Who paid for the embargo on Ivorian cocoa in 2011?

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DRAFT
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Introduction

In January 2011, at the request of the internationally acknowledged elected president Ouattara, an embargo was imposed by the EU and other countries on imports from Côte d'Ivoire. The initial call for an embargo was for one month, but it was extended on 22 February to mid March. De facto, no cocoa was exported from Côte d'Ivoire in February. Only towards the end of March were shipments of cocoa beans from Côte d'Ivoire again possible.

Subsequently, world market prices in January and February 2011, and in the early days of March 2011 rose to levels that had not been seen on the New York futures market for the last 32 years, reaching a level of $ 3674 per tonne. Average prices in January-March 2011 were 12% above those of the previous quarter. In the same quarter, according to official data, average prices paid to producers in Côte d'Ivoire fell by (only) 2%. Exports of cocoa from Côte d'Ivoire came to a standstill according to ICCO's monthly reports. Yet imports into Europe from Côte d'Ivoire did not fall so much: in February, March and April, cocoa bean imports into the EU27 fell by some 20% compared to the average of the preceding 5 years, whereas 2011 as a whole scored 20% higher import levels. The downfall in the early months was compensated for between May and September, notably in July 2011, when more than twice the normal July quantity was imported. Total beans imports into the EU for the period February-April 2011 were 3% below the average levels of the preceding five years, whereas annual imports in 2011 were 11% above this level.

According to the monthly reviews of the ICCO, stock levels of cocoa in certified warehouses in Europe decreased during February 2011 by 20 thousand tonnes to 223 thousand tonnes, but in the USA they increased by 29 thousand tonnes (to 227 thousand tonnes). At the end of April, these stock levels stood at 209 and 220 thousand tonnes, respectively, and at the end of June 167 and 235 thousand tonnes.[3]

In this paper we try to find out who eventually paid for this embargo. To do so, we investigate the responses by prices of cocoa beans on the supply side in Côte d'Ivoire and elsewhere, and on the demand side, notably in the EU. Further downstream effects on prices (and volumes) of cocoa and chocolate products are ignored. Cocoa product prices could have easily been affected, but we shall show that in the early months of 2011 prices of cocoa butter and powder simply followed the trends started in 2009: upward for powder, downward (and mostly in line with the trend for beans) for butter.

Potential effects are the following:
For producers in Côte d'Ivoire, the prices are likely to have fallen dramatically, as traders had less incentives to buy in view of the limited export possibilities. Thus prices should reflect the likely extra storage costs (and potential deterioration), or the extra transport costs when exported through Ghana, Togo or Benin. In addition, the uncertainty facing the exporters must have affected the producer prices too.

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[3] In 2010, a year with relatively low cocoa supply, stock levels in certified warehouses at the end of June were 259 and 263 thousand tonnes in Europe and the USA, respectively

Producers in other countries may have temporarily benefitted, provided the higher world market prices are transmitted to them.
Cocoa processors faced temporarily higher prices for beans that (apparently) could hardly be translated into higher prices for cocoa products. They would typically pay these higher prices in order to secure sufficient supply to their processing plants. Demand for their products may have been enhanced by the reduction in exports of cocoa products from Côte d'Ivoire, but they themselves faced a reduced supply of beans.

1. World market

Monthly world market prices typically do not reflect demand and supply in the normal sense of economic models. The monthly production, or the monthly consumption do not directly feature among the factors that influence prices. The prices are established at futures markets and mostly reflect expectations held by stockholders and other stakeholders, including pure speculators, about future developments in the market. To the extent that monthly data on production and consumption influence these expectations they do play a role. We give a simple model to reflect this.
Monthly demand for cocoa beans by the cocoa processing sector can be represented by an error-correction model in which this month's demand can deviated from the long-run requirements in response to current prices but at the cost of a stronger urge to return to the long-run path in later months. The long-run demand for cocoa products typically depends on demand for chocolate products and other final products containing cocoa.

