From Ivorian cocoa bean to French dark chocolate tablet

Price transmission, value sharing and North/South competition policy

Bruno DORIN

Final report translated from the original version in French

CIRAD
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INTRODUCTION

Faced with the downward trend in agricultural commodity prices, farmers in the North have acquired standards and organizations that define, defend and promote on markets the multiple (health, taste, territory, environment related…) qualities with which their food products may be endowed. And what if farmers in the South were to follow their example, with just as much public backing? The question is worth asking, especially by organizations such as *CIRAD* which is already involved in characterizing various tropical products, or establishing North-South production contracts for "organic" or "fairtrade" products. But should this siphon off the majority of future development aid, notably to African agriculture? Must, or can international bodies be convinced that this is a particularly effective way of raising agricultural incomes in the South? The answer is yet to be given, but in order to define it, it was suggested to us that we focus on a case study, the cocoa-chocolate commodity chain, analyse value formation and distribution within it, then simulate the possible benefit that might be derived by African producers from respecting the standards or specifications that we were to propose.

This 7-month study[1] thus set out to analyse price transmission and value sharing throughout the cocoa-chocolate commodity chain, beginning here in Ivory Coast and ending in France. This first stage, which was novel in itself since there were no references on which to base it, was however not followed by the suggested second stage: we barely touch upon the subject of standards and quality, and even less so simulate the effect of possible changes in the matter. Yet, this was not for want of delving into the subject, but due to three major obstacles that discouraged from spending any more time on these issues. The first was technical: it was impossible in the allotted time to obtain price differentials (or readiness to pay) depending on various qualities, a prerequisite for any serious quantitative study on the subject. Mere acquisition of series of prices for the few products manufactured along the cocoa-chocolate commodity chain was already no mean feat. The second obstacle was more to do with intuition, shared by numerous economists, to which this study might have finally devoted itself to developing and demonstrating: a proactive quality policy involves specific costs (characterization, organization, promotion, certification, control, etc.) whose importance is often considerably underestimated, and which restricts it a priori to environments that are predisposed or clearly limited in size. Lastly, and especially, the following question: what better quality for a cocoa from Ivory Coast, with which western industrialists and consumers seem to be perfectly happy at the moment, since it is by far the most imported cocoa bean in the world, to produce a "generic" chocolate earmarked for mass consumption? Moreover, without this Ivorian reference, could other chocolates (and beans) be distinguished between and fetch a higher price from a minority of consumers ready to pay for "something else"?

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[1] From 19 August 2002 to 18 February 2003, with funding from the *Ecopol* programme (CIRAD's *AMIS* department), and from 10 March to 9 April 2003, with funds from *USDA/ARS* for support to the "Global Cocoa Programme" made available to the *CIRAD* cocoa programme (Tree Crops Department) and to *IPGRI*. It should also be noted that the armed conflict that broke out in Ivory Coast on 19 September 2003 ruled out any possibility of local surveys.

Granted, Ivory Coast, like the other countries in the South, will be required in any event to offer a "better quality" cocoa, since the technical, technological and organoleptic demands of importing countries are now being extended to the health, environmental and even social fields (Appendix 1). The rules of the game are changing, even within the recipe for chocolate, when they were already having difficulty being applied by smallholders. These new rules imposed by the industrialized nations inevitably lead to higher production costs, often totally at the expense of producers in the South, since firms and consumers in the North do not pay for such a difference in quality, or only with great difficulty, or within such limited frameworks as "organic" and/or "fair" trade (Appendix 1). In such a context, a North-South transfer appears to be warranted, and therefore deserves to be encouraged. But it will at best, and we feel, only be able to cover the additional costs incurred in respecting western quality demands; it will in no way sustainably raise the income of African cocoa farmers; at most, it will prevent their being sidelined by rivals from Southeast Asia or elsewhere.

Unless the issue in hand is to invent and somehow impose standards and signs of quality that enable countries in the South to capture a share of the value and modify relations between stakeholders. If such is the case, is the approach focusing on "quality" – very much a buzz word in France – the most politically adept and the most economically efficient? Moreover, would it not bring us back to the attempts at fair trade, in the hope of changing the structure of world trade by brandishing equity and solidarity as the main argument? As we feel that this perspective is bound to fail for the time being (condemned to marginal markets), we have explored a different avenue, that of competition regulations and policies, which we feel can more effectively convince and rally the support of decision-makers and donors today, and effectively bolster the incomes of small farmers such as Ivorian cocoa producers. As we shall also see later, this is without counting on the fact that competition policies can considerably limit a quality policy, particularly in agriculture, which consequently need to show a keen interest in them, in order to more effectively renovate them.

Consequently, in the fourth and final section of this document, we sketch out the stakes and outlines of a new international competition policy, an option that we feel it is important to defend just as energetically as a quality assistance policy. Just before that (section 3), we present the results that persuaded us to follow this avenue (analysis of price transmission and value sharing within the cocoa-chocolate commodity chain from 1992 to 2001), after providing a few technical, economic and political data required for the demonstration and for its clear understanding (sections 1 and 2).

1. COCOA BASICS

11. A sequence of processes

The cocoa tree (*Theobroma cacao*) and its cultivation encompass a few major particularities[2] :

- varieties divided into three large families: *criollo*, *forastero* and *trinitario,*
- an ecological requirement: the equatorial zone,
- a favourite location: under forest shade,
- well-known diseases: black pod rot, witches' broom, swollen shoot virus, etc.,
- labour requirements for setting up and maintaining the plantation, harvesting, bean fermentation and drying,
- crop variations between years (depending on the climate) and also during the year, with the main crop usually from October to March (and the so-called "mid-crop" in the other months of the year),
- delicate storage: in a tropical climate, production cannot be stored for more than 3 months without damage,
- an economic life span of around 40 years (maximum productivity between 8 and 12 years).

Consequently, cocoa is traditionally sown or planted after thinning and/or felling of a tropical forest, followed by the installation of temporary shade from food crops (plantain, taro, pigeon pea, papaya, cassava, etc.) to protect young cocoa trees from direct exposure to sunlight. After 3 to 5 years' growth and upkeep (adjustment of the final shade, pruning, phytosanitary treatments, etc.), harvesting of the pods (ovoid cavity containing 30 to 40 seeds in a mucilaginous pulp) can begin. Once the pods have been opened, the seeds are cleaned, fermented and dried to give cocoa beans. The dry beans are then roasted then ground and cleaned to give a "liquor" ("mass", "paste"), part of which is used, after pressing and alkalizing, on the one hand to make chocolate powder (for breakfast products, ice creams, etc.) from the oilcakes obtained, and on the other hand to make cocoa butter. Cocoa butter mixed with cocoa liquor during conching gives – with sugar or even milk – "couverture" chocolate. When this so-called "couverture" (dark or milk) is not manufactured by chocolate makers themselves, they rework it (tempering, moulding or coating with or without the addition of vanilla, hazelnuts, raisins, etc.) to make the many chocolate products now available on the market.

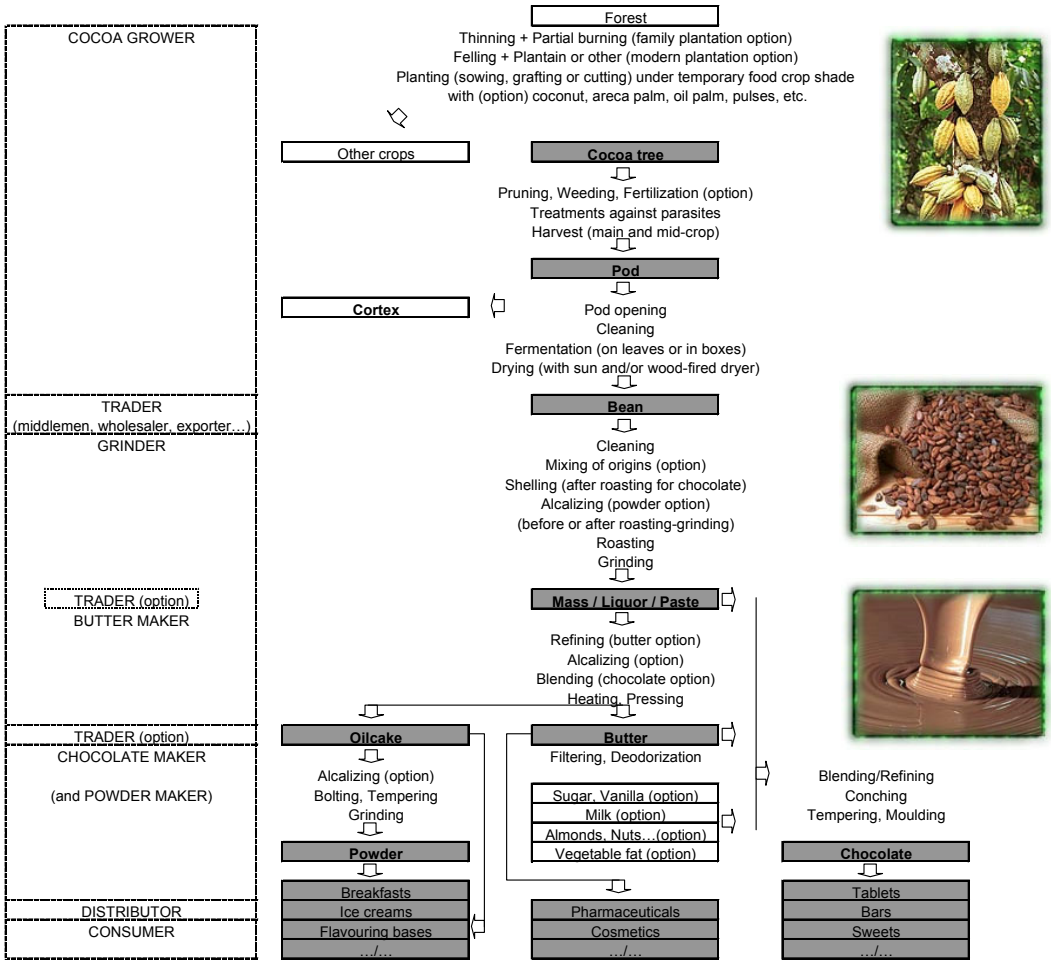
Chocolate manufacturing today is structured around three major operators (apart from those linked to trade): the cocoa grower, who produces the bean; the grinder/butter-maker (between which a greater distinction existed in the past), who processes the bean into cocoa butter, chocolate powder and, increasingly, couverture; the chocolate maker (Figure 1), who virtually no longer handles cocoa beans like before. Each of these operators uses a cocoa product, whose volume can be converted into bean equivalent (Table 1).

Table 1: Bean equivalent conversion factors
Sources: Pontillon (1997:24) for FAO

	FAO	Ivorian authorities
Cocoa liquor	1.25	1.25
Cocoa powder and oilcake	1.18	1.25
Cocoa butter	1.33	1.25
Chocolate-based products	-	0.55625

[2] Several points in this section are covered in more detail in Appendix 2.

Figure 1: The chocolate flow chart



12. Production in the South, tasting in the North

121. Supply

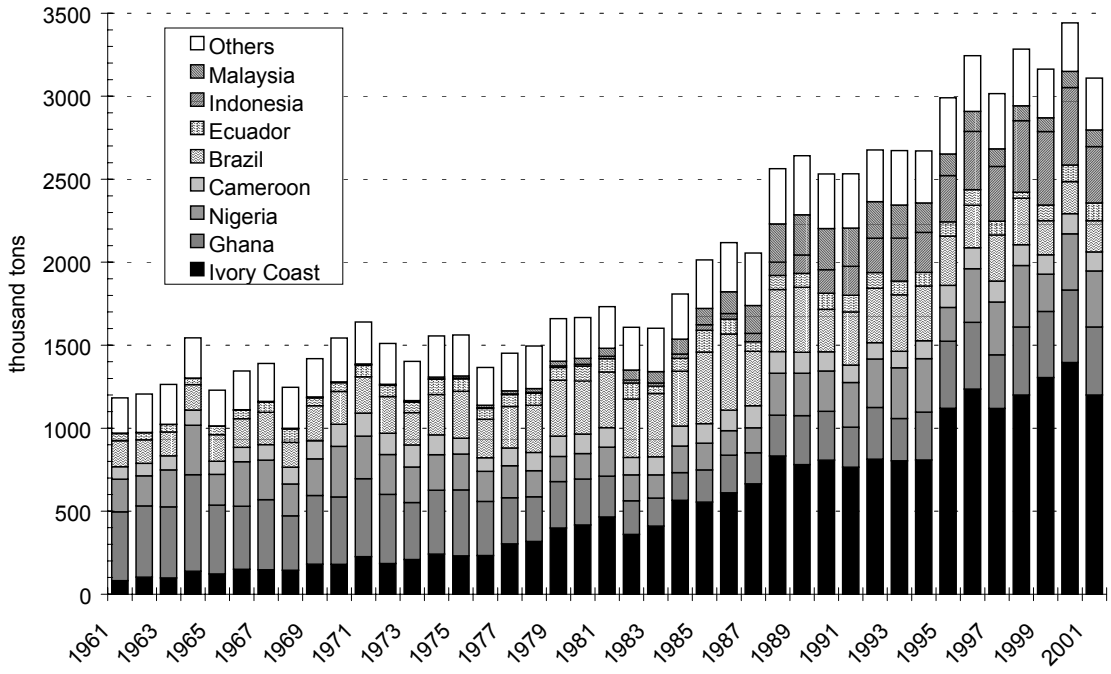
The cultivation of cocoa, which originated in Latin America (grown by the Mayas and sacred beverage of the Aztecs), really took off in the 1920s in the Portuguese, British and French colonies of West Africa (Sao Tome, Ghana, Nigeria, Ivory Coast, Cameroon). Today, the entire continent provides two thirds of world supplies (almost 2 out of 3 million tons), with Ivory Coast alone providing over 40% of world supplies (it overtook Ghana as the world's leading producer in 1977). However, a third major production zone has been thriving in Southeast Asia since 1990, with estates in Malaysia, but especially Indonesia (Figure 2). The position of this third major zone could be strengthened in the coming decades through the development of new plantations in Vietnam.

Over the last twenty years, world supply and demand[3] have virtually doubled, in a context of highly volatile prices (Figure 3). With intensified production in the 1980s, particularly in

[3] Measured here as the volume of ground beans. It is also possible to use consumption statistics published by certain organizations (*FAO*, *CAOBISCO*, etc.), but they would not effectively represent cocoa consumption in its entirety (with biscuit making, dairy products, etc.). Foreign trade statistics can also be used, but the conversion coefficients that have to be used in that case are arguable; with those of the *FAO*, and with net import volumes

Southeast Asia, there was surplus production in the commodity chain for some time (22 out of the last 30 years), but the current concern is rather the opposite[4]: farming systems exploiting new forest zones have reached their growth limit, the current plantations are tending to age rather than being renewed, diseases are developing, whilst demand remains strong in the European Union and the USA (Figure 4) and new markets, such as those in Eastern Europe and the Far East, are becoming established.

Figure 2: Bean production by country (1961 – 2001)
Source: data from FAO (2002)



122. Demand

Be it in bars, tablets, balls, spreads or powder, plain or flavoured and/or incorporated in other confectionery, poured or coated over enrobable fillings[5], chocolate is consumed today in very diverse forms, multiplied by a range of presentations, alongside niche products which are also on the rise (aromatic, organic or fairtrade chocolates). However, clear preferences for some of these types exist from one country to another (Table 2), even though bars seem to be increasingly the most widely appreciated. For instance, the Spanish are particularly fond of drinking chocolate, whilst Germans and Italians are great consumers of chocolate spreads. In France, where the preference is (unlike the USA or the UK) for products somewhat richer in cocoa than in other ingredients such as sugar, it is the tablet that reigns supreme: in 2000,

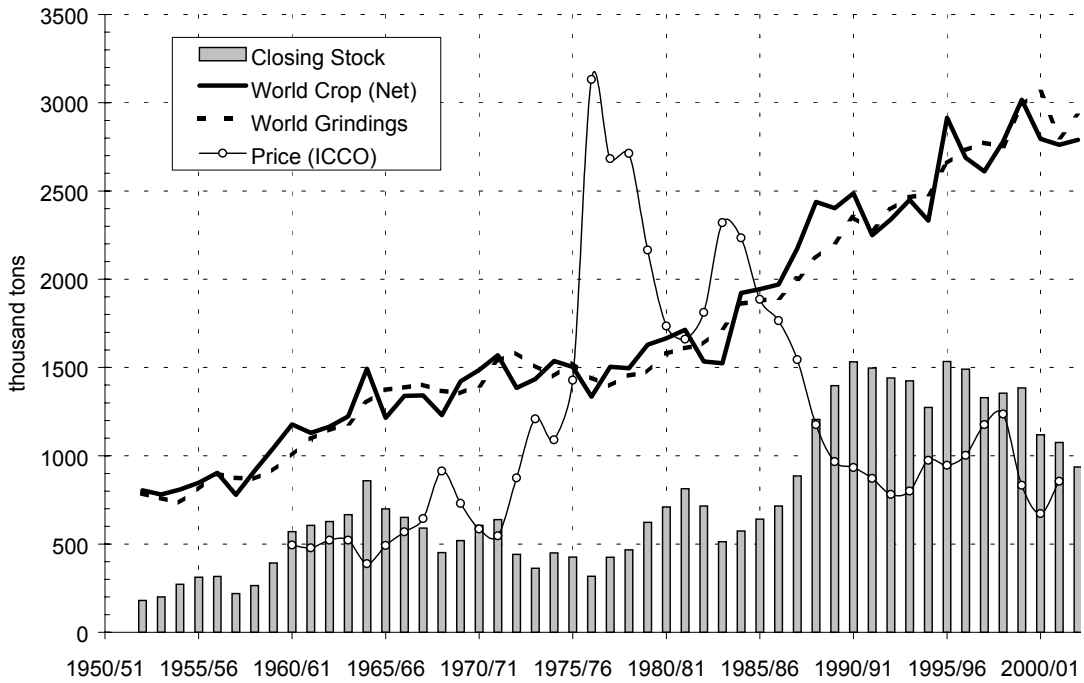
for cocoa beans (I_C), liquor (I_L), butter (I_B), oilcake and powder (I_P): Consumption = $I_C + (1.25 \times I_L) + (1.33 \times I_B) + (1.18 \times I_P)$.

[4] According to *ED&F Man*, in 2002/03 there was apparently a production shortfall again (of 110,000 t) compared to grindings, for the third year running.

[5] "Fillings" which themselves fall into various categories: "fondant" (mixture of sugar dissolved in a little water and glucose syrup, which may be coloured or flavoured with vanilla, orange or lemon), "praline" (mixture of sugar, finely ground roasted almonds or hazelnuts, to which a small quantity of cocoa and cocoa butter is added), "ganache" (mixture of melted chocolate, cream, butter and fullfat milk, flavoured or not with vanilla or alcohols).

chocolate tablets alone generated a turnover of 4.6 billion francs[6], almost half of which for milk chocolate (Figure 5). Chocolate consumption is also seasonal, with major peaks at festive times such as Christmas, Saint Valentine's Day, Easter or Halloween[7]. Lastly, it is not limited to food uses, since chocolate now seems to be used for skincare (Brieu, 2002)[8]. It is true that cocoa butter is already used to make soaps and cosmetics[9], and also in traditional medicines such as remedies for burns, chills, dry lips, fevers, malaria, rheumatism, snake bites and other wounds (CNUCED, 2003). For their part, the husks and pulp obtained further upstream in the process can be used as animal feed, or for fertilizer, alcohol, or pectin production[10].

Figure 3: Bean supply and demand (1950 – 2001)
Source: data from ED&F (2002) and ICCO (2002b)



Note: 2001/02 and 2002/03: projections ED&F Man

[6] Household chocolate and sugar confectionery consumption reached 33.6 billion francs the same year, though no distinction could be made between the shares of these two sectors, which *INSEE* groups under the NAF code 15.8K.

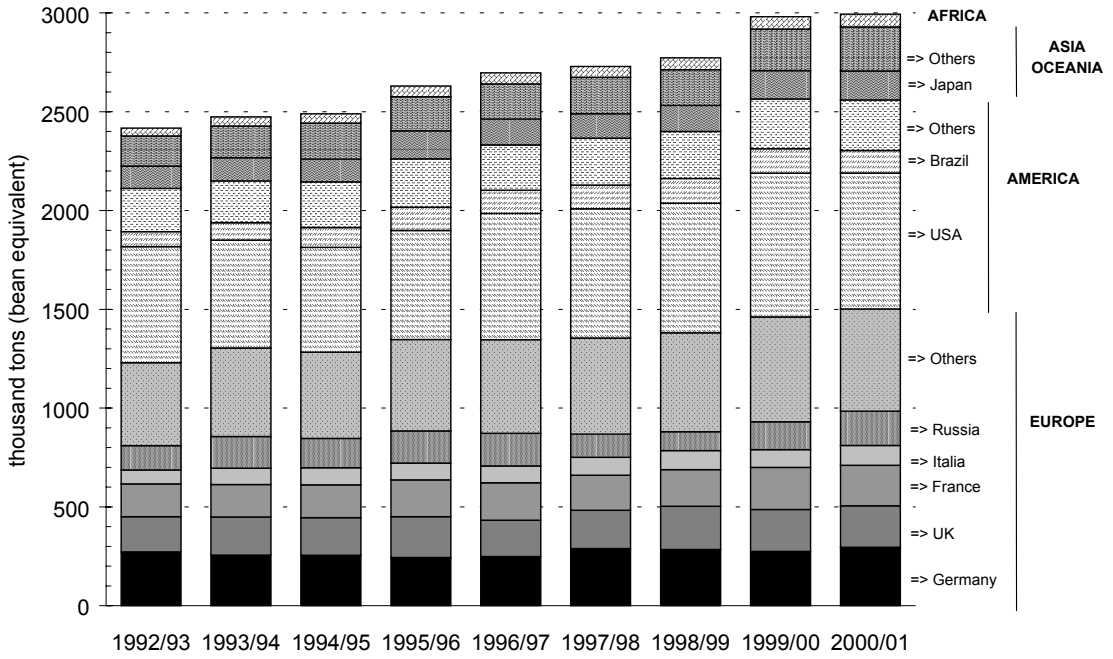
[7] The Halloween confectionery market alone apparently amounts to 2 billion dollars in the USA (35% of annual sales).

