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THE INFORMAL SECTOR TRADE AMONG SUB-SAHARAN AFRICAN COUNTRIES: A SURVEY AND EMPIRICAL INVESTIGATION

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I. INTRODUCTION

THIS paper discusses a poorly documented aspect of the activities of the informal sector, namely, the international trade activity of the informal sector, hereafter referred to as informal trade. Following the introduction in Section I, Section II outlines the relationship between the informal sector and informal trade, presents the financial link among informal activities, and discusses the framework within which informal trade transactions are made. Section III analyzes the flow of informal goods, the trade direction, and the incentive to trade. Section IV presents the empirical investigations.

Informal trade among African countries takes place outside official channels and has long been equated merely with smuggling of goods, or with other dubious and illegal activities. Recently, however, researchers and development institutions have started to associate informal trade with the large informal sector existing in African countries [26] [2]. Helleiner summarized the interest generated and the need for understanding this activity of the informal sector.

> Not nearly enough is known about the performance and prospects of small and informal sector enterprise outside of agriculture. As the "modern" economy was buffeted by external blows and domestic mismanagement in recent years, an unrecorded parallel sector—peopled largely by small firms—entered with new vigor into trade, finance, and various directly productive activities. Can and should this small-scale sector be offered more encouragement, and if so, how? [10, p. 227]

Informal trade covers virtually all kinds of tradable goods except for heavy industrial capital goods. Informal sector enterprises and residents in the informal sector, through informal channels, benefit from the informal trade transactions which ensure a relatively cheap and reliable source of imports. Likewise, producers of primary commodities find in the informal channels an alternative for maximizing their revenues when prices are biased against exporters in the formal sector. Informal trade encompasses invisible trade: services, financial services and flows. Services are generated by the transactions and financing of informal trade goods.

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The multitude of foreign exchange shops operating in the free (or black) market are typical of the financial dealings and services provided by informal traders. Flows of informal finance include unrequited informal transfers, made up of remittances by migrants, and capital accumulated abroad and taken back home.

Informal trade operators are defined as all operators using informal channels and networks. They are mainly residents of the informal sector, generally described as consisting principally of the poor, rural and urban migrants. Recently informal sector operators (including informal traders) have been identified as the members of "traditionally entrepreneurial ethnic groups, school leavers, workers redeployed from public service or private firms, or public service employees seeking to supplement their official incomes" [26, p. 139]. They may also be international migrants (seasonal or permanent), or refugees living close to their country of origin, trading between their country of origin and their country of adoption as their knowledge of local customs, products, and networks gives them a net advantage over other traders. The activity of informal traders suggests that the scale of trade among African countries is larger than actually reported.

II. ACTIVITIES IN THE INFORMAL SECTOR

A. *Informal Trade: An Activity of the Informal Sector*

Informal trade occurs within the informal sector inasmuch as it shows the following characteristics [12]. (1) Informal trade is large in scale, unregulated, and performed by a multitude of informal sector operators. (2) The average scale of operations is smaller than that in the formal sector. (3) The formal requirements for registration are minimal, nonexistent, or evaded with complete freedom and ease of entry and exit. (4) Informal traders escape taxes on international trade (import or export license, import or export taxes) and use parallel markets in foreign exchange. Although the international trade taxes are evaded, local taxes and licenses to sell in local market places are generally paid. (5) All kinds of tradable goods of either formal or informal origin are exchanged. Goods are traded at market price.

Figure 1 summarizes and links informal sector activities through flows of informal finance. Informal trade is linked to each activity and plays a significant role in channeling resources for financing informal sector activities, by draining in foreign exchange to the pool of financial resources of the informal sector. The financial resources of the informal sector are raised from: the informal saving institutions, the free market supply in foreign currency, remittances from migrants, and the formal sector.

B. *Informal Trade Framework*

The framework within which informal trade occurs is summarized in Figure 2. The nine cells of the diagram represent the scope of informal trade in terms of trade in goods, services, and unrequited transfers.

Cell (A) represents trade in currency, cells (B), (D), and (E) represent trade in goods, and cells (C), (F), (G), (H), and (I) trade in services. Taken individually,

