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Market Participation and Rural Poverty in Ghana in the Era of Globalization

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Abstract

This paper investigates the factors that influence market participation in rural economies. This is based on the premise that participation in the market is an important channel through which the global economy impacts on the rural areas and can have a positive impact on poverty reduction through increased incomes. A case study approach is adopted using four rural communities in three ecological zones of Ghana.

Keywords: poverty, case study, prices, markets, rural economy

JEL classification: F16, O18, I32

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1 Introduction

A country's participation in the globalization process will depend upon the extent to which it has opened up its economy, its level of infrastructure development and the nature of its institutions. Opening up of the economy, in particular trade liberalization will bring about a change in relative prices that should favour tradable goods. The ability and willingness of domestic economic agents to respond to the changing price incentives will depend on the state of the physical infrastructure and the existence of relevant institutions that will assist them make the necessary adaptations or changes.

Ghana began its programme of economic reforms in 1983 with a stand-by agreement with the IMF and balance of payments support from the World Bank. The reform programme had many components. Trade liberalization and exchange rate reform were important components of the economic reform programme.¹ It was the view that an outward oriented development strategy was the relevant strategy to reduce the foreign exchange constraint that plagued the economy. These reforms increased the opportunities for increased integration of the Ghanaian economy into the world economy. The incidence of poverty in rural households declined in the 1990s. However, the incidence in poverty declined by almost a half in the forest zone, whilst it remained almost the same in the rural savannah (Oduro, Osei-Akoto, and Acquaye 2004). It is important to understand why trade liberalization measures may not lead to sustained poverty reduction in all of rural Ghana.

If rural poverty is to be reduced an increase in rural incomes is critical. Increased market participation can create the conditions for increased production and incomes. The relationship between globalization and rural poverty is nuanced and complex. First, this is because of the many channels through which globalization impacts poverty, for example, through migration, remittances and relative price changes. The impact of globalization on rural economies will depend on how fast price and other information is transmitted to them. The second reason for the complexity of the link between rural poverty and globalization is the diversity and heterogeneity amongst and within rural communities. Globalization can create opportunities for economic diversification of rural communities or alternatively can bring about insecurity of livelihoods (Killick 2001; Bardhan 2005). Rural communities that are isolated or are only accessible at increasing cost may not be affected very much by the changes that globalization brings. Some rural communities may not be able to respond to changing incentives because of a relatively weak human, financial, physical and social capital resource base. Rural economic agents may be constrained in their responses to relative price changes by rules, norms and beliefs that reduce the occupational and physical mobility of factors of production. The structure of the rural economies, i.e., whether the goods and services they produce are substitutes for or complement internationally traded goods, will also determine how globalization impacts their economies.

This paper investigates the factors that influence market participation in rural economies. This is based on the premise that participation in the market is an important channel through which the global economy impacts on the rural areas and can have a

¹ For a detailed discussion of the evolution of the trade regime see Jebuni, Oduro, and Tutu (1994). Harrigan and Oduro (2000) provide a detailed discussion of the evolution of the exchange rate regime.

positive impact on poverty reduction through increased incomes. A case study approach is adopted using four rural communities in three ecological zones of Ghana.

The structure of the paper is as follows: section 2 provides a description of the four rural communities. Section 3 contains a discussion on poverty in case studies. This is followed in section 4 by an assessment of the determinants of output commercialization – a proxy for market participation. Section 5 concludes the paper.

2 The case studies

2.1 Introduction

Four rural communities were surveyed in September and October 2001 across the three ecological zones of the country – coastal, forest, and savannah. The choice of the four communities was based on the desire to capture the diversity of rural communities.

One village, Obom, is located on the coast and was chosen for its proximity to Accra, the capital city, and because of the production of pineapples – a non-traditional export of Ghana. Kofikrom and Kasei are in the forest zone of the country. Kofikrom was chosen because of the predominance of farmers cultivating Ghana's major export crop, cocoa. Kasei is located on the border of the forest and savannah zone and produces cereals and root crops consumed largely in the domestic market. The fourth village, Kpikpira, is situated in the savannah zone to the north of the country and was chosen because of its limited links with both the domestic and international markets.

Two survey instruments were designed and pilot tested. The first survey instrument was a community level questionnaire that elicited information on the characteristics of the community. The second component of the survey obtained information from 156 individuals. They were not necessarily the heads of the household. They however provided some household level information and information about themselves. There was an unfortunate bias in the gender distribution of the sample of respondents with about 80 per cent being male.

The pilot survey was conducted in a rural community about 40 miles outside Accra. Prior to the start of the pilot, in community discussions, it was proposed that women should be interviewed separately. The women declined this option. The offer to hold separate discussions was also declined in the main survey communities with the exception of Kpikpira.

2.2 The villages: basic characteristics

The villages are not very large and have populations ranging from 1458 in Kpikpira to 2344 in Obom. In all villages with the exception of Kpikpira it was established that since 1993 there had been a net increase in migration into the villages. The villages are ethnically mixed. Table 1 provides information on the population of each of the four communities.