[8] Some Parisian beauty parlours apparently now propose 100% chocolate treatments for the face and hands. In Hershey, Pennsylvania, a town entirely devoted to chocolate, a spa centre was opened in 2001, proposing a range of original treatments: cocoa and whipped cream baths, coating in chocolate lotion, cocoa butter massage, etc..

[9] 1% of cocoa butter production apparently went to the cosmetics industry at the end of the 1990s (www.icco.org/questions/cosmetics.htm).

[10] See in particular www.icco.org/questions/byproducts.htm.

Figure 4: Domestic cocoa production (1992/93 – 2000/01)
Source: data from ED&F (2002) and ICCO (2002a)



Note: Apparent consumption = Cocoa bean grindings + Net imports, in bean equivalent, of chocolate, chocolate-based products and other cocoa-based products

Figure 5: French production of chocolate end-products (1999-2000)
Source: data from XERFI (2001)

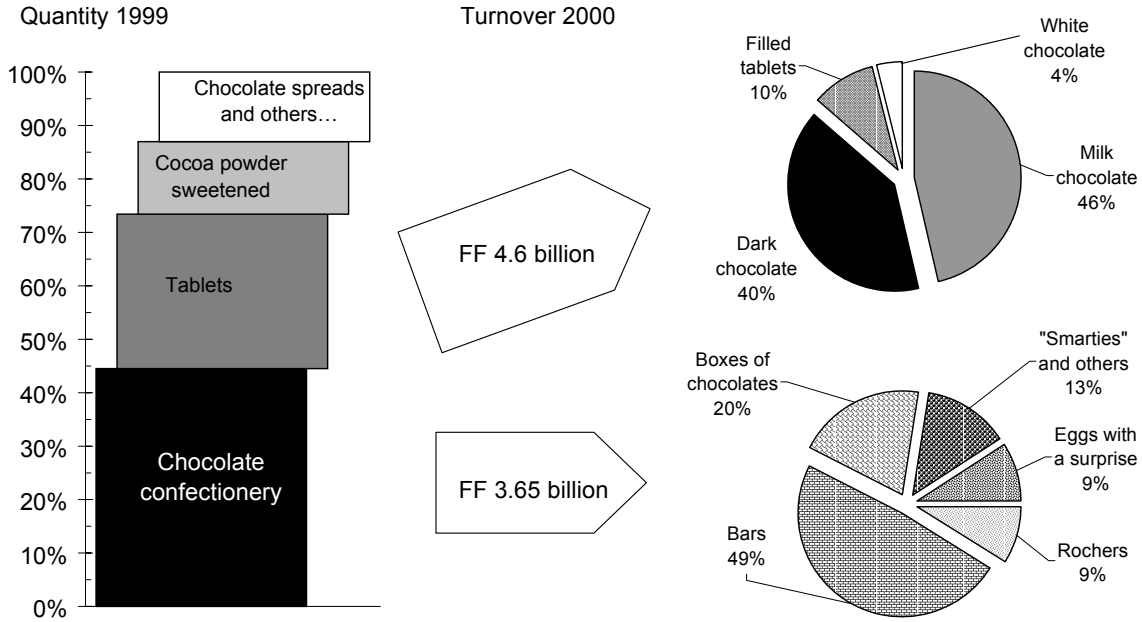


Table 2: World consumption of chocolate-based products (1998)
Source: based on Aryal (2000:78-79)

	TOTAL (kg/inhab/year	Unfilled tablets	Filled tablets and bars	Chocolate sweets and confectionery	White chocolate	Cocoa-based candies	Cocoa powder	Chocolate spreads
Switzerland	10.16	3.99	2.91					
Germany	9.81	1.50						1.15
Belgium	9.68		3.52					
Denmark	8.94	2.57		2.75				
UK	8.65	2.04	3.15					
Norway	8.58	0.44	0.42				0.39	
Ireland	8.29		1.69		8.92 [?]			
France	6.94	1.93		1.67				
Australia	6.04			1.81		1.83		
USA	5.53		2.65					
Sweden	4.95	1.58		2.43				
Netherlands	4.73							
Finland	4.02		1.42	1.58				
Spain	3.41	0.85					1.56	
Italy	3.33			0.59		0.76		0.57
Brazil	2.05					1.25		
Japan	1.92			0.68		0.51		

13. Small family farms and multinationals

131. Cocoa producers

At the end of the 1990s, the number of cocoa producers worldwide was estimated at 14 million, two thirds concentrated in Africa (10.5 million)[11], primarily in Ivory Coast (3.6 million on at least 600,000 farms)[12]. Whilst large estates can be found in countries such as Malaysia or Brazil, most producers are smallholders, since 90% of world production apparently comes from farms of under 5 hectares (De Lattre-Gasquet *et al.*, 1998): on these small family farms, labour remuneration (the main cocoa production cost) is much more flexible than on estates (Hanak Freud *et al.*, 2000), as Malaysia realized too late when prices slumped at the beginning of the 1990s[13].

Cocoa growing was introduced into Ivory Coast via Ghana in the East and Southeast of the country (a pioneer front where oil palm and rubber development has now taken over), then spread to the Centre-West, where the largest quantity is now produced (36 %); the latest pioneer fronts are located in the Southwest and West[14]. The two driving forces behind this development were the possibility (nowadays virtually exhausted) of opening up new plantations in forest zones after slashing and burning, along with available labour – primarily of Burkinese origin (Baoule in the West) – which was encouraged to settle through particular ownership rights[15] (now contested).

Despite the vitality of this "foreign" population, and the relatively young cocoa plantings (almost 70% of them are under 30 years old), there has been virtually no productivity gain, and the increase in Ivorian cocoa production is primarily down to the incorporation of

[11] For a breakdown of this estimate by country, see http://www.icco.org/questions/smallholders.htm.
[12] Which apparently provides a livelihood for 6 million Ivorians, i.e. 40% of the population.
[13] The cocoa trees, which were also attacked by pod borers, were finally pulled up to make way for new rubber and oil palm plantations.
[14] It is consequently on the savannah highlands in the North (where most of the country's Muslim population is settled) that most of the Ivorian sorghum and cotton are grown.
[15] According to Félix Houphouët-Boigny, Ivorian president from 1960 to 1993, "*la terre appartient à celui qui la met en valeur*" (land belongs to the person who develops it).

increasing quantities of land and labour (Daviron et Losch, 1997). There are various explanations for these low Ivorian yields (around 500 kg of beans/ha/year, whereas hybrids can produce at least double or three times that figure with fertilization and irrigation): smallness of the farms (84% of production comes from farms of under 5 ha), ageing producers (80% are over 55 years old), limited adoption of, or training in new techniques (for replanting, pest control, post-harvest processing, etc.), difficult access to cheap credit, volatile prices from one year to the next, neglect of the plantation when prices are too low, etc.

These cocoa farmers are represented on a national level by *ANAPROCI* (*Association Nationale des Producteurs de Café-Cacao de Côte d'Ivoire*) and *FIPCC* (*Fédération Ivoirienne des Producteurs de Café et de Cacao*), and on an international level by *CPA* (Cocoa Producers Alliance). The latter, like *ICCO* (International Cocoa Organization), may be involved in the work undertaken by a dozen scientific and technical organizations involved to varying degrees in monitoring or supporting Ivorian cocoa cultivation (*CNRA*, *CIRAD*, *ANADER,* etc.) (Appendix 3).

132. Cooperatives, middlemen, wholesalers

The collection and transportation of beans to processing units near export ports is an operation that is as crucial as it is tricky, since the dispersal of smallholders in remote areas (forests) is combined with poor road infrastructures (developing country) and the need to bring out production rapidly (quality deteriorates more rapidly in tropical countries).

In Ivory Coast, beans are collected and transported by cooperatives[16] (or GVC), which may export directly (*COOPEX*, *PMEX, etc.*), but particularly, and increasingly (82% in 2000/01 as opposed to 68% in 1998/99) by middlemen (*pisteurs* in French), who are frequently of Lebanese origin[17], working for wholesalers (*traitants* in French) often of the same origin, who provide them with vans and with cash to pay producers for their crop.

The credit needed by cocoa producers for cultivation, but also to school their children (the new term begins before the main crop) also seems to depend increasingly on these middlemen/wholesalers. The loans granted are then repaid when yields are delivered, at interest rates that are obviously higher than those practised by public services (when such services are available).

Wholesalers, who are based in the main towns of the South, are independent, or themselves funded by exporters. In 2000/01, 550 were accredited by *GPEX* (*Groupement Professionnel des Exportateurs de Café-Cacao*)[18], which cost each of them 100,000 CFA francs for that season, alongside the licence fee of 400,000 CFA francs they have to pay in each department where they operate (Jacquet, 2001).

133. Conditioning plants, exporters

Near the export ports (Abidjan or San Pedro), conditioning plants which are often export units, buy beans from wholesalers and make them conform to market standards and

[16] Particularly dynamic in the East and Centre-South zones, where their collection share was 48% and 27% respectively in 2000/01.
[17] Or Malian, or Burkinese
[18] A dissident organization, *UNOCC*, was founded in 2000/01.

requirements: pre-cleaning and stone removal, re-drying where necessary, etc. If quality proves to be inadequate, such purchases may be subject to discounts[19].

Beans earmarked for export are then dispatched in containers once three formalities have been completed: (1) batch checking, which was contracted out in 2000/01 to accredited private companies (*SGS*, *Cornelder*, *Veritas*) at a cost of 1,900 CFA francs/ton; (2) phytosanitary inspections, at a cost of around 1,000 CFA francs/ton, at the expense of the exporter; (3) payment of taxes, of which DUS (*Droit Unique de Sortie*, export duty) is the main component: 140,000 CFA francs/ton of beans in 2000/01 (Jacquet, 2001).

At the beginning of 2000, there were around forty accredited export companies, which could be classed into three categories (Jacquet, 2001): (1) traditional local exporters, whose market share fell from 43% in 1997/98 to 10 % in 1999/00; (2) exporters associated with international trading houses, which, for their part, are developing their operations (48% of exports in 1999/00); (3) exporters linked to international bean processing groups (42%) (Appendix 3), the largest three being *ADM*, *Barry-Callebaut* and *Cargill*, who are integrating an increasing amount of upstream collection and conditioning units, whilst also developing local bean grinding activities.

134. Grinders, butter makers

More than half the beans ground today worldwide are ground in the European Union and the USA (Figure 6), and by 5 major grinding companies: *ADM* (Archer Daniels Midland), *Barry-Callebaut*, *Cargill*, *Hamester* and *Blommer*[20].

In Ivory Coast, the first processing factories had been set up, with Government encouragement, to process "off-standard" beans or small beans (primarily mid-crop). In a fiscal environment that remains propitious to such local processing (BNETD, 2001), these capacities (350,000 t at the end of 2002) have been strengthened with international groups (Appendix 3)[21] which have embarked upon vertical integration, buying up trading firms, and buying and installing factories in producing countries.

All in all, Ivory Coast today processes almost a quarter of its beans to export semi-finished products[22] with higher added value, like Brazil and Malaysia. It nonetheless remains that such processing can in theory barely be extended beyond couverture chocolate, since even manufacture of the latter – if it is to be adapted to the different tastes of consumer countries – requires blends of origins, which are less risky and costly to make in the major chocolate consuming zones.

---

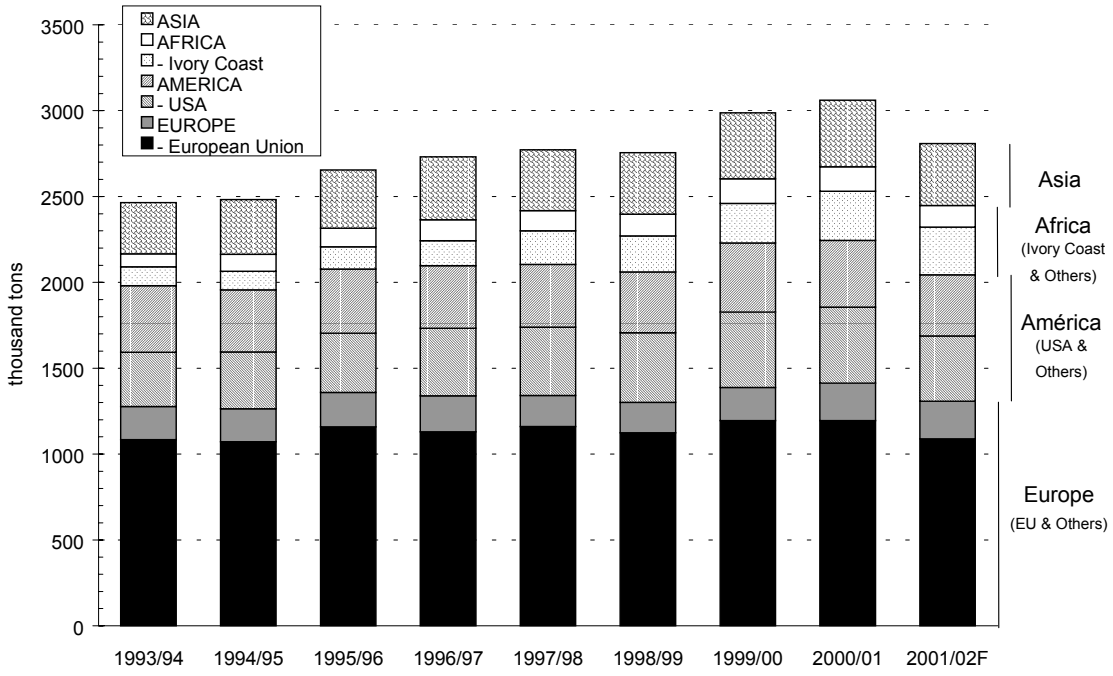
[19] Too high a number of beans per 100 g (i.e. over 100), moisture content over 8%, lack of fermentation, or too many defective beans (notably mouldy).

[20] Chocolate makers such as *Nestlé* also grind large volumes of beans, though they are not specialized in this activity.

[21] Bean processing capacities at the end of 2001, apparently employing barely more than 900 people (Jacquet, 2001): 100,000 t/year for *SACO* (*Barry-Callebaut*), 100,000 t/year for *MICAO* (*Cargill*), 75,000 t/year for *UNICAO* (controlled by *ADM*'s *SIFCA*) and 75,000 t/year for *CEMOI Côte d'Ivoire*.

[22] 2000/01 exports (April to March) from Ivory Coast according to ICCO (2002): 122,924 t of mass, 56,360 t of powder and press cake, 45,018 t of butter and 3,900 t of chocolate, local production of the latter being sold more on the domestic market, since it remains difficult and costly for a bean producing country to supply chocolate incorporating various origins to meet the various tastes of the main consumer countries.

Figure 6: Bean grinding per region (1993 – 2001)
Source: data from ED&F Man (2002)



Note: 2001/02: projections ED&F Man

135. Chocolate makers, distributors

The move towards concentration and internationalization is also speeding up among chocolate makers. A distinction can be made between two markets on this level: (1) a captive market with groups such as *Cadbury*, *Kraft Foods* (*Philip Morris*), *Mars* or *Nestlé,* which above all produce chocolate for their own product range; (2) an open market on which groups such as *ADM*, *Barry-Callebaut* or *Cargill* sell powdered or couverture chocolate (via traders such as *Euro Distribution Alimentaire* in France, or not) to chocolate makers-confectioners, who do not produce their own chocolate, or not enough to meet their requirements (with surpluses on one or other of these markets figuring in transactions between them). Among food industrialists, there are also international companies specialized in the production of fine or "prestige" quality chocolates, the leaders being *Lindt*, *Peter's Chocolate Company* (*Nestlé* group) and *Valrhona* (CNUCED, 2001).

With this concentration of the profession, the fabric of the French chocolate and confectionery industry[23] is now dominated by a few foreign groups owning powerful brands (Table 3). In fact, colossal advertising budgets[24] are necessary for their promotion,

[23] 111 companies employing more than 20 people each and/or with a turnover of more than 35 million francs in 1999, i.e. 5.2% of the total turnover of the agrifood industries in France, and 5.6% of salaries in the branch (XERFI, 2001). Alongside these companies, there are SMEs which, unable to compete with the major brands through advertising, capitalize on the good reputation of French products representative of a certain life style. It remains that the French chocolate making industry stands out on the whole through the increasing share accorded to semi-finished products, which seem today to account for half the tonnages. Indeed, through its geographical position, France is a worthwhile production rear base for foreign groups.

[24] In 2000 for example, *Ferrero* spent no less than 222 million francs on communication: a winning strategy since the Italian chocolate maker's turnover jumped by 10%. Likewise, *Nestlé* reaped the benefits of its support for the *Lion* brand (37 million francs), since sales increased by 6% on the chocolate snack market in 2000 (XERFI, 2001).

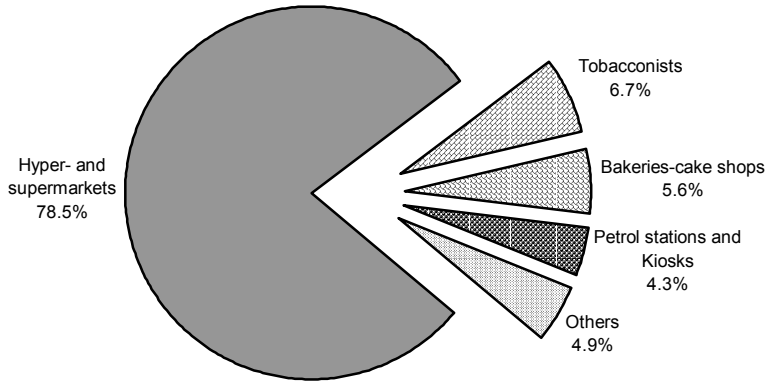
particularly as supermarket own brands, such as *Carrefour* or *Auchan*, are now coming to the fore (more than 15% of the French market value for chocolate tablets in 2000).

With stiff competition between brands, but also the rising influence of particularly competitive substitute segments such as biscuits and sugar confectionery, chocolate industrialists are having to regularly deploy new strategies, which now follow two major trends. The first is to seek new market niches by sophisticating chocolate tablets (notably with biscuit), by offering products in bite-size versions (to adapt to "nomadism" or "snacking" trends), by umbrella marketing campaigns at certain key times of the year (Christmas, Easter, etc.: event marketing, as particularly well achieved by *Ferrero*). The second trend is to use distribution circuits other than the currently all-powerful hyper- and supermarkets (Figure 7), notably the "long circuit" via bars-tobacconists (34,000 in France), bakery-cake shops (32,000), petrol stations (17,000), newspaper kiosks (32,000) or vending machines (527,000), supplied by wholesalers such as *Eda*, *SFP* or *Altadis Distribution,* through which manufacturers such has *Haribo* have succeeded well (XERFI, 2001).

Table 3: Groups dominating the French chocolate and confectionery industry (2001)
Source: according to XERFI (2001)

Group	Country	Consolidated turnover 2000 (Billions of FF)	Main companies controlled in France	Main brands
Nestlé	Switzerland	343,0	Nestlé France	After Eight, Crunch, Frigor, Galak, Kit Kat, Quality Street, Lanvin, Lion, Menier, Smarties…
Kraft Foods (Philip Morris)	USA	188,9	Kraft Foods France, Kraft Foods Strasburg, Kraft Jacobs Suchard Rheims	Côte d'Or, Daim, Milka, Suchard, Toblerone…
Mars Incorporated	USA	108,9	Masterfoods	Bounty, Mars, Maltersers, Milky Way, M&M's, Snickers Twix…
Cadbury-Schweppes	UK	47,6	Cadbury France	Cadbury, Hollywood, Kiss Cool, Krema, La Pie qui Chante, Malabar, Poulain…
Ferrero	Italy	25,6	Ferrero France	Ferrero Rocher, Kinder, Mon Cheri, Nutella, Rafaello…
CSM	Netherlands	17,9	Lami Lutty France…	…
Barry Callebault	Switzerland	10,1	Barry Callebault France	…
Lindt and Sprungli	Switzerland	6,9	Lindt and Sprungli France	Caffarel, Ghirardelli, Lindt…
Cemoi	France	2,3	Cantalou, Chocolaterie Aiguebelle, Chocolaterie d'Aquitaine, Chocolaterie de L'Abbaye Suisse Normande, Chocolaterie Moulin d'Or, Chocolaterie Real, Phoscao	

Figure 7: Market shares of the chocolate distribution circuits in France (2000)
Source: data from XERFI (2001)



136. Traders

The cocoa-chocolate commodity chain is subject to multiple transactions, due to the distance between production and consumption sites, but also because of the various products and processes required to make the end product. For beans (Appendix 3), the most important trading centres are futures (and options) markets in London (*LIFFE*) and New York (*NYBOT*) (see § 24), which make cocoa one of the most traded agricultural commodities in the world. These marketplaces are the focus of a multitude of dealers, which the concentration/integration policy implemented by the major downstream operators is tending to short-circuit today (integration of trading activities, as is also the case for French sugar mills and refineries). This trend is not without influencing price formation, which also depends on public policies.

