Manual – Gold Coast Cooperative Societies 1930-36

The data is derived from balance sheets and statement of accounts published in annual audit reports by the Department of Agriculture (Paterson, various years). The reports list the name of each society, date of formation, location, number of members, paid up capital, revenue and quantity of cocoa sold, profit/losses, reserves and dividends. Each society's books were audited by trained agricultural officers of the Department of Agriculture, so that we can assume a good comparability of the figures. Overall, we have data of all 500 societies that existed in the period 1930-36 and that sold cocoa, 119 of which exited in the period 1930-36.

We supplemented the data with background information of the villages where the cooperatives were operating. Data on infrastructure at that time (distance to roads, railroads, ports) is readily available on contemporary road maps (Survey Headquarters Accra, 1937). Maps also exist for soil classifications (Ghana Department of Soil and Land Use Survey, 1958) and monthly rainfall available as a panel of 0.5 degree grid resolution from CRU TS 2.1 (Mitchell et al., 2004). We digitised these maps and, using the geographic coordinates of the villages as identifier, merged the information with the core data set. In addition, population estimates were retrieved from the 1931 Census (Gold Coast Census Office & Cardinall, 1932). We found the geographic location of 444 villages and identified 428 villages in the Census, or about 89% and 86% of the societies respectively. Alternative spellings of village names and popularity of certain place names are the main reasons for attrition.

If you use the data, please read and cite
Cazzuffi, Chiara and Moradi, Alexander. "Why Do Cooperatives Fail? Big Versus Small in Ghanaian Cocoa Producers' Societies, 1930-36." *CSAE Working Paper WPS/2010-18*, 2010.

Variable name	**Description**	**Source**
idorig	ID counting the societies as they appeared in the original source	
yearaudit	Year of audit	**DepAgr**
society	Name of cooperative society The name corresponds to the village in which the cooperative was operating. Names of the same society are not always identical.	**DepAgr**
identifier	ID uniquely identifying cooperatives The variable was generated using the name of the society <**society**>, <**idorig**>, and < **yearaudit** >. In a few instances, different cooperatives were located in (different) villages, which had the same names.	
district31	District using district boundaries of 1931 The variable was generated using the geographic coordinates <**lat**> and <**lon**> of the villages and geo-referenced district boundaries from **MAP1928**	**MAP1928**

members	Number of cooperative members	**DepAgr**
district_orig	District as it appears in the original source **< district_orig >** is not consistent across audit reports. In some audit reports, the geographic area rather than the district was given. District boundaries also changed.	**DepAgr**
capital1 **capital2** **capital3**	Paid-up capital (£) Paid-up capital (s) Paid-up capital (d) One pound (£) has 20 shillings (s). One shilling (s) has 12 pence (d). For paid-up capital in £ see **capital=capital1+capital2/20+capital3/20/12**	**DepAgr**
rev1 **rev2** **rev3**	Revenues from sale of cocoa (£) Revenues (s) Revenues (d) **revenue=rev1+rev2/20+rev3/20/12**	**DepAgr**
profit1 **profit2** **profit3**	Profit shown at end of year (£) Profit (s) Profit (d)	**DepAgr**
loss1 **loss2** **loss3**	Loss shown at end of year (£) Loss (s) Loss (d)	**DepAgr**
def1 **def2** **def3**	Deficit (£) Deficit (s) Deficit (d) **deficit= def1+def2/20+def3/20/12**	**DepAgr**
reserves1 **reserves2** **reserves3**	Amount placed to Reserve Fund during year (£) Reserves (s) Reserves (d) These are reserves added to the total reserves <**tot_res1**>, <**tot_res2**>, <**tot_res3**> during the commercial year.	**DepAgr**
tot_res1 **tot_res2** **tot_res3**	Total Reserve Fund (£) Total Reserve (s) Total Reserve (d)	**DepAgr**
dividend1 **dividend2** **dividend3**	Dividend paid (£) Dividend (s) Dividend (d)	**DepAgr**

cocoasold	Quantity of cocoa sold (in tons)	**DepAgr**
store	Whether store was owned or rented String variable as scanned from the original. For dummy variables see **< ownedstore >, < lentstore >, < rentedstore>**	**DepAgr**
expenditures1 **expenditures2** **expenditures3**	Expenditures (£) Expenditures (s) Expenditures (d) Only available for the year 1930-31	**DepAgr**
c38		
nrcompounds	Number of compounds counted in the village (where the cooperative is located) The data was derived from the Census in 1931. We identified the village in the Census using <**district31**> and < **society** > from the core data set. We could identify 440 of the 515 cooperative villages in **Census.** Missing values are likely due to - alternative spellings in **Census** - more than one village with the same name in **Census** - omissions in **Census** **nrcompounds** was only collected for a sub-sample of villages.	**Census**
m_15 **m15_45** **m_46**	Head count of male population (<15 years) Head count of male population (15-45 years) Head count of male population (>45 years)	**Census**
f_15 **f15_45** **f_46**	Head count of female population (<15 years) Head count of female population (15-45 years) Head count of female population (>45 years)	**Census**
totalpop	Total population **m_15, m15_45, m_46, f_15, f15_45** and **f_46** do not always sum up to **totalpop** due to typos or errors in **Census**	**Census**
sumpop	Total population **sumpop** =**m_15 + m15_45 + m_46 + f_15 + f15_45 + f_46**	
education	Head count of educated subjects	**Census**

<table>
<tr><td>ufi</td><td>Unique place name identifier.