In its simplest form, the equation would read

$$(1) \qquad \Delta y_t = b_0 - b_1 \Delta p_t - b_2 (y_{t-1} - \overline{y_t})$$

where y_t stands for demand for beans in month t, p_t for its price and $\overline{y_t}$ for the long-run level of monthly demand, as expected in month t.
Prospects for demand are closely followed in the trade literature, exchange rates matter, and above all, income developments are an important factor for final demand for products containing cocoa. In the period of the embargo, the outlook for demand for chocolate was not particularly strong in Europe, due to the financial crisis, but somewhat better in the USA and in emerging economies. The latter countries typically exert a greater demand for cocoa powder than for cocoa butter. Long-run demand for cocoa products is sensitive to prices but cocoa prices form only a small part of the final consumer costs of the products.
Seasonal factors matter for demand, as demand in the Christmas and Easter periods is typically higher, but production for these periods is normally spread over many months.

On the supply side, the exporters from countries other than Côte d'Ivoire, face a similar situation in the sense that their long-run supply is dictated by the trees, the age structure thereof, weather conditions and by the local prices, linked to the world market prices via exchange rates and affected by trade policies.
The short-run export supply depends on the timing of the month in the harvesting season, and will eventually, and cumulatively, equal annual supply. There is normally a stock of cocoa waiting, or on its way to be exported. Whatever they supply in excess of the long-run (monthly) supply, must at some point be compensated by less supply later-on.
Thus the same error-correction mechanism is in place. Again, in a basic form:

(2) $\qquad \Delta x_t = a_0 + a_1 \Delta p_t - a_2(x_{t-1} - \overline{x_t})$

where x stands for supply.

A monthly price change results from confronting demand and supply. The monthly changes in demand and supply need not be equal in every month but should do so in the long run. Hence we should have $\Delta x_t = \Delta y_t + \varepsilon_t$, so that for the change in prices an expression results

(3) $\qquad \Delta p_t = \dfrac{b_0 - a_0 - b_2(y_{t-1} - \overline{y_t}) + a_2(x_{t-1} - \overline{x_t}) + \varepsilon_t}{a_1 + b_1}$

Equation (3) shows that prices go up by more if
   a) the long-run demand prospects improve or the long-run outlook for supply deteriorates
   b) previous deviations from the long-run demand (supply) are greater (smaller)
   c) a sudden increase in demand or decrease in supply takes place

The continuously changing outlook for demand and the emerging insights into the yearly supply from major producing countries thus have an impact on the monthly prices and so does the extent to which the recent monthly demand or supply is in line with this outlook. Over the months, the long-run outlook changes: more and more data become available on the production of the cocoa, fundamentals behind demand develop over time etc. Such news affects monthly prices. An improvement in the outlook for production, for example, causes $\overline{x_t}$ to rise, depressing the price in proportion to the extent that recent supply x_{t-1} did not reflect this.

The embargo amounts to a sudden drop in the short-term supply without so much affecting the long-run outlook. In fact, in 2011, the supply outlook evolved more and more into the positive, with high levels of production recorded for Ghana and Côte d'Ivoire, and a somewhat lower production in Indonesia. That is, the $\overline{x_t}$ variable gradually became higher, by itself exerting a negative effect on the price.
The short-term drop in supply, amounting to a temporary fall in a_0, pushes up the prices, and thereby – via equation (1) – lowers the change in demand. For the next period, we should therefore expect to have a lower (or more negative) deviation between actual and long-run demand which would translate into higher price changes in period $t+1$. These higher prices normally encourage higher levels of supply and reduce the deviation between actual and long-run supply. If – as in our case – the temporary drop in supply continues for another month, prices may still go up. After the embargo ends, it is the balance of the effects of the two deviations (on the demand side and on the supply side) that determines the direction of the price change. There is some cumulative 'recovery' demand, as well as a cumulated deviation between recent and long-term supply, and there is the cumulated stock in Côte d'Ivoire, waiting to be supplied. The resulting effect of these forces on the prices is likely to be negative. Note, that this negative effect is largely the result of the expectation that more supply is forthcoming, *because* little was offered in the previous months (and the long-run supply outlook assumedly remained the same).

2. Domestic market in Côte d'Ivoire

The price that producers in Côte d'Ivoire receive for their cocoa is in normal times directly linked to the world market price, although with a large, and rather variable wedge formed by taxes and levies and costs of transportation etc.

How should producer prices respond to an embargo? We answer this question by looking a the position of a trader. Suppose traders normally face transport and other costs of r per kg. Assume for simplicity that transport takes a month and that cocoa collected in month t can be exported in month $t+1$. The trader can hold stocks but incurs costs equal to z_t^c where z_t is the level of stocks at the start of the month t and c is the exponent, with c>1.