2. FROM STABILIZATION TO LIBERALIZATION

21. National stabilization boards and funds

As Daviron and Losch reminded us (1997), the general frame of reference for post-war policies up to the 1970s was that of development economics, in which economic prosperity was built on a Nation-State scale. In substance, in Ivory Coast as in other countries, national or international funding agencies encouraged (1) the improvement of such a development framework in terms of infrastructures (roads, port facilities, energy, hydraulics) and legislation (based on a transfer of regulations largely established during the colonial period); (2) the creation of productive bases and improvement of market functioning; (3) the stabilization of farmers' incomes, the latter being considered as essential for productive investment and social order (Daviron et Losch, 1997:10-11).

In this context, two major systems of marketing and commodity chain supervision were adopted in West and central Africa by cocoa producing countries: stabilization boards and funds. Marketing boards were set up in countries such as Nigeria (up to 1986) or Ghana. They were characterized by the existence of a parapublic organization with a monopoly in domestic and international marketing. When cocoa was bought from a producer, it became the property of the board, which took charge of it throughout the commodity chain, after fixing prices at the different stages for the entire crop year. For their part, stabilization funds (*caisses de stabilisation* in French) were adopted in countries such as Cameroon or Ivory Coast. Like the boards, they fixed domestic and export prices. However, physical routing of the merchandise – from producers to export ports – was ensured by private operators accredited by the fund (CNUCED, 2003).

The domestic stabilization of prices and internal securing of purchases/sales that these systems allowed, went hand in hand – as with *CAISTAB* in Ivory Coast – with systems of territorial equalization, quality control and export management (futures sales, regulation between exporters and conditioning units, etc.), along with operating aid and investment in the commodity chain, be it through credit (to cooperative structures in particular), the creation and maintenance of roads or tracks, or the funding of technical assistance or research organizations (*SATMACI*, *IRCC*, *IDEFOR, etc.*). These systems also made it possible to apply sometimes extremely large levies: the Ivorian *CAISTAB* supplied up to 30% of the State's special investment budget up to the end of the 1970s (Daviron et Losch, 1997:14-15).

These substantial levies, along with their sometimes highly dubious use, did not argue in favour of maintaining such stabilization systems, whose inefficiency was also increasingly criticized (see § 23), even without counting such unfortunate strategies as the "cocoa war" entered into by ageing President Félix Houphouët-Boigny at the end of the 1980s. Indeed, rather than raising the bidding by blocking supplies of Ivorian products to the world market, it became necessary several months later to inform producers that the price per kilo had been halved. The Ivorian stabilization system was completely dismantled by commodity chain liberalization in August 1999 (see § 23). The "barème" principle persisted between those two dates; it fixed a minimum price for producers as well as reference export prices at each stage of the commodity chain. Consequently, when a cocoa sale was made, the exporter had to compensate the stabilization fund for any difference between the actual sale price and the reference price, if the former was higher than the latter (so-called "repayment" operation). On the other hand, when world prices were lower than the reference price, *CAISTAB*

compensated exporters by granting them a payment (known under the generic term of "support") corresponding to the difference.

22. International stabilization agreements

Between 1972 and 2001, there were 6 successive cocoa agreements. It took no less than sixteen years and countless meetings to establish the first with, one year later, the International Cocoa Organization (*ICCO*) to manage it. That agreement was based on a quota system, combined with a buffer stock. The quota system granted quotas to each producing country that varied in line with prices. However, it was never necessary to apply the agreement as prices remained above the fixed target range throughout its duration. Nevertheless, the contribution of 1 cent per pound helped to establish a fund of around 80 million dollars. The second agreement, concluded in 1975, was based on the same system, but did not work any better than the previous one, as the USA (world's leading consumer) did not agree to take part. However, the "kitty" rose to 230 million dollars. A third agreement saw the light of day in 1980, in a very different context, as the market then had a surplus and prices were declining. The quota system was abandoned to the benefit of a buffer stock that could reach 250,000 tons. But this measure was barely more operational: the stock proved to be less than the surplus, funding resources were inadequate, and neither the USA or Ivory Coast took part. Moreover, currency exchange fluctuations had not been taken into account. A fourth agreement was then reached in 1986, after two years' work under the aegis of UNCTAD. It, too, was based on a buffer stock of 250,000 tons, with the possibility of withdrawing 120,000 tons. But it remained powerless to stabilize prices above the reference level of 1,600 SDR per ton: in January 1990, the *ICCO* indicator fell to 900 SDR (Jouve et Milly, 1990:120-121).

In 1993, when the fifth agreement was concluded, the decision was taken to liquidate the buffer stock by selling 4,250 tons per month until it ran out, which occurred in March 1998 (CCI, 2001:148-154). In reality, that agreement heralded the one concluded in 2001, to which the European Union and 40 cocoa importing or exporting countries adhered (except Indonesia): the forsaking of any ambition to intervene on the market in the short term, in favour of a sort of forum that monitored market trends, in order to ensure a balance between supply and demand in the medium and long terms. In 2001, this capitulation led to the announcement of the following objectives: (1) promote international cooperation in all sectors of the world cocoa economy; (2) provide an appropriate forum for the discussion of all issues concerning all sectors of that economy; (3) help to strengthen the national economies of member countries; (4) contribute towards the balanced development of the world cocoa economy, notably by promoting a sustainable cocoa economy, research and application of its results, collection, analysis and dissemination of relevant statistics, and consumption of chocolate and cocoa-based products (CNUCED, 2001).

Pending the results of generalizing so-called "modern" price-risk management tools to developing countries (see § 24), would not *STABEX* be the only way left to compensate for the harmful effects of world commodity market instability? This unique system of export stabilization (for agricultural products) was in fact proposed by the European Commission right from the first Lomé Convention in 1975. It provides ACP countries (now numbering 77, from Africa, the Caribbean and the Pacific) with substantial resources (13 % of the European Development Fund allotted to the ACP States over the 1995-2000 period, i.e. 1.8 billion ECU) to fund their agricultural sectors – without directly intervening on the market – when they are thrown into difficulty by a decline in their export earnings. In this way, a reference level is fixed by country, and when losses in export earnings are seen, *STABEX* guarantees a

transfer of financial resources to the benefiting country that is equal, at most, to the difference between the effective value and the reference level.

Of course, *STABEX* has evolved since the first Lomé Convention. It only intervenes today in the form of donations, with the so-called "principle of reconstitution" by the ACP States being abandoned in 1990. Moreover, it was in return for the abrogation of that principle that the European Union obtained the same year that the way resources were used would be subject to an agreement with each ACP Government. This framework of "mutual obligations" also involves suspensive clauses whose respect by the ACP States governs the different instalments ("tranches"). This was a major change signifying the end of direct, undifferentiated, non-negotiated transfers, which is not without causing tensions alongside those linked to the inadequate amounts available in periods of severe price depreciations. In fact, these frameworks of "mutual obligations" extended not only to supporting agricultural producers[25], but also the privatization of commodity chains and the restructuring of national compensation bodies, in other words the development of the free-market economy in ACP countries (Simon, 1999).

Be that as it may, it is clearly along those lines that the Cotonou Agreement signed in June 2000 envisaged a radical reform of commercial relations between the two regions. Indeed, it was regretted that the Lomé Conventions did not prevent the marginalization of ACP countries in world trade, or enable diversification of their exports that are still too often concentrated on a small number of agricultural products. It was also felt necessary, perhaps first and foremost, to comply with the commitments made at the World Trade Organization (*WTO*), since the latter does not authorize trading relations that are discriminatory and non-reciprocal, a provision that was extended to agriculture in 1994. Consequently, the European Union proposes setting in place Economic Partnership Agreements (EPA) between 2008 and 2020 with the ACP countries, which would then be grouped in regional blocks (SOLAGRAL, 2002). In other words, it involves setting up free-trade areas, a new development paradigm that has been pushed to the fore for the last twenty years or so.

23. Market liberalization

The post-war self-centred growth model actually fell into crisis in the 1970s: the oil shocks forced the industrialized nations to broaden their market, in order to settle the increasing bill for a raw material they now largely depended on, and therefore open up much more to world trade and its advantages (theory of comparative advantages) than they had done in the past. This multilateral opening up led to ever more condemnation and dismantling of direct public intervention in domestic and international trade for goods and services (intervention now qualified as "trade distortion"), the outcome of which was the establishment of the *WTO* in 1995. Naturally, for public development aid, it was then no longer a matter of contributing to the construction of self-centred national economies, but to promote the effective insertion of territories on the international scene, since from now on, it was on this that improved growth and living standards depended (Daviron et Losch, 1997:18-19).

The free market has reigned for many years in the cocoa sector of countries such as Brazil, Indonesia and Malaysia. However, the international move towards liberalization led countries such as Nigeria and Cameroon to completely restructure the organization of their commodity chain in the 1990s. It was in 1999 for Ivory Coast: a vast privatization, flanked some time

[25] In Ivory Coast, *STABEX* has thus facilitated access to the banking system for around a hundred producer organizations, or, in Cameroon, the distribution of "farmer cheques".

later with new coordinating bodies: a Coffee and Cocoa Regulation Authority (*ARCC*, 2001), a Coffee and Cocoa Bourse (*BCC*, 2001), an Inter-ministerial Commodities Committee (*CIMP*, 2001), a Regulation and Control Fund (*FRC*, 2002) and a Coffee-Cocoa Markets Information Programme (*PRIMAC*).

Nevertheless, the question of projects to secure agricultural income remained. En 2001, the Ivorian national coffee and cocoa producers association (*ANAPROCI*) suggested the restoration of a stabilization system based on the calculation of a Mean Forward Sale Price (PVAM – *Prix de Vente Anticipé à la Moyenne*)[26], maybe not having completely realized that forward sales have strongly diminished since liberalization: by increasingly integrating upstream operators, the main buyers need less and less to turn to futures markets. In a document dated 23 July 2002, the Ivorian *BCC* proposed for its part a new trading system that is in practice similar to the one that existed before 1999, except that it does not include any programme on futures sales made after the main cocoa crop[27]. This system was to be completely in place by October 2003, but a year earlier, on 19 September 2002, a deep and bloody crisis broke out in the country[28] which it is tempting to link to the over-radical liberalization of the Ivorian economy, notably in the cocoa sector. Whilst the issue is worth investigating (Losch *et al.*, 2003), one certainty remains: this liberalization has discouraged rather than encouraged systems to secure agricultural income, apart from one: the futures and options markets, to which Ivorian small-scale cocoa producers do not yet have direct access.

24. Futures and options markets

When trade with Europe and the rest of the world intensified in the 16th century, veritably giving birth to international trading at a distance, purchases and sales with deferred deliveries became established and developed, along with the associated risks. In order to protect oneself from losses or damage to merchandise in transit, it gradually became possible to take out insurance, or to receive letters guaranteeing the execution of the contract. But it was not until the 20th century that it became possible to (personally) protect oneself from price fluctuations, which were considerable for agricultural products (Habert, 2002): the first formally organized cocoa exchange was created in New York in 1925 in the wake of a stock exchange boom and crash (this exchange merged in 1978 with that for coffee and sugar, then in 1998 with that for cotton, to form *NYBOT* – see Appendix 3), with London following in

[26] "Sales are forward sales (even before the product is available). Sales are spread over 33 months. For the first 21 months, these are futures sales, and the final 12 months are given over to spot sales (depending on the state of the market when the transaction takes place). In this way, prices are smoothed for producers, whose remuneration does not vary. However, *BCC* could benefit from any improvements, such as an upturn in world prices, to fund foregone earnings in the case of a price drop". (Le Jour, N°1946, 13/09/2001)

[27] The following was thus proposed (Dow Jones Newsletter, 14/08/2002): (1) a Minimum Farmgate Price (MFP) fixed by an interprofessional committee of experts within the *BCC* (the 2001/02 season was thus marked by the introduction of such a price: see § 321); (2) a Reference CIF Export Price. (REP), which is the MFP incremented by collection and transport costs; (3) a Safety Reserve, fixed at the beginning of each season by various representatives of the profession, with a fixed share, and a variable share provided by exporters when the REP is higher than the MFP (or even by levying a "variable reserve tax" on production) ; (4) an Intervention Mechanism which could take various forms when the market price tended to fall below the REP: a) introduction of preventive insurance against the price risk, by using the futures and options markets, for example, b) adjustment of the level of fixed reserves, or of variable reserves, c) payment (via exporters) of compensation or a subsidy to cocoa farmers when the REP falls below the MFP; (5) a Guarantee Fund intended to improve access to credit for small and medium-sized exporters (private or cooperatives), so that the latter can purchase larger volumes of cocoa.

[28] On 19 September 2002, armed conflict broke out in Ivory Coast, splitting the country in two, with "rebel' troops of the Ivorian Patriotic Front (*MPCI*) in the North, and the forces of president Laurent Gbagbo in the South.

1928 (exchange now forming part of *LIFFE*)[29]. These futures contracts and markets transfer the price risk (unexpected rise or fall between the order and delivery) from those who do not accept it ("arbitrage dealers": traders, processors, chocolate makers, cocoa producers, etc.) to those who accept it and are called "speculators". The latter in fact wager on the market in line with the elements at their disposal, hoping to gain more than they lost in "arbitrage" operations (purchases and sales on paper that might lead – in 1% of cases at the most in normal circumstances – to delivering or taking delivery of the product)[30] and "compensation" operations (payment of the difference between the market value and the transactional value), which, all in all, means that to each loss there corresponds a gain (zero sum game). Purchasing options ("*calls*") and sales ("*puts*") completed this system for cocoa at the end of the 1980s. These are conditional futures contracts enabling an operator to reserve the option to request the performance of an agreed operation, or its cancellation, subject to the immediate payment of a premium (known as the "option price").

Thus, in modern merchandise trading, there exists today a clear distinction between the futures market and the "physical market", with the first shifting ten times more volumes (on paper) than the second (great liquidity which is also the guarantee of offering a counterpart at any given time). The physical market (also called "real" market, "cash" market or "spot" market) deals in cocoa beans or cocoa products of given grades and origins, whose quantities, delivery times, packaging, prices (usually taking the futures market for a reference) and payment conditions are mutually negotiated between the different buyers and sellers, based on standard contracts or market rules pre-established by international cooca trading associations (*CAL*, *CMAA*, *FCC* – see Appendix 3). Conversely, the futures market is a restricted market (only the least attractive cocoas for users are supplied to the exchange), on which an individual must use the services of a middleman to buy or sell commodities. This involves a standard contract that can be bought or sold at a given place (*NYBOT* or *LIFFE*), during predetermined price quotation times, on the trading floor (*NYBOT*) or in front of computer screens (*LIFFE* since the end of 2000). In the futures contract, only the price and delivery month (March, May, July, September or December) are negotiable, as all the other elements are standardized and not negotiable (quantity by 10-ton batch, delivery to the warehouse of the port on the consumer market, quality in compliance with the classifications established by each exchange, transactions in dollars for *NYBOT* and pounds sterling for *LIFFE*, etc.). Moreover, futures contract trading assumes the availability of sufficient financial means to honour contractual obligations (obligations first of all involving payment of a security deposit, an "initial provision" generally equivalent to 10% of the contract market value). These means must be made available to a middleman ("broker" or "commission agent", who is a member of the clearing office), who takes responsibility for contract performance (reverse operation or delivery) on behalf of the operator in respect of the other party (CCI, 2001:73-85).

Jouve and Milly summed up well the advantages and disadvantatges of the futures market (Jouve et Milly, 1990:115-120) namely, for the advantages: (1) cost reductions throughout the commodity chain since, by limiting their risk margin (money gained by speculators is lost by other speculators), middlemen also limit their commission; (2) more flexible and more efficient management of market flows insofar as paper and physical can be dissociated in

[29] Cocoa exchanges were also created in Amsterdam and Paris, but the volume of their activities never equalled that of *NYBOT* and *LIFFE*, which were virtually comparable for this commodity in the 1980s and 1990s.

[30] The term "arbitrage" is also used to mean the settlement of disputes (e.g. about quality) outside the usual legal system. Such arbitrage is usually ensured under the aegis of cocoa trading associations. In extreme cases (refusal by one of the parties to comply), it becomes enforceable through legal channels. (CCI, 2001:93-95)

time; (3) transparency in operations through the immediate publication of quotations; (4) theoretically more difficult price manipulation by large operators, even if "squeezes", like the one Antony Ward[31] was recently accused of, may still more or less severely affect the smooth functioning of the markets. However, this guarantee of efficiency and transparency entails a certain number of limits or drawbacks: (1) in the short term, the futures market can increase instability, even though it does not modify long-term price trends; (2) producers always find themselves in the role of speculators, since they can choose at any moment to sell or not to sell: they optimize their speculation but do not eliminate it all the same; (3) resorting to arbitrage is not free of charge (registration fees, brokerage, exchange taxes, etc.); (4) the options system encourages traders and industrialists to speculate, which somewhat amplifies the role of futures markets, increasing its disadvantages. We are tempted to add a fifth point to this last list: futures markets do not locally encourage the production, differentiation and recompense of quality, since in order to function they rely on the maximum homogenization of batches (by national origin as this is difficult on a world scale, hence premiums by batches – positive or negative – depending on the producing country), which, moreover, is done more to meet a low rather than a high standard (only the least attractive cocoas are delivered to the exchange).

Lastly, Jouve and Milly concluded as follows: "In any event, the futures market remains a relatively neutral instrument, reproducing market facts much like a barometer. The ideal of price stability can always be dreamt of. As that ideal is very far off, theoretical and even utopian, price instability has to be lived with, given the continual instability between supply and demand. In this context of instability, the existence of a representative futures market is undeniably a positive factor. Though it can no doubt seem paradoxical that the world cocoa price is determined by speculators on markets in which only paper circulates. Nevertheless, let us not forget that old traders' saying "physical is always right!".

The "relatively neutral" nature of the futures market in terms of supply and demand would undoubtedly deserve greater discussion[32], as would its "undeniably positive" nature faced with price instability[33]. In the meantime, and in a context now free of public interventions, let us take a look at price formation and transmission within the commodity chain, and to which "market facts" they lead.

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[31] Antony Ward, alias "*Chocfinger"*, 42 years old, former director of *Phibro*, has run the *Armajaro* trading company (London) for the last four years with Richard Gower. He apparently took delivery of large quantities of cocoa beans over the last two years, at a time when prices doubled (from £ 600/t to around £ 1,300/t). After his purchase in the summer of 2002 of at least 150,000 tons of cocoa (over 5% of world production and three quarters of the quantities supplied in July 2002 to the London futures market), he seemingly possessed 15% of world stocks. Suspected of operating a "squeeze" (forcing prices to rise and selling at the high price to pocket a gain estimated in this case at 90 million dollars), or even of funding the conflict that broke out in Ivory Coast on 19 September 2002 to multiply his stake, he is apparently backed by the American insurer *AIG*, or the *Commodity Arbitrage Fund AIG DKR*.

[32] We have already begun them by noting that the development of futures markets is not neutral towards the production and delivery of quality products. We could continue in another register: a "squeeze" like the one by Antony Ward – be it real or the figment of a very extravagant imagination – shows that it cannot be ruled out that such an operation may – in its extreme limits – lead to the abrupt destructuring of the economy of a country such as Ivory Coast, which is definitely not neutral towards worldwide cocoa supply and demand, in the short and long terms.

[33] see. § 343 to carry on this discussion.

3. PRICE TRANSMISSION AND VALUE SHARING

Price and income structuring in the cocoa-chocolate commodity chain is difficult to assess, given the myriad types of end-product (tablets, bars, sweets, creams, ice creams, drinking chocolate, etc.) and its variable combination of semi-finished cocoa-based products (liquor, butter, powder), and of other incorporated raw materials (sugar, milk, vanilla, fat, hazelnuts, raisins, etc.). There is also the problem of data: (1) downstream companies – often multinationals (*ADM*, *Barry-Callebault*, *Mars*, *Nestlé*, etc.) – conceal rather than divulge their recipes, costs and marketing prices; (2) upstream producing countries – primarily developing countries – do not usually have any sophisticated economic observatories. All this is combined with the unfortunately well-known fluctuation in cocoa prices, hence the ambiguity of working on annual means. In short, the exercise we are attempting here is as daring as it is novel, and we hope it will provoke reactions and suggestions likely to come closer to reality than here.

31. Hypotheses and methodology

Ours is a rough analysis in more ways than one, even though certain biases were lessened by carrying it out over several years (1992–2001). First of all, it in fact stops at a relatively unsophisticated end-product (the dark chocolate bar), which, it is worth remembering, is a rare chocolate product to which a VAT rate of 5.5% is applied, whereas all the others are hit with 19.6% tax in France[34]. Secondly, it is restricted to a transaction area (Ivory Coast => northern Europe => France), which correspondingly reduces the scope of the analysis, even though this area is in itself not insignificant in the world chocolate economy. Lastly, it is based on the following hypotheses.

