See Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation).

⁵⁴ As one of our interviewees put it: “If half of the money spent on stimulating certification would be spent on stimulating transparency, the result would be tenfold.”

or through the EU Business Social Compliance Initiative. This could be done together with companies in a sector covenant, like in the textile sector. Third, governments can explore whether and how the new CEN/ISO standard can be a mechanism to hold public and private actors accountable for the conditions under which cocoa is produced and sold.

Support higher standards for sustainable cocoa

In the Dutch letter of intent that commits different Dutch stakeholders to 100% sustainable cocoa consumption in the Netherlands by 2025, the guarantee for sustainable cocoa is third party verification through certification. However, an increasing body of literature demonstrates that certification is not enough to reach sustainability goals. Moreover, so far only a small percentage of cocoa farmers is being reached through certification (during the World Cocoa Conference UTZ presented that currently UTZ has certified 30% of the cocoa produced and around 10% of the farmers).

It has been argued by different stakeholders, including certification bodies, that the definition of sustainability should be refined and that sustainability standards should be increased at the EU level. The European Committee for Standardisation (CEN) and the International Organisation for Standardisation (ISO) are in the process of creating a joint standard for sustainable and traceable cocoa. This could lead to an internationally accepted minimum sustainability standard that would harmonize the various existing certification schemes for cocoa and make them more understandable for consumers. It could also be used as a voluntary reference for companies and certification bodies.⁵⁵ It is even possible that cocoa certified with the new CEN/ISO standard could be traded on the cocoa futures markets.

The Dutch government could help refine the definition of sustainability and the sustainability ambitions, including ambitions with respect to the incomes that farmers are earning. For example, the Dutch government could initiate a discussion within the ChocoWorkGroup, consisting of the parties that signed the Dutch letter of intent, to refine the ambitions formulated in this letter, to revisit the current action plan, and/or define new strategies.

8.6 Policy recommendations that are unlikely to be effective in raising farm-gate prices:

Regulate, tax, or ban certain types of cocoa

Given that the Port of Amsterdam is the world's largest port for cocoa, one possible policy option might be to regulate, tax, or ban certain types of cocoa that arrives in the Netherlands. In 2015, the Port of Amsterdam conducted a 'sustainability challenge' from which it was concluded that there is scope to improve 'sustainability' but that it is very difficult to influence the quality of cocoa in containers. Presumably this argument also extends to cocoa from certain origins (e.g., from certain

⁵⁵ While certification bodies see this to be part of certification, others rather move away from certification and prefer campaigns like Oxfam's Behind the Brands campaign, or set 'own' company standards ('verification').

countries or certain companies that are reported to be particularly low prices to farmers, or that mistreat farmers in other ways).

On the demand side, imposing a lower VAT rate on cocoa that is ‘sustainable’ in a social sense (e.g., for which a higher farm-gate price is paid) could provide an incentive for consumers to switch to this type of cocoa, but is not allowed under European regulation. The current European VAT directive determines which supply of goods and services could benefit from a reduced tax rate or an exemption from VAT. The Netherlands must implement this directive. As a consequence, it depends on the usage of the cocoa if a reduced rate is possible under the Dutch tax law (*Wet op de Omzetbelasting 1968*, table I).

On the supply side, imposing a higher tariff or even a ban on cocoa or chocolate from certain origins (e.g., countries or companies that are known to pay very low farm-gate prices) could theoretically encourage these governments or companies to treat farmers better, but is also unlikely to be feasible. However, in the short run this would lead to unacceptable suffering for the cocoa farmers involved, as this would increase the pressure to lower farm-gate prices even further (in case of tariffs) or the relevant farmers would not be able to sell their cocoa at all (in case of a ban). Moreover, such sanctions are not allowed under WTO rules, as the origin of a product is not considered to be a characteristic of the product by which one can differentiate the product.