The trader then makes a profit equal to

$$p_t y_t - p_t^b x_t - z_t^c - r x_t$$

or

(4) $$p_t y_t - p_t^b x_t - (z_{t-1} + x_{t-1} - y_t)^c - r x_t,$$

that is: profits equal revenues (at price p_t) minus expenditures on purchases (at price p_t^b) minus storage costs and transport costs.

A quantity that is bought in the previous month, if met by an equal volume sold this month, does not affect stock levels. If more was bought than is sold, stocks increase and these additional costs should be met by higher margin between the buying price and the selling price. The marginal contribution of extra purchases of cocoa in month t to the profits over time thus depends on the expectation as to when this quantity can be sold. Sales in period $t+1$ contribute to profits according to:

(5) $$\frac{\partial profit}{\partial y_{t+1}} = p_{t+1} + c z_{t+1}^{c-1}$$

That is, every kilogram sold brings in p_{t+1} plus the marginal reduction in storage costs. Every kilogram bought in month t adds to the profits:

(6) $$\frac{\partial profit}{\partial x_t} = -p_t^b - r - c z_{t+1}^{c-1} - pos(1 - \frac{y_{t+1}}{x_t}) c z_{t+2}^{c-1} - ...$$

Here, the expression $pos(1-y_{t+1}/x_t)$ equals the share of x_t which is not sold in $t+1$, and is equal to the value of 0 if all (or more) is sold.

Equation (6) shows that extra purchases bring extra costs equal to the buying price plus transport cost plus marginal addition to the stocks plus (in case not all can be sold) the marginal storage costs one month later. If the quantity x_t is not even sold by then, further storage costs are attributed to this purchase.

Comparison of (5) and (6) shows that if all is sold the next month, the buying price should be equal to the selling price minus r. In periods where more is bought than can be sold immediately, storage costs enter the margin between selling and buying prices and the latter will fall relative to the relevant world market price. Relevant prices here are the prices in the month in which the original quantity is sold; hence if it can only be sold two month later, than it is this price in $t+3$ that forms the point of reference.

To reflect the embargo conditions, purchases in month t (with embargo) cannot be expected to be sold in the next month, so that the balance of selling and buying price should now also account for the marginal storage costs for one month. If the embargo is expected to last longer than a month, the buying price falls by another month's marginal storage costs, which will be even higher if the stocks meanwhile have grown.

Cocoa producers may respond to lower prices by producing less. For annual production levels, there is ample evidence of a small, but positive, price elasticity, but for monthly

reactions no such reference exists. Farmers are likely to harvest less if prices are low, by spending less effort on harvesting, and on harvesting timely. The months that are relevant here, however, form the end of the major harvesting season, and while this makes responses to price falls more likely, no large volumes of cocoa production are involved.

3. Combining domestic and world market

The onset of the embargo in January 2011, could have an upward effect on the world market prices according to (3), possibly followed by another upward shift in the second month when the embargo continued. Upon the ending of the embargo, the expectation that supply would compensate for the earlier shortfall, may cause lower-than-average prices even though this was combined with higher recovery demand (due to the price-induced reductions in short-term demand). In the case of 2011, this was also influenced by the emerging recognition of a fairly large crop for the cocoa year 2010-2011.
Domestically in Côte d'Ivoire, prices paid to producers should have fallen initially by the storage costs for one month, but taken relative to the post-embargo price. This price is, *ceteris paribus*, lower than the pre-embargo price because of the higher expected supply by then. If more time elapses before the purchased cocoa can be sold, more storage costs *and* lower post-embargo prices exert a further downward pressure on the prices.
Of course, Ivorian producers can respond to this, and reduce their harvesting labour. This will mitigate the expectations for larger post-embargo supply. On the other hand, producers in countries where the higher (embargo-period) prices are transmitted to them will increase their supply. This makes up for some of the short-fall during the embargo, but is also likely to add to the post-embargo glut.

The possible income effects of the embargo consist of
- higher costs to processors during the embargo, compensate by lower costs later-on
- higher revenues to international stockholders (perhaps combined with lower storage costs) during the embargo, compensated by lower revenues (and possibly higher storage costs) later-on
- higher revenues for producers outside Côte d'Ivoire during the embargo and lower prices later-on, to the extent that prices are transmitted
- higher costs to traders within Côte d'Ivoire during the embargo until stocks returned to normal levels, but possibly largely compensated by lower buying prices
- lower revenues of producers in Côte d'Ivoire, to the extent that higher storage costs and bleaker price-outlook are reflected in the prices they received during the embargo; afterwards their prices did not recover fully as the world market price was lower by then due to the extra supply.