(1) The data and calculations given below (Table 4 and Appendix 4) lead to fair estimates of the prices of the different products, given that:

- the FOB price for exported Ivorian cocoa beans is not available after 1996 (IMF, 1998), leading this price series to be ruled out, which is a pity since it would have made it possible to evaluate the FOB-to-CIF cost which is not provided by *BNETD* (BNETD, 2000) ;
- *ED&F Man* (2002) supplies series of mean annual prices (£/T) for butter ("*Top 4 Dutch"*) and powder (unspecified origin), but not for liquor or couverture chocolate, which led us to opt for estimating the unit price of all these goods using the same data base, i.e. by dividing a sum of annual import values within Europe, supplied by *Eurostat* (EUROSTAT, 2002)[35] by the sum of the corresponding volumes. For butter and powder, the difference between these evaluations (Table 4) and the prices published by *ED&F Man* varies considerably from one

[34] Under current French legislation, where the normal VAT rate is 19.6% (20.6% from 1st August 1995 to 31st March 2000), products earmarked for human consumption are subject – as authorized by the sixth European Directive on VAT – to the reduced rate which stands in France at 5.5% since 1982 (at least 5% according to the European Directive). However, this principle includes exceptions, for 2% of food products (Biron et Boucher, 2000) which, apart from alcoholic drinks, are chocolate, confectionery, margarines and caviar. However, for chocolate, there is an exception to the exception (i.e. the possibility of applying the reduced rate): (dark) chocolate and household (dark) chocolate, if in bar or stick form (e.g. the "Napolitain" dark chocolate square is taxed at 5.5 %, but if it is round it is taxed at 19.6 %), along with household milk chocolate, if presented in the same forms.

[35] More detailed data than *UNCTAD*'s *TRAINS* data: HS to 8 figures rather than 6.

year to the next (effect of arbitrage on the futures markets?), and is substantial on average for powder[36] (which by chance does not enter much into this study).

Table 4: Values used, their source and their estimation method

Variable	Source	Estimation method
Price paid to producer (Ivory Coast)	BNETD, 2000, 2001, 2002	Weighted average according to quantities collected by zones (5) and by operators (middlemen or cooperatives)
Price, factory entrance (Ivory Coast)	BNETD, 2000, 2001, 2002	Weighted average depending on quantities collected by department (44 dealers or cooperatives surveyed in all in 1999/00)
Processing and export (Ivory Coast)	Calculated	Difference between CIF price and factory entrance price incremented by compulsory levies
Compulsory levies (Ivory Coast)	BNETD, 2000, 2001, 2002	Levies for the State, but also professional (13% of total in 2000/01)
CIF price of imported bean (Netherlands, Germany)	Calculated with EUROSTAT, 2002	Annual imported Values over Quantities. Product code: HS 18010000[37]. Origin: Ivory Coast. Reporting countries: Netherlands + Germany (64% of volumes imported from Ivory Coast by the EU from 1992 to 2001). Ivorian beans entering the EU are not subject to customs duties.
Price of liquor (France, Belgium, Germany)	Calculated with EUROSTAT, 2002	Annual imported Values over Quantities. Product code: HS 18031000[38]. Origin: EU. Reporting countries: France + Belgium-Luxembourg + Germany (66% of within-EU import volumes from 1992 to 2001).
Price of butter (Germany, Belgium, France)	Calculated with EUROSTAT, 2002	Annual imported Values over Quantities. Product code: HS 18040000[39]. Origin: EU. Reporting countries: Germany + Belgium-Luxembourg + France (67% of within-EU import volumes from 1992 to 2001).
Price of powder (Germany, France, Belgium)	Calculated with EUROSTAT, 2002	Annual imported Values over Quantities. Product code: HS 18050000[40]. Origin: EU. Reporting countries: Germany + France + Belgium-Luxembourg (56% of within-EU import volumes from 1992 to 2001).
Price of sugar (Belgium, Germany, France)	Calculated with EUROSTAT, 2002	Annual imported Values over Quantities. Product code: HS 17019910[41]. Origin: EU. Reporting countries: Belgium-Luxembourg + Germany + France (52% of within-EU import volumes from 1992 to 2001).
Price of couverture (France, Germany, Netherlands, Belgium)	Calculated with EUROSTAT, 2002	Annual imported Values over Quantities. Product code: HS 18062010[42]. Origin: EU. Reporting countries: France + Germany + Netherlands + Belgium-Luxembourg (77% of within-EU import volumes from 1992 to 2001).
Price of chocolate bars (France)	Calculated with INSEE, 2002	Price reconstituted from: (1) the INSEE annual index (100 = 1998) of the consumption price of "chocolate tablet" (product code 011821) for the whole of France (mainland + overseas departments), (2) the retail price, without tax, of a "standard" tablet of dark chocolate in 2001
VAT (France, Europe)	CAOBISCO, 2002	5.5% (in France only on dark chocolate in bar or stick form, all other chocolate products being taxed at 19.6 %)

(2) Ivorian average prices and levies expressed by cocoa season (P_c: October to September) need to be converted into calendar years (P_n: January to December) in order to be

[36] Between +25% (1992 and 1999) and –11% (1997) for butter (average of +5% from 1992 to 2001), between +44% (1995) and –3% (2001) for powder (average of +18% over the period in question).
[37] HS 18010000: COCOA BEANS, WHOLE OR BROKEN, RAW OR ROASTED
[38] HS 18031000: COCOA PASTE (EXCL. DEFATTED)
[39] HS 18040000: COCOA BUTTER, FAT AND OIL
[40] HS 18050000: COCOA POWDER, NOT CONTAINING ADDED SUGAR OR OTHER SWEETENING MATTER
[41] HS 17019910: WHITE SUGAR, CONTAINING IN DRY STATE>= 99.5% SUCROSE (EXCL. FLAVOURED OR COLOURED)
[42] HS 18062010: CHOCOLATE AND OTHER FOOD PREPARATIONS CONTAINING COCOA, IN BLOCKS, SLABS OR BARS WEIGHING > 2 KG OR IN LIQUID, PASTE, POWDER, GRANULAR OR OTHER BULK FORM, IN CONTAINERS OR IMMEDIATE PACKINGS OF A CONTENT > 2 KG, CONTAINING >= 31%, BY WEIGHT

properly compared with all the other average prices expressed per calendar year (from CIF bean to chocolate tablet); this conversion can be done considering that:

- 40% of cocoa volumes produced are bought from producers and delivered to conditioning factories from October to December, hence the average price paid by each of these two operators over the calendar year can be estimated by $P_n = (0.40*P_c) + (0.60*P_{c-1})$;
- levies (taxes) are mostly deducted at the export stage, for which payments are better distributed throughout the year: $P_n = (0.30*P_c) + (0.70*P_{c-1})$.

It should be noted that this operation backs up another hypothesis we put forward, and which is fairly conventional in economics, namely virtually instantaneous price transmission, which with a time period of one year, and futures and options markets that are also well developed, is far from being totally aberrant (thus, it is considered here, for example, that an increase in bean price in 1999 can lead to an increase in the price of a tablet of chocolate the same year).

(3) Ivory Coast does not gain value through local processing of beans into liquor, butter and powder, which is not true in reality, since it now processes a quarter of its beans locally, though primarily via multinationals (see § 133, 134).

(4) A study of chocolate value formation/distribution[43] requires that the various prices or taxes be expressed in the same unit[44], and the European Currency Unit (ECU, now the euro) proves to be a good compromise when compared to practices[45], as well as for limiting the effect of European currency exchange rates prior to 1999: when data are not expressed in this unit (particularly Ivorian data), the conversion rates provided by EUROSTAT (2002)[46] are used to convert them.

(5) Value formation/distribution can be understood in two main ways, by the commercial value of the products derived from one ton of beans (Table 5), or by the value of the different commercial forms that make up – with taxes and other levies – the retail price of one ton of dark chocolate bar (Table 6).

(6) One ton of beans provides 800 kg of liquor, or 400 kg butter and 400 kg of powder (at 10-12% fat content). Thereafter, bean processing results in a loss of matter throughout the process of (only) 20% (hull and water), at the grinding stage (Table 5, Table 6).

(7) A dark chocolate tablet is made with couverture chocolate[47] containing 50% liquor[48] and 11% butter[49] (Table 6), themselves made from beans of exclusively Ivorian origin.

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[43] The term "value" used here should be understood as "commercial value", along with values which are incorporated or not in that commercial value: an old and vast economic debate, for which J. Généreux provides a few elements in his bestseller (Généreux, 2001).

[44] Unfortunately, the lack of data prevents us from applying the surplus accounts method here (see in particular Dorin, Pingault, Boussard, 2001: Formation and distribution of productivity gains in Indian agriculture, Economie Rurale, 263, May-June), though it would have enabled a more complete and less limited analysis than what was actually carried out.

[45] Prior to 1999, according to the French trader *Touton*, French Ivorian bean purchases were mostly paid for in French francs, and probably in pounds sterling or US dollars for other European countries ; since 1999, the euro has taken over for African cocoa purchases, except in cocoa importing countries such as the UK (which we have not included in the scope of our study for that reason, among others), and exporting countries such as Ghana (which apparently receives payment increasingly in dollars rather than pounds sterling).

[46] For CFA franc conversion into euros, we used the ECU/French franc conversion rate, multiplied by 50 up to 1993, then by 100 from 1994 onwards (devaluation in January 1994).

[47] Which is not always the case (tablet manufactured directly with mass, without added cocoa butter, unless it is meant to be " fondant "), but this assumption makes it possible to enhance the analysis, by bringing out the value added through couverture manufacture, without affecting the final price of the chocolate in any way.

(8) The cocoa content of dark chocolate tablet is 61% (Table 5, Table 6), a percentage considered to most effectively represent a market where it varies, in France, from 50 to 99% ; the remainder (39%) is solely composed of sugar (which is not always the case).

Table 5: Calculation of the value of products manufactured from one ton of beans

Bean, farmgate (Ivory Coast):	$V'_{Farm} = P_{Farmgate}$
Bean, factory entrance (Ivory Coast):	$V'_{Factory} = P_{Factory\ entrance}$
Imported bean (Europe):	$V'_{Import} = P_{Import}$
Liquor (Europe):	$V'_{Liquor} = P_{Liquor} * 0.8$
Butter + Powder (Europe):	$V'_{Butter\&Powder} = (P_{Butter} * 0.4) + (P_{Powder} * 0.4)$
Couverture (Europe):	$V'_{Couverture} = (P_{Couverture} / 0.61) * 0.8$
Tablet (France):	$V'_{Tablet} = (P_{Tablet} / 0.61) * 0.8$

Table 6: Breakdown of the value of a tablet of dark chocolate

Bean production (Ivory Coast):	$V'_{Prod} = (P_{Farmgate} / 0.8) * 0.61$
Bean collection and export (to Europe):	$V'_{Import} = ((P_{Import} / 0.8) * 0.61) – V'_{Prod} – V'_{Collect} – V'_{FactExp} – V'T_{Levies}$
- of which coop. & middlemen (Ivory Coast):	$V'_{Collect} = ((P_{Factory} / 0.8) * 0.61) – ((P_{Farmgate} / 0.8) * 0.61)$
- of which factories & exporters (incl. transport):	$V'_{FactExp} = ((P_{Import} / 0.8) * 0.61) – V'_{Prod} – V'_{Collect} – V'_{Levies}$
- of which levies (Ivory Coast):	$V'_{Levies} = (V_{Levies} / 0.8) * 0.61$
Liquor and butter production (Europe):	$V'_{Grinding} = ((0.11*P_{Butter}) + (0.50*P_{Liquor})) – ((P_{Import} / 0.8) * 0.61)$
Sugar (Europe)	$V'_{Sugar} = P_{Sugar} * 0.39$
Couverture production (Europe):	$V'_{Couverture} = P_{Couverture} – ((0.11*P_{Butter}) + (0.50*P_{Liquor}) – V'_{Sugar})$
Tablet manufacture and distribution (France):	$V'_{Tablet} = P_{Tablet} – P_{Couverture}$
VAT:	$V'_{VAT} = P_{Tablet} * 0.055$

(9) Cocoa percentage weight (61%) corresponds to the monetary value of the cocoa in a tablet, which is ambiguous in several ways: the value of the chocolate is based more on the cocoa it contains than on the other main ingredient, namely sugar, and that value itself depends on other factors (bean selection, industrial know-how, reputation, etc.).

(10) This 61% dark chocolate tablet was sold in France for € 8/kg exclusive of tax in 2001 (i.e. 5 French francs per 100 g tablet)[50].

(11) The total VAT deducted throughout the commodity chain amounts to 5.5% of the value exclusive of tax of the dark chocolate tablet sold in France; a hypothesis which is both low, since the VAT applied to cocoa-based products (liquor, butter, couverture) is 6 or 7% in the other countries considered (Germany, Belgium, Netherlands) (CAOBISCO, 2002:21), and high, since no European tax is levied on imported beans.

(12) An analysis at constant prices can be carried out on Ivorian and French values, using as the deflator for Ivory Coast the harmonized consumer price index with 1996 as base year (BCEAO, 2003) and, for France, the household consumer price index with 1995 as base year (INSEE, 2003)[51]; prior to use, each of these indexes was adjusted to 1992 base year to facilitate subsequent comparisons.

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[48] Itself containing 50% cocoa butter.

[49] i.e a total of 36% cocoa butter, with the legislation allowing the name " couverture" for products whose cocoa dry matter content exceeds 35% (ditto for dark chocolate) with more than 31% butter (18% for dark chocolate).

[50] *Nielsen's* data, for example, would probably make it possible to specify this value a little more precisely. In mid-December 2002, in a hypermarket in Montpellier, tablets at 51-52% cocoa fluctuated between € 6.65 (*Meunier*) and € 8.60 (*Lindt Noir*) per kg inclusive of tax, and those at 72% between € 8.10 and € 12.40, with *Cemoi* organic chocolate at 60% cocoa costing € 9.40.

[51] The *INSEE* general consumer price index (CPI) could also have been used, but on the organization's internet site at least, the CPI base 100 in 1998 was not calculated prior to that date, and the base 100 for 1990 was not calculated after December 1998.

32. Results and comments

321. Exported beans

BNETD reports (BNETD, 2000, 2001, 2002) and data from 1995/96 to 2001/02, expressed in current CFA francs per cocoa season (October to September) – hence effectively incorporating the price surge confirmed in June 2002 (Figure 12) – provide initial information on value formation/distribution for one kilogram of beans CIF (Figure 8), even though this CIF value was unfortunately[52] derived by *BNEDT* from the *ICCO* monthly index on the London and New York exchanges (BNETD, 2002:15).

1. In 1999/00, the year the commodity chain was liberalized, the current farmgate bean price was virtually halved, then rose again, slightly exceeding in 2001/02 the level reached 3 years earlier (+3.5% compared to 1998/99)[53] (Figure 8). After abolition of the "barème" and the indicative price paid to cocoa growers, producer income instability was worsened by a much stronger variation in price according to the collection circuit (middlemen or cooperatives), the harvesting zone and the month of the year. For instance, in 2000/01, the average farmgate price for that season did not exceed 255 CFA francs/kg in the western zone (middleman price), whereas it rose to 395 in the southwestern zone (cooperative price). Likewise the farmgate price for beans was 550 CFA francs/kg in February for cooperatives (all zones combined), whereas middlemen were only offering 300 in June. According to *BNETD*, the coefficient of variation for prices (over 20%) declined slightly during the 2001/02 season, which was marked by the introduction of a minimum price to producers per three-month period[54]. However, *BNEDT* concluded by highlighting the problem of price labelling and respect of the minimum price by buyers purchasing directly from farms.

2. Over the period in question, bean collection represented from 5% (1995/96) to 11.5% (1998/99 and 2000/01) of the *ICCO* CIF price (4 to 9% of the CIF Amsterdam price – see § 322). It is not possible to see any clear trend here as to the effects of liberalization. However, it has to be said that liberalization caused problems for cooperatives, whose collection share slumped, despite the better prices paid to producers (average differential with middlemen of +30 CFA francs/kg in 2000/01): in 1998/99, they handled 32% of the volumes produced, as opposed to 24% in 1999/00 and only 18% in 2000/01 (though retaining 50% in the eastern zone). In fact, the new law on cooperatives and payment outstanding divided their access to guaranteed bank credits by almost 25 (0.64 billion CFA francs allotted by *FGCCC* in 1999/00 as opposed to 15.46 the previous season). So, in the absence of bank credit, and faced with the unceasing drop in prefunding by

[52] In fact, this CIF price is not specific to Ivory Coast, even less so for a delivery to Amsterdam as we subsequently considered (§ 322). This CIF value considerably affects the estimation of the share of conditioning factories and exporters, since that share is calculated by deducting from the value all the compulsory levies, along with the factory gate price. For the latter, it should also be noted that its value fluctuated in the pages of the last two *BNEDT* reports for the 2000/01 season: between 415 and 423 CFA francs/kg ; we have opted here for 415.

[53] 504 CFA francs per kg in 1998/99, 275 in 1999/00, and 522 in 2001/02. A few days after the end of the 2001/02 season, a record (over the previous 17 years) of US$ 2,405/t was reached on the New York futures market on 11 Otober 2002. However, between 14 and 18 October 2002, the closing price for cocoa fell suddenly from US$ 2,338 to US$ 1,910/t, i.e. a drop of 18.3% in 4 days.

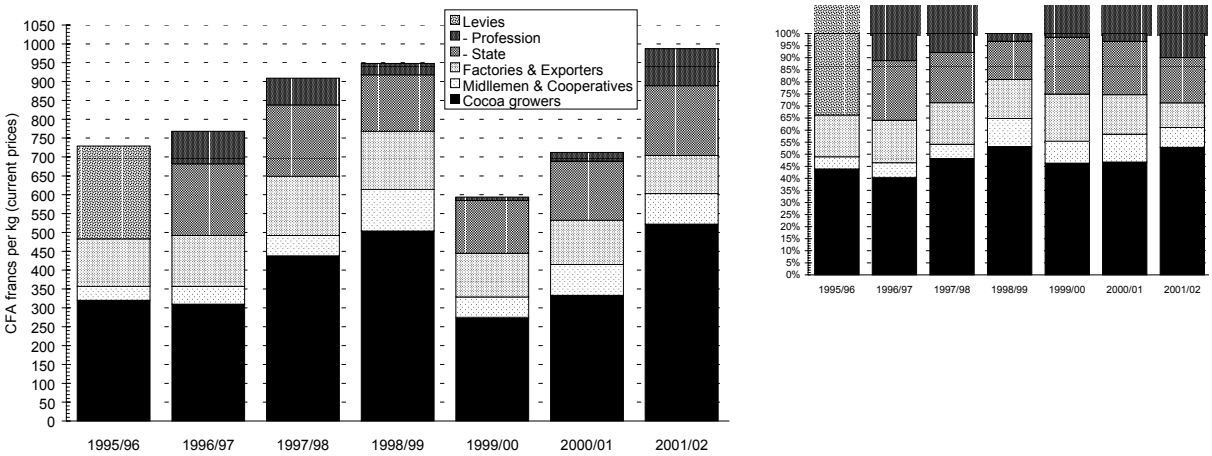
[54] 325 CFA francs per kg from October to December 2001, 475 from January to March 2002, and 600 from April to June.

exporters who sought to limit their financial risks and costs, cooperatives tended only to pay producers once they themselves had been paid by the exporter (70% of payments in 2000/01 as opposed to 34% in 1999/00). This delay was all the more regrettable in that the operators who paid at the warehouse entrance now offered a premium (5 to 7 CFA francs in 2001) compared to the few dealers who still granted prefunding against the product (Jacquet, 2001). Fortunately, during the 2001/02 season, the gradual resumption of operations by *FGCCC* (0.95 billion in credits allotted), and above all the provision of revolving credits by exporters, enabled the cooperatives to increase their market share from 18 to 25%, thereby returning to the 1999/00 level (BNETD, 2002:11-14).

3. Prior to liberalization, the share of compulsory levies was tending to decrease (36% of the *ICCO* CIF price in 1996/97 as opposed to 19% in 1998/99), while it has tended to increase since then (25% in 1999/00 as opposed to 29% in 2001/02). The main element of these levies is DUS (Appendix 5), for which the percentage share has tended in reality to decrease since liberalization, even though it has increased in value: in August 2002, it even broke the record of 220 CFA francs/kg (*Reuter*), which was not really a record since, at constant prices, it remained around 20% below the 200 CFA francs inflicted in 1994 (IMF, 1998)[55]. On the other hand, professional levies have increased considerably (98 CFA francs/kg in 2001/02, i.e. 10% of the CIF price). Most of these levies have in fact been multiplied since liberalization, to ensure services that used to come from the State. In view of their increases, we can wonder what the cheapest and most effective solution in the Ivorian context is.

4. However, the share of conditioning factories ("traitants") and exporters – deduced by difference – has clearly shrunk over the last season: after fluctuating around 17% of the *ICCO* CIF price since 1995/96, it suddenly fell to 10% in 2001/02. The same trend can be seen using the CIF Amsterdam value adjusted to calendar years (see § 322), which confirms substantial cost savings at that level, with the major downstream operators (*ADM*, *Cargill*, *Barry-Callebault, etc.*) increasingly integrating the upstream operations of the commodity chain (buying out or sidelining local operators), thereby achieving major economies of scale (big-bag or bulk loading, access to international funding that is generally more advantageous than local credits, better knowledge of the international market, etc.).

Figure 8: Distribution of ICCO bean CIF value (1995/96 – 2001/02)



[55] This export tax, levied on beans and on other types of exported cocoa-based products, was suspended from 1989 to 1993.

322. Couverture chocolate

Dark couverture chocolate, which is obtained by conching liquor, butter and sugar, is the raw material of chocolate makers, if the latter do not make their own. It varies in composition depending on the desired end-product (average adopted here: 50% liquor and 11% cocoa butter); for example, groups such as *Cemoi-Cantalou* have it manufactured in Germany and then sell it on or process it (tempering, moulding, coating, etc.) in France[56]. With our price estimations and method (§ 31), the breakdown of the commercial value of one ton of dark couverture chocolate (Figure 9) prompts the following comments.

1. Between 1992 and 2001, the prices of liquor, butter, powder and sugar varied as much as the farmgate or CIF Amsterdam prices[57] (coefficient of variation between 12 and 14%), which was not the case for couverture, for which the price was more stable (CV = 2.4%): a possible benefit of the futures and options markets, at least at this stage of processing.