Fig. 1. Informal Finance and Informal Sector Activities

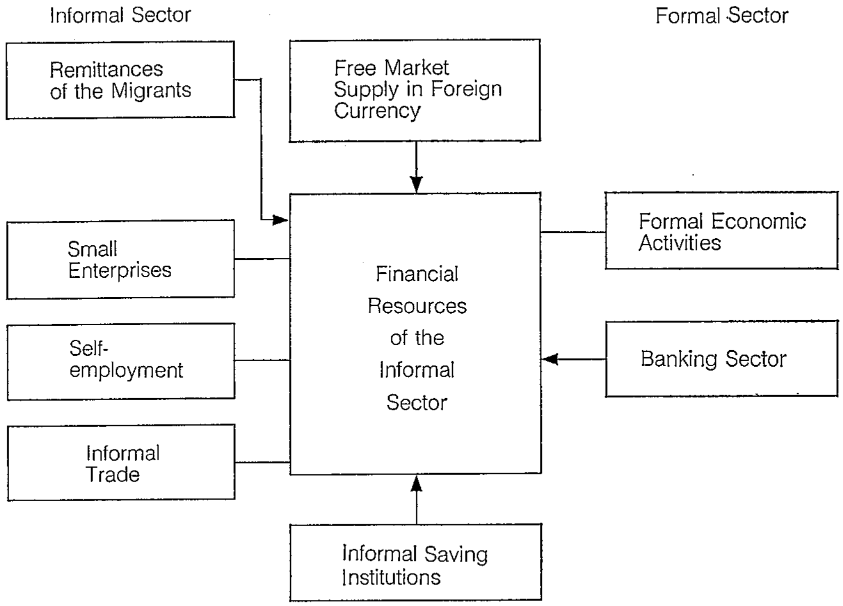


Fig. 2. Scope of Informal Trade

Country Y \ Country X	Domestic Currency	Goods	Services
Domestic Currency	Free Market in Foreign Exchange (A)	Export Trade (B)	Service Exports Paid in Cash (C)
Goods	Import Trade (D)	Barter in Goods (E)	Service Exports Paid in Goods (F)
Services	Service Imports Paid in Cash (G)	Service Imports Paid in Goods (H)	Barter in Services (I)

the trade depicted in the cells may be characterized as follows. (A) represents total transactions on the free market in foreign exchange of the domestic currency. (B) represents value of goods exported for the currency of the other country at free market rate. (C) represents the revenues paid in the domestic informal economy as a result of employment in the informal trade in service export. (D) gives the value of goods traded against domestic currency, and represents imports. (E) gives the value of barter trade in goods. (F) represents the value of services exported and remunerated in goods. (G) represents the value of service imports paid in cash. (H) gives the value of service imports paid in goods. (I) represents barter trade in services.

Cells (A), (B), (D), and (E) suggest that incentives and/or financial gain to trade in informal markets are high enough to initiate or encourage trade in informal markets. Among all, cell (E)—barter in goods—represents the flexibility and ingenuity of informal transactions. Barter, seldom used in formal transactions, is widely used in small-scale and numerous informal transactions, especially in periods of currency depreciation and macroeconomic instability. The flexibility of informal transactions and the adaptation of informal operators to the changes in market conditions are derived from the "rational expectations" and information carried out by informal networks.

C. *Informal Networks*

Informal networks are preconditions for informal trade. The informal networks consist of the information, services, and other intangible links required to conduct the various operations. These networks include tribal, social, and community-based alliances.

Research on the informal sector has pointed out the importance of the informal networks. They provide information on commodity prices, foreign exchange and free market rates, and other market conditions, acting as the economic intelligence of the informal sector [20]. In addition, they extend across countries [5] [4], provide economic opportunities to the poorest by linking any individual to informal institutions [16], are channels to be secured before the decision of migration is made [25], are the source for raising informal finance, and constitute the channels for informal transfers [8]. These networks are the fundamental channels for moving food supplies and consumer goods both between urban and rural areas, and across international borders [26].

A survey on the flows of informal trade goods is displayed and briefly discussed in the next section.

III. FLOW OF GOODS

A. *A Thriving Phenomenon*

The primary sources in compiling data and making a survey on informal trade consisted of newspapers, the local press, and magazines. This survey covers the period 1972–83, and is summarized in the tables below. The survey shows the diversity and direction of traded goods and the incentives to engage in informal trade. Among these incentives is the convertibility of local currencies in local markets from which informal trade benefits. A major reason impeding trade in the formal sector is the inconvertibility among African currencies. In the formal sector, transactions between African countries necessitate the use of foreign exchange in hard currencies or the mediation of the financial institutions of the developed countries. Informal trade, however, does not suffer from this limitation. Black (free) markets in foreign exchange assure convertibility among African currencies, in transactions which are held publicly at designed places, involving hundreds of well-known dealers. Although illegal, informal trade is generally tolerated by the authorities.

B. *Government Tolerance of Informal Trade*

The survey of the local press and newspapers in Africa shows that essential imports through informal trade are tolerated by the authorities as this system does not put strains on the central bank foreign assets and often is the only means of supply. Siggels in his analysis of government trade policy in Zaire reports on such government tolerance.