Theoretically, therefore, we see that the embargo likely hurt producers and traders within Côte d'Ivoire most; it could lead to a temporary hump in costs for processors but followed by a (similar?) dip; and could mean a small boon for those who held international stocks at the on-set of the embargo and producers outside Côte d'Ivoire.

4. Confronting theory with empirics

For the calculation of possible effects on the demand side, and of what could be the expected post-embargo price, we first turn to the world market.

What were relevant considerations for those that traded cocoa in January 2011? At the London and New York markets, the nearest delivery month is March. These are also the prices that form the base prices for the ICCO daily indicator price. Hence, the 'world market price' that responded to the embargo is the futures price for delivery by March 2011. Such 'delivery' (between apostrophes as physical delivery is rarely required) is potentially threatened by the embargo: some 40% of all traded cocoa comes from Côte d'Ivoire, and an embargo starting mid-January can affect supplies reaching the warehouses before March. Normally, some 10% of the annual imports from Côte d'Ivoire arrive in February (14% in January) in the EU; if half of this would be affected by the embargo (the other half being at sea when the embargo commenced), some 25 000 tons would not reach Europe on time, which is around a fifth of total monthly beans imports into the EU. Even when arrivals in the next month are uncertain, these amounts may appear small in comparison with the stocks in certified warehouses. These levels stood at 223 thousand tonnes in European warehouses at the end of February 2011. Hence, on this basis, no substantial rise in the (nearby) futures should have been expected from the embargo. An additional element is however the increased uncertainty about the prices. This uncertainty by itself might have led stock holders to hedge more than they otherwise would, thus temporarily increasing demand for futures contracts and thereby the price.

As it happened, prices in January, February and March were substantially above the levels that prevailed in earlier months.
To quantify the effect, we followed two approaches, one based on the futures prices, as reported by ICCO and IMF in US dollars, and one based on the actual values of imports of beans in the Netherlands in Euros.
We estimated prices in month t in relation to their past three months, a trend, and dummy variables for the months of the year, using data from January 1999 until December 2011. Table 1 gives the outcomes for the estimated coefficients.

Table 1. Regression outcomes for world market prices

|	dependent variable			
	Unit import value NL €/t		World market $/t	
	Coef	St. Dev.	Coef	St. Dev.
p(t-1)	0.69	0.09	1.24	0.09
p(t-2)	0.31	0.10	**-0.40**	0.14
p(t-3)	-0.04	0.09	**0.10**	0.09
Trend	4.20	3.12	9.91	6.12
Jan	104.67	39.66	-82.08	50.60
Feb	**82.97**	40.34	-20.50	51.08
Mar	**77.48**	40.08	**-130.37**	50.02
Apr	**84.46**	38.79	**-109.98**	48.80
May	**34.90**	39.02	**-110.25**	47.87
Jun	68.31	38.55	-49.98	47.82
Jul	57.43	38.94	-51.26	48.16
Aug	59.43	38.69	**-132.57**	48.65
Sep	23.90	38.74	-84.30	48.58
Oct	57.31	38.49	**-134.44**	47.88
Nov	10.58	38.86	**-109.88**	47.94
intercept	-48.77	43.40	54.94	58.91