2. After Ivorian liberalization, the price of couverture, like that of its ingredients, fell (it fell below the level of 2,000 euros per ton), but unlike beans and liquor (and also sugar), this price did not recover in 2001; was that linked to the deferred repercussions of the price increases for the main ingredients (liquor and sugar), or to the upstream integration of grinders and to the economies of scale making it possible to offer ever cheaper cocoa butter (–32% between 1998 and 2001)[58]? It is difficult to answer those questions here, particularly since the drop in butter price can also be linked to the larger profits now taken by grinders on powder. Indeed, the price of powder has clearly increased since 2000 (Figure 10): the countries of eastern Europe, where demand for chocolate-based products is growing, are apparently importing more and more to supply their chocolate factories.

3. In 2001, the producer's share in the value of couverture managed to rise to the record level of 25% reached in 1998. However, that of dealers and exporters clearly decreased, in value and as a percentage. Indeed, many of these operators have been pushed out or taken over by grinders[59] since Ivorian liberalization (see § 133, 134). Such upstream integration enables grinders to strengthen their income by processing larger volumes of beans, as their gross margin per ton of couverture fell below the level of 400 euros in 1997. In addition, if they make couverture for chocolate makers (which is the case of the largest grinders), it enables them to extract a greater unit margin upstream. In fact, prior to liberalization, the added value per ton of couverture (price of the latter minus the cost of its ingredients: liquor, butter and sugar) steadily declined, from 36% in 1992 (720 euros per ton) to 18% in 1998 (381 euros per ton), whereas it has clearly been gaining ground since then (27% in 2001, i.e. 532 euros per ton). It appears quite clearly in all cases that the economies of scale achieved in Ivory Coast since liberalization are not completely reflected in the price of a ton of couverture, and that they are of greater benefit to downstream operators (grinders) than to upstream operators (Ivorian exporters).

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[56] Sucb trade within Europe is therefore more of a matter of trade within firms, where the prices – which we are measuring here – are somewhat minimized in theory. However, the latter incorporate transport costs, since CIF values are involved. The same applies for our liquor, butter and powder prices, which may explain, for the last two products, why our estimations are greater on average than the *ED&F Man* price series (§ 31).
[57] More strictly, Netherlands and Germany (see table 4)
[58] The *ED&F* estimations, unlike our own, show a price rise for 2001 (Figure 10).
[59] Grinders for which the income derived from butter and powder sales is barely picked up here, if at all.

Figure 9: Distribution of couverture value (1992 – 2001)

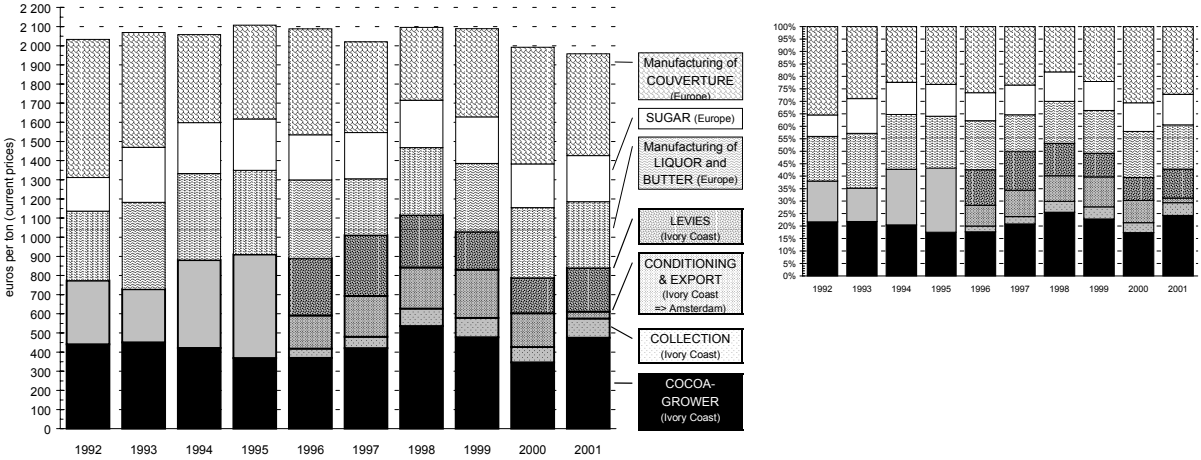
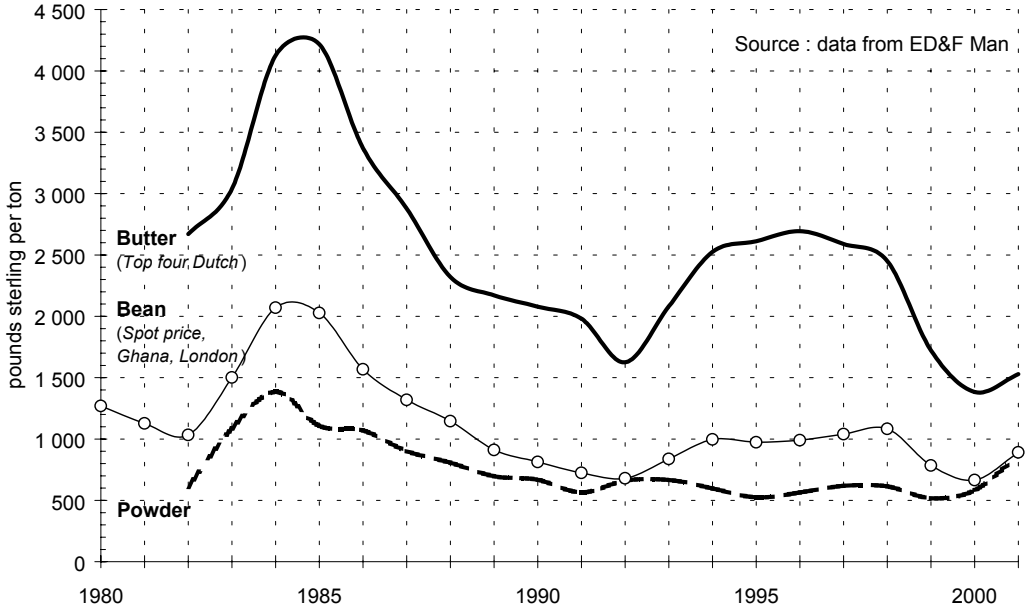


Figure 10: European current prices of beans, butter and powder (1980 – 2001)



323. Chocolate tablet

Integration of the previous gross margins in the value of a tablet of dark chocolate inclusive of tax (Figure 11), as approximate as the latter value might be (§ 31), shed fundamental light on price transmission and value sharing within the cocoa-chocolate commodity chain.

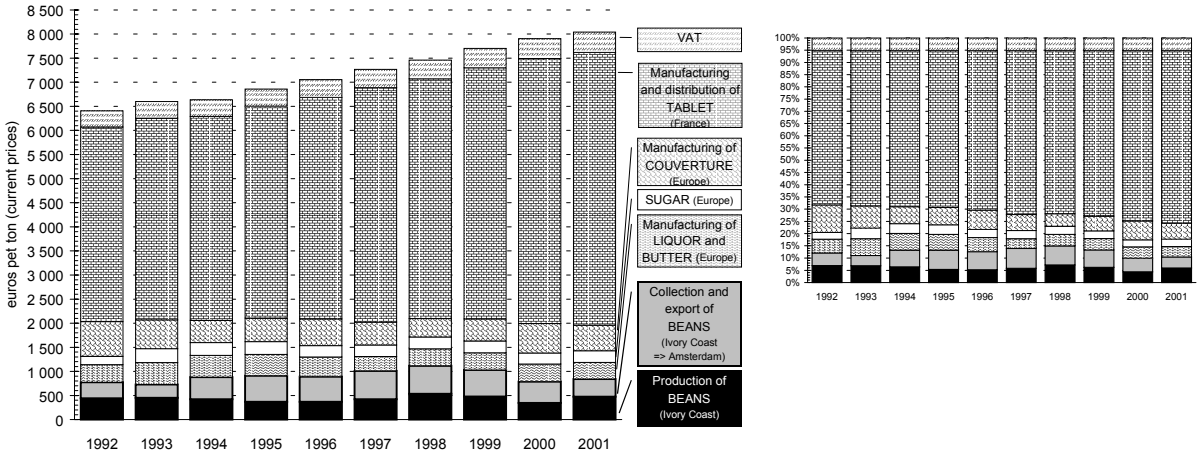
1. Whilst bean, liquor, butter and couverture prices fluctuate – often substantially – along a stationary or even depressive line, conversely, the retail price of a tablet has increased from year to year: +2.6% per year on average from 1992 to 2001 in current euros, i.e. a gain of 1,550 euros per ton in 10 years (+1 French franc per 100 g tablet). A similar trend can be seen for all French chocolate-based products. On the other side of the border, in Germany where *BDSI*[60] publishes a retail price index for milk chocolate tablet, the upward trend is even greater, but only since May 1996 (Figure 12). Prior to that, the price

[60] Bundesverband der Deutschen Süßwarebindustrie (Bonn), association of the German confectionery industry

of a German tablet of milk chocolate was tending to fall, probably due to the upheaval of restructuring in the country after reunification between West and East in 1990[61]. In terms of supply and demand, this upward consumer price trend is not surprising, at least in the most recent years. In fact, the intensification of cocoa production in the 1980s (notably in Southeast Asia) had long left the commodity chain in a situation of surplus production, while that is no longer the case today: since 2000, there has been a production shortfall (tapping into stocks to meet demand) and, as that shortfall is somewhat set to increase in the coming years (cf. § 121), prices are logically rising.

2. It can nonetheless be wondered why such an upward trend barely benefits the operators bearing most of the costs of chocolate making, from the cocoa producer to the couverture manufacturer. Since 1999 in particular, when the Ivorian cocoa sector was liberalized, European consumers have continued to pay more for their chocolate products (in France and even more in Germany, even if chocolate seems to be cheaper there[62]) while the price of the raw material is clearly falling (couverture and even more so imported cocoa beans) (Figure 9). Must this be blamed on the increasing costs of advertising and of product differentiation that incites the consumer society? or on the increasing profits of distributors, which we are unable to measure here[63]? On this last point, it should be noted that distributor profits are not apparently dropping, and even seem to be rising since, according to *BDSI*, German industrial prices (wholesale prices) for some chocolate-based products rarely exceeded in 2001 the record levels reached in 1998 or 1999, while retail price inflation continues (Figure 13).

Figure 11: Distribution of chocolate tablet value (1992 – 2001)



[61] Adaptation of West Germany to a lower buying power in East Germany, but maybe also supplies of cheaper milk in the East. In any event, German milk imports from the rest of the European Union (*EUROSTAT*) occurred at virtually stable prices from 1992 to 2000: between 0.32 and 0.34 ECU/KG for code HS 040120 (MILK AND CREAM OF A FAT CONTENT BY WEIGHT OF > 1 % BUT =< 6 %, NOT CONCENTRATED NOR CONTAINING ADDED SUGAR OR OTHER SWEETENING MATTER) which was the most frequently imported dairy product (614,150 t in 1990) (NB: there was a somewhat downward price trend for other imported types of milk).

[62] In December 2001, a (100 g) tablet of milk chocolate of the *Milka* brand only cost 0.6 euros (apparently exclusive of tax).

[63] This distributor profit would currently seem to be fluctuating between 19 and 33% in France, but this remains to be confirmed.

Figure 12: Current price indexes for beans and chocolate-based products (Jan. 1990 – Oct. 2002)

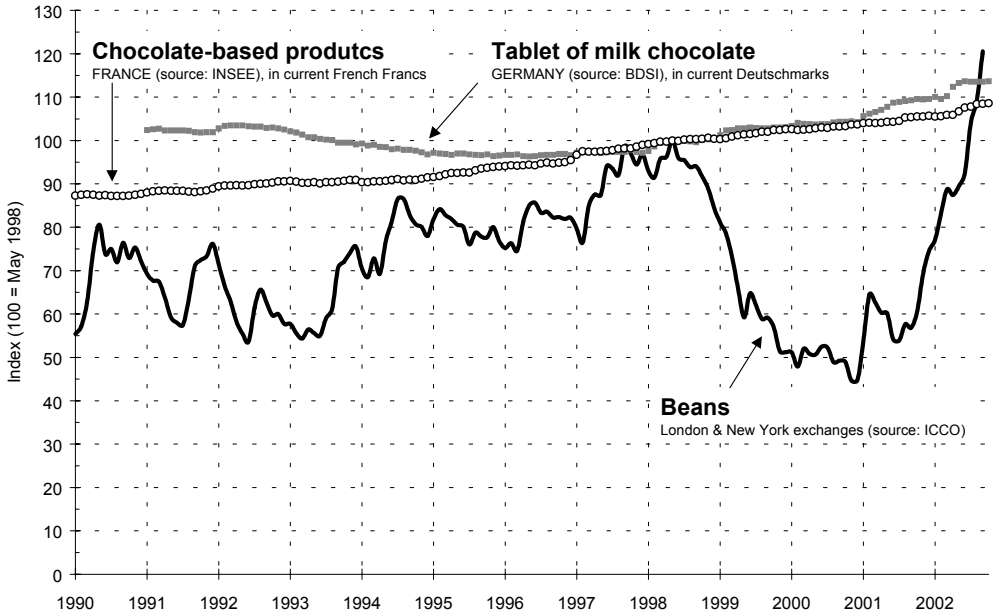
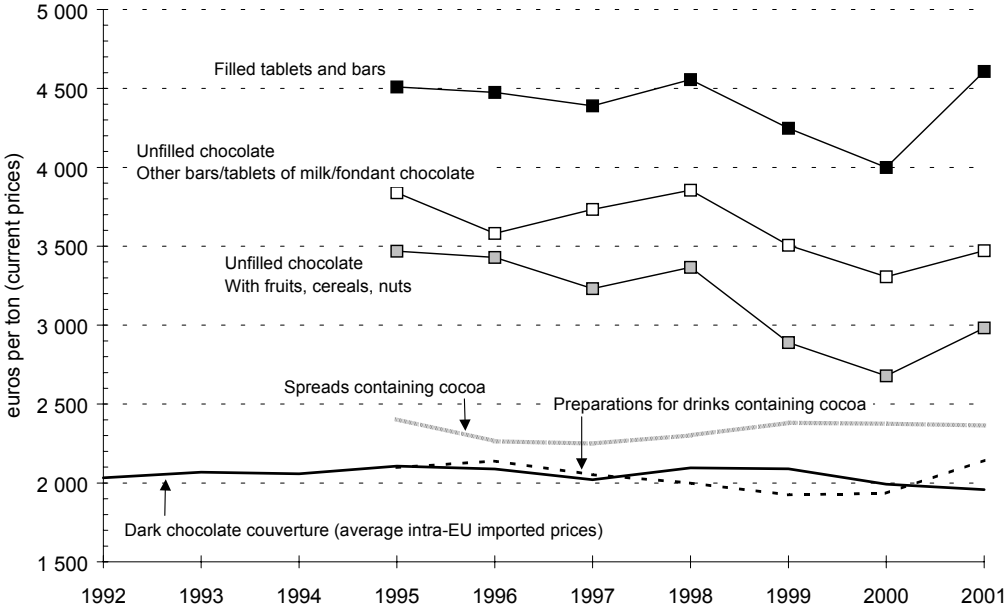


Figure 13: German industrial prices for some chocolate-based products (1995 – 2001)



3. The share of the tax inclusive price of a tablet of dark chocolate going to Ivorian cocoa producers has, in any event, not increased: after descending below the 5% limit in 2000 (lowest level over the decade considered), it rose to almost 6% in 2001, while it managed to drag itself up to 7% just before liberalization (Figure 11). Which prompts further questions: why is cocoa cultivation, which employs and provides a livelihood for more people than in the rest of the commodity chain, unable to capture a greater share of the value of the end-product, even after liberalization which was primarily supposed to be of benefit to it? Moreover, how is it possible to explain that research and public authorities still concentrate virtually all their resources on trying to improve the performance of cocoa cultivation, when the prospects for improving income in that activity (and thereby

eventually its production techniques) lie more surely in downstream reforms, since it is there that virtually all the value is created and/or captured (more than 94% in 2001 taking the example of a dark chocolate tablet)?

4. In 2001, the VAT levied by European countries throughout the dark chocolate tablet manufacturing chain was around 420 euros per tonne, i.e. virtually double the Ivorian levies on beans (228 euros per ton). Ivorian and European levies combined therefore amount to 647 euros per ton, i.e. 8% of the price paid by consumers, and therefore more than that received by a cocoa producer (under 6%, i.e. 475 euros per ton).

324. In other words

The above results can be backed up or, conversely, moderated by expressing them in other ways.

1. Might the decision to carry out the analysis in French francs, rather than the euro have affected our conclusions? Apparently not, since a comparison of value in euros (Figure 14) with that in French francs (Figure 15) for a given quantity of beans during various stages of is processing – another way of expressing the results (see § 31 and Table 5), there are very few perceptible differences, the most notable being for the tablet, right at the beginning of the period[64].

2. However, in 1992 French francs (see § 31), one kilogram of chocolate tablet rose from 41.6 to 43.5 French francs exclusive of tax between 1992 and 2001, i.e. an increase of "only" 4.5% in ten years (over 20% in current francs or euros), whereas in 1992 CFA francs, the farmgate price for a kilogram of beans increased by 14.3%, from 200 to almost 229 CFA francs (Figure 16). However, several points should be remembered: (1) this latter price remains lower than that prevailing in 1998, just before liberalization (280 in 1992 CFA francs) and in reality compensates for the record loss suffered in 2000 (174 in 1992 CFA francs); (2) although Ivorian cocoa producers gained slightly more purchasing power in their country in 2001 compared to 1992, they did not recover the loss after the "cocoa war" in 1989/90, when their income was halved (Figure 17); (3) if the farmgate price is deflated by the French consumer price index rather than the Ivorian index, which is a way of measuring the gains or losses in cocoa producer purchasing power on the international market (terms of trade), a drop of 10% is unfortunately seen between 1992 and 2001.

3. Another way of assessing operator losses or gains over the study period, is to adjust the prices of all foodstuffs in 1992 to 100, and totalize up to 2001 the respective price decreases or increases compared to this base, after deducting for each iteration (year) the cost of cocoa-based ingredients used in the foodstuff in question[65]. It can then be seen

[64] In US dollars, the trend of the curve is obviously very different, due to larger annual exchange variations with the ECU (and the French franc), and especially its virtually constant increase over the study period.

[65] Calculation of a sort of "advantages", by referring to the surplus account method, with the following differences: (1) the values here are not deflated by a general price index, since it is ambiguous to choose one when working with products manufactured in different countries; (2) it is assumed here that each operator produces the same quantities each year, with the same quantities of inputs (no productivity gain); (3) the inputs here are limited to cocoa-based products, though many others ought to be included (labour, etc.). This therefore amounts here, as in the example of couverture, in deducting from the price of the latter the prices for liquor and butter, multiplied respectively by the coefficients of composition adopted in this study (0.50 for liquor and 0.11 for butter, as couverture is assumed to contain 61% cocoa).

that since 1992, when international bean prices were particularly depressed (Figure 10, Figure 12), farmgate beans cumulated a price "disadvantage" of –22 up to 2001, entailing just as many "advantages" for imported beans which totalized a gain of +181. In the same way, this price advantage for imported beans becomes a disadvantage for products made with them. However, with the price rise seen for the latter, this disadvantage is more or less well absorbed: loss of –19 in 10 years for liquor, –88 for butter and powder (combined), and –71 for couverture. At the end of the chain, the chocolate tablet cumulates an advantage of +114. The main gains therefore appear between the farmgate bean and the imported bean, precisely where grinders have concentrated their efforts over recent years. If grinders indeed prove to have benefited most from this advantage (the strategy of capturing it for oneself is logical in any case), their downstream disadvantages (liquor, butter, powder, or even couverture manufacture) would be considerably reduced, leaving cocoa producers with the weakest bill. The line-up in decreasing order of gains through simple price variations over the decade would then be as follows: distributors and chocolate makers, then grinders, and lastly, with losses, agricultural producers: a further illustration – if any were needed here – of the ability of some distributors and industrialists in the North to impose on the South what strongly resembles a market power, a power which liberalization – all in all – merely seems to have exacerbated.