> In view of persisting foreign exchange scarcity the Central Bank tightened the control of imports and exports further through OZAC (Office Zairois de Contrôle).... However, at the same time it tolerated and even legitimized more and more payments at parallel market rate so that in 1982/83 the majority of imports were uncontrolled and the parallel market exchange rate was widely used. This moved the economy to phase III, the return to a more liberal regime. The reason for this move was that more foreign exchange could be generated for the economy by permitting exporters to benefit of the parallel rate and by easing the fiscal pressure on exports. Pursuing the double goals of increasing foreign exchange supply and of reviving the mining sector the Government authorized small scale prospectors to sell gold and diamonds to specific agencies and to retain their earnings in foreign exchange accounts. The proceeds could then be traded at the parallel market rate. [22, p. 297]

C. *The Goods Traded*

The goods traded are of either formal or informal sector origin. They include artisanal goods as well as manufactured commodities: Senegalese leather work as well as cars made in Nigeria. Far from being only an urban activity, it is a rural one. Primary sector producers from Uganda cross the border into Kenya to sell their coffee; cocoa producers from Ghana sell in Côte d'Ivoire their output. Sales of imported goods are tolerated in the domestic local markets and subject to domestic sales taxes.

Informal trade flows include also capital, made up of the remittances of the migrants. During the period, flows of informal finance were observed as coming from countries such as South Africa, Kenya, Côte d'Ivoire, and Nigeria, and going to countries such as Mozambique, Uganda, and Ghana.

D. *Incentives to Informal Transactions*

In the determination of price and revenue, informal traders take into consideration several factors such as the free black market differential in foreign exchange

TABLE I

A Survey of Informal Trade (1972–83): Eastern Africa

Goods	Explanatory Comments	Trade Direction	
		From	To
Sugar	—In 1972 over 70,000 tons because of price differential	Uganda	Kenya, Tanzania, Rwanda, Burundi
Watches, records, tape recorders, record players, radio	(Re-export) —In barter trade for livestock, sugar, salt, rice. Barter increased as Ugandan shilling lost exchange value	Uganda	Kenya
Coffee	—Lack of foreign exchange in Uganda to purchase packing bags for coffee export resulted in a flow of raw coffee into Kenya —In Uganda after political instability, economic collapse followed. It brought about reverse trade direction in informal goods	Uganda	Kenya
Currency	—27 million shillings per year —Free market premium on Kenyan shilling	Kenya	Tanzania, Uganda
Refined petroleum products, textiles, crude oil, paper for printers	—Effects of the breakup of the East African Community and the end of its exchange rate parity —Export volume even far higher than before frontier closure	Kenya	Tanzania, Uganda
Margarine, bread, milk, soap, sugar, basic commodities	—Price differential (%): Kenyan shilling premium 400 Blankets 1,566 Dresses 900 Bread 1,104 Leather shoes 1,100 Sugar 560 Matches 700	Kenya	Uganda
Tea, Ankole cattle, cotton, cardamon		Kenya, Tanzania	Sudan, Uganda
Livestock	—Barter trade. Shortage of consumer goods in Tanzania	Tanzania	Kenya
Clothes and cotton fabrics	—Over 33,000 meters in 1971–73 —Production of these goods intended for the low-income group in Sudan, thus comparatively lower price than in neighboring countries (50%) triggering trade	Sudan	Chad, Ethiopia

TABLE I (Continued)

Goods	Explanatory Comments	Trade Direction	
		From	To
Gum arabic	—7,000 tons in 1975 —Trade caused by sharp increase in Sudanese export tax and also caused by the Sudanese producer differential price (80% lower)	Sudan	Ethiopia
Sesame seed		Sudan	Ethiopia
Coffee		Ethiopia	Sudan
Leather		Sudan	Ethiopia, Uganda, C. Afr. Rep., Chad, Zaire

Source: See Appendix.
Note: Political factors in what once was the Eastern Africa Economic Community triggered informal trade in Kenya, Uganda, and Tanzania. Kenya followed a free-market-oriented economic policy, Tanzania a state-controlled socialist type of economic development, and government and administration collapsed in Uganda. As a result, the shilling currency of the three countries once on a par, differed in value in the free market for foreign exchange. The Kenyan shilling was sold at a premium, the Tanzanian shilling at a discount, and the Ugandan shilling lost exchange value to such extent that exchange with this country was conducted through barter trade.

and the level of trade taxation. Also they face additional transport costs for exporting and/or importing over the borders. Depending on the level of government tolerance of informal trade and of the kind of goods traded, they may or may not pay bribes to officials, which also are additional costs. Informal operators (traders, producers, consumers) compare all these factors and make their choice according to alternative gains in informal or formal markets. The combination of these various factors gives a positive or negative incentives to informal trade.

E. *Estimating Informal Trade*

Transactions in the informal sector in 1983 amounted to 313 billion francs (close to U.S.$1 billion) in the CFA zone, and the equivalent of U.S.$1.54 billion in Nigerian nairas. These estimates were reported, respectively, for Nigeria by *The New African* and for the CFA franc monetary zone by *Marchés tropicaux. Jeune Afrique* (February 23, 1983) estimates that the scale of informal trade is being far more larger than that of recorded trade. Taking as reference the intra-sub-Saharan African trade as recorded in EUROSTAT [6], an estimate of informal trade of over U.S.$3 billion in 1983 can be realistically suggested.