Table 1: Basic features of the survey villages

	Obom	Kasei	Kofikrom	Kpikpira
Population	2344	1778	2000	1458
Participants in community discussion	16 Men	6 Men	4 Men	25 Men
	7 Women	3 Women	1 Woman	25 Women
Crops grown	Cassava, maize, pineapples, vegetables	Maize, beans, groundnuts, garden eggs, cassava, yam	Cocoa, plantain, cassava	Rice, maize, millet, groundnuts, cotton, onions
Livestock	Chickens, goats	Chicken, goats	Chicken, goats	Cattle, pigs, goats, sheep, donkeys

Source: Field work survey by the authors.

Agriculture is the main activity in all of the villages. As is typical of farming in Ghana and the rest of Africa, the farmers do not tend to specialize. A wide range of crops is produced in each village.

Although the main activity in the villages is agriculture, the group discussions revealed that residents in the villages are also employed in a number of non-farm activities, for example, as artisans, seamstresses, traders, teachers, and nurses.

There is more diversity in the occupations of residents of the village of Obom than in the other villages. Interestingly whilst the men in Kpikpira did not include commercial food producers or owners of eating places in the village in their list of occupations, the women indicated that there were persons involved in those activities in the village. Food preparation for sale is usually the domain of women. This may explain why it ‘escaped the attention’ of the men.

In the literature on non-farm employment several stages of rural non-farm activity have been identified. In the first stage most activities are a spin-off from agricultural activities. In the second stage the techniques of production are more skill intensive and the source of demand extends beyond the rural economy. In a general review of rural non-farm activity in developing countries FAO (1998) classifies Africa and South Asia as being in the first stage of rural non-farm activity. Latin America is in the second stage. In this stage the activities are based on agriculture as well as other non-agricultural activities. In the third stage in which East Asia is to be found the rural-urban links are important and indeed there is sub-contracting and labour commuting. The non-farm activities in the case study communities are mainly first stage activities. There is a limited amount of non-farm activities that is skill intensive, for example tailoring and masonry. However the source of demand does not extend much beyond the locality.

2.3 Social services

All four villages have basic education schools, i.e. primary and junior secondary schools. However the difference amongst the villages emerges in terms of the number of teachers they have. Whereas the primary school in Obom has nine teachers, the primary school had seven teachers.

Table 2: Availability of basic services

	Obom	Kasei	Kofikrom	Kpikpira
<i>Utilities</i>				
Electricity	No	Yes	No	No
Public piped water	No	Yes	No	No
Boreholes	Yes	Yes	Yes	Yes
Telephone	No (5 miles)	Yes	No	No (7 miles)
<i>Services</i>				
Post office	No (5 miles)	No (9 miles)	No	No (25 miles)
Bank	No (11 miles)	No (9 miles)	No	No (7 miles)
Agriculture extension officer	No	No (9 miles)	No	No (7 miles)
Veterinary officer	Yes	No (8 miles)	No	No (7 miles)

Note: Distance to the nearest village or town with the utility or service is in parentheses.

Source: Field work survey by the authors.

The situation regarding teachers in the junior secondary schools leaves a lot to be desired. The curriculum at the junior secondary school is made up of nine subjects. The Kpikpira and Kasei junior secondary schools have three teachers each. This raises questions about the competence of teachers dealing with subjects they are not specialized in and the impact this can have on the quality of education being provided the children.

None of the sampled villages have secondary schools. Thus to acquire an education beyond the junior level, students would have to travel at least 7 miles from Obom, 4 miles from Kpikpira, and 6 miles for Kasei. Parents may not wish for their daughters to travel such long distances unattended.

Physical access to health facilities is not the same amongst the villages. Kasei is the only village in the survey that has a hospital, which is private. The nearest government hospital is 9 miles away. Obom has a health centre and the nearest hospital is 11 miles away. The village of Kpikpira only has a community-established health post – the nearest hospital is 30 miles away – that provides first aid and the services of a traditional birth attendant. The health workers are residents of the village, some of whom are farmers. Villagers have to pay a fee when they attend the health post. Kofikrom has no modern health facilities; the villagers have to travel 3 miles to the nearest service.

2.4 Utilities, infrastructure, and services

Proximity to the market facilitates effective market participation. Market proximity may be measured by physical distance, the cost of accessing the market and market information. Infrastructure and services are important defining parameters of market proximity and therefore effective market participation.

Kasei is favourably endowed. It has electricity, public piped water (the source is not regular though) and a telephone system (community members have limited access to the system because it belongs to the owner of the private hospital). None of the other

villages have any of these utilities (Table 2). In Kpikpira, the cost to the village of bringing electricity was considered to be too expensive for the community. Not having electricity limits the type of economic activities the village can choose.