R^2	0.96	0.98
N	153	153

Based on this regression, we generated the prices that would have prevailed in 2011 by replacing the lagged values of the prices that appear on the RHS by their successive predicted values. This generates a 'counterfactual' price and the deviation between the actual prices and this dynamic simulation gives an indication of the possible effect that the embargo has had on the world market prices. Figure 1 shows the deviation in prices that occurred in the first 9 months of 2011. After September 2011, a new cocoa year starts and we considered the effects to have disappeared.
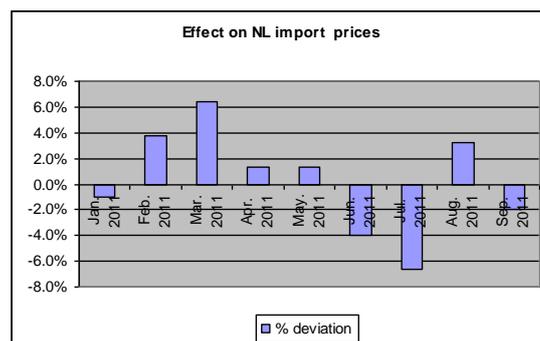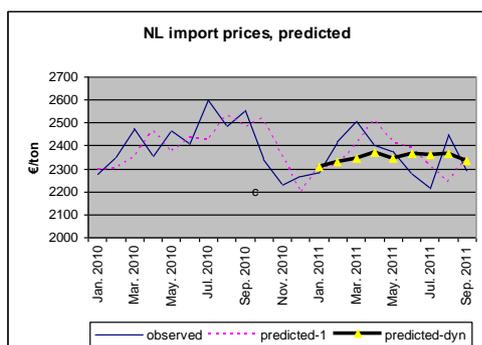
Figures 1a,b Cocoa beans import prices The Netherlands, one-month forecast, and dynamic simulation 2011; Percentage deviation in 2011 between actual and dynamic simulation.
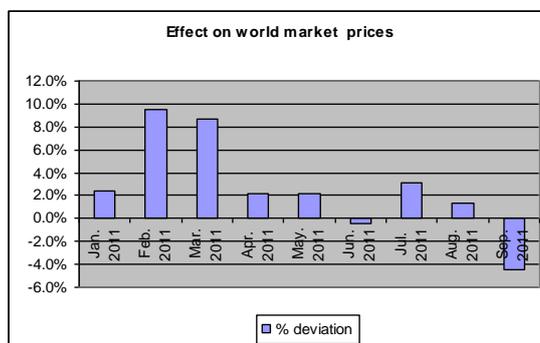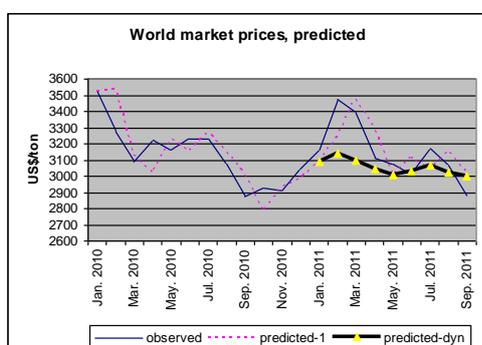
Figures 2a,b Cocoa beans market prices ICCO, one-month forecast, and dynamic simulation 2011; Percentage deviation in 2011 between actual and dynamic simulation.

The estimated deviations are relative to the values that would have prevailed in 2011 in case no disturbances in the prices had occurred. The embargo is one of the possible disturbances. Hence the deviations may overestimate the effects of the embargo to the extent that other disturbances worked in the same direction. The two price series differ in two important respects: one is that market prices lead import prices by about a month, the other is that the Dutch import prices are in Euros and the world market prices in US dollars. The effects that could be due to the embargo are initially quite similar: Dutch import prices may have risen by up to 6% in March, and world market prices by up to 8% in February. The following months show very limited effects on the world market prices, while Dutch import prices fell particularly in July 2011 (-6.6%). Note that the residual standard deviations in the two regressions were €98 and $123, or 6.2% and 6.4% for the Dutch and the market data, respectively. Hence, estimated deviations were hardly significant.

The difference in the downward deviations later in the year, July in particular, can be explained by the nature of the two series. World market prices are for well-defined qualities, while imports pertain to all types of bean. July was a month with extremely high levels of imports, much of it coming from Côte d'Ivoire. And the quality (and therefore the price) of Ivorian exports was affected by the decision of Ivorian authority to "ease the export requirements for mid-crop beans to 125 beans per 100 grammes instead of the normal standard of 105 beans."(ICCO monthly market review, June 2011).