Tables I–III present the compiled surveys on the informal trade: goods traded in kind or cash value, the trade direction, and subregions, as well as the incentives to informal trade.

TABLE II

A SURVEY OF INFORMAL TRADE (1972–83): WESTERN AND CENTRAL AFRICA

Goods	Explanatory Comments	Trade Direction	
		From	To
Diamonds	—2/3 of Liberian export —Diamonds originated from these countries due to the lower export tax rate and the fact that Liberian dollar is on a par with the U.S. dollar	Sierra Leone, Zaire	Guinea, Liberia, Congo
Tea		Zaire	Sudan
Coffee, cocoa	—U.S. dollar on a par with Liberian dollar	Sierra Leone	Liberia
Currency	—The equivalent of U.S.$1.54 billion (official 1977 rate) in naira, the currency of Nigeria, was diverted to informal foreign exchange market, from 1974 to 1976	Nigeria	West, Central Africa
Manufactured goods: cars, textiles, toys, chemical fertilizers, electric goods	—Disincentives to exporters due to the complex administrative export and import tax regulations —Duties on finished goods	Nigeria	West, Central Africa
Automobiles	—About 1,200 in 1980 —50% price differential due to tax rate and free market premium in Nigeria on CFA franc	Nigeria	Cameroon
Petroleum	—In 1977 U.S.$267–400 million equivalent —About 50,000 barrels a day exported within Africa	Nigeria	All directions
Roofing sheets, soap, synthetic clothes	—Common ethnic group in both countries —Borders not clearly recognized nor defined	Nigeria	Cameroon
Hides and skins, groundnuts, cocoa		Nigeria	Niger
Rice	—0.5 million tons per year	Nigeria	West Africa
CFA franc	—Currency supplied to informal economy (1983) 140 billion francs 173 billion francs	Union currency Free market Central Africa West Africa	
Textiles, alcohol, brand cigarettes, beer, livestock	—Trade restrictions on import of goods in Nigeria	Nigeria, Togo, Benin, Chad	Cameroon, Nigeria

TABLE II (Continued)

Goods	Explanatory Comments	Trade Direction	
		From	To
Used clothes	—Through the border city of Maradi in Niger	Benin	Nigeria
Foodstuffs	—Lack of viable marketing and buying centers in Ghana for selling foodstuffs as well as lack of good transportation and storage facilities	Ghana	Neighboring countries
Cocoa	—Higher producer price	Ghana	Neighboring countries
Maize, flour, textiles, shoes, clothes, sugar, soap		C. d'Ivoire, Togo	Ghana

Source: See Appendix.

Note: In this region, oil-rich Nigeria is the largest-sized economy, and most of the regional informal trade is related to that economy. In the early 1970s, oil supplied through informal markets from Nigeria was sold in the regional markets. The size of the Nigerian economy enables it to have a large base of industries which attract informal sector's migrants in search of employment opportunities. The same industrial base allows for diversified exports from Nigeria.

The former French colonies regrouped in their monetary area, the CFA franc, constitute the other aspect of this region. Cameroon informal traders made the junction between Central and Western Africa informal markets.

Looking at these surveys, it appears that the center of trade in East and North-eastern Africa is Kenya, while in Western and Central Africa it is Nigeria, and in Southern Africa it is South Africa. These countries are the most industrialized, with also the largest GDP in their region. The CFA countries, however, benefit from their link to the French franc.

The direction of informal trade is determined by the price differential, the incentive for the informal trader. This incentive, as shown from the survey, results from the trade taxation, the exchange rate differential from the official market and the free market, and existence of diverse trade restrictions.

IV. EMPIRICAL INVESTIGATIONS

The trader's decision to use the alternative of unregulated informal trade rather than formal trade channels is guided by the lure of a return higher than that available in formal markets. This financial gain, referred to throughout this paper as "informal incentive," can be measured. It arises by avoiding taxes in international trade and using free or black market foreign exchange.

TABLE III

A SURVEY OF INFORMAL TRADE (1972–83): CENTRAL AND SOUTHERN AFRICA

Goods	Explanatory Comments	Trade Direction	
		From	To
Diamonds	—Free market of diamonds in neighboring countries, but strict government control on diamonds in Zaire	Zaire	Zambia, Congo
Foodstuffs	—Sizable free market differential	Zaire	Congo
Soap, butter, sugar, tires		Zaire	Tanzania
Meat, vegetables, fruits	—Ban on cheaper South African goods	South Africa	Southern Africa
Used cars, clothing, jewelry	—Trade with South Africa is prohibited because of political reasons. Luxury goods in demand in neighboring countries	South Africa	Southern Africa

Source: See Appendix.
Note: In this region, the influence of the largest-sized economy, the South African economy is strongly felt. In the southern part this influence is mainly manifested through the remittances made to neighboring countries by expatriate workers in South Africa. Goods made in South Africa can be found in informal markets of countries situated in Central Africa: Zaire and Congo.