The villages are not equally endowed in terms of infrastructure that might improve market access (Table 2). In Obom and Kasei, access to other towns and villages was said to have improved because of better road conditions. The road to Kofikrom was a dirt road in poor condition. Cars and trucks cannot access Kpikpira. The villagers use self-help groups to maintain the footpaths and bicycle paths. Thus comparing Kpikpira with the other villages in the survey the distance in miles underestimates the time it actually takes to access the post office, telephone, and bank because travel time is longer by foot or bicycle compared to a vehicle. None of the villages were market centres.

Except for Kasei, the flow of information is very much dependent on face-to-face contact. It was the only village that had telephone facilities and these were provided by an NGO health facility. At the time of the survey in 2001, the coverage of the mobile phone network was not extensive.

The villages are therefore characterized by a certain amount of isolation. Evidence suggests that remoteness is correlated with poverty. A study on Tanzania conducted by IFAD finds that households within 100 meters of a gravel road, passable 12 months a year with a bus service, earn about a third more per capita than the average (IFAD, 2001).

2.5 Marketing

The villages do not have market centres. The sale of produce is conducted largely at home or at the nearest market centre (Table 3). The main means of transporting farm produce to the house is by head load. Next in importance is the use of a vehicle. In Kpikpira vehicles are hardly used since there are only footpaths and bicycle paths. Farm produce is transported from the house to the market by vehicle. Again Kpikpira stands out amongst the other communities by depending mainly on human and animal effort to transport produce to the market.

Private traders are the major category of buyers that purchase from farmers in Kasei and Obom. Kofikrom is largely a farming community dominated by the cultivation of cocoa. The Produce Buying Company of the Cocoa Board, a state company, dominates the internal marketing of cocoa. This explains the importance of the government agency as a major buyer in Kofikrom (Table 3). The dependence of farmers in Kpikpira on the general public suggests that much of what is marketed is sold in the locality. This implies that unlike and in comparison with the other communities, growth in Kpikpira is much more dependent on developments in the local economy and less so on what happens outside the region and outside the country.

Most of the output of the non-farmers in the survey is sold directly to the general public (Table 3). Again this suggests that for non-farm production demand is very much dependent on conditions in the local economy. This is not surprising given the range of non-farm activities that the respondents are involved in, i.e. hairdressing, carpentry, tailoring, trading, pito brewing, food processing, charcoal trading, and masonry.

Table 3: Market transactions

	Obom	Kasei	Kofikrom	Kpikpira
Where buyers purchase product (%)				
At home	20.00	57.69	38.71	35.16
At the market	37.78	34.62	29.03	62.64
On the farm	42.22	0.00	0.00	0.00
Storage sheds (cocoa)	0.00	7.69	29.03	0.00
Means of transport to the house (%)				
Head load	58.97	42.47	70.97	75.28
Vehicle	41.03	49.32	22.58	1.20
Pushcart/donkey cart	0.00	1.37	6.45	33.73
Other	0.00	6.85	0.00	2.41
Means of transport to the market (%)				
Head load	16.67	9.09	36.36	62.65
Vehicle	80.95	89.09	63.64	1.20
Pushcart/donkey cart	0.00	1.82	0.00	33.73
Other	2.38	0.00	0.00	2.41
Major buyer of produce (sample of farmers) (%)				
Private trader	63.27	72.31	26.67	14.71
Government agency	0.00	0.00	43.33	4.90
Cooperative	0.00	9.23	0.00	0.00
Non-governmental organization	18.37	0.00	0.00	0.00
General public	18.37	15.38	30.00	79.41
Major buyer of produce (sample of non- farmers) (%)				
Private trader	11.76	50.00		4.76
Government agency	0.00	0.00		4.76
Cooperative	0.00	0.00		0.00
Non-governmental organization	0.00	0.00		0.00
General public	82.35	50.00		90.48
Mode of payment for sale of output				
% using cash on delivery				
Farmers	54.76	77.65	76.92	84.4
Non-farmers	30.77	60.00		73.91

Source: Field work survey by the authors

Table 4: Most important source of market information (number reporting)

	Obom	Kasei	Kofikrom	Kpikpira
Product Prices				
Other farmers	14	7	0	11
Traders	19	20	3	22
Radio/newspapers	4	1	9	3
NGO	4	0	0	0
Cooperative	1	0	0	1
Extension officers	1	0	4	0
Input prices				
Other farmers	17	13	4	8
Traders	19	2	2	12
Extension officers	1	10	4	11
Radio/newspapers	5	0	2	3
Other	0	7	6	1

Source: Field work survey by the authors.

Involvement in non-farm employment has been found to be associated with lower poverty (Canagarajah, Mazumdar, and Ye 1998). However, the evidence from this study shows that the type of non-farm employment may be important in determining its poverty reducing impact. Much of the non-farm employment in the present sample is very much dependent on the incomes – derived from agriculture – earned in the community.