These lower prices can also be seen as a consequence of the embargo, as it helped Côte d'Ivoire to export the large stock of cocoa beans (ICCO's monthly market review mentions half a million tons), that had accumulated in the ports. Figure 3 shows how the shortfall in EU imports from Côte d'Ivoire (normally some 34% of all EU cocoa beans imports) in the early months of 2011 was compensated for in the summer months. The import data do not show, however, that Ivorian cocoa was particularly cheaper than other cocoa: imports from Côte d'Ivoire entered into the EU or the Netherlands at prices that were some 3-5% below the average price for the month and this held for all months of 2011.
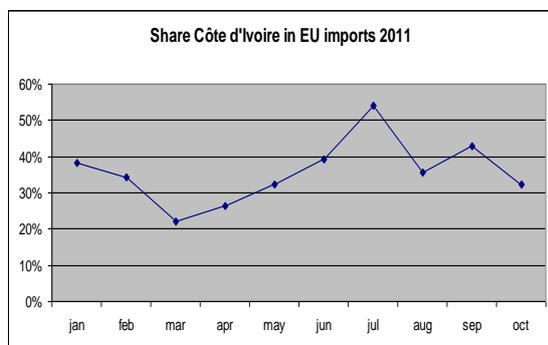

Figure 3 changes in the Ivorian import share, EU (Eurostat)

Effects within Côte d'Ivoire
We now return to the effects on producer prices and we start with Côte d'Ivoire. The theoretical model would charge the producers for the longer storage of the beans, and it would relate the producer prices to the expected selling prices, that would prevail after the embargo. The post-embargo price can be derived from the Dutch price series and suggests that the cocoa that was bought during the embargo was eventually sold at prices that were some 5% below the normal prices.

To understand the other factors that depressed the producer price, we need to know the costs of storing cocoa for some extra months. An estimate of the extra storage costs has a high degree of uncertainty. The 2003 report to which BNETD contributed (Agkpo et al., 2005) documented the costs of storage (for 45 days) to be around 5% of the CIF value of cocoa (FCFA 57 out of 1193). These costs may increase with the volume that is stored. We take this 5% as representing the storage costs for one month in 2011. A decrease in prices at the export level by 5% may translate into much stronger decrease in producer prices: in more normal times, say 2010, producer prices were some 60% of the export price, and 5% of the latter price equals, therefore, 8.3% of the producer price. Two months additional storage alone would then lead to a fall in producer prices by 17%.

In addition, the basis for calculating producer prices shifts from what would be the likely price in the next month to the likely price three months ahead, and it would hinge on the assumption that the embargo would be ended by then with effects on the price level. This effect we estimated above to be (at most) 5%.

Adding this 5% to the 8% discount per month of additional storage, and taking three months to be the average longer duration of storage, one should expect that producer prices came out at levels that were lower by about 30% of the export price, or (at 60% ratio of producer to export price) at 50% lower producer prices. That is, if traders had anticipated the duration of the embargo and its negative effect on subsequent prices correctly.

Producer price data were collected on a monthly basis by a team of the second author in the village of Ouragahio, close to Gagnoa in Côte d'Ivoire. Figure 4 shows the producer prices as share of the world market prices. In 2010, they amounted to some 60% of the world market price, but in 2011 the village prices fell to below 30% of this price in March, April before recovering to around 40% by September. This fall in prices is in line with the theory as explained above. In absolute terms, prices prevailing at the end of 2010 were close to 800 Cfa/kg and slid down to Cfa 404 per kg in April 2011. By September they had recovered to Cfa 511 per kg.

For the income of the producers, this fall in prices was hard, but most of their crop had already been sold: the peak production period is October-December and this crop they had sold at reasonable prices. In the months of February-March, they normally harvest the last pods of the main crop, about 3-10% of their total annual crop. In the months of April-August, they normally harvest the mid-crop that generates about 15% of their total annual crop in the old cocoa regions (slightly more in new pioneer regions where trees are younger and benefit more abundant rainfall, but these cases represent a low percentage of production and farmers). In addition, in 2010/11, due to an exceptionally favourable rainfall pattern, the harvest was abundant and came earlier than a normal year. Finally, at this stage, there is no evidence of famers producing less in response to the low prices.
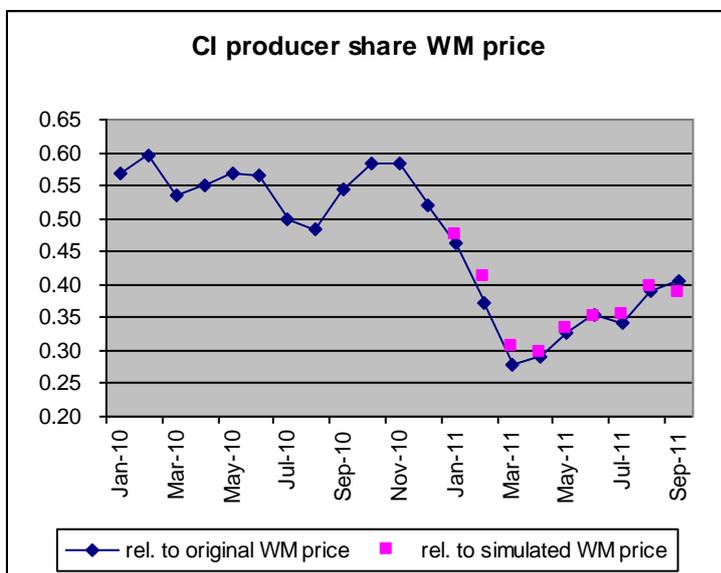