A. *Measuring the Informal Incentives*

Borrowing the formula put forward by McDonald [17] in his study on the incentives to export through nonofficial channels, the incentive to export is defined as:

$$I_x = e/s(1 - t_x), \tag{1}$$

I_x = the incentive to informal exports,
e = the free or black market rate in foreign exchange,
s = the effective official exchange rate, and
t_x = the export tax rate.

We may derive the informal import incentive by the formula:

$$I_m = s(1 - t_m)/e, \tag{2}$$

where, e and s have the same meaning as in equation (1), and t_m is the import tax.

A positive value for I_x or I_m indicates that it is profitable to trade in informal markets. Since the exchange rates between local currencies are not available, the informal trade incentives are calculated relative to the value of the U.S. dollar on the free market. Table IV displays the informal export incentives that existed in selected sub-Saharan African countries during the 1972–83 period.

TABLE IV

INFORMAL EXPORT INCENTIVES (I_x), 1972–83

	N	Mean	Min	Max	Var	Std
Cameroon	8	0.084	−0.010	0.162	0.002	0.048
Ghana	10	2.324	0.204	7.466	5.013	2.234
Kenya	12	0.161	0.011	0.319	0.008	0.088
Nigeria	7	0.448	0.161	0.739	0.041	0.202
Senegal	9	0.364	0.076	0.633	0.045	0.212
Sudan	10	0.141	−0.857	0.881	0.426	0.653
Tanzania	11	1.715	0.586	3.545	0.789	0.889
Zaire	11	1.735	0.674	3.186	0.628	0.792

Sources: [14] [13] [11].
Note: N is number of observations, Var is variance, and Std is standard deviation.

Data in Table IV shows that, positive incentives to export in informal markets existed in the sample of the countries investigated, and that the amplitude in the standard deviation coincides with the informal incentives. Countries with a small standard deviation tend to have lower informal trade incentives, while countries with high informal incentives tend to have a high standard deviation in the data examined. This points to the existence of a relationship between macroeconomic instability and the expansion of informal activities. Macroeconomic instability is reflected by the exchange rate overvaluation relative to free market rates.

In Table IV, Ghana's case is striking because of the size of its incentive to informal trade. It reaches an amplitude of 7.466, meaning that, compared to formal markets, the informal trader reaps a 746.60 per cent differential gain in informal markets. The high magnitude of the variance and standard deviation indicates the presence of macroeconomic instability, which in turn suggests that large transactions are taking place in informal markets. Ghana is followed by Tanzania and Zaire.

Cameroon and Senegal show low standard deviations, implying relatively smaller informal exports. This may be related to their link to the French franc through the CFA zone which imposes exchange rate and monetary discipline. This is in accordance with Bhatia's view that CFA franc countries have attained in Africa a comparatively lower macroeconomic instability [3]. Cameroon, indeed, comes out with the lowest informal export incentives, displaying a mean value of 0.084, which means that informal exports provide a rather low gain of 8.4 per cent compared to formal channels.

Table V shows the informal import incentive for a holder of one U.S. dollar. In the context of overvalued currencies, imports in the formal sector are cheaper, and it is therefore more beneficial to import through formal trade. There is thus a negative incentive to import through informal markets as displayed in the table.

In all the countries, the incentive to import through informal markets is negative. Based on the previous results, Ghana shows the highest incentives and standard deviation, while Kenya and the CFA franc zone countries the lowest.