The mode of payment is cash on delivery (Table 3). A minority of the sample in all communities either undertook transactions on a credit basis or else used the system of advanced payment. Cash payment dominates transactions because respondents are either unwilling to take any other form of payment or else claim not to know of any other form of payment. There is therefore a need for cash to undertake transactions.² Cash is preferred because it is perceived to be less risky. The small value of individual transactions and the absence of banks in the villages make the use of non-cash modes of payment such as cheques unattractive. There were very few reported incidents of non-payment or late payment amongst respondents in the survey.

Traders are the most important source of market information in all the communities except Kofikrom, with its main cocoa crop. A lot of the cocoa marketing activities were regulated by state agencies (Table 4). Market access would be improved with an increase in the flow of market information to the farmer, to broaden the information base of the farmer and reduce dependence on traders for price information. Without an institutional framework that facilitates information flow, access to information is dependent on social capital, i.e. neighbours, friends, and relatives.

² A limited number of respondents indicated that sometimes a barter exchange is used.

Traders are also important in setting quality standards for the products. Approximately 54 per cent of the maize producers, 75 per cent of the cassava farmers, 55 per cent of the rice farmers, and 90 per cent of the cocoa farmers indicated that they have to meet quality standards. The comparatively higher proportion of cocoa farmers that have to meet quality standards is because cocoa is an export crop and therefore Ghana must meet a certain quality. The Cocoa Board has, over the years, been instrumental in ensuring that the quality standards are met.

The presence of the state is almost non-existent in these villages. In none of the villages does the state provide anything in the way of distribution of hybrid seeds, improved livestock breeds, credit, and agriculture extension or storage facilities. In Kpikpira for example, improved seeds are bought by private individuals from a German NGO in a neighbouring village and sold on to farmers.

3 Poverty in the case study communities

3.1 Introduction

Welfare can be measured using money-metric and non-money metric indicators. The money-metric approaches to the measurement of welfare use either income or consumption expenditures as welfare indicators. The survey conducted for this study made no attempt to collect data on either consumption expenditures or income as it would have been too expensive to gather. Information was collected on household assets (Table 5). A striking feature of the table is the low proportion of households that have household assets. A second interesting observation is the high proportion of households in Kpikpira that have livestock compared to the other communities.³

3.2 Measuring poverty

The welfare indicator used in this study is the asset index. The components of the asset index are, per household: motorcycle, television, radio/cassette recorder, refrigerator, iron, sewing machine, watch/clock, cooking stove, savings, house wall materials, quality of the roofing of the house, type of toilet facility, source of fuel for cooking, and a measure of the human capital, i.e. per cent of members who have more than primary education and ownership of livestock. A factor analysis using maximum likelihood techniques was conducted to obtain the weights for the asset index (see Appendix Table A.1 for the scoring coefficients of the components for the index). Stifel and Sahn (2003) constructed a similar asset index. They found that the rank correlation between reported expenditures and the asset index was low for Ghana. However when the asset index was used to explain nutrition outcomes it was found that the Spearman rank correlation between measured and predicted anthropometric height for age scores indicated that it did not matter whether expenditure values or the asset index was used as the welfare measure.

³ Ghana's poverty reduction strategy paper was criticized in some quarters because its welfare indicator is consumption indicator and it does not take into account an important component of wealth in the northern communities of the countries, i.e. cattle.

Table 5: Distribution of assets amongst the communities

% of HHs that have the following assets	Obom	Kasei	Kofikrom	Kpikpira	All
Car	5.65	2.68	0.00	0.00	2.56
Motorcycle	0.00	2.63	0.00	8.00	3.21
Bicycle	41.51	57.89	33.33	82.00	57.69
Television	32.08	28.95	6.67	0.00	18.59
Radio cassette	50.94	39.47	40.00	54.00	48.08
Cooking stove	37.74	7.89	0.00	12.00	18.59
Refrigerator	7.55	15.79	0.00	0.00	7.05
Watch/clock	62.26	55.26	80.00	46.00	57.05
Hurricane lamp	92.45	55.26	60.00	34.00	61.54
Tractor	0.00	2.63	13.33	0.00	1.92
Cattle	0.00	5.26	0.00	76.00	25.64
Sheep	43.40	39.47	33.33	92.00	57.05
Chicken	54.72	39.47	66.67	98.00	66.03

Source: Field work survey by the authors.

For description purposes the observations were ranked into three equal groups containing 52 observations each using the factor scores generated by the procedure. The bottom third was categorized as ‘very poor’, the middle third as ‘poor’ and the top third was classified as ‘non-poor’. The factor scores were used to develop the poverty profile in the case study communities.