Figure 4. Producer prices in Ouragahio, Côte d'Ivoire as share of world market price.

Some confirmation of the low prices is given by the official price data from Côte d'Ivoire. The ICCO furnished the data on quarterly basis. Producer prices in the first three quarters of 2011, were 864, 669 and 604 franc per kg, which is not quite as low as reported in our village, but still more than 25% below prices prevailing at the end of 2010. These prices, however, are allegedly collected at the primary market level, at which prices are higher than at the very producer level.

This price development for producers can be compared with that for cocoa producers in Indonesia. Monthly data on prices were collected in the village of Noling in South Sulawesi. Figure 5 shows the prices in this village, translated into US$/kg, and set against prices in Côte d'Ivoire (also at the left axis, also translated into US$/kg) and at the world market (right axis).
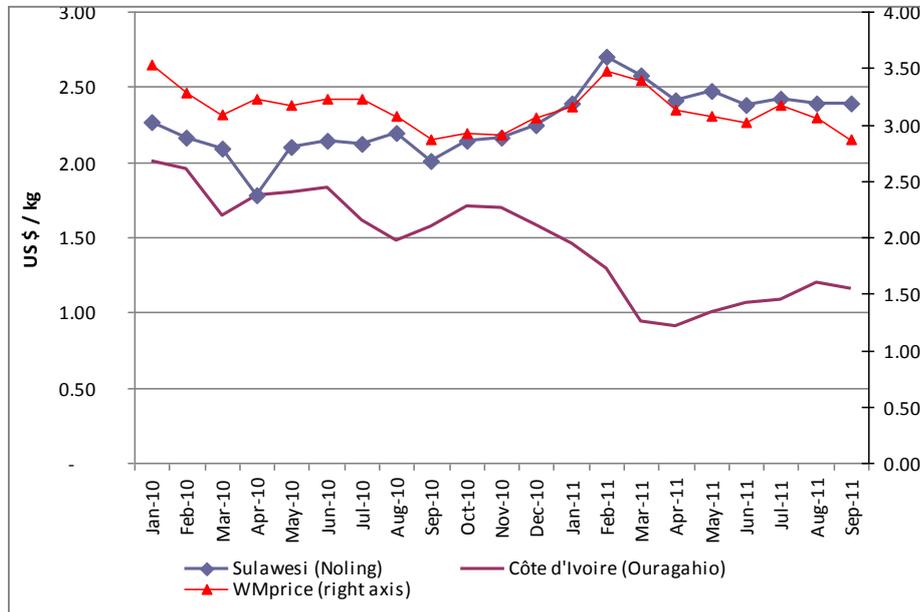

Figure 5. Producer prices and world market price of cocoa, 2010-2011

Figure 5 shows how closely the producer prices in Sulawesi track the developments at the world market. When the world market prices edged upwards at the start of the embargo in January 2011, so did the Indonesian producer prices.

5. Combining losers and winners

We can now sketch the whole picture, at least in terms of price changes. A general comment is still in order: it is not certain that the changes in prices can (completely) be ascribed to the embargo, as other influences are not ruled out.

Among the gainers are the farmers in other parts of the world, including Indonesia. Their gains are some 5% of their production value in the months of February and March 2011. In Ghana, the world's second cocoa producer, the higher world market prices were not transmitted to the farmers, as Cocobod kept its recommended buying price unchanged.