A more realistic measure in this area is to lower or abandon import duties on processed cocoa. Currently, the EU tariff on the import of cocoa beans is 0 percent, but there are import duties on processed cocoa products – such as cocoa butter – from certain cocoa producing countries. The phenomenon in which taxes increase as a product gets processed further is known as tariff escalation. This provides an incentive to process cocoa in Europe rather than in countries where such import duties are levied.⁵⁶ Since 2014, the import duties on processed cocoa from the least developed countries (including Ghana, Côte d’Ivoire and Cameroon) were abandoned and processed cocoa products from these countries can now be imported tax-free into the EU.⁵⁷ However, the EU still levies import duties on processed cocoa products originating from other countries, including Nigeria, Brazil, Indonesia, Malaysia, Nigeria and Ecuador.⁵⁸ This makes their processed cocoa products less competitive on the international market and is a direct loss of revenue to the local processing industry.⁵⁹ Lowering or abandoning the duties for these countries as well could provide incentives for these countries to process more cocoa domestically and thereby move further along the value chain. However, it would mean more competition for processed cocoa from West Africa. Moreover, it is unlikely that domestic processing companies could compete at a large scale with the large multinational processing companies. In the best case, they

⁵⁶ See <http://www.fao.org/docrep/006/Y4343E/y4343e0i.htm>

⁵⁷ The Economic Partnership Agreement (EPA) protocol on free trade by the EU and African, Caribbean and Pacific countries that was concluded in 2014 implies that processed cocoa from EPA countries can now enter the EU market free of import duties: http://trade.ec.europa.eu/doclib/docs/2014/july/tradoc_152694.pdf. Nigeria is the only country in West Africa yet to sign the EPA protocol.

⁵⁸ Source http://trade.ec.europa.eu/doclib/docs/2016/april/tradoc_154422.pdf

⁵⁹ For example, in 2014, the cost for Nigerian cocoa-processing companies of exporting of cocoa products to Europe was said to be inflated by 30% because of new trade terms with the European Union. Nigerian cocoa butter and cake exports were charged from 4.2% to 6.1% of freight-on-board values as taxes at EU ports.

could have a thriving domestic market if there is an (emerging) local market for processed cocoa (chocolate consumption), which is the case in Indonesia and Brazil but not (yet) in West Africa.

Raise cocoa prices through a ‘Cocoa Cartel’

Several stakeholders have suggested that the easiest way to raise cocoa prices for farmers would be through a cocoa cartel, i.e. an agreement among the governments of cocoa producing countries not to sell below a certain price. Given the market concentration among cocoa producers, such a cartel might be easier to enforce than the current OPEC cartel for oil. Even if only the largest two producers, Ghana and Côte d’Ivoire were able to agree amongst themselves on a minimum export price, this would have a major impact on the sector.

There are many reasons, however, why such a ‘cocoa cartel’ is unlikely to work. First, if the cartel were to agree to artificially fix farm-gate prices at a (much) higher level, demand for cocoa would fall and supply would rise. This would lead to an oversupply of cocoa which, if persistent, would need to be destroyed or otherwise disposed of. This would likely undermine domestic political support for the cartel. Second, the experience with existing cartels teaches us that price agreements between countries will likely be very difficult to mutually enforce. The poorest countries in particular will find it politically difficult to voluntarily cut cocoa production when prices are high. Third, cocoa is more difficult to store than for example oil, and would require major investments in storage facilities, particularly in West Africa. Fourth, cocoa processors and manufacturers would likely increase efforts to set up large cocoa firms in third countries, e.g. in Asia or Latin America, which over time would erode the cartel. Fifth, such a cartel would not be allowed under the WTO and therefore would jeopardise WTO membership for some countries. Finally, history teaches us that previous attempts at cocoa price stabilisation were unsuccessful: the ‘Buffer Stock Fund’ that operated in the 1980s and 1990s (for which ICCO was in fact created) failed to stabilise world cocoa prices because (i) it was economically too difficult to determine the equilibrium price; (ii) it was politically too difficult for member countries to cut production when this was needed for price stabilisation. As a result, the fund accumulated enormous inventories of cocoa that then took years to sell off, as a gradual approach was deemed necessary to not disturb the market.⁶⁰

⁶⁰ By gradually selling these reserves through ICCO, the Netherlands was able to finance around 20 cocoa sector projects since 2005 that had been selected by a steering group consisting of both public and private sector representatives. Examples of these projects included studies on the health effects of cocoa, on the stability of emulsions, insects during storage, and a project in Brazil where cocoa trees had been hit by disease.