3.3 The poverty profile

- Poverty and Location: Amongst the four communities, Kpikpira is the poorest. Sixty two per cent of the households in Kpikpira are very poor. This contrasts with Obom where about 60 per cent of the households are non-poor (Table 6).
- Poverty and Household Demographics: The mean household size is highest amongst the very poor households. The ratio of children to adults in the very poor households was the highest compared to the other category of households (Table 6).
- Poverty and Education: The proportion of children aged between 6–12 years attending school averaged 73 per cent in Kpikpira, Kofikrom, and Obom and 90 per cent in Kasei. In Kpikpira, the poorest of the four communities, the proportion of children aged 13–15 years that attend school is significantly lower than attendance amongst children aged 6–12 years. This phenomenon is less evident in the other three communities. Large gender differences exist in the proportion of children of various age groups that attend school in Kpikpira. The differences are not as great in the other villages. Indeed in Obom, the proportion of girls aged 13–15 years in the sample that attend school is higher than the proportion of boys by 3 percentage points.

Table 6: A poverty profile of the four villages

	Very poor	Poor	Non-poor
Location ¹			
% in Kpikpira	62.0	34.0	4.0
% in Kasei	34.2	28.9	36.8
% in Kofikrom	20.0	46.7	33.3
% in Obom	9.4	32.1	58.5
HH demographics			
Number in HH (mean)	6.44	5.80	4.71
Ratio of children to adults (mean)	0.62	0.54	0.48
Percentage of children attending school			
Girls: 6-12 years	64.7	83.3	84.6
13-15 years	36.3	75.0	100.0
Boys: 6-12 years	83.9	91.0	92.8
13-15 years	61.1	92.8	87.5
Type of employment of HH members in main job (mean %) ²			
Self employed	91.4	82.8	77.6
Wage employed	3.4	12.0	17.5
Unemployed	5.1	5.0	4.8
Occupation of HH members in main job (mean %) ²			
Farming	85.7	71.5	41.8
Trading	5.5	12.1	31.6
Artisan	2.5	6.6	15.4
Clerical	0.3	2.2	4.6
Number of additional jobs of members of HH ²			
% with no other jobs	79.5	59.1	55.2
% with one other job	14.3	32.5	39.1
% with two other jobs	0.6	3.2	3.3
% with three other jobs	0.0	0.0	2.8
Social networks: membership of			
Cooperatives: % of respondents	28.21	33.33	38.46
Social groups: % of respondents	19.61	39.22	41.88
Most important source of financing			
Own savings	63.27	55.10	63.88
Family and friends	22.45	18.37	17.02
Rural bank	10.20	8.16	12.77
Membership of informal savings groups			
No. of respondents ever been a member	5	18	18
Number that are still members	1	13	6
HH receives remittances			
% that receive remittances	44.23	40.38	38.46
Coping strategies			
% HH that have cut down on meals	74.51	61.54	38.46
% HH that withdrew children from school	18.00	6.12	1.96
% HH cannot pay for health care	50.98	32.69	23.08
Share of farm output that is sold (mean %)	62.44	70.58	84.25

Notes: ¹ Row percentages add to 100. ² Column percentages add to 100

Source: Field work survey by the authors.

Very poor households tend to have a lower proportion of children of school age attending school (Table 6). Amongst the very poor households the gender patterns are quite distinct, with a significantly lower proportion of girls attending school for all age groups. The gender disparities are not as great amongst the poor households, and almost disappear and indeed are reversed for the 13–15 years category amongst the non-poor households (Table 6).

The adult members of the households sampled in Kpikpira are less likely to have attended school compared to the adults in the other villages in the survey. A clear gender gap is also evident in the educational status of the adult sample. Women are less likely to have had any formal education compared to men. Women in Kpikpira are particularly disadvantaged with about 87 per cent of them having no formal education.

— Poverty and Source of Employment: The majority of the working population in the sampled households was self-employed. Having multiple occupations was a feature in all villages although it was less prevalent in Kpikpira.

A greater proportion of household members are involved in farming amongst the very poor households compared to the other category of households (Table 6). It is still the largest source of employment for the non-poor but is significantly less so compared to the very poor. Whereas about 85 per cent of the workforce in very poor households is employed in agriculture in their main job, the proportion declines to 71.5 per cent for the poor and to 41.8 per cent for the non-poor households (Table 6).

The workforce amongst the very poor households does not tend to have more than one source of employment (Table 6). This contrasts with the pattern for the poor and non-poor household where the incidence of multiple occupations is higher.

— Poverty and Credit: Individuals from very poor households are less likely to have applied for a loan at a rural bank compared to individuals from the other category of households. They are also less successful at obtaining a loan compared to individuals from other groups. Own savings is the most important source of raising finance that would be considered for production purposes amongst all three categories. Next in importance is borrowing from family or friends (Table 6).

Membership of informal savings groups is low. Respondents from very poor households have a lower incidence of past membership compared to respondents from poor and non-poor households. Current membership is lowest amongst respondents from very poor households (Table 6). In many instances the reasons given for no longer being members of informal savings groups were related to problems in ensuring security of one's savings (i.e. collectors running away with the money and default by members) and the problems related to agreeing on a system of operation that was satisfactory to most members (i.e. disagreement over how the monies are to be disbursed). Low income was also presented as a reason for no longer being members of an informal credit group.

