Sussex Migration Working Paper no. 10

Migration and Poverty in Ghana: Evidence from the Ghana Living Standards Survey

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March 2003

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Acknowledgements

1. Introduction

This paper uses Ghana Living Standards Survey (GLSS) data to examine welfare outcomes of migrant households in the 1990s. It is interesting to question the continuing effectiveness of traditional self-improvement or coping strategies such as migration in the face of the economic reform that is being undertaken in Ghana.[1] We provide descriptive evidence on migrants and regression analysis of welfare outcomes (household consumption expenditure, poverty incidence and primary school attendance rates). Multivariate regression analysis is useful because it enables the correlation between various regressors and household welfare to be determined separately.

The structure of the paper is as follows. Section 2 motivates the analysis by providing a brief survey of the economic literature on migration. Section 3 presents descriptive evidence on migrants residing in Ghana in terms of number, reason for moving, spatial distribution, demographic characteristics, educational qualifications attained and main employment activity of the household. In section 4 we use cross-tabulations and regression analysis to analyse the performance of migrant and non-migrant households in relation to the aforementioned indicators. Section 5 concludes.

2. Migration and welfare[2]

Economic theories of migration are driven by the assumption that migration is a decision by rational individuals or households who wish to improve their economic situation. In Todaro's (1969; cited in Lucas, 1991) model, migration occurs if the individual's (expected present value of) future returns at destination exceed the sum of those at origin and the cost of moving; individuals or

families migrate to find work in anticipation of higher wages, or perhaps other non-pecuniary benefits such as greater employment security.[3] More recent analyses (see Stark, 1992) have emphasised the importance of the household in individual migration strategies: migration of one household member can serve, for example, as an income-diversification means for risk averse households that have imperfect access to formal insurance markets, or as a means of obtaining capital where the household is credit constrained. Thus the household will select the members for whom the economic benefits from migration are expected to be greatest (e.g. the more highly educated) and who will provide support through remittances or financial capital through savings. Inter-household transfers become the principal motivation for, and benefit from, migration.

In this paper we are interested in migrants' welfare outcomes as compared to non-migrants'. What does theory predict about migrants' welfare outcomes? Rationality implies that the pool of out-migrants from a given sending locality is not determined randomly. Economic migrants are 'selected' from their sending populations by rational, utility-maximising individuals or households because they are the people most likely to benefit; e.g. they may have the best education, work experience, social contacts etc. In the same way, non-migrants are selected to stay since they are less likely to benefit from moving (Lanzona, 1997, Tunali, 2000). Thus we would expect economic migrants on average to be better off than they were before, and/or that total welfare of the sending household (once transfers are accounted for) is either higher than previously or less responsive to spatially idiosyncratic risk than before migration occurred.

However, can we expect migrants on average to be better off than non-migrants? Whilst it may be the case that migrants are selected, economic migration may also occur because opportunities at home are absolutely, or relatively, bad: individuals (possibly those relatively less well-off) may be 'forced' to move. Migrants may be subjected to discrimination in the labour market, particularly minority ethnic groups and those with relatively poor knowledge of local languages or whose

education or experience is not recognised at the host destination. Migrants may find it hard to obtain (decently paid) work if they lack the necessary social contacts.

We are also interested in distinguishing between two categories of migrants: in- and return migrants. Theory suggests there to be differences between motives of return migrants and those of non-return (in-) migrants. For example, whilst in-migration is more likely be motivated by the economic factors advanced above, return migration is more likely to be for social benefits such as being close to family and kin or different economic pull factors such as personal asset-holdings or inheritance back home (see Hoddinott, 1994). Migrants return either because the move was intentionally impermanent (their pre-stated objective has been realised), or because migration was unsuccessful (their objective is not realised) and cut short (Da Vanzo, 1976). Again it is difficult to state *a priori* an expectation regarding welfare outcomes of return migrants versus in-migrants. However, with the definition of return migration used in this paper (returning after a temporary move lasting 12 months or longer) we might expect returnees to be those who have realised their objectives, and be better off on average.