Other gainers, at least initially, are those that held stocks at the start of the embargo which gained in value due to the higher world market prices. The European stocks in certified warehouses stood at 262 thousand tons at the end of 2010. They still held 167 thousand tons by the end of June 2011; this volume is some 100 thousand tonnes less than what was stored in June 2010. Hence, sales from stocks could have been 100 thousand tons larger than otherwise would have been the case. These extra sales are a gain only when they are made at prices higher than those at which they were bought or are replenished. This is probable in view of the higher prices prevailing when stocks were high than when stocks were low.

Those that suffered from the embargo are on the demand side, namely those that paid (slightly) higher prices for cocoa, without being able to translate this into higher prices for the products they sold. It appears that European cocoa processors are in this group. Prices of cocoa products such as cocoa butter, powder and paste did not show movements similar to those of beans. Figure 6 shows this for Dutch imports of beans and exports of powder and butter.
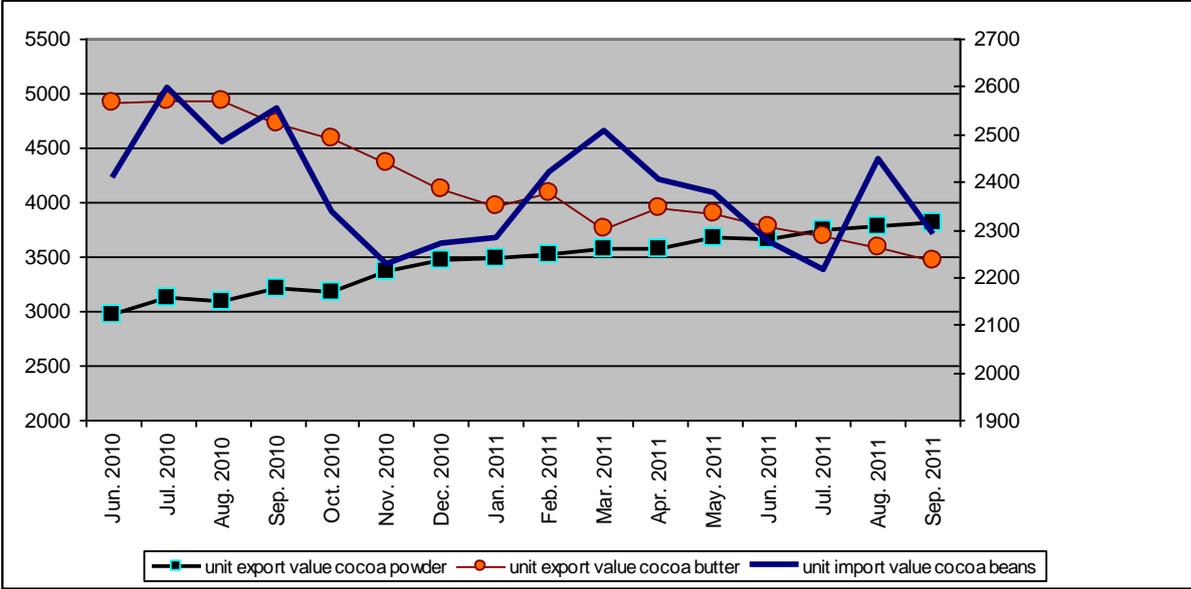

Figure 6. Netherlands' unit import and export values (€/ton), beans (right axis), powder, butter

The gross margin between the combined butter and powder price and the beans price fell from January to March 2011 from €2890 to €2325, but such levels had also prevailed during most of 2009.

Important losers were those in Côte d'Ivoire who held stocks at the onset of the embargo. They may have bought at prices of say Cfa 800/kg, then were forced to stock this for some three months, and could sell it after the embargo ended at prices which did not cover these extra costs. According to ICCO (Monthly market review, June 2011) about half a million tonnes was accumulated at the ports of Côte d'Ivoire, of which 200 thousand tonnes appears to have arrived there during the embargo.

Finally, the group that experienced the strongest decline in prices were the Ivorian farmers. Their prices fell by some 50% in March and April 2011 and did not fully recover before the start of the next season. Small comfort was, that their main crop had already been sold. The mid-crop has, however, gained in importance over the last decade. Witness to this is that reported arrivals at the ports in Côte d'Ivoire stood at almost 900 thousand tonnes at the end of January 2011 while the cocoa year ended with a total (record) production of 1511 thousand tonnes. An important share of total production was therefore likely bought at very low farm gate prices, rendering them probably the main victims of the embargo.

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