— Poverty and Market Participation: The measure of market participation used in this study is the ratio of the quantity of output sold to the quantity of output consumed. Individuals from poor household tend to have a lower output

commercialization ratio compared to persons from non-poor households (Table 6).

- Poverty and Social Networks: Producer cooperatives were in operation in all the communities. Membership of cooperatives was low amongst respondents in the survey. There was greater participation in social groups, in particular religious based groups. The low participation of respondents in cooperatives may be attributed to the obligation of having to pay a part of the produce as dues.

The obligations of members of social groups are mainly the payment of dues and attendance at meetings. In some instances the dues are about one thousand cedis a month equivalent to less than US\$2 per annum. The benefits would seem to outweigh the obligations and this may explain the relatively higher participation rate. Members obtain assistance during funerals and marriage. These are all cultural practices that can cause households to experience sharp increases in expenditure. Apart from providing financial support during these periods, some respondents indicated that they benefited in terms of being able to receive food aid. Individuals from very poor households are less likely to be members of any of these groups (Table 6).

- Poverty and Coping Strategies: Very poor households are more likely to have gone through a period when they have had to reduce the number of meals they take compared to non-poor households (Table 6). There was a low reported incidence of children being withdrawn from school during the year because of difficulties. However, a greater proportion of very poor households had removed children from school than was the case for other categories of households (Table 6). Very poor households also tended to have difficulty in paying for health care.

4 Output commercialization

A purely subsistence economy is less likely to be impacted by changes in the globalized economy, especially those changes that are transmitted through relative prices. Thus output commercialization (i.e. the proportion of output that is sold) can be a measure of the extent to which a local economy is linked to the national economy and also to the rest of the world. An improvement in marketing opportunities can create incentives for farmers to increase production and if the necessary structures and institutions are in place will encourage an increase in output commercialization. This section investigates the pattern of output commercialization and the factors that explain the output commercialization ratio in the four communities.

On average, the proportion of the produce that is sold is lowest in Kpikpira (Table 7). Millet is grown only in Kpikpira and it is mainly for domestic consumption.⁴ The difference between Kpikpira on the one hand and the other three villages on the other is not because of the preponderance of the production of millet. When one compares the output commercialization ratio for maize a crop that is grown in all villages, the mean output commercialization ratio for maize in Kpikpira is substantially lower than it is for

⁴ A large number of the farmers interviewed could not provide estimates of the quantities of millet produced. They did indicate that it was grown for own consumption purposes.

the other three communities. It may be concluded from this that the village of Kpikpira is not as closely linked to markets as are the other three communities. Kofikrom has the highest commercialization ratio, i.e. the ratio of quantity sold to quantity produced. This may be explained by the predominance of cocoa producers amongst the sample of farmers.

The commercialization ratio is determined by the resource endowments of the individual or household and by exogenous variables such as infrastructure, rural institutions and the macroeconomic framework.

The human resource endowments of the individual can be captured by age, sex of the farmer and educational attainment. It is expected that there will be a negative relationship between age and the commercialization ratio. The younger farmer is more likely to maintain strong links with the market compared to the older farmer. The link between sex of the farmer and the commercialization ratio is ambiguous. Women farmers will have a lower output commercialization ratio if they tend to concentrate on the production of crops for domestic consumption. It is expected that there is a positive relationship between education and production. Thus the more educated farmer is expected to have a larger marketable surplus.

Table 7: Output commercialization ratios by crop and location

	Number of Farmers	Mean output commercialization ratio	Minimum	Maximum
<i>Obom</i>	22	0.72	0.00	1.00
Maize	9	0.60	0.25	0.80
Cassava	13	0.46	0.00	0.87
Vegetables	6	0.95	0.83	1.00
Fruits	7	0.97	0.80	1.00
<i>Kasei</i>	32	0.81	0.18	1.00
Maize	28	0.79	0.00	1.00
Yam	15	0.71	0.18	0.98
Beans	14	0.93	0.75	1.00
Groundnuts	16	0.98	0.66	1.00
Vegetables	5	0.73	0.94	1.00
<i>Kofikrom</i>	14	0.86	0.61	1.00
Maize	6	0.83	0.75	0.95
Cocoa	13	1.00	1.00	1.00
Yam	3	0.79	0.61	0.91
<i>Kpikpira</i>	29	0.51	0.00	1.00
Maize	22	0.52	0.00	1.00
Rice	22	0.71	0.00	1.00
Millet	15	0.06	0.00	0.50
Groundnuts	13	0.62	0.00	1.00
Cotton	5	1.00	1.00	1.00
Beans	6	0.41	0.00	1.00