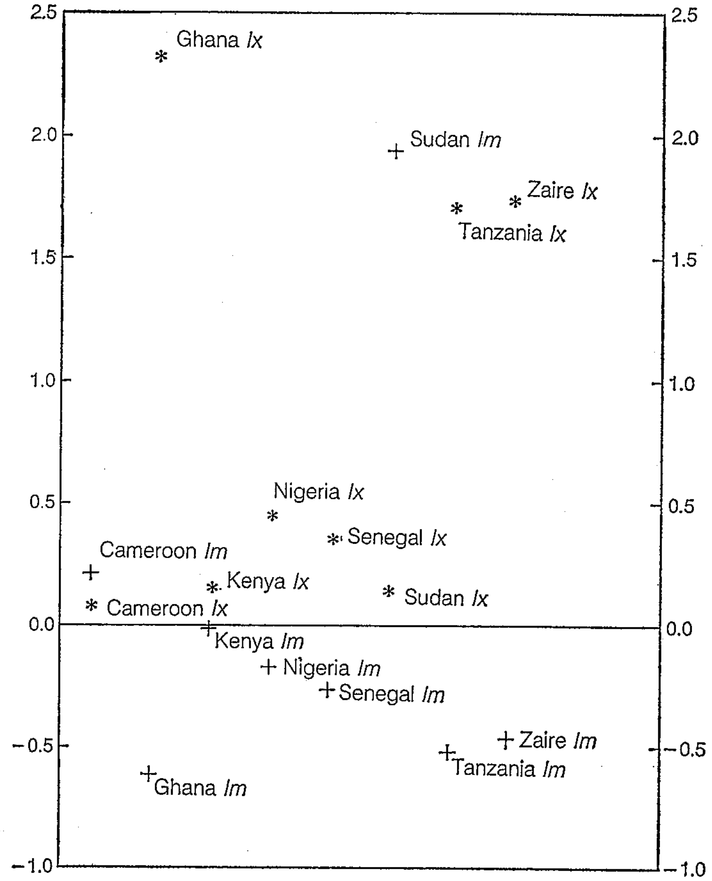
TABLE V

INFORMAL IMPORT INCENTIVES (I_m), 1972–83

	N	Mean	Min	Max	Var	Std
Cameroon	8	0.217	0.298	−0.094	0.004	0.064
Ghana	11	−0.619	−0.212	−0.940	0.072	0.270
Kenya	12	−0.018	−0.155	0.104	0.005	0.073
Nigeria	7	−0.169	0.072	−0.319	0.018	0.132
Senegal	9	−0.264	−0.400	−0.141	0.007	0.084
Sudan	10	1.945	−0.286	9.176	10.335	3.215
Tanzania	11	−0.515	−0.765	−0.217	0.025	0.158
Zaire	11	−0.462	−0.668	−0.156	0.029	0.172

Source: Same as for Table IV.

Fig. 3. Informal Trade Incentives, 1972–83



Sources: Tables IV and V.

In the informal markets of Ghana, anyone possessing a U.S. dollar will suffer a loss of 61.9 per cent differential compared to the overvalued formal markets. There are large informal markets as suggested by the variance and standard deviation. Ghana is followed by Tanzania (−51.5 per cent). Figure 3 regroups the mean values of informal trade incentives for each country for the period 1972–83.

B. *The Regressions*

The informal incentives measured above influence and/or are influenced by several variables. The series of regressions run below, aim at testing the relationships between the informal incentives and the following variables: trade in formal markets, informal finance, and international competitiveness.

1. *Trade in formal sector*

The objective is to test empirically the assumption that, in the presence of positive informal trade incentives, international trade transactions will shift more to informal markets than to the formal ones [19] [15] [17]. If this is true the ordinary least squares (OLS) method test will show a negative relationship between informal incentives and formal trade.

The relationship between informal incentives and formal trade is specified as follows:

$$FORMI = a_0 + a_1 I_m,$$

where *FORMI* refers to the formal intra-African imports, computed as $M_{t1}/M_t - 1$: M represents the value of intra-African imports. I_m represents the incentive to import through informal channels.

$$FORMEX = a_0 + a_1 I_x,$$

where *FORMEX* represents the formal intra-African exports, computed as $X_{t1}/X_t - 1$: X represents the value of intra-African exports. I_x represents the incentive to export through informal channels.

2. *Informal finance*

In the unregulated informal sector, operations are not transacted through the banking sector, but are conducted mainly using currency. Moreover, the use of free or black markets influences the size of informal finance [7] [9]. Informal finance is represented in Figure 1 above as financial resources of the informal sector. However, because informal finance cannot be directly observed, the proxy of the evolutions of currency outside the banking sector relative to money and quasi money is used to infer developments in informal finance. The assumptions for the OLS test, based on the propositions made by Feige [7], Gutman [9], and Tanzi [23], are as follows. The informal export incentive is positively related to informal finance, while the informal import incentive is negatively related to informal finance. The rationale for this approach is explained as follows.

The use of the amount of currency outside the banking sector as an indicator of the extent of informal trade is broadly consistent with theoretical reasons for holding currency. A monetary approach implies that all the money is used for transactions. Thus, if the formal economy is expanding more rapidly than the informal economy, currency outside the banking sector should show a proportional decline. Extending the demand for money to include precautionary or speculative demands, does not nullify the above, as these sources of demand may be met within the banking system. Therefore, an increase in currency holdings outside the banking system is broadly consistent with an increase in informal transactions. The variable "currency outside the banking sector" is obtained from the IMF's *International Financial Statistics.*

Typically, as an economy develops, more transactions are carried out through the banking sector, and the ratio of currency outside the banking sector relative to broad money remains stable. But when the currency outside the banking sector relative to broad money expands, the phenomenon indicates an increase in informal transactions.

Our methodology was derived from African Development Bank (ADB) which uses the same proxy to infer informal finance. "Informal market has had a tendency to expand in situations of monetary instability and especially where exchange rate and price controls have been rigid. . ." [1, p. 34].

The links between informal trade incentives are as follows. An increase in informal exports will give rise to a supply of foreign exchange in informal markets which will be exchanged by informal operators for domestic currency. Informal exports thus increase the size of the currency outside the banking sector and, in this way, informal export incentives are positively related to the variation in the size of the currency outside the banking sector. Imports negatively influence the financial resources of the informal sector, since informal operators pay their imports by reducing their resources.