Matching between GEONet and DepAgr by < society > and <district_orig>. We also consulted maps in DepAgr showing the approximated location of cooperatives.

We were able to identify the geographic location of 444 villages.</td><td>GEONet</td></tr>
<tr><td>lat
lon</td><td>Latitude (in decimal places)
Longitude (in decimal places)</td><td>GEONet</td></tr>
<tr><td>dist_rd1</td><td>Distance to road, class 1 “Roads suitable for motor traffic throughout the year” (in km)</td><td>MAP1937</td></tr>
<tr><td>dist_rd2</td><td>Distance to road class 2 “Roads suitable for motor traffic, but occasionally closed” (in km)</td><td>MAP1937</td></tr>
<tr><td>dist_rd3</td><td>Distance to road, class 3 “Roads suitable for motor traffic in dry season only” (in km)</td><td>MAP1937</td></tr>
<tr><td>dist_rr</td><td>Distance to railroad (in km)</td><td></td></tr>
<tr><td>dist_port</td><td>Distance to nearest port (in km)</td><td>Dickson</td></tr>
<tr><td>dist_cocob</td><td>Distance to nearest cocoa buying centre (in km)</td><td>Dickson</td></tr>
<tr><td>founded_year</td><td>Year society was founded</td><td>DepAgr</td></tr>
<tr><td>founded_month</td><td>Month society was founded</td><td>DepAgr</td></tr>
<tr><td>soil</td><td>Cocoa soils

The variable indicates the soil quality at the geographic coordinates of the society <lat> and <lon>

<table><tr><td>Value</td><td>Soil quality</td></tr><tr><td>-9</td><td>Unsuitable</td></tr><tr><td>0</td><td>Not specified in MAP1958</td></tr><tr><td>1</td><td>First Class</td></tr><tr><td>2</td><td>Second Class</td></tr><tr><td>3</td><td>Third Class</td></tr><tr><td>4</td><td>Intergrades</td></tr></table></td><td>MAP1958</td></tr>
<tr><td>soil_cl1
soil_cl2</td><td>Cocoa soil classifications within 5km radius of the village location (in %)

Ochrosols:
Percentage of cocoa soil First Class
Percentage of cocoa soil Second Class</td><td>MAP1958</td></tr>
</table>

soil_cl3 **oxysole** **unsuitable** **intergrade**	Percentage of cocoa soil Third Class Percentage of cocoa soil Oxysols Percentage of cocoa soil Unsuitable Percentage of cocoa soil Intergrades	
yr	Year Numeric variable for **yearaudit,** where 1931, 1932, .. 1937 in **<yr>** replaced 1930-31, 1931-32, ..., 1936-37 in **< yearaudit>**	
age	Age of the cooperative (in years)	
lnmemb	LN(**member**)	
capital	Paid-up capital (in £) **Capital=capital1+capital2/20+capital3/20/12**	
revenue	Revenues from cocoa sales in £ **Revenue=rev1+rev2/20+rev3/20/12**	
deficit	Deficit in £ **deficit= def1+def2/20+def3/20/12**	
tot_reserve	Total reserves in £	
reserve	Amount placed to Reserve Fund during year (£)	
dividend	Dividend in £	
profit	Profit in £, Losses are negative values	
profitmember	Profit per member	
capitalmember	Capital per member	
lncapital	LN(Capital)	
lncapitalmember	LN(Capital per member)	
min_members	Dummy variable indicating that cooperative has less than the minimum requirement of 10 members.	
coopprice	Producer price(£ per ton) **coopprice=revenue/cocoasold**	
lncoopprice	LN(**coopprice)**	

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>cocoa_member</td><td>Cocoa sales per member (in tons)

cocoa_member=cocoasold/member</td><td></td></tr>
<tr><td>lncocoa_member</td><td>LN(cocoa_member)</td><td></td></tr>
<tr><td>lncocoasold</td><td>LN(cocoasold)</td><td></td></tr>
<tr><td>y1930
y1931
y1932
y1933
y1934
y1935
y1936</td><td>Dummy variables for the year of

Y1930, y1932 refers to the year 1930-31, 1931-32, and so on.</td><td></td></tr>
<tr><td>ownedstore
lentstore
rentedstore</td><td>Dummy variables indicating whether the store was rented, lent or owned

Dummies generated from < store ></td><td></td></tr>
<tr><td>port_price</td><td>Price paid to producer (£ per ton)