9 Conclusions

The key conclusion of this report is that market concentration among large cocoa processors and chocolate manufacturers is not the key reason why cocoa farmers live in widespread poverty. Instead, there are two other key reasons why most cocoa farmers live in extreme poverty. The first is the fact that the productivity of cocoa farmers is very low, particularly in West Africa, due to a lack of good inputs, training, and finance. The second is that there are simply too many cocoa farmers without realistic alternative income options. Without such alternatives, these farmers will continue to supply cocoa even at very low prices. While raising productivity can help individual cocoa farmers to earn a better income, this cannot be a sustainable solution for all farmers, as this would result in an oversupply of cocoa and an even lower cocoa price. The best solution is to create conditions that would allow cocoa farmers to earn alternative income sources and become less dependent on cocoa.

9.1 Summary of key findings

Key reasons for poverty among cocoa farmers

1. **Most cocoa farmers live in extreme poverty.** The average income of cocoa farmers in all four key West African cocoa producing countries are below the extreme poverty line of \$1.90 per day. The farmers in these countries are responsible for around 70 percent of the world's cocoa production.
2. **A key reason for the poverty among cocoa farmers is the low farm-gate price they receive for their cocoa, particularly in West Africa.** Farm-gate prices paid to farmers are only 60-70 percent of the world market price paid to cocoa exporters. This gap cannot be explained by only looking at the costs of transportation, storage, and other domestic trade costs. The gap is highest in countries with regulated cocoa sectors (Ghana and Côte d'Ivoire), where national cocoa boards take an additional percentage off of the farm-gate price. However, even if farmers in regulated countries were to receive the (FoB) export price in full, their incomes would still not exceed the extreme poverty line.
3. **The key reason for the low farm-gate price is the fact that farmers have little or no bargaining power vis-à-vis cocoa traders, particularly in countries with liberalised cocoa sectors.** This lack of bargaining power results from farmers' limited access to market information, infrastructure, and finance, particularly in West Africa, as a result of which they have few alternative options for income generating activities. Without alternatives, they will continue to produce cocoa even at very low prices. In Indonesia, farmers have more realistic alternatives due to a more developed institutional environment. They can therefore afford to opt out of cocoa, which likely is one of the reasons why farm-gate prices in Indonesia are the highest among all five countries considered.

4. **Another key reason for the low incomes is the low productivity of cocoa farming.** In most countries, current cocoa yields are very low compared to potential yields, especially in West Africa. It is a combination of climatic circumstances, soil fertility, tree varieties and agricultural practices that determine yields. For most smallholder farmers, especially in West Africa it is difficult to adopt better agricultural practices because of the small farm size, high labour costs (related to labour scarcity), land tenure arrangement, risk and uncertainty, supply constraints (e.g. inputs not delivered on time), credit constraints and of course the low level of farm-gate prices.