These relationships are depicted in this manner:

$$CURR = a_0 + a_1 I_m + a_2 I_x,$$

where, $CURR$ represents the variation in the size of the currency outside the banking sector relative to broad money.

3. *International competitiveness*

Price differentials among countries are likely to generate informal trade incentives. The real effective exchange rate ($REER$), which expresses international competitiveness, provides a relevant index with which to compare the general level of domestic prices among various countries [18] [19]. The proposition to be tested is as follows: the higher the real effective exchange rate, the greater the loss of international competitiveness, and thus the greater the role of informal trade, as measured by currency holdings outside the banking sector. We would thus expect that the real effective exchange rate varies directly with increases in currency holdings relative to broad money outside the banking sector. The following equation is used to test this relationship:

$$CURR = a_0 + a_1 REER,$$

where $CURR$ represents yearly variations in the size of the currency outside the

TABLE VI
REGRESSIONS OF FORMAL TRADE ON INFORMAL TRADE INCENTIVES: COUNTRY LEVEL

	Dependent	Constant	I_m	I_x	$\bar{R}^2$	D.W.
Cameroon						
	FORMI	−54.46	−301.36		0.631	1.92
		(−2.09)	(−2.80)			
Ghana						
	FORMEX	171.49		−48.14	0.015	1.96
		(1.524)		(−1.052)		
Kenya						
	FORMI	403.42	−1,359.34		0.036	1.38
		(3.13)	(−0.869)			
	FORMEX	719.04		−1,712.16	0.192	1.22
		(4.092)		(−1.635)		
Nigeria						
	FORMI	208.49	−601.17		0.218	3.09
		(2.12)	(−1.17)			
	FORMEX	109.38		−139.68	0.072	2.59
		(1.77)		(1.17)		
Senegal						
	FORMI	−53.53	−205.86		0.284	2.55
		(−1.78)	(−1.83)			
	FORMEX	43.85		−54.83	0.095	2.64
		(1.32)		(−0.690)		
Sudan						
	FORMEX	44.40		−25.85	0.098	2.78
		(1.23)		(−0.53)		
Tanzania						
	FORMI	894.69	−1,321.82		0.621	1.53
		(5.17)	(−3.53)			
	FORMEX	124.47		−41.20	0.14	1.17
		(3.06)		(−1.48)		
Zaire						
	FORMI	42.15	−15.71		0.314	1.90
		(1.20)	(0.204)			
	FORMEX	57.32		−15.71	0.521	1.44
		(3.18)		(−2.35)		

Sources: [21] [11, 1984] [14] [6].
Note: Parentheses indicate *t*-statistics.

banking sector relative to broad money, and *REER* represents the yearly variations of the relative effective exchange rate.

We expect that the *REER* is positively related to the variations in the size of the currency outside the banking sector, relative to money and quasi money.

4. *Empirical results*

The period examined covered the decade 1972–83, and the data used were those published by EUROSTAT, which provides detailed data on intra-sub-Saharan

TABLE VII

REGRESSIONS OF FORMAL TRADE ON INFORMAL TRADE INCENTIVES: GROUP OF SELECTED COUNTRIES

Dependent	Weight	Constant	I_m	I_x	$\bar{R}^2$	*D.W.*
FORMI						
	GDP	249.79	−21.65		0.23	1.02
		(6.92)	(−0.834)			
FORMEX						
	POP	256.18		−44.07	0.10	1.35
		(7.72)		(−1.45)		

Source: Same as for Table VI.
Note: The number of observations is 56. The significance level is 0.01, and the parentheses indicate t-statistics. The weights are: POP, for population; GDP, for gross domestic production.

TABLE VIII

REGRESSIONS OF INFORMAL FINANCE ON INFORMAL TRADE INCENTIVES: COUNTRY LEVEL

	Dependent Variable *CURR*	Constant	Independent Variables		$\bar{R}^2$	*D.W.*
			I_m	I_x		
Cameroon		34.92	59.86	−9.98	0.819	1.59
		(0.80)	(0.40)	(−0.51)		
Ghana		30.92	8.92	0.48	0.380	0.38
		(7.78)	(0.77)	(0.25)		
Kenya		13.91	−27.03	31.49	0.079	0.89
		(3.35)	(−0.70)	(0.95)		
Nigeria		27.17	23.87	−15.52	0.590	1.63
		(2.79)	(0.64)	(−2.96)		
Senegal		32.96	−0.47	−7.44	0.011	1.61
		(7.23)	(−0.38)	(−1.26)		
Sudan		41.03	0.52	1.60	0.43	0.71
		(29.09)	(1.12)	(0.75)		
Tanzania		32.64	3.37	−1.59	0.21	0.86
		(5.95)	(0.34)	(−0.77)		
Zaire		31.93	12.22	−0.80	0.15	1.76
		(9.63)	(1.03)	(−0.44)		

Source: Same as for Table VI.