Source: Field work survey by the authors

Table 8: Use of selected inputs by farmers

% of farmers use	Obom	Kasei	Kofikrom	Kpikpira
Fertiliser	63.64	84.38	21.43	76.67
Insecticide	60.00	68.98	100.00	17.89
Irrigation	13.64	0.00	0.00	0.00
Hired labour	81.82	96.88	78.57	58.62

Source: Field work survey by the authors

The second set of variables used to explain the output commercialization ratio is institution variables, i.e. credit, membership of cooperatives, land tenure system, and relationship with buyers. When asked what was the most important source of finance for production purposes almost 61 per cent of the respondents indicated that it was their own savings. This suggests that if respondents do not have any savings they will be constrained in their ability to respond to opportunities as they arise or indeed to expand their activities. It is hypothesized that respondents who are able to access funds outside of their own savings are more likely to have a higher output commercialization ratio than those who have not.

Respondents who were members of cooperatives indicated that they benefited in terms of being able to access credit, obtain additional labour when needed and obtain inputs at subsidized prices. Membership of a cooperative could thus reduce the constraints facing the individual in the production process, contributing to a large marketable surplus. Having a long-term or stable relationship with a buyer can provide the farmer with many advantages. There is the certainty that the produce will be collected. The trader could provide the farmer with information, credit, and inputs. Farmers that have a stable relationship with a buyer are expected to have a higher output commercialization ratio compared to farmers that do not.

The third set of variables is the use of inputs. It is expected that farmers who use modern farming practices will have a higher production and therefore marketable surplus than do farmers using traditional farming methods. Farmers that hire labour will have a higher marketable surplus than farmers who depend only on family labour. There is an extremely high incidence of the use of insecticides and fertilizers amongst the sample of farmers in this study (Table 8). This contrasts with the national picture.

The availability of good roads and closeness to a major consuming market will have a positive impact on commercialization. The closer the community is to a market the higher the proportion of the output that is sold should be.

The number of crops produced by the farmer is likely to impact on the extent of output commercialization. It is hypothesized that the larger the number of crops produced is the lower the output commercialization ratio will be. This is because the farmer who grows a large number of crops will be fairly self-reliant on food, and therefore the incentive to increase the marketable surplus will be low.

Table 9: Characteristics of the sub-sample of maize producers

	Obom	Kasei	Kofikrom	Kpikpira
% own land	11.11	57.14	100.00	100.00
% member of a cooperative	10.00	42.86	66.67	22.73
% with primary education or less	60.00	91.67	66.67	72.7
% who have a major buyer	22.22	35.71	16.67	9.09
% that purchase insecticide	20.00	67.86	42.86	13.64
% with successful loan application	50.00	46.43	16.67	63.64
% men	90.00	89.29	66.67	73.33
% use paid workers	60.00	96.43	83.33	61.90
mean number of crops	1.95	2.62	2.35	3.26

Source: Field work survey by the authors.

Unfortunately given the constraint of the number of observations it is not possible to investigate the determinants of output commercialization for all the crops produced by respondents in the sample. A large enough number of farmers cultivated maize in addition to other crops to warrant an investigation into the determinants of the proportion of maize that is sold.

The characteristics of the sub-sample of maize producers are presented in the Table 9. There is evidence of significant differences in the characteristics of the farmers based on locality.

Farmers decide on what crops to produce therefore the investigation into the determinants of output commercialization amongst maize farmers was initially conducted using the Heckman selection model. This method is expected to reduce errors due to self-selection.

However, the likelihood ratio test of independence between the selection model and the output commercialization model showed that there was no relationship between the two even at the 10 per cent significance level. This suggests that an ordinary least square regression estimation would be appropriate.

The standard errors in the ordinary least square regression are estimated using the Huber-White estimator. The explanatory variables are the log of the age of the respondent, the number of crops grown by the respondent, dummy variables indicating whether the respondent is a member of a cooperative, used insecticides, has a major buyer, accessed credit, uses paid workers, has more than primary level education, and owns land. In addition there are location dummies. An initial specification included distance of the farm from the market. However there were a lot of missing observations for this variable. Inclusion of the variable in the model specification reduced the sample size from 63 to 42. It was expected that inclusion of the location dummies would capture the effect of distance and other village level effects. The results of running the complete model can be found in Equation 1 of Table 10.