Impact of market concentration on pricing

1. **There is evidence of moderate but increasing market concentration in certain segments of the value chain.**
 - a. Concentration among chocolate retailers differs from country to country. In the Netherlands, it is moderate but not high enough for national retailers to be able to significantly influence the prices of multinational chocolate manufacturers.
 - b. Concentration among chocolate manufacturers is low, but on the rise.
 - c. Concentration among cocoa processors is moderate and has increased in recent years.
 - d. Concentration among cocoa traders in cocoa producing countries is moderate or possibly high in some cases, and particularly concerning where cocoa traders are linked to cocoa processors and/or local cocoa buyers through vertical integration.
 - e. Concentration among cocoa producing countries is high, with Côte d'Ivoire and Ghana together accounting for more than 60 percent of the world's cocoa production.
 - f. Concentration among cocoa farmers is very low. Fieldwork indicates that the bargaining power of both individual farmers and farmers organisations is low or even absent, particularly among farmers with limited access to transportation, finance, market information, input markets, or alternative livelihood options.
2. **There is no substantial evidence that firms with high market shares in the value chain for cocoa are able to abuse market power:**
 - a. Concentration is in many cases an outcome of competition, driven by economies of scale, economies of scope, and agglomeration. As a result, larger companies have lower average costs, which brings prices down for consumers, but also constitutes a barrier to entry for smaller companies.
 - b. The current level of concentration among processors does not appear to pose a threat to effective competition because it meets countervailing power in the form of some concentration among chocolate manufacturers.
 - c. There is no evidence that cocoa processors have excessive profit margins
 - d. In EU countries, existing anti-trust legislation should form an effective backstop to mergers and acquisitions that lead to excessive concentration, and is expected to prevent a further increase in the level of concentration in especially the processing part of the cocoa market.
 - e. In non-regulated cocoa producing countries, the concentration and generally weak level of competition among cocoa traders poses a more serious concern, particularly where these traders are linked to international processors.

3. **There is no evidence that market concentration among processors has artificially reduced the world cocoa price below the level that equalises supply and demand:**
 - a. Supply shocks are found to be the most important cause of short-term price volatility in the cocoa market. In the long run, however, supply and demand reside in equilibrium.
 - b. Cocoa futures markets appear to be ‘efficient’ markets in that they operate like markets with full competition.
 - c. For most cocoa that is traded around the world, the world cocoa price determined in futures markets is generally used as a benchmark price and therefore has a disciplining effect on the prices of cocoa traded around the world.
 - d. The increase in the amount of ‘speculation’ in cocoa futures markets is not a concern; in fact, it provides a counterweight to the market power of concentrated cocoa processors. By exploiting arbitrage opportunities, speculators help to ensure that large cocoa companies cannot dominate the market and dictate prices.
 - e. Nevertheless, there are likely to continue to be ‘pockets’ of local cocoa markets where cocoa traders abuse their market power and farmers receive prices well below this benchmark price.

4. **The transmission of changes in world cocoa prices to changes in farm-gate prices appears to be generally strong on average.** On average, statistical analysis indicates that the transmission from changes to the world cocoa price to changes in farm-gate prices is generally realised in the long run, albeit with some short-term inefficiencies.

5. **There is no evidence that a regulated price mechanism leads to higher incomes for cocoa farmers than a liberalised price system.** While productivity is slightly higher in regulated systems like Ghana and Côte d’Ivoire this higher productivity is not sufficient enough to offset the lower farm-gate prices in these countries.
 - a. In theory, a regulated system has several benefits: (i) it increases price stability by protecting farmers against sharp price changes throughout the year; (ii) it can help to protect farmers in remote areas by guaranteeing them a minimum price, and (iii) it can help to ensure better quality cocoa for processors, as cocoa taxes are partly re-invested into the cocoa sector in the form of e.g. subsidised supplies, which reduces costs. These benefits could, in theory, lead to higher incomes for cocoa farmers in regulated countries, particularly when there are market failures such as a lack of access to finance or infrastructure.
 - b. In practice, however, the benefits do not seem to outweigh the costs, as farm-gate prices in regulated systems are on average considerably lower than in countries with non-regulated prices.
 - c. The above finding is true for average farm-gate prices within countries. However, in some cases, the introduction of a regulated (minimum) price system may have resulted in higher farm-gate prices for some groups. For example, there is anecdotal evidence that Ivorian farmers in certain remote areas now receive a substantially higher share of world market prices than under the previous liberalised system.
 - d. One key reason why the average farm-gate price is lower in regulated countries is that national boards take a high percentage of the FoB price. While parts of these cocoa revenues are reinvested in the sector and in general public goods, this has not resulted in significantly higher productivity for cocoa farmers in regulated countries. Moreover, there is a lack of transparency and efficiency of the allocated public reinvestments (e.g. input distribution).