Figure 14: Value derived from one ton of beans in current euros (1992 – 2001)

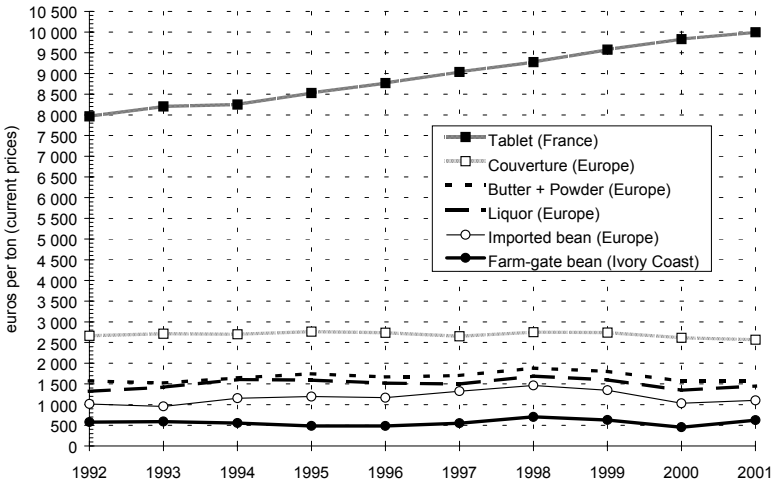


Figure 15: Value derived from one kilogram of beans in current French francs (1992 – 2001)

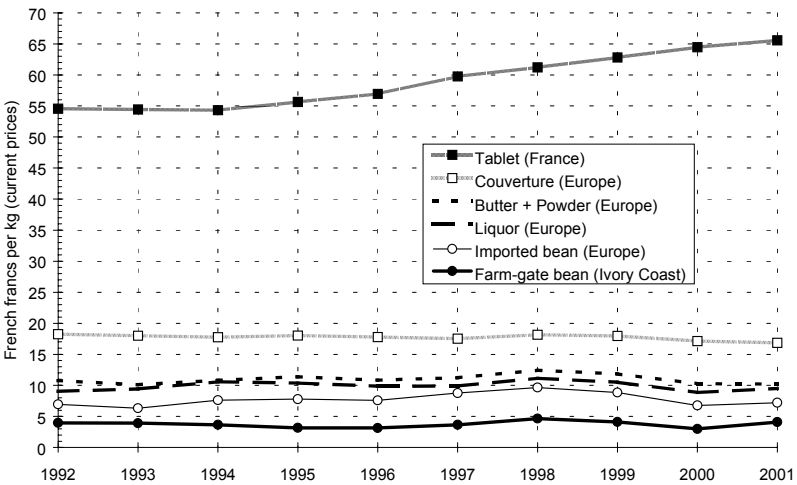


Figure 16: Kilogram of beans and chocolate at constant prices (1992-2001)

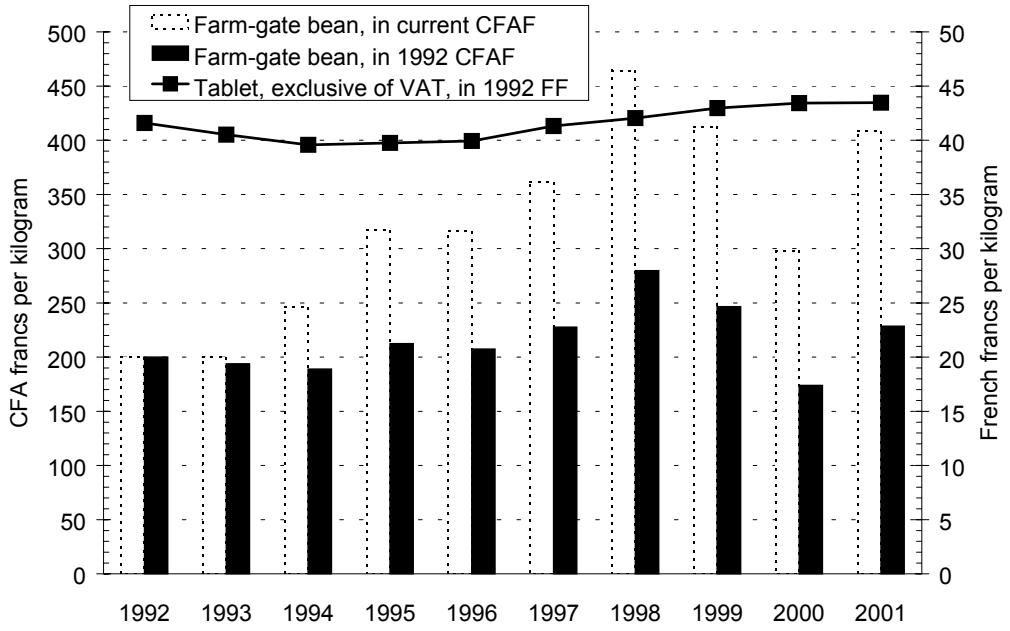
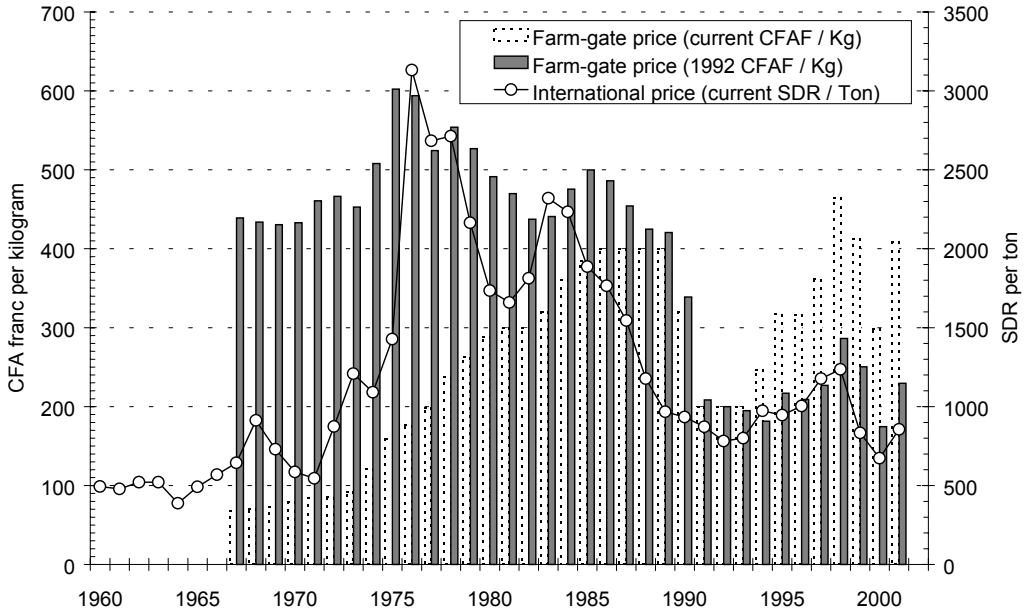


Figure 17: Kilogram of beans at current and constant prices (1967-2001)



4. CALL FOR A LESS RESTRICTIVE COMPETITION POLICY

41. Strengthened policies in the North

Since the mid-1990s, in both the USA and Europe (EU), the public authorities have seemed to be increasingly called upon, and themselves determined, to intervene on markets that have been marked since the 1980s by a vast liberalization movement, which has also benefited the dominance of certain firms beyond what is tolerable.

In this way, French competition policy has been subject to three new laws in five years (Galland and Raffarin in 1996, New Economic Regulations in 2001), laws followed or preceded by major reports, such as the one by the *Conseil d'Analyse Economique* (Rey et Tirole, 2000), and by more or less paralyzing street demonstrations, such as that by fruit and vegetable producers (summer of 1999 and end of 2002) protesting against the "back margins" ("*marges arrières*" in French)[66] practised by major distributors. The *Conseil de la Concurrence* (1986) – an independent body of the *Direction Générale de la Concurrence, de la Consommation et de la Répression des fraudes* (*DGCCRF*) of the Ministry of Economics, Finance and Industry, a French specificity – is stepping up its investigations and sanctions (28 issued in 2000 amounting to a billion francs). The same applies for the EU Directorate General for Competition. For example, the latter gave a record fine of 855.23 million euros to a cartel established at the end of the 1980s between 13 vitamin C producers: their European turnover fell at the time from 250 million euros in 1995 to 120 million in 1998 (Penard, 2003), which provides an idea of the profits that can be derived today from dominating certain markets.

The Antitrust Division of the US Justice Department has also been stepping up its operations since the 1990s, apparently even more so than in Europe. Total fines are mounting up heavily (over 2 billion dollars between 1997 and 2001 as opposed to 27 million between 1986 and 1996), as are prison terms: up to a maximum of 36 months as opposed to 30 days previously, to which the Vice-President of *ADM* was effectively condemned for having supported a lysine cartel alongside *Ajinomoto* (Connor, 2003). The investigating powers of the *FBI* have also been extended (particularly to the homes of suspected managers), along with the clemency programmes which, as in Europe, allow for fine reductions – or even total exemption from punishment – for companies denouncing a cartel and providing evidence of practices that are now clearly defined as criminal[67].

This recent intensification of American and European competition policies share two other characteristics: they above all affect the agrifood sector (vitamins, lysine, citric acid, white sugar, etc.), and are primarily applied against foreign firms or managers. They also, and perhaps especially, share the same doubts about their abilities: (1) the probability of uncovering illicit collusion apparently still does not exceed 30% today in the USA (10% in Europe?) ; (2) the increase in penalties does not always prevent repeat offenders (e.g. *ADM*);

[66] This practice consists in billing the supplier for the service that the major distributors consider they are providing by selling the product in question (and ensuring a more or less good position) on their shelves. Legally, the product is therefore not sold below its invoicing price (which would be a blatant case of dumping, which is strictly forbidden and severely punished), whereas in practice, it amounts to that, reducing the supplier's margin so much that he may finally not even cover his production costs.

[67] It should be noted here that in the USA an individual can call in the competition authorities directly, whereas in France, this can only be done via a consumer association.

(3) the procedures are still having great difficulty also ensuring compensation for victims (under 50% are apparently compensated in the USA); (4) legal action is possible and may be won by the accused; (5) for lack of agreements or coordination, firms or managers cannot be tried in several countries. In other words, illicit agreements or collusion between firms can still bring rich rewards, and therefore still be practised: for the lysine cartel that was dismantled, the total cost of its formation and management was estimated at under 15.7 million dollars, i.e. 4 to 8% of its assumed profits (Connor, 2003).

42. A theory in practice

Both practice and theory show that a firm in a more or less established monopoly position will always tend to propose goods at a price above that of a competitive firm, the latter consequently appearing to be much better for the collective well-being (except for the so-called "natural" monopoly)[68]. This led to the voting of an anti-trust law in the USA at the end of the 19th century (1890 *Sherman Act*) to denounce and fight monopolies or any agreement between firms on prices or quantities. This type of competition policy (opposition to certain mergers, dismantling of large companies, regulation in company organization, etc.) seems today to have at last taken precedence over those introduced with more or less difficulty in the last century: (1) price administration by making the monopoly sell at the marginal cost (sale cost of a company in a theoretical situation of pure and perfect competition), with all the problems involved in assessing such a cost in the absence of any competition; (2) nationalization, i.e. conversion of a private monopoly into a State monopoly with civil servants less likely to incite a reduction in production costs than private shareholders; (3) total non-intervention, with the dubious argument that, all in all, market deficiencies are less serious than those introduced by State intervention.

The dismantling of cartels or other forms of collusion on prices and quantities therefore seems today to be the preferred approach taken by national authorities. The success of such an approach – in fact less contested than others – nonetheless remains restricted by some application difficulties, apart from that linked to the financial and human resources required for its effective implementation. The first of these difficulties is to delimit beforehand the "relevant market" on which the behavioural analysis will be carried out, both geographically (regional, national, world scale, etc.), and in terms of products (Glais, 2003). For example, should butter and margarine be considered as two separate markets? Is it on the cola market or the vast drinks market that the case of *Coca Cola* should be studied? Dividing economic activity up into "industries" as proposed by Marshall (1920), and by reference to a product that is representative of a generic need, is unfortunately not particularly helpful, insofar as such "economic markets" (geographical zone and range of products within which prices are linked to each other by the arbitrage phenomenon) perfectly tolerate the exertion of a market power (with arbitrage enabling at most a reduction in that power). Yet it is precisely areas likely to be affected by a market power that competition policies do not tolerate. In order to identify these particular areas, new market concepts have developed, either side of the Atlantic.

In the USA, they have relied since 1982 (and even more so since 1992) on the hypothetical monopolist test: over a given geographical zone (a zone which should therefore be defined more or less arbitrarily…), the market corresponds to the product(s) such that a (present or future) monopolist of the product(s) would probably proceed with a price increase, maybe

[68] In the case of a natural monopoly, production costs are such – continual economies of scale – that a single producer proves in the end to be more efficient than a multitude (example often quoted: rail transport).

slightly, but significantly (5 to 10%) and not transitionally (at least 1 year). This econometric test clearly means possessing or gathering statistics to feed it, a major constraint aside the fact that it can be carried out with data from a market already subjected to a power, which consequently reduces its relevance considerably. The drawbacks of this highly quantitative American method have led the European authorities to prefer a more qualitative approach to delimit reference markets. This approach discards potential competition from the outset, since it attempts to evaluate at a given moment the possibilities (or not) of substituting a product or service, from the demand side but also, and sometimes, from the supply side (particularly where distribution is involved). In this framework, it delimits the relevant zone by combining various pieces of information, derived in this case from four analyses (alongside the conventional analysis of market shares) (Glais, 2003): (1) analysis of functional inter-exchangeability, by comparing the physical, technical or even taste characteristics of products; (2) analysis of reactive inter-exchangeability, to assess – after consumer surveys and/or econometric tests – to what extent variation in the price of one product might influence that of another; (3) analysis of "natural" barriers to substitution, in other words of very high investments and/or transaction costs that the activity could entail; (4) analysis of geographical delimitations, be it in terms of ingredient regulation, production quotas, public markets, the bulk-related or unstockable nature of the product, substantial price differences, special distribution methods, etc. In short, in the USA as in Europe, delimitation of the relevant markets is far from being a simple matter, and leads in all cases to stormy discussions despite the increasing sophistication of the methods intended to limit disagreements on this subject.

Moreover, the delimitation of relevant markets is only the first stage in a process intended to prevent and repress collusion between firms and/or domination abuse. Yet this objective, which is as simple as it is ambitious, is bound to raise other real difficulties. It first of all raises the question of at which stage collusion becomes reprehensible. Between the academic case of "pure tacit collusion" (acting in consort without any contact …) and the severely punished "explicit collusion" (cartel), many types of behaviour can be condemned (at least suspected) up to the exchange of information, or price displaying! Although, on this last point, it has been shown that certain temporary price wars could be a way of agreeing on a market share (as in American air transportation), competition policies do not extend to such cases. They settle for more formal, more "explicit" agreements, the problem then being to gather the evidence. But in fact that did not turn out to be difficult for the French *Label Rouge* (Red Label), an example that clearly illustrates what competition laws can condemn today. Despite its recognition by French and European decrees, this *Label Rouge* in the poultry sector was in fact challenged for the four following reasons (Raynaud and Valceschini, 2003): (1) quantity restrictions through entry regulations/barriers; (2) price agreement from abattoirs to distributors; (3) non-competition clause between abattoirs; (4) cumulative functions as far as certification is concerned. As these practices did not arise from the application of some legislation or regulation, an attempt was then made to show that they contributed to economic progress (production of better quality goods): the competition authorities conceded that, but were not convinced by the simulation intended to demonstrate at the same time that the free market could not lead to the same result. This example illustrates a given reasoning. It also strengthens a series of questions on current competition policies.

43. Pending questions for action

The previous sections primarily set out to show, first of all that the public authorities in Europe and the USA were concerned about the increasing power of certain firms on the markets, and secondly that they were mobilizing their competition policy to meet the problems raised by such situations, and lastly that those policies fell into a particular conceptual framework which, apart from a few application difficulties, also raised a few questions. This final section endeavours to bring out some of those questions, in order to sketch the challenges and outlines of a true international competition policy.

431. What competition policy for developing countries?

The international organizations which successfully pushed for market deregulation and liberalization twenty years ago already (World Bank, *IMF*, *OECD,* etc.) clearly neglected to simultaneously promote and strengthen an international competition policy. At the turn of the 21st century, the fight against the abuse of economic dominance still, in fact, falls to States and their own resources, which gives rise to at least three more or less associated problems: (1) the risk of national policies turning a blind eye to their own firms: do not Americans or Europeans today condemn above all those firms or managers not of their own nationality (over 80% of cases in the agrifood sector according to Connor (2003))? (2) the risk of only considering and dealing with complaints from residents: are not small farmer demonstrations against major French distributors more efficient when they take place in France rather than in some supplier country in West Africa? (3) the risk of restricting the competition policy to a few countries that possess not only the means to implement it (financial, human and statistical resources for investigating markets and groups of global dimensions), but also the power: what clout does the threat of being condemned, boycotted, or imprisoned by a small developing country hold when compared to Europe or the USA, major economic and political powers which themselves already have trouble being dissuasive enough in the matter?

This situation is corroborated by the lack of a true competition policy within the *WTO* (Boy, 2003): the World Trade Organization is in fact limited to promoting the free circulation of goods (the most summary way of promoting competition), and in no way to preventing and fighting abuses of position that the strengthening of free trade is very likely to amplify and encourage. Consequently, in the name of competition, it is perhaps towards the opposite that the *WTO* is working in the long term. Moreover, in 1994, with the signing of the Marrakech agreements, this international governance was extended to agriculture, a sector that had until then been exempted from the General Agreement on Tariffs and Trade (*GATT*), due to specificities which we can appreciate today were not all assumed. Indeed, the expansion of *GATT* to agriculture meant, among other things: (1) resorting to scientific proof to justify the introduction of barriers or regulations on a market, which leads to major problems and disagreements when the scientific community is unable to demonstrate that certain substances such as animal growth hormones or MGOs are not harmful for human health or ecosystems; (2) taking an approach by product (and brands), and not by manufacturing process, whereas it is through the latter that "organic" or "fairtrade" products are differentiated and appreciated, as well as some other products which integrate certain qualities that are not restricted to those (phytosanitary) defined by the *Codex Alimentarius*.

The *WTO* does not therefore offer developing countries the means and the powers attached to the national competition policies of industrialized nations[69], whilst the Marrakech Agreements as well as structural adjustment plans require them to free the sector on which their economy still largely depends. This liberalization of the agricultural economies of the South is all the more questionable in that the commodities involved would precisely be exported to markets where collusion is structurally encouraged or facilitated. As explained by Connor (2003), and more so by Penard (2003), certain structural factors and certain company practices are in fact propitious to collusion, either by facilitating a convergence of views, or by reducing incentives to diverge from an agreement. In both cases, there happens to be aspects inherent to the Ivorian cocoa bean export market: (1) uniformity of goods (only one export quality), fime symmetry (an oligopsony of multinationals), concentration of supplies (three-quarters of cocoa supplies are provided by a few African countries), entry barriers (for bean grinding and especially the manufacture of highly diverse chocolate-based products), information exchanges (professions much better organized downstream than upstream); (2) regularity and transparency of transactions (via the London and New York futures markets), dispersion, regularity and growth of demand (current characteristics of the world market for chocolate-based products), multi-market contacts (multinationals trading in or manufacturing other products). The "collective dominant position" concept used by European competition authorities in the case of the *Nestlé-Perrier* merger shows that those authorities are well aware that certain market structures are apt to favour collusion (duopoly, dispersed demand, weak technical progress, high entry barriers). But it can be doubted that they will one day use the same concept to demonstrate that a similar market structure would affect Ivorian cocoa smallholders, firstly because the scope of application of Article 82[70] that inspires it (UE, 2002) is limited to the markets of EU member States.

432. What policy against oligopsony powers?

More and more agricultural producers are currently being held by a few major firms in a pincer movement (Marette et Raynaud, 2003), with the major world seed and agrochemical suppliers upstream (*AstraZeneca*/*Norvatis*, *Bayer-Aventis*, *Monsanto, etc.*) and, downstream, the emergence of major distributors operating over vast consumer zones, such as the French *Carrefour* or American *Wal Mart* (the world's leading company in terms of turnover for 2001 according to *Fortune* magazine). In both cases, competition policies – at least in Europe and the USA – are not failing to monitor the phenomenon, which is amplified in the distribution field by purchasing platforms set up by the major distributors to ensure collective supplies. However, this last point has not received all the attention it deserves, insofar as – more generally and in slightly overstating things – the aim of such checking of concentrations is to protect consumers from market powers, and not producers from purchasing powers. Yet, as already clearly pointed out in the report by the *Conseil d'Analyse Economique* (Rey et Tirole,

[69] To our knowledge, since the liberalization of the cocoa commodity chain in 1999 in Ivory Coast, only one measure has been taken to limit abuses of dominant position: for the 2001/02 season, *ARCC* fixed a tonnage ceiling for all cocoa exporters, a ceiling that was raised from 42,000 to 50,000 tons in mid-December 2002 (BNETD, 2002:7).

[70] Article 82: "Any abuse by one or more undertakings of a dominant position within the common market or in a substantial part of it shall be prohibited as incompatible with the common market in so far as it may affect trade between Member States. Such abuse may, in particular, consist in: a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions; b) limiting production, markets, or technical development to the prejudice of consumers; c) applying dissimilar conditions to equivalent transactions with other trading partners, thereby placing them at a competitive disadvantage; d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts".

2000), producers also need to be protected, notably in cases where they are led to make specific investments[71] which they would ultimately be unable to amortize if distributors subsequently imposed inadequate prices on them[72] (not to mention other good reasons for specially protecting agricultural producers, notably those which are currently firing the lively debate on the multifunctionality of agriculture).

Why such pronounced concern for consumers? Probably because western competition policies are based on an economic theory presenting the same oddity. As indeed suggested by Alain and Chambolle (2003), traditional microeconomic analysis tends to neglect upstream oligopsony powers since it automatically models producer-distributor relations by a principal-agent relation in which the dominant role is assigned to the producer (i.e. power to impose his conditions on distributors). Likewise, since Spengler revealed the inefficiency of double marginalization in 1950, that same literature has focused on the effect of vertical contracts on efficiency and total profit of vertical structures, but virtually ignores its impact on profit sharing within those structures. Yet an imbalance in profit sharing can be harmful to long-term social well-being, by threatening the survival of certain producers and reducing the variety or quality of products available to consumers. However, as early as 1950, the negotiation model proposed by Nash (one of the fathers of the games theory after J. von Neumann and O. Morgenstern) was a first step towards endogenization in models of the balances of power, and of the negotiating powers, between firms. But it was not until 1991 that Shaffer, for example, showed – by reversing the conventional within-brand competition model – that when producers are in perfect competition with an oligopoly of distributors, profit sharing between firms favours upstream. Some other recent work seems to corroborate theoretically what we observe empirically in the cocoa-chocolate commodity chain. But as Allain and Chambolle (2003) concluded, whilst several questions omitted from the vertical analysis are at last starting to be explored today, the work still required remains considerable.