African trade. The empirical analysis is conducted at two levels. First, the data are analyzed at the country level, using yearly variation series. Second, the data are pooled for a group of sub-Saharan African countries. The particular countries selected are Cameroon, Ghana, Kenya, Nigeria, Senegal, Sudan, Tanzania, and Zaire. *FORMI* regression results for Ghana and Sudan and *FORMEX* regression

TABLE IX

REGRESSIONS OF INFORMAL FINANCE ON INFORMAL TRADE INCENTIVES: GROUP OF SELECTED COUNTRIES

Dependent Variable *CURR*	Weight	Constant	Independent Variables		$\bar{R}^2$	*D.W.*
			I_m	I_x		
	POP	26.95 (19.51)	−1.45 (−1.62)	3.95 (3.52)	0.563	0.90
	CAP	28.30 (18.25)	−1.29 (−1.29)	3.17 (2.29)	0.606	0.855
	GDP	27.52 (18.68)	−1.41 (−1.54)	3.88 (2.58)	0.713	0.89
	RSV	30.84 (19.47)	−0.60 (3.20)	1.26 (2.81)	0.847	0.88

Source: Same as for Table VI.

Note: The number of observations is 56. The significance level is 0.01, and the parentheses indicate t-statistics. The weights are: POP, for population; GDP, for gross domestic production; CAP, for GDP per habitant; RSV for international reserves.

TABLE X

REGRESSIONS OF INFORMAL FINANCE ON REER: COUNTRY LEVEL

	Dependent Variable *CURR*	Constant	Independent Variable *REER*	$\bar{R}^2$	*D.W.*
Cameroon		−6.98 (−0.30)	0.23 (0.11)	0.327	1.59
Ghana		31.21 (14.47)	0.209 (3.09)	0.551	1.31
Kenya		56.42 (7.18)	−0.377 (−4.90)	0.766	2.10
Nigeria		38.97 (5.21)	−0.108 (−1.80)	0.310	2.02
Senegal		48.08 (1.73)	−0.15 (−0.64)	0.109	1.35
Sudan		67.74 (4.99)	−0.22 (−2.05)	0.287	1.28
Tanzania		58.45 (2.07)	−0.25 (−0.93)	0.017	0.79
Zaire		28.65 (5.84)	0.046 (1.31)	0.154	2.10

Source: Same as for Table VI.

TABLE XI

REGRESSIONS OF INFORMAL FINANCE ON REER: GROUP OF SELECTED COUNTRIES

Dependent Variable *CURR*	Weight	Constant	Independent Variable *REER*	$\bar{R}^2$	*D.W.*
	POP	24.59 (11.81)	0.038 (3.05)	0.549	0.68
	GDP	25.44 (9.14)	0.038 (1.82)	0.701	0.68
	CAP	26.09 (8.96)	0.038 (1.75)	0.595	0.67
	RSV	26.67 (8.06)	0.0366 (0.02)	0.845	0.69

Source: Same as for Table VI and [19].
Note: The real effective exchange rate is here defined as the import-weighted geometric average of the bilateral exchange rate adjusted by the ratio of the domestic consumer price index to the corresponding trade partner consumer price index. It is calculated according to the formula:

$$REER = \frac{E_{it}}{E_{i0}} \frac{P_t}{P_{it}} W_i,$$

where E_{it} represents the price of domestic currency in terms of the ith partner country at the time t (E_{i0} is for the base period), and W_i is the import weight for the ith trading partner. P_{it} represents the price level of the ith country at time t relative to the base period, and P_t represents the price level of the home country, also relative to the base period.

results for Cameroon are missing due to nonavailability or incomplete data series. The heteroscedasticity problem which arises from the disparities in the size of the countries is corrected by using weights as a residual series. Tables VI–XI present the results. The regressions confirm our hypotheses on the responsiveness of the informal sector to trade regime and macroeconomic instability.

As a general rule, the regressions at the African level perform qualitatively better than at the country level. The relatively poorer results at the country level can be explained by the small number of observations, less than a sample of fifteen, considered as sufficient to bring about a 0.05 significance level. The models perform well, and the regressions explain a reasonable percentage of the variation in the dependent variables. The relationships between formal trade and informal trade incentives are well established. The sign of the coefficients of informal trade incentives is negatively correlated with those of formal trade. There are positive links between informal export incentive and the variation in the currency outside the banking sector relative to money and quasi money, and a negative relationship with informal import incentive. The assumption that the macroeconomic instability —expressed by the *REER*—influences informal trade is also verified by the positive relationships determined by the regression run.

CONCLUSION

This paper discussed the international trade activity of the informal sector in sub-Saharan Africa. The empirical investigations focused on the incentives to informal trade as being derived from distorted trade regimes.

Informal trade is widespread and suggests that a large part of intra-African trade is unrecorded. As policy implication, policymakers need to harmonize their trade regimes so that intra-African trade can be generated from regional comparative advantage rather than from distorted trade regimes.

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APPENDIX

SOURCES OF THE SURVEY OF INFORMAL TRADE GOODS

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