Table 10: Investigating the determinants of output commercialization

	Equation 1	Equation 2	Equation 3
Dummy for male respondent	-0.028 (0.134)		
Log of age of respondent	-0.135 (0.093)	-0.078 (0.099)	-0.075 (0.094)
Member of a cooperative	0.077 (0.058)	0.108 (0.061)*	0.114 (0.056)**
Number of crops grown	-0.086 (0.051)*	-0.102 (0.040)***	-0.113 (0.038)***
Dummy for use of insecticide	-0.046 (0.092)	0.068 (0.069)	
Dummy for having a major buyer	0.056 (0.088)	0.078 (0.067)	0.077 (0.068)
Dummy for success in obtaining a loan	0.179 (0.074)***	0.131 (0.065)**	0.128 (0.059)**
Dummy for using paid workers	0.261 (0.102)***	0.272 (0.092)***	0.307 (0.083)***
Dummy for land ownership	-0.081 (0.102)	-0.0486 (0.066)	
Dummy for higher education	-0.022 (0.096)	-0.036 (0.073)	
Kpikpira dummy	0.025 (0.173)		
Kasei dummy	0.143 (0.123)		
Kofikrom dummy	0.335 (0.190)*		
Constant	1.148 (0.411)***	0.983 (0.440)**	0.956 (0.431)***
No. of observations	62	62	63
R-squared	0.461	0.407	0.407
F-statistic	5.24***	5.34***	7.85***

Notes: * Significant at 10%. ** Significant at 5%. *** Significant at 1%. The values in parentheses are standard errors.

The number of crops grown by the household, access to credit and the use of paid workers were significant at the 10 per cent level or less (Table 10). Examination of the correlation matrix found that the sex of the respondent and the location variables were highly correlated with more than three of the other explanatory variables. These variables were dropped from the regression. The results of running the new model specification are to be found in Equation 2 of Table 10. The goodness of fit for the regression as measured by the F-statistic increases despite the decline in the number of explanatory variables. Membership of a cooperative emerges as a significant

explanatory variable at the 10 per cent level of significance. The education dummy variable is correlated with the use of paid workers dummy. The education dummy variable is dropped (it is insignificant). The results are reported in Equation 3.

The R-squared does not change whilst the value of the F-statistic improves. A number of factors, access to credit, employment of paid workers, and membership of a cooperative have positive and significant effects on the output commercialization ratio. The number of crops grown has a negative significant effect on the proportion of maize that is sold. Having a major buyer is positively correlated with the maize commercialization ratio, but it is not significant.

It was decided to re-specify the model by dropping the dummy variable for land ownership and substituting it with a dummy variable for whether the land is registered. The performance of the regression was not substantially different. The coefficient of the dummy variable for land registration was negative and never significant in any of the specifications.

The very poor in the case study communities are less likely to be members of a cooperative or to be successful in their loan applications (see Table 6). They therefore tend to be excluded from institutions that facilitate the process of effective market participation. The very poor in these communities are therefore more likely to face difficulties in responding to price incentives resulting from trade liberalization and the opening up of the economy.

5 Conclusion

The essence of globalization is greater linkage of markets and information flow. The commercialization ratio is used in this study to proxy the extent to which a household or a community participates in the market and is linked to the national economy and/or the rest of the world. The four communities had one thing in common – they were not market centres. However, the degree of output commercialization differed significantly, particularly between Kpikpira, the poorest, and the others.

Globalization is predicated not only on the liberalization of the external trade regime, but also on the existence of the supportive infrastructure and institutions needed to facilitate the flow of goods, services, and information. The rural economy, as illustrated by this case study of four villages in Ghana, is not adequately endowed with social and economic infrastructure to participate effectively in the globalization process. The findings of this study suggest that rural links with the national and world economy depend on the quantity and quantum of human capital and skills, physical infrastructure, basic services and utilities, and the institutions and norms that influence social and economic interaction. These factors influence the incentives and costs associated with transacting business outside of the local economy and therefore the extent to which the local economy will be impacted by relative price changes due to trade liberalization. The study also finds that within rural economies access to and engagement with the factors that will facilitate market participation and engagement with the domestic economy and/or the world economy is unevenly distributed and the very poor in particular are disadvantaged in this regard.

If poverty is to be reduced an increase in incomes is critical. Given the low level of skills of most of the residents in the four communities, improving upon agriculture incomes would have the greatest impact on poverty reduction. An increase in agriculture incomes requires an increase in production and an increase in the proportion of output that is sold. Low membership of cooperatives and difficulty in accessing credit for investment in production is a widespread phenomenon across Ghana. If rural communities are to take advantage of opportunities that trade liberalization and globalization offer, the constraints to the effective operation of cooperatives must be addressed. Current efforts to provide credit to micro- and small-scale enterprises must be intensified. Particular efforts must be made in the design of cooperative and credit programmes to target the very poor in rural communities.

Appendix

Table A.1

Variable	Standardized scoring coefficient
Squared multiple correlations of the variables with factor	0.82504
Motorcycle	0.00614
Television	0.14549
Radio/cassette recorder	0.05640
Refrigerator	0.07589
Iron	0.11171
Sewing machine	0.11123
Watch/clock	0.07071
Cooking stove	0.09563
Cash savings	0.08855
Cattle or cash savings	0.01138
Sheep/goat and cash savings	0.06102
Cement/concrete wall	0.13232
Iron sheet roof	0.19654
Use mainly KVIP	0.16005
Main source of cooking apart from firewood	0.16951
% of HH members with more than primary education	0.12865

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