Once this work has made some headway, competition policies may then perhaps speak more of producers than consumers, of monopsonies and oligopsonies than monopolies and oligopolies., of a "hypothetical monopsonist test" rather than a "hypothetical monopolist test". Like the standard economic theory (neo-classical), they may also thereby realize in future that productive efficiency does not necessarily rhyme with allocative efficiency and innovative efficiency, and that the latter two types of efficiency also have good reasons to be encouraged, in a mindset that does not, moreover, almost systematically condemn every form of agreement on prices or quantities.

433. What coordination policies?

The founding principle of European competition policy is set down in article 81 of the Treaty establishing the Community (UE, 2002): "The following shall be prohibited as incompatible with the common market: all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition

[71] Like setting up a cocoa plantation…

[72] To solve this problem, the solution would then consist, according to the authors, in rebalancing contracts, and stepping up sanctions in case of violation of the commitments. This is perfectly realistic for the particular case of French fruit and vegetable producers, but barely so for the more universal case we are examining: agricultural producers far from major distributors, not only vertically (numerous processes and numerous middlemen before the end-product) but also horizontally (production in developing countries of foodstuffs consumed in industrialized countries), i.e. a case in which the possibilities of contractualization, and applying sanctions are severely limited, or even ruled out.

within the common market, and in particular those which: (a) directly or indirectly fix purchase or selling prices or any other trading conditions; (b) limit or control production, markets, technical development, or investment; (c) share markets or sources of supply; (d) apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage; (e) make the conclusion of contracts subject to the acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts". Paragraph 3 of the same article allows for exceptions from this general principle[73], but the example of the *Label Rouge* shows how difficult it remains for agricultural producer organizations to benefit from mitigating circumstances, even when it involves improving the quality of a product, or highlighting and guaranteeing a collective know-how for consumers. In fact, the reinforced application of this principle has clearly led to a retreat in the French and European models of stakeholder coordination (cooperatives, protected designations of origin, labels, etc.) which, it is true, can also smack of neo-corporatism.

Yet the theoretical bases of this great principle are not as infallible as they might seem. In some clearly identified cases, it can firstly be shown, as did Gitault-Hérault and Soler (2003) who were particularly interested in judgments by the European Court of Justice against interprofessional committees in the wine growing sector (cognac, natural sweet wines, etc.), that a group of producers or an interprofessional body can adopt a restrictive policy of supplies which is optimum for consumers, and which therefore does not systematically lead to a slowdown in productivity gains and innovation. In other words, such a restrictive policy can prove to be optimum from a collective viewpoint, not only in terms of quality as shown by Spence in 1975, but also in terms of quantity and market prices. This result, which is novel when compared to those of the standard monopoly theory, arises notably when there exists an inverse relation between quantity and quality, production hazards, and consumers expressing an explicit preference for quality. Lastly, according to the same authors, the more an increase in supplies leads to an objective deterioration in quality, the easier it is to justify a decentralized supply regulation policy. It would also be worth reflecting upon these points in the cocoa-chocolate commodity chain.

A second criticism of the principle, which is more fundamental but also less acceptable in the standard theory since it undermines its foundations, is based on the major question taken up today by so-called "neo-institutional" economics: are economic activities (and should they be) solely coordinated by the market or within integrated undertakings? Are there not, between these two modes of coordinating transactions (the company on one side, the market on the other), some "hybrid" forms (such as producer groups, etc.)[74] that may sometimes prove to be at least as efficient in minimizing costs (and, at the same time, countering oligopsony

[73] "The provisions of paragraph 1 may, however, be declared inapplicable in the case of: any agreement or category of agreements between undertakings, any decision of category of decisions by associations of undertakings, and any concerted practice or category of concerted practices, which contributes to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit, and which does not: (a) impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives; (b) afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question."

[74] There is a wide diversity of arrangements involving agreements between legally autonomous units which, on the one hand develop transaction networks coordinated by mechanisms other than the price system, and on the other hand pool a set of resources without automatically combining their ownership rights, notably networks of subcontractors / enterprises / franchises, collective brands, partnerships, as practised for example by major Anglo-Saxon chambers of lawyers. This diversity leads Ronald Coarse to say that the hybrid form is no doubt the dominant form of transaction organization in market economies (Ménard, 2003)

powers)? As Ménard (2003) points out, for the last fifteen years or more (1985) there has existed a model for carrying out such an analysis, that proposed by Williamson, who attests to the existence of more or less high transaction costs (TC) (in any case not zero) depending on the uncertainty (U) surrounding a transaction, the frequency (F) of the latter, and the degree of specificity (S) of the investments (assets) it requires: TC = f(U,F,S). By only considering the last factor (specificity of assets) Ménard was led to explain that when competition authorities forbid a hybrid arrangement (Figure 18), or impose restrictions on the parties to such an arrangement (Figure 19 – move from k_2 to k_2'), in both cases a zone is given up (between k_1 and k_2) where the hybrid form proved to be more effective than the firm or the market in reducing transaction costs. In other words, public intervention here leads to an increase in transaction costs which, as a last resort, is passed on to consumers. It can therefore be wondered why competition policies distinguish so much[75] between all types of organization that cannot be assimilated to a single enterprise (such as producers or interprofessional groups) and those that can be (such as multinationals), particularly as they do it whilst denouncing the coordination methods actually used by both. Entry selection, internal disciplinary rules, quantitative restrictions and internal resale price controls effectively structure the organization of production just as much within multinationals. That does not mean that they and their subsidiaries are accused of "collusion", or of "concerted practices in contradiction with article 85 of the Treaty of Rome". Lastly, on the pretext of encouraging competition, are not current policies under that name doing the opposite by discouraging any organizational form likely to compete with integrated enterprises? In any event, as can be seen, the boundaries between monopoly and the exploitation of synergy to reduce costs – an old economic science issue – are far from being clarified, which is not without its consequences for small agricultural enterprises, and for competition policies which are now required much more than in the past to structure their environment.

Figure 18: Case where hybrid organizational form is not allowed
Source: Ménard, 2003

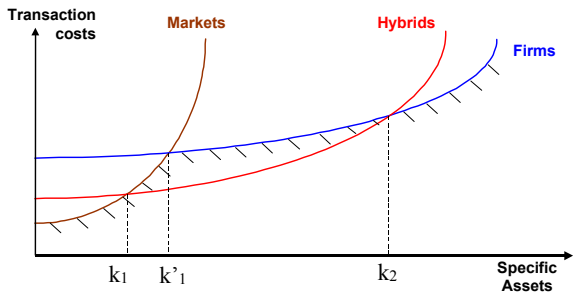
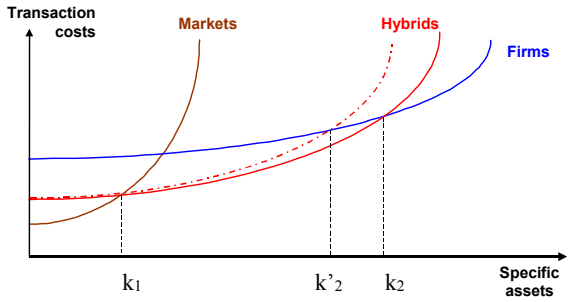


Figure 19: Case where the hybrid organizational form is rendered more expensive
Source: Ménard, 2003



[75] In reality, competition policies are implemented with greater flexibility than transpired here. Notably, they remain subjected to the major European economic development policies (like Common Market Organizations), or to the modulations suggested more or less firmly by governments (case of the *Red Label*).

434. What price stabilization policy?

Lastly, it is not possible to speak of competition policies without touching upon the important question of agricultural price stabilization. Moreover, the report by the *Conseil d'Analyse Economique* (Rey et Tirole, 2000) refers to it right from the first page of its introduction, since it often turns up in discussions, notably on fruits and vegetables. In the answer provided, the authors first of all emphasize that the price slump in a period of high production is inherent to the very weak price elasticity of supplies of these products; they then feel that the most appropriate solution is to develop futures markets or income-insurance, at least for products with a sufficiently liquid and established market. This proposal is disappointing in more than one way. Firstly, it hardly bursts with originality, since the World Bank, in line with lessons from welfare economics, has been promoting for some time the provision and use of such instruments in developing countries, to replace the stabilization funds, boards and other agreements often dismantled under its authority in the 1980s and 1990s (§ 2). It then turns out, as we have shown, that a commodity such as cocoa is as much marked by the existence of futures and options markets for several decades, as by the great insecurity of its producers' incomes. Of course, the champions of such tools can retort that cocoa producers do not really have direct access to those markets, and they cannot therefore benefit from them. Agricultural producers should therefore be trained and helped to use these risk management tools. But is that truly realistic, particularly for developing countries? Or else, at what cost collectively and for each farmer? Lastly, and above all, how effective are such tools? As Daviron and Voituriez (2003a) argue, their efficiency is, in reality, far from having been demonstrated by the economists, thereby placing an even greater burden of reflection and intervention on the shoulders of policies – particularly competition policies.

Daviron and Voituriez start their demonstration with several observations: (1) the post-war Keynesian or "self-centred" development model, which subjugated foreign trade to domestic stability objectives, has been succeeded by an export-driven growth model; (2) in this move towards trade liberalization, collective risk management through stabilization has given way to individual and private management through financial instruments such as futures or options contracts; (3) the crisis seen since 1998 on the cocoa, coffee, rubber, wheat, and soybean markets – which are theoretically complete since they have acquired insurance institutions and risk transfer financial markets – shows, however, that the efficiency of such instruments is arguable in the case of an extended price depression: the market price may drop below the marginal cost of the most efficient producer, whilst no private mechanism guarantees remuneration equivalent to the cost of production, unless in return for payment of a premium at too prohibitive a cost; (4) the allocation problem arising from persistent instability on the markets is combined with that of an unequal distribution of its costs, which are primarily borne by developing countries.

This leads the authors to present a typology revealing how economic science has evolved in the possible representations of instability, and to what difference in price-risk management instruments each representation leads: (1) cyclical instability around a deterministic trend (upward or downward linear trend) calls for public stabilization measures; (2) stochastic instability (of the "random walk" type), on the other hand, calls for private use of financial tools and opening up of the markets; (3) chaotic instability (non-Gaussian randomness generated by the market itself and its imperfections), however, eludes the latter measures, since they are likely to generate more instability than they resorb. Thus, depending on the type of instability, economic science can demonstrate that a risk management instrument is

required or should be ruled out. This is an undeniable contribution, but which is unfortunately tainted by a major limitation, which no one has seemed to care about over recent decades: between deterministic and stochastic trends, between randomness and chaos, agricultural price series do not reveal any marked particularities. Uncertainty and controversy remain, at least between economists since, as quite rightly emphasized by Daviron and Voituriez, political debates on the subject stand out through their absence, whilst technically they are required and demanded.

One explanation for this paradox probably lies in the almost unanimous denunciation today of the cost of public intervention on agricultural markets over the last 30 years, which is all the more unanimous in that public stabilization favoured assurance over incentive (competition), whilst since then incentive (competition) has become the cooperation yardstick. This said, alternative risk management systems suffer from a symmetrical defect: they favour incentive over assurance. Yet, as Daviron and Voituriez concluded, since incentive is ineffective in the absence of assurance, and assurance is not cooperative in the absence of incentive, the major two types of instruments, public and financial, rather than being opposed and considered as substitutable, seem in reality to be complementary. Which, for our part, enables us to conclude with a question: when will there be an international competition policy which, in order to preserve incentive, also takes assurance into consideration, particularly for smallholders in the South, since today they bear most of the costs of market instability?

CONCLUDING SUMMARY

In an African country such as Ivory Coast, cocoa cultivation employs over 700,000 farmers, provides a livelihood for 6 million people (40% of the population) and counts just as much in State earnings (40% of budgetary income), the balance of payments (50% of exports) and national wealth creation (15% GDP). On the world market, it supplies over 40% of world demand for beans. But for how many years will that continue? Indeed for some time now, cocoa cultivation has been in crisis, whereas demand for chocolate has continued to grow worldwide. Chronic price instability is now combined with increasing competition from Southeast Asia, the difficulty of ensuring continued production by farming on newly cleared forest, the growing threat of diseases and resistance to pesticides, quite rough liberalization of the commodity chain in 1999, a European directive authorizing the use of cheap substitutes for cocoa butter in chocolate, an American drive to certify a cocoa and chocolate "free of child slavery", dubious events on the London and New York futures markets and, lastly, on 19 September 2002, the break out of a civil war dividing the country in two either side of what still remains the world's largest cocoa reserve.

This crisis in African cocoa cultivation led us to examine price formation and value sharing throughout the commodity chain, from Ivorian farmgate bean to tablet of dark chocolate sold in a French supermarket. The main lessons we learned from this exercise are as follows:
(1) In 1989/90, the "cocoa war" halved the price of a kilogram of cocoa beans paid to Ivorian producers. Since then, up to 2001, that price barely improved in constant CFA francs; the 1999 liberalization, rather than helping smallholders to regain their purchasing power, seems more to have destabilized their working environment (price, credit, etc.).
(2) The liberalization of Ivorian cocoa seems to be more advantageous to middlemen who transport harvests to export factories, all the more so since their rivals, the cooperatives, now collect fewer beans as they are unable to pay producers for their crop immediately (their access to bank credit was divided by 25 at the time of liberalization).
(3) International grinders (*ADM*, *Barry-Calbault*, *Cargill*…), making semi-finished products (cocoa liquor, butter and powder, or even couverture), are, for their part, increasingly incorporating upstream activities (taking over or sidelining Ivorian exporters, dealers and middlemen) to secure their supplies and counter the shrinkage of their unit margins.
(4) On the French market, chocolate makers (*Mars*, *Nestlé*…) and/or distributors (*Carrefour* and others) are, on the other hand, gaining increasingly more from a tablet of chocolate: between 1992 and 2001, unlike the ingredients (bean, liquor, butter, couverture, sugar, etc.) its price rose steadily in current euros (+2.6% per year on average, i.e. +1,550 euros per ton in 10 years).
(5) Finally, in 2001, over 70% of the French tax inclusive price for a tablet of dark chocolate with 61% cocoa went to chocolate makers and distributors (63% in 1992), as opposed to less than 6% to Ivorian producers (7% in 1992), a share which is not even equal to the taxes levied throughout the commodity chain (8% in 2001), in Ivory Coast and, above all, in Europe (5.5% VAT).

These results, which are pioneering but obtained from data and a method that call for reactions and suggestions for improvement, lead us to believe that the world liberalization process has not only strengthened the concentration of firms downstream (confirmation of an oligopsony of multinationals engaged in fierce competition), but also to the exertion of a buying power upstream, particularly over farmers, since their dispersal is now total

(dismantling of State regulating bodies, which in the past somehow united them, at least on a national scale). This market power (ability to impose prices) should in theory attract the attention of competition policies, since the harm it entails for the collective well-being is denounced by economic theory and in competition law. In fact, such policies are being reinforced in the USA and the European Union since the strengthening of planetary markets and trusts, notably in the agrifood sector. But, curiously, there is still no international body capable of correcting this market failure affecting Ivorian cocoa farmers, and more generally developing countries which do not have the resources to set up their own competition policy, and more essentially to ensure that it is respected. Indeed, the World Trade Organization is limited to promoting just one very rudimentary form of competition (free circulation of goods), yet it is towards competition that it is supposed to work fully, and it is on competition that all its legitimacy is founded.

From the decline in African cocoa cultivation, we have thus been led to promote the introduction of a true competition policy within the WTO: this is a vast undertaking, which is primarily political, and which will mean discussing and overcoming the substantial limitations of the arrangements currently in place in the USA and Europe, be it a matter of oligopsony powers, types of coordination, or the thorny question of agricultural price stabilization.

APPENDIX 1 : PROBLÉMATIQUE « QUALITÉ » DANS LA FILIÈRE CACAO-CHOCOLAT
Quelques précisions ou éléments de réflexion

Les attributs de qualité du cacao

Comme l'a exprimé K. Lancaster, la qualité est un panier d'attributs liés au produit ou au processus de production, et pour lesquels le consommateur est prêt à payer (existence d'une prime). Aujourd'hui, pour le cacao, on peut répertorier les attributs suivants (d'après Tagbata et Galtier, in SYAL (2002))

Géographique :	Continent, pays ou région de production ; Sols ; Climats ; Latitude ; Histoire ; Culture ; Paysage ; Stabilité économique et monétaire…
Technique :	Variété ; Fertilisation ; Ombrage ; Récolte ; Temps de fermentation ; Séchage (au soleil, artificiel)…
Technologique :	Taille des fèves (homogénéité) ; Nombre de défauts ; Taux de coque ; Taux de matières grasses ; Dureté du beurre…
Organoleptique :	Acidité ; Corps ; Astringence ; Amertume ; Mauvais goûts (de vert, de moisi, de brûlé…) ; Arômes spéciaux (fruits, fleurs,…)…
Sanitaire :	Taux d'ochratoxine ; Présence de métaux lourds ; Résidus de pesticides…
Ecologique :	Absence de pollution ; Protection de la forêt et de la fertilité des sols ; Préservation de la biodiversité ; Protection des oiseaux migrateurs…
Sociale :	Respect des droits humains ; Niveau et stabilité du prix payé au producteur ; Organisation de producteurs ouverte et démocratique…

La demande standard de qualité

Aujourd'hui, la demande standard des firmes et pays du Nord est celle d'un cacao fermenté après une période de séchage, pour autant que le produit soit sans goût de fumigation, sans odeurs étranges ou anormales et sans signe apparent d'altération. On souhaite également des fèves relativement uniformes et homogènes pour en faciliter la transformation. En outre, elles ne doivent pas contenir des fragments de coque, ni être brisées ou attaquées par les insectes.
Pour des raisons historiques, la référence internationale pour les standards de qualité sur le cacao est l'origine Ghana. Par rapport à cette référence et aux besoins du marché, la fève ivoirienne sera plus ou moins bien cotée. Cette dernière, pour l'exportation, doit être du « grade 1 » d'un système de classification réalisé par l'ancienne *CAISTAB*, et qui utilise les critères classiques de la *FAO* :

	Grade 1	Grade 2	Sous-grade
Fèves moisies	< 3 %	3 à 4 %	> 4 %
Fèves ardoisées	< 3 %	3 à 8%	> 8 %
Fèves défectueuses	< 3 %	3 à 6 %	> 6 %

La production de fèves de grade 1 par le cacaoculteur ivoirien rencontre diverses difficultés, notamment la suivante (Deheuvels, in Losch *et al.*, 2003) : si le cours de la fève monte, les traitants font pression sur le planteur pour qu'il leur livre le produit le plus tôt possible : les fèves ardoisées (non fermentées) sont alors abondantes ; inversement, si le cours baisse, le produit reste plus longtemps chez le planteur où il est stocké dans de mauvaises condition, et le taux de fèves moisies augmente.

Le paiement de la qualité standard

Un demandeur de qualité n'est pas toujours disposé à la payer, comme le montre cet exemple relatif à la baisse de fermentation en Malaisie : « Au moment où ils ont eu peur d'une éventuelle régulation de l'Etat pour contraindre la fermentation, les groupes internationaux ont progressivement tu leur plaintes sur la qualité et se sont exprimés de plus en plus clairement sur leurs besoins en fèves de Sulawesi. Ces fèves sont surtout appréciées pour leur beurre dur, utile dans les mélanges de fèves. On a conclu à une forme de *free riding* de la part de certains groupes, c'est à dire à une stratégie consistant à ne pas exprimer ses besoins en qualité de façon à ne pas avoir à la payer. On a aussi conclu au rôle positif d'un marché libre et concurrentiel, amenant progressivement ces groupes à mieux exprimer les caractéristiques des produits qu'ils recherchent » (Ruf, 2001:295)

La qualité « bio » et/ou « équitable »

En France s'affirment des chocolats biologiques tels que *CEMOI* et *KAOKA*, ou encore bio-équitables comme *FLO*. Malgré un doublement de son chiffre d'affaires entre 1994 et 2000, le commerce équitable demeure néanmoins limité entre Europe et quelques pays du sud, et centré sur quelques produits (à 80 % sur le café). Il ne représenterait aujourd'hui que 0,008 % du commerce international malgré l'activisme d'organisations comme *OXFAM*, ou encore *Global Exchange* : en mars 2002, cette dernière demandait aux consommateurs, pour le choix de la couleur des *M&Ms* proposé sur Internet par la multinationale *Mars*, de voter « *No matter what the shade, make my M&M's Fair Trade, the color of dignity and freedom* », en insistant sur le fait que l'amélioration de revenu des producteurs contribuerait à limiter l'esclavage des enfants dans les pays en développement, et en précisant que *Mars* est la quatrième plus importante compagnie américaine, et que leur 3 propriétaires valent plus de 27 milliards de dollars.

Un chocolat sans « esclavage » d'enfants

Le 11 juillet 2001, la Chambre des représentants des Etats-Unis propose une loi sur le financement de l'agriculture permettant d'apposer des étiquettes portant la mention « sans main d'œuvre enfantine » sur les produits contenant du cacao ou du chocolat, le Bureau Américain du Travail estimant à 200 000 le nombre d'enfant ivoiriens travaillant (« *in hazardous conditions* ») dans les cacaoyères (Cowell, 2002).
En juillet 2002, les grandes entreprises chocolatières annoncent le financement de la fondation *ICI* (*International Cocoa Initiative*) basée à Genève et destinée à lutter contre le « travail forcé » des enfants et des adultes dans les plantations de cacao (Brieu, 2002:18). En novembre 2002, des fabricants de chocolat, des militants anti-esclavage et une agence gouvernementale américaine forme une alliance dont l'objectif est de certifier un cacao et un chocolat « sans esclavage d'enfants » d'ici 2005 (Reuters, 07/11/02).
Les principaux responsables du secteur cacaoyer en Côte d'Ivoire affirme de leur côté que le projet de loi américain témoigne d'une ignorance de la réalité africaine, précisant que les 600 000 exploitations rendraient très difficile son application et que la détermination de l'origine exacte des fèves ne serait pas facile (Nouvelles du Cacao, N°18, ICCO, Août, 2001, p. 6).