3. Descriptive statistics on Ghana's migrants and non-migrants

This section provides descriptive evidence on migrants – where they moved from and to, why they moved, and demographic (sex and age) characteristics, educational attainment and household main economic activity. Data are from GLSS rounds 3 and 4, which were conducted during 1991/92 and 1998/99 respectively. The survey is large (maximum of 4,552 households in round 3 and 5,598 households in round 4), nationally representative, high quality (data consistency tests are performed whilst the surveys are being carried out), and covers a wide range of demographic and welfare indicators (including household composition, income and consumption expenditure, migration, education, health, employment, housing and assets).

Migrants are defined as adult (aged 15 or more) household members[4] who either were not born in

their current residence, or if they were, have lived elsewhere for a period of 12 months or longer. Of these, return migrants are those who have lived away from their current residence for a year or longer, and in-migrants are all other migrants. Non-migrants are therefore those that were born in their current residence and have not lived elsewhere for a period of a year or longer. The definition excludes seasonal labourers and other (possibly 'failed') migrations lasting less than a year.

3.1 How many migrants were there and when did they move?

Table 1 indicates that, during their entire lifetimes, 57.8 per cent of adults in Ghana in 1991/2 and 53.2 per cent in 1998/9 had migrated.[5] Assuming a representative sample of Ghana's adult population, this indicates that about 4.5 million of an estimated total adult population of 7.9 million in 1991/2 and 5.5 million of 10.3 million adults in 1998/9 had moved since birth.[6] In both years, just over half of migrants were in-migrants, which is to be expected since not all migratory moves will be circular and, of those that are intended to be, not all in-migratory moves will have been completed. About 5-6 per cent of the population migrated during each of the two years prior to both surveys, indicating a relatively stable total migratory flow. About half of all migrants in both surveys had moved during the previous decade (slightly more in 1991/2), although a relatively higher percentage had returned in the decade prior to 1991/2 than that prior to 1998/9.

Table 2 presents data on the temporal distribution of migrants according to internal (within country border) and international migrant status. The vast majority of migrants (93 per cent) most recently

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[4] Excluding heads, newly born children and those who have been away but not resident in another household (including single person households), household members are defined in

the GLSS as those who have lived in the residence for a period of nine months or longer during the past year. This is essentially to avoid double counting in the survey, but of course may exclude household members who have recently returned from a relatively long migration.

[5] These (and all subsequent) descriptive statistics have been corrected using population weights calculated by the survey team. The 1991 data set is self-weighting (i.e. does not require population weights) since data was collected from all households identified for questionnaire.

[6] Population figures are projected from the 1984 population census in GSS (2000b: 117); the adult population is computed from this using age distribution data from the relevant GLSS round (see GSS, 1995: 9, Table 1.4; GSS, 2000b: 4, Table 1.4).

moved within national borders. Only approximately 7 per cent of migrants in both surveys, or about 320,000 people in total in 1991/2 and 370,000 in 1998/9 most recently migrated to Ghana from other countries. Of these, most came 'intra-regionally', from neighbouring countries in Africa (Burkina Faso, Côte d'Ivoire, Mali, Nigeria, Togo), whilst a small percentage (20-25 per cent of international migrants) came from elsewhere ('inter-regionally').[7] We distinguish between intra- and inter-regional international migrants because distance migrated will be positively correlated with ability to afford it and probability of success. It is noticeable that a greater proportion of international inter-regional migrants moved during the 5-10 year period prior to 1991/2 than in the same period prior to 1998/9. This is most likely due to forced repatriation of Ghanaians from Nigeria in 1983 (over 60 per cent of international migrants came from Nigeria during this period).