These are port prices excluding taxes and shipping from the port</td><td>Viton</td></tr>
<tr><td>lnport_price</td><td>LN(port_price)</td><td>Viton</td></tr>
<tr><td>lg4port_price</td><td>Four year lag of port_price</td><td>Viton</td></tr>
<tr><td>lg7port_price</td><td>Seven year lag of port_price</td><td>Viton</td></tr>
<tr><td>prod_uk</td><td>Industrial production UK (1929=100)</td><td>LoN</td></tr>
<tr><td>prod_us</td><td>Industrial production UK (1929=100)</td><td>LoN</td></tr>
<tr><td>c_transport</td><td>Average up-country transport (head loading and lorry)</td><td>Dickson</td></tr>
<tr><td>gridref</td><td>ID indicating the 0.5 degree grid:

<table><tr><td></td><td></td><td>Longitude grid</td><td>Latitude grid</td></tr><tr><td>355,</td><td>193</td><td>[-3.0, -2.5[</td><td>[6.0, 6.49[</td></tr><tr><td>356,</td><td>193</td><td>[-2.5, -2.0[</td><td>[6.0, 6.49[</td></tr><tr><td>...</td><td></td><td></td><td></td></tr><tr><td>362,</td><td>194</td><td>[0.5, 1.0[</td><td>[6.5, 7.0[</td></tr></table></td><td>CRU TS 2.1</td></tr>
<tr><td>rain_year</td><td>Year of rainfall</td><td></td></tr>
</table>

lgrain_jan **lgrain_feb** **lgrain_mar**	Monthly rainfall in the 0.5 degree grid where cooperative is located (<**lon>** and <**lat>**) Figures refer to monthly rainfall in the year before the audit, that is in **rain_year-1**.	**CRU TS 2.1**
rain_apr **rain_may** **rain_jun** **rain_jul** **rain_aug** **rain_sep** **rain_oct** **rain_nov** **rain_dec** **rain_jan** **rain_feb** **rain_mar**	Monthly rainfall in the 0.5 degree grid where cooperative is located April, May, June, etc. to March during the cocoa season	**CRU TS 2.1**
rain_annual	Yearly rainfall in the 0.5 degree grid where cooperative is located	**CRU TS 2.1**
xr_GBPforUSD	Exchange rate GBP per 1 USD	**LoN**
xr_uk	Exchange rate Pound sterling-gold (1929=100)	**LoN**
gdp_US	US Real GDP per capita (year 2005 dollars)	
gdp_UK	UK Real GDP per capita (year 2003 dollars)	
group	Numbers the categories in < **district31** >	
yr_entry	Year of entry of cooperative	
exit	Dummy indicating the last year of operation of the society. Cooperatives that exited did not report an audit at the end of the cocoa season. Therefore, we constructed **exit** based on the appearance of the cooperative in the audit reports. Strictly speaking, the exit occurred at an unknown date the following year (after having reported figures for a final time).	
dmember	Absolute change in membership	
dmem_perc	Percentage change in membership	
member_founded	Members of cooperative at year of foundation	
lgIncapitalmember	One year lag of **lncapitalmember**	
lgdividend	One year lag of **dividend**	

lgprofit	One year lag of **profit**	
survive5	Dummy indicating cooperatives that survived at least 5 years	

Sources:

Abbreviation	Source
Census	1931 Gold Coast Population Census
CRU TS 2.1	Mitchell, T. D.; Carter, T. R.; Jones, P. D.; Hulme, M. and New, M. "A Comprehensive Set of High-Resolution Grids of Monthly Climate for Europe and the Globe: The Observed Record (1901-2000) and 16 Scenarios (2001-2100)," *Tyndall Centre Working Paper No. 55. Tyndall Centre for Climatic Change Research.* 2004. Downloaded http://www.cru.uea.ac.uk/~timm/cty/obs/TYN_CY_1_1.html
DepAgr	Department of Agriculture. Gold Coast. *Annual Report of the Department of Agriculture*. Accra: Government Printer, 1930-36.
Dickson	Dickson, Kwamina B. *A Historical Geography of Ghana*. London: Cambridge U.P., 1969.
GEONet	National Geospatial-Intelligence Agency. "NGA GEONet Names Server," 2007.
LoN	League of Nations (1938), "Statistical Yearbook of the League of Nations"
MAP1928	The General Map of the Gold Coast and that Part of Togoland Mandated to Great Britain, Scale 1: 1,000,000, Drawn and printed at the Survey HQ Accra, 3rd edition, 1928.
MAP1937	Road Map of the Gold Coast, Southern Sheet, 6th edition, April 1937, Survey HQ Accra, 1:500,000
MAP1958	Southern Ghana , Classification of Cocoa Soils, Ghana Department of Soil and Land Use Survey, 1958, 1:1,000,000
Viton	Viton, Albert. *Cacao: A Review of Current Trends in Production, Price, and Consumption*. Rome: Food and Agricultural Organization of the United Nations, 1955.