Une nouvelle recette pour le chocolat

La directive européenne « cacao-chocolat », votée en juin 2000 pour entrer en application en août 2003, prévoit la possibilité de remplacer 5 % de beurre de cacao par d'autres matières grasses végétales meilleur marché (karité, illipé, kokum gurgi, sal, noyaux de mangue et huile de palme), et comme cela se pratique déjà dans quelques pays au nord de l'Union Européenne (mais pas aux Etats-Unis) (Brieu, 2002:18).
Cette directive provoque un tollé plus ou moins vif dans les pays respectant jusque là la recette traditionnelle du chocolat, puisqu'ils risquent en la poursuivant de perdre d'importantes parts de marché. Les Belges lancent alors le label « Ambao » (100 % beurre de cacao) pour distinguer les 2 types de chocolat. L'Italie et l'Espagne rendent quant à elles obligatoire l'inscription « substitut de chocolat » sur les étiquettes des barres de chocolat avec graisses végétales, ce qui leur vaut une condamnation de la cour européenne de justice le 16 janvier 2003. Les Italiens font appel à cette condamnation qui réjouit des firmes comme *Cadbury Scheppes* et *Nestlé*, mais aussi des pays comme le Danemark, l'Irlande, le Portugal, la Suède, la Finlande et le Royaume-Uni.
Dans tous les cas, l'application de cette directive entraînera selon l'*ICCO* une baisse de la demande en fèves de cacao d'environ 200 000 tonnes par an (sur 2,9 millions de tonnes de production annuelle), soit une perte évaluée à près de 300 millions d'euros pour les pays producteurs de cacao.

APPENDIX 2 : CULTURE ET TRANSFORMATION DU CACAO
Quelques précisions techniques

Génotypes cultivés

Les cacaoyers de type *Criollo*, aux fèves blanches ou légèrement teintées, sont originaires d'Amérique centrale. Ce type génétique est excellent pour le goût du chocolat (type « cacao fin »), mais les cacaoyers sont tardifs et peu productifs. On le trouve aujourd'hui surtout en Amérique Centrale, au Venezuela, au Mexique et dans les Caraïbes, ainsi que, dans une moindre mesure, en Papouasie-Nouvelle-Guinée, au Sri-Lanka, au Timor Oriental et en Indonésie (île de Java).
Les *Forastero* (dont l'*Amelonado*) ont des fèves plutôt amères et violettes foncées. Originaires du bassin amazonien, ils ont été récoltés et sélectionnés par les programmes d'hybridation et d'amélioration. Répartis en deux groupes, bas et hauts amazoniens, ils représentent aujourd'hui 90 % de la production mondiale de fèves (Brésil, Afrique de l'Ouest…).
Les *Trinitario* sont des hybrides naturels entre *Criollo* et *Forastero* bas amazoniens. Leur arôme est assez fin mais peu intense. Ils sont essentiellement cultivés à l'Est du Venezuela, au Guyana, au Surinam, sur l'île de la Trinité, ainsi que dans certains pays africains (Madagascar, Sao Tomé) ou océaniens (PNG…).

Conditions pédoclimatiques

La production du cacaoyer est idéalement réalisée :
- dans des sols profonds, meubles, riches en matière organique et en éléments minéraux ;
- entre 21 et 32°C, à l'abri de l'ensoleillement et de vents violents ou desséchants ;
- sous des pluies régulières (saison sèche inférieure à 3 mois) et abondantes (entre 1150 et 2500 mm par an), sans toutefois être excessives puisqu'elles favorisent alors la moisissure des fèves et le développement de la pourriture brune.

Maladies et ravageurs

D'après l'*INCOPED* (Réseau international de coordination des recherches sur les ravageurs et maladies du cacaoyers), 7 aléas biologiques détruisent aujourd'hui un volume de production équivalent à 50 % de la production mondiale ; par ordre de nuisance :
- la pourriture brune (champignon *Phytophthora spp* recouvrant la cabosse) ;
- la maladie du balai de sorcière (champignon *Crinipellis perniciosa* déformant l'arbre et la cabosse, avant tout en Amérique) ;
- les mirides (insectes entraînant le dépérissement de la plantation et le dessèchement des chérelles et cabosses, dans toutes les zones de production mais avec des dégâts importants surtout en Afrique) ;
- le foreur des cabosses (insecte perforant la cabosse en Asie du Sud-Est et Pacifique) ;
- le virus du swollen shoot (qui entraîne la mort d'arbres en Afrique de l'Ouest) ;
- la moniliose ou pourriture aqueuse (champignon déformant la cabosse en Amérique) ;
- le VSD (champignon entraînant la mort d'arbres en Asie du Sud-Est).
A cela s'ajoutent les dégâts dus aux rats et écureuils, et d'autres ravageurs plus ou moins spécifiques aux régions de production.

Récolte et post-récolte

La récolte principale a lieu de septembre-octobre à février-mars en Côte d'Ivoire et au Ghana, Nigéria, Cameroun et Brésil ; de septembre-octobre à décembre en Indonésie et Malaisie ; de mars à juin en Equateur.
La fermentation dure 2 jours pour les cacaos fins, 6 à7 jours en théorie pour les autres, dans des caisses en bois (recommandé) ou en tas (sur feuilles de bananier).
Le séchage des fèves après fermentation dure 1 à 2 semaines au soleil (sur nattes ou aires cimentée) et/ou quelques jours avec un four à bois (ou parfois à gaz).

Transformation

La toréfaction dure 10 à 30 mn, à 120-130 °C pour le cacao courant, à moins de 120 °C pour autres.
Le processus de transformation des fèves de cacao en beurre et en poudre, ainsi que l'alcalinisation (pour neutraliser les acides contenant des effluves non désirables et améliorer la couleur de la poudre et sa dissolution dans l'eau), ont été inventés au début du XIXème siècle par un Hollandais, Coeraad Johannes van Houten.
Le conchage est une opération de chauffage (50 à 80 °C) et de lent pétrissage (24 à 72 h) de la pâte qui a été inventé par R. Lindt en 1879.

APPENDIX 3 : ORGANISATIONS IMPLIQUÉES DANS LA FILIÈRE CACAO-CHOCOLAT
Axe Côte d'Ivoire - France (circa 2000)

CÔTE D'IVOIRE ↓		INTERNATIONAL ↓	
BAILLEUR DE FONDS			
Gouvernement de Côte d'Ivoire		CNUCED / CFC (Commun Fund for Commodities)	
CAA (Caisse Autonome d'Amortissement)		BANQUE MONDIALE	
FIRCA (Fonds d'Appui à la Recherche et au Conseil Agricole)		BAD (Banque Africaine de Développement)	
FGCCC (Fonds de Garantie des Coopératives Café-Cacao)		BCEAO (Banque Centrale des Etats de l'Afrique de l'Ouest)	
FDPCC (Fonds de Dévelt et de Promotion des Activités des Filières Café et Cacao)		USAID	USA
		STABEX, FED…	Europe
		Gouvernement Français, AFD…	France
…/…		…/…	
REGULATION			
ARCC (Autorité de Réglementation du Café et du Cacao)		OMC (Organisation Mondiale du Commerce)	
BCC (Bourse du Café et du Cacao)		ICCO (International Cocoa Organization)	
CAISTAB (nouvelle…)			
CIMP (Comité Interministériel des Matières Premières)			
FRC (Fonds de Régulation et de Contrôle)			
PRIMAC (Programme d'Information sur les Marchés du Café-cacao)			
…/…		…/…	
CONSEIL SCIENTIFIQUE / TECHNIQUE / ECONOMIQUE			
ANADER (Agence Nationale de Développement Rural)		Centres CGIAR (IPGRI, IITA, ICRAF)	
BNETD (Bureau National d'Etudes Techniques et de Développement)			
CCC (Commodities Corporate Consulting)			
CNA (Chambre Nationale d'Agriculture)			
CIRAD	=>	CIRAD	France
CIRES (Centre Ivoirien de Recherches Economiques et Sociales)			
CNA (Chambre Nationale d'Agriculture)			
CNRA (Centre National de Recherche Agronomique)			
ENSEA (Ecole Nationale de Statistique et d'Economie Appliquée)			
ESA (Ecole Supérieure d'Agronomie)			
I2T (Institut de Technogie Tropicale)			
LANADA (Laboratoire National d'Analyses pour le Développement Agricole)			
NESTLE	=>	NESTLE	Suisse
Université d'Abidjan			
…/…		…/…	
CACAOCULTURE			
ANAPROCI (Ass. Nat. des Producteurs de Café-Cacao de Côte d'Ivoire)		CPA (Cocoa Producers Alliance)	
FIPCC (Fédération Ivoirienne des Producteurs de Café et de Cacao)			
…/…		…/…	
NEGOCE / EXPORTATION			
FENAC (Fédération Nationale des Commerçants de Côte d'Ivoire)		LIFE (London International Financial Futures Exchange)	UK
GPEX (Groupement Professionnel des Exportateurs de Café-Cacao),		NYBOT (New York Board of Trade)	USA
UNOCC (organisation dissidente du GPEX en 2000/01)		CMAA (Cocoa Merchants Association of America)	USA
COOPEX, PMEX... (coopératives exportatrices)		CAL (Cocoa Association of London)	UK
SGS, COLNELDER, VERITAS… (contrôle de qualité)		FCC (Fédération du Commerce des Cacaos)	France
SIFCA, JAG, UNICAO	=>	ADM	USA
CARGILL West Africa, MICAO	=>	CARGILL	USA
TROPIVAL	=>	ED&F Man / NEWCO	UK
DAFCI, IFCO, SHAC, UNIDAF	=>	BOLLORE	France
CIPEXI	=>	CIPEXI	Pays-Bas
COCOF (ex CCA)	=>	ANDRE / NOBLE	Suisse
PROCI	=>	JEPRO	France
DELBAU	=>	DELBAU	France
OUSPAN	=>	OLAM	Singapour
BARRY-CALLEBAUT	=>	BARRY-CALLEBAUT	Suisse
ZAMACOM	=>	ZAMACOM	Brésil
COCAF Ivoire	=>	SUCAFINA	Suisse
CEMOI	=>	CEMOI	France
IBERO, KARITE, ERAF…		TOUTON, SOLINEST, GENERALE DE PRODUITS, OREBI, ARMAJARO	
…/…		…/…	
BROYAGE			
UNICAO (SIFCA)	=>	ADM	USA
SACO	=>	BARRY-CALLEBAUT	Suisse
MICAO	=>	CARGILL	USA
CEMOI	=>	CEMOI	France
…/…		…/…	
CHOCOLATERIE			
		ALLIANCE 7	France
		BCCCA (Biscuit, Cake, Chocolate and Confectionery Alliance's)	
		CAOBISCO (Association des Industries de la Chocolaterie, Biscuiterie et Confiserie)	Europe
		IOCCC (International Office of Cocoa, Chocolate and Sugar Confectionery)	
CHOCODI	=>	BARRY-CALLEBAUT	Suisse
		CADBURY-SCHWEPPES	UK
CEMOI Côte d'Ivoire	=>	CEMOI	France
		CSM	Pays-Bas
		FERRERO	Italie
		HERSHEY	USA
		KRAFT FOOD	USA
		LINDT ET SPRUNGLI	Suisse
		MARS	USA
		NESTLE	Suisse
…/…		…/…	
DISTRIBUTION			
		AUCHAN, CARREFOUR… (hypermarchés)	France
		ALTADIS, EDA, SFP… (circuits longs)	
…/…		…/…	

APPENDIX 4 : BASE DE DONNÉES INITIALES

DONNEES DE BASE		*Source*	*Unité*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*
Fève	Prix bord-champ	FMI, BNETD	FCFA/Kg	200	200	200	315	320	310	438	504	275	333	522
Fève	Prix entrée usine	BNETD	FCFA/Kg					357	357	496	614	329	423	603
Fève	Marges commerciales	BNETD	FCFA/Kg					163	182	210	264	170	199	285
Fève	Prélèvements obligatoires	BNETD	FCFA/Kg					246	276	261	181	149	180	233
Fève	Prix d'exportation f.o.b.	FMI	FCFA/Kg	261	304	294	722	660	700					
Fève	Prix d'exportation c.a.f.	FMI, BNETD	FCFA/Kg	291	333	325	797	729	768	909	948	594	712	987
Fève	Prix d'importation c.a.f.	EUROSTAT	ECU/T		1 014	955	1 155	1 193	1 167	1 325	1 462	1 348	1 032	1 100
Liqueur	Prix d'importation c.a.f.	EUROSTAT	ECU/T		1 650	1 777	2 008	1 989	1 901	1 868	2 109	2 001	1 684	1 812
Beurre	Prix d'importation c.a.f.	EUROSTAT	ECU/T		2 837	2 673	2 991	3 231	3 172	3 376	3 760	3 505	2 836	2 541
Poudre	Prix d'importation c.a.f.	EUROSTAT	ECU/T		1 096	1 135	1 120	1 129	1 000	876	944	1 010	1 077	1 357
Sucre	Prix d'importation c.a.f.	EUROSTAT	ECU/T		448	738	680	687	603	617	634	621	587	617
Couverture	Prix d'importation c.a.f.	EUROSTAT	ECU/T		2 033	2 068	2 058	2 107	2 088	2 020	2 096	2 089	1 992	1 958
Tablette	Indice de prix à la consommation	INSEE	100=1998	86,9	89,1	88,9	88,7	90,9	93,0	97,6	100,0	102,6	105,3	107,1
Tablette	Taxe à la Valeur Ajoutée	-	%	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5
DONNEES CONNEXES		*Source*	*Unité*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*
Inflation	Indice des prix à la consommation	BCEAO	100=1996	63,4	65,6	67,7	85,4	97,9	100,0	104,1	108,9	109,7	112,5	117,3
Inflation	Indice des prix à la consommation	INSEE	100=1995	91,4	93,7	96,0	98,0	100,0	101,9	103,3	104,0	104,4	106,0	107,8
Change	Conversion 1 ECU en FF	EUROSTAT	FF/ECU	6,973319	6,848390	6,633679	6,582610	6,525055	6,493000	6,612600	6,601410	6,559570	6,559570	6,559570
Change	Conversion 1 ECU en FCFA	*calculé*	FCFA/ECU	348,6660	342,4195	331,6840	658,2610	652,5055	649,3000	661,2600	660,1410	655,9570	655,9570	655,9570
Change	Conversion 1 ECU en £	EUROSTAT	£/ECU	0,701012	0,737650	0,779988	0,775902	0,828789	0,813798	0,692304	0,676434	0,658735	0,609478	0,621874
Change	Conversion 1 ECU en DM	EUROSTAT	DM/ECU	2,050760	2,020310	1,936386	1,924525	1,873750	1,909540	1,964380	1,969130	1,955830	1,955830	1,955830
Change	Conversion 1 ECU en US$	EUROSTAT	US$/ECU	1,239160	1,298100	1,171000	1,189520	1,308010	1,269750	1,134040	1,121090	1,065780	0,923613	0,895630
EQUIVALENT EN €/T, APRES RECALLAGE		*Source*	*Unité*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*
Fève	Prix bord-champ	*calculé*	ECU/T		578	592	553	483	485	551	703	626	455	623
Fève	Prix entrée usine	*calculé*	ECU/T						548	630	822	759	559	755
Fève	Prélèvements obligatoires	*calculé*	ECU/T						391	416	359	260	241	299
Fève	Prix d'exportation c.a.f.	*calculé*	ECU/T		890	976	1 072	1 174	1 143	1 260	1 399	1 224	978	
Fève	Prix d'importation c.a.f.	EUROSTAT	ECU/T		1 014	955	1 155	1 193	1 167	1 325	1 462	1 348	1 032	1 100
Liqueur	Prix d'importation c.a.f.	EUROSTAT	ECU/T		1 650	1 777	2 008	1 989	1 901	1 868	2 109	2 001	1 684	1 812
Beurre	Prix d'importation c.a.f.	EUROSTAT	ECU/T		2 837	2 673	2 991	3 231	3 172	3 376	3 760	3 505	2 836	2 541
Poudre	Prix d'importation c.a.f.	EUROSTAT	ECU/T		1 096	1 135	1 120	1 129	1 000	876	944	1 010	1 077	1 357
Sucre	Prix d'importation c.a.f.	EUROSTAT	ECU/T		448	738	680	687	603	617	634	621	587	617
Couverture	Prix d'importation c.a.f.	EUROSTAT	ECU/T		2 033	2 068	2 058	2 107	2 088	2 020	2 096	2 089	1 992	1 958
Chocolat	Prix de détail HT	*calculé*	ECU/T	5 818	6 074	6 256	6 291	6 504	6 687	6 891	7 072	7 302	7 494	7 622
Chocolat	Taxe à la Valeur Ajoutée	*calculé*	ECU/T	320	334	344	346	358	368	379	389	402	412	419

APPENDIX 5 : PRÉLÈVEMENTS OBLIGATOIRES IVOIRIENS SUR LA FÈVE

	1999/00	2000/01	2001/02
PRÉLÈVEMENT DE L'ETAT	**140**	**157**	**185**
Droit Unique de Sortie	125	125; 200; 160 (# 140)	160; 180 (# 163)
Taxe d'enregistrement	2,3 % (# ?)	2,3 % (# 15)	2,3 % (# 20)
Impôt sur le bénéfice des traitants	?	2,5 (# 2)	2,5 (# 1,75)
PRÉLÈVEMENTS PROFESSIONNELS	**9**	**23**	**98**
Contrôle de qualité	1,9	1,9	1,9
Redevance ARCC ou eq. (depuis oct. 1999)	5	5,3	2,96
Taxe sacherie (depuis janvier 2000)	0; 3,5 (# 2,1)	3,5	3,5
Redevance FDPCC (depuis février 2001)	-	0; 35 (# 12)	35
Redevance BCC (depuis octobre 2001 ?)	-	-	7,2
Réserve de prudence (depuis octobre 2001)	-	-	41; 60 (# 47)

Sources : d'après BNETD (2000) (2001) (2002)

Valeurs exprimées en francs CFA par kilogramme de fèves, ou bien en pourcentage de la valeur c.a.f. (pour la taxe d'enregistrement)

Les valeurs précédées d'un « # » sont les valeurs moyennes équivalentes en francs CFA par kilogramme de fève pour les campagnes considérées (après pondération par le BNETD par les volumes concernés).

APPENDIX 6 : DISTRIBUTION OF DARK CHOCOLATE TABLET VALUE (1992 – 2001)

Current euros per ton :

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Production of BEANS (Ivory Coast)	441	451	422	369	370	420	536	477	347	475
COLLECTION and EXPORT of beans (to Amsterdam)	333	277	459	541	520	590	579	551	441	364
- of which Collection (Ivory Coast)					*48*	*60*	*91*	*101*	*80*	*100*
- of which Wholesalers & Exporters					*173*	*213*	*215*	*251*	*177*	*36*
- of which Levies (Ivory Coast)					*298*	*317*	*273*	*198*	*184*	*228*
Manufacturing of LIQUOR and BUTTER (Europe)	364	454	452	440	409	295	353	358	367	347
Addition of SUGAR (Europe)	175	288	265	268	235	241	247	242	229	241
Manufacturing of COUVERTURE (Europe)	721	598	460	489	554	474	381	461	609	532
MOULDING & DISTRIBUTION of tablet (France)	4041	4188	4232	4397	4599	4870	4976	5213	5502	5665
VAT (Europe)	334	344	346	358	368	379	389	402	412	419
Total (tablet price inclusive of tax):	6408	6601	6637	6861	7055	7270	7461	7704	7907	8042

Percentages :

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Production of BEANS (Ivory Coast)	6.9%	6.8%	6.4%	5.4%	5.2%	5.8%	7.2%	6.2%	4.4%	5.9%
COLLECTION and EXPORT of beans (to Amsterdam)	5.2%	4.2%	6.9%	7.9%	7.4%	8.1%	7.8%	7.2%	5.6%	4.5%
- of which Collection (Ivory Coast)					*0.7%*	*0.8%*	*1.2%*	*1.3%*	*1.0%*	*1.2%*
- of which Wholesalers & Exporters					*2.5%*	*2.9%*	*2.9%*	*3.3%*	*2.2%*	*0.4%*
- of which Levies (Ivory Coast)					*4.2%*	*4.4%*	*3.7%*	*2.6%*	*2.3%*	*2.8%*
Manufacturing of LIQUOR and BUTTER (Europe)	5.7%	6.9%	6.8%	6.4%	5.8%	4.1%	4.7%	4.6%	4.6%	4.3%
Addition of SUGAR (Europe)	2.7%	4.4%	4.0%	3.9%	3.3%	3.3%	3.3%	3.1%	2.9%	3.0%
Manufacturing of COUVERTURE (Europe)	11.3%	9.1%	6.9%	7.1%	7.8%	6.5%	5.1%	6.0%	7.7%	6.6%
MOULDING & DISTRIBUTION of tablet (France)	63.1%	63.4%	63.8%	64.1%	65.2%	67.0%	66.7%	67.7%	69.6%	70.4%
VAT (Europe)	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Total:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

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