3.2 Where did the migrants move from and to?

Here we examine the spatial distribution of migrants. Figures 1a and 1b show the distribution of current region of residence by previous location (administrative region in Ghana as well as region outside Ghana) 1991/2 and 1998/9 respectively. For most internal regions, with the exception of Greater Accra and the Upper East and West regions, the most frequent migration is intra-regional.[8] Since Accra is the most popular location of choice for in-migrants, and also is the source of the largest number of return movements, this observation is not surprising. Nor is the observation that people from Upper East and West are mainly moving inter-regionally, since these are the poorest regions of Ghana. Of international migrants, those migrating from adjacent countries (intra-regionally) mainly settled in all areas of Ghana except the northern regions, whilst the most popular destination of inter-regional international migrants was Ghana's economic capital, Accra in 1991/2 and Ashanti in

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[7] Because the responses to the question 'in which region or country we you living before' are limited, we were unable to identify inter-continental migrants (i.e. those migrating to Ghana from outside of Africa).

[8] One significant anomaly is that in 1998/9 the most frequent destination for migrants from Eastern region was Volta, and vice versa for migrants from Volta region. This may be indicative of coding error in the questionnaire, or perhaps a change in Eastern and Volta's administrative boundaries between the surveys.

1998/9, which contains Ghana's second city, Kumasi.

We are also interested in movement within or between rural and urban sectors. Table 3 indicates that in Ghana, rural to urban migration accounts for only a small proportion, about 10 per cent, of internal movement. Most migrations were to or within rural areas. However, we do find that a higher proportion of in-migrants than return migrants did move from rural to urban areas, which is more consistent with economic theory. We also find that a far greater proportion of international migrants were returnees than in-migrants to Ghana from other countries; approximately three-quarters were returnees, in other words, about 240,000 people in total in 1991/2 and 260,000 in 1998/9.

3.3 Why did they move?

Table 4 presents the frequency distribution of main reason for moving of all migrants. Most migrants gave the main reason for migrating as being non-economic, mainly marriage and other family reasons. The percentage of people that say they migrated for their own or spouse's employment is relatively low (although higher in the late 1990s), in part because these data are for *all* household members aged 15 or more – i.e. they include family members such as spouses and children that have moved simply because their household head has. The proportion of household economic heads that migrate for employment reasons is greater: of all migrant heads, 31.1 per cent in 1991/2 and 37.2 per cent in 1998/9 moved for own or spouse's employment; for in-migrants these figures are 40.3 and 45.3 respectively; for returnees they are 22.6 and 29.1; for internal migrants, 32.1 and 38.7; and for international migrants, 20.2 and 18.8.

As we would expect, in-migrants (and internal migrants) are motivated by employment to a greater extent than returnees (and international migrants). The percentage of international migrants moving because of drought or war increased dramatically between the two years, reaching almost 10 per cent in 1998/9.

3.4 Who are the migrants?

Tables 5 to 9 give, respectively, migrants' household member status, sex, age, and education and employment characteristics. Table 5 indicates that non-migrants are less likely to be economic heads (defined as the most senior

member of the household that earns the most), and that, although migrants and non-migrants are evenly distributed between heads and other household members, international and return migrants are more likely to be heads. Table 6 indicates that, indicative of the gender structure of Ghana's adult population, migrants are slightly more likely to be female. Looking at males and females separately, we find that both sexes are equally likely to be migrants as not, but for different reasons. In 1991/2, 14 per cent of males state their main motive as economic, only 3 per cent of females do, whilst 19 per cent of females move because of marriage. By 1998/9, 35 per cent of males stated they were moving because of own employment, as compared to 8 per cent of females, 25 per cent of whom were moving for marriage. International migrants, particularly those migrating inter-regionally, are more likely to be male. Table 7 indicates that migrants are on average older than non-migrants. Among migrants, return migrants are more likely to be older than in-migrants, and international migrants are most likely to be in the 35-44 age-bracket, as compared to internal migrants, who are most likely to be 25-34. The latter is probably explained by the fact that most international migrants are returnees.