9.2 Summary of key recommendations

Based on our key findings, we have developed three sets of recommendations related to measures to increase farm-gate prices and two sets of recommendations related to alternative factors that could help to increase cocoa farmers' incomes.

Measures to increase farm-gate prices

1. **In countries with non-regulated cocoa sectors (Cameroon, Nigeria, Indonesia), there is some scope to raise farm-gate prices by increasing cocoa farmers' bargaining power.** Farmers may be able to obtain a better farm-gate price by obtaining better access to market information, infrastructure, and finance. In cases where excessive market concentration among local cocoa traders leads to even lower farm-gate prices, there may also be some potential scope to raise farm-gate prices through increasing competition among cocoa traders by reducing barriers to entry and improving the monitoring and regulation of local competition.
2. **In countries with regulated cocoa sectors (Ghana and Côte d'Ivoire), there is scope to raise farm-gate prices by improving the transparency, efficiency and effectiveness of the regulated system.** Increasing competition among cocoa traders is less of an issue here since regulated farm-gate prices already provide some protection for cocoa farmers, although an improvement in enforcement may be needed in some cases. A more important measure is to increase transparency about the way regulated prices and cocoa taxes are determined and about the spending of these public cocoa tax revenues. There is likely substantial scope to increase the efficiency of public reinvestments, for example, by increasing private sector participation in input distribution.
3. **In chocolate consuming countries, additional measures could be taken that might result in higher farm-gate prices for cocoa farmers.** By voluntarily reporting which prices they pay to cocoa farmers, chocolate companies can potentially increase demand for chocolate that pays farmers a better price, as Tony Chocolonely's experience shows. Going one step further, consuming country governments could give consumers the right to request this information from governments or even require companies to provide this information. In addition, continuing to enforce strict anti-trust policies is important to prevent excessive market concentration among chocolate manufacturers and cocoa processors in the future, given that significant economies of scale and scope will likely continue to provide incentives for further mergers and acquisitions.

Alternative measures to raise cocoa farmers' incomes

1. **At the micro level of the individual cocoa farmer, the most effective way to achieve a 'living income' from cocoa is to increase the productivity of cocoa farming.** We estimate that there is still ample scope to raise cocoa productivity through increasing cocoa-specific knowledge, cocoa-specific training, cocoa-specific inputs, and cocoa-specific finance. However, such measures are unlikely to work at the macro level. That is, if all farmers were to increase their productivity this would lead to an oversupply of cocoa that would cause farm-gate prices to fall.

2. **At the macro level, the most effective way to raise cocoa farmers' incomes is to create conditions for them to diversify their income sources and pursue alternative income generating activities.** This does not necessarily mean that all farmers should aim to combine cocoa farming with other activities. Rather, the way forward would be a 'dual transition' whereby the farmers that remain in cocoa would become (much) more productive, while many other cocoa farmers will diversify away from cocoa. Such a transition would require a 'rural development strategy' with significant improvements in farmers' access to market information, training, infrastructure, and finance. Developing a good security net for farmers to make the transition and overcome temporary drops in income will also be crucial. Most likely, cocoa producing governments in West Africa will not be able to make this transition on their own. Significant support from stakeholders in chocolate consuming countries (governments, international organisations, companies, NGOs, and consumers) will therefore be needed.

10 Literature

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Appendix A Determination of Cocoa Prices in Cameroon, Nigeria, Ghana, Côte d'Ivoire and Indonesia

For this Appendix see separate SEO report number 2016-79A



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