Table 8 presents the percentage distribution of highest education qualification obtained. Whilst there has been a reduction in the percentage with no formal qualifications over the 1990s among both migrants and non-migrants, migrants are more likely to be more highly qualified than non-migrants; international inter-regional migrants in particular have obtained higher education qualifications than other groups. This is in accordance with economic theory of rationality in migration – migrants are self-selected (rather than a random sample) from the general population because they are more likely to benefit from moving than other less educated people. Looking at economic heads only, the trends indicated by Table 8 are even more pronounced: 59 per cent of non-migrant heads and 51 per cent of migrant heads had no qualifications in 1998/9 (down from 71 per cent and 59 per cent in 1991/2, respectively); and only 35 per cent in 1991/2 and 25 per cent in 1998/9 of international inter-regional migrant heads had no educational qualifications.

Table 9 presents the main economic activity of the *household*, i.e. where the majority of its income is earned, by migrant status of the economic head. Economic activity data is presented in this way, rather than at individual level, because migration is analysed as a household decision which is likely to affect the status of all economically active household members (Tunali, 2000). Farming is the main economic activity of the greatest number of households, mainly food crops, followed closely by rural sector non-farm self-employment. The table indicates that over the 1990s there has been a small increase in the proportion of households whose main activity is rural non-farm self-employment, and a commensurate fall in food-crop and public sector employment.

Households with migrant heads are more likely than those without to earn the greatest share of their incomes in the formal sector (public and private) or as export farmers, and are less likely to be food-crop farmers. This is particularly true of heads who stated that their own or their spouse's employment was the main reason for migrating, 27 per cent in 1991/2 and 31 per cent in 1998/9 of whose households were working in the formal sector, and about 10 per cent in both years were in export farming. Households with returnee heads are more likely to be predominantly involved in food-crop farming than households with in-migrant heads, this difference being mainly attributable to lower rates of public and private formal sector employment (as well as non-farm self-employment in 1998/9) among the former households. There has also been a reduction in the proportion of households with international migrant heads whose main economic activity is in the public sector over the period. The general fall in the proportion of households in public sector employment among all groups, the result of public sector retrenchment, was balanced mainly by increases in non-farm self-employment.

4. Welfare outcomes

In this section we examine migrants' performance. Three welfare indicators have been chosen: household consumption expenditure, poverty status, and the proportion of children of primary school age residing in the household who have been attending school in the past year. The question we are interested in answering is: are migrant households on average better off than non-migrants, once other differences between households are controlled for? Multivariate regression analysis allows the separate impact effect of an indicator variable such as migration to be determined. Multivariate analysis of household

wellbeing is usually conducted by levels regression or by binary response model.

In levels regression the dependent variable is the direct estimate of household welfare (the level or log of income or consumption expenditure), and the regression is of the form:

$$y_i = \boldsymbol{\beta}'\mathbf{x}_i + e_i$$

where y_i represents the measure of income or consumption of household i, x is the vector of explanatory variables, including migration variables, β the corresponding vector of coefficients and e the error term. Assuming the error is normally distributed, this can be estimated using ordinary least squares (OLS).

In binary response models a limited dependent variable v_i is set equal to 1 if the household's income or consumption is less than or equal to a determined poverty line z and 0 otherwise, and the regression estimates

$$Prob\ (v_i = 1) = F(z - \boldsymbol{\beta}'\mathbf{x}_i).$$

The regression coefficients $\boldsymbol{\beta}$ can be shown to represent the impact of each variable on the index of the probability of being poor, the cumulative distribution function F. Assuming a normally distributed error, this can be estimated by probit (see Greene, 2000).

Grootaert (1997: 172-173) summarises the merits of each method. The main advantage of the binary probability model over levels regression in analysing poverty 'determinants' is that it does not impose parameter homogeneity across the entire income distribution. Since returns to endowments are likely to differ between rich and poor, for example owing to differential access to capital markets (credit and insurance), it is unlikely that their impact is the same on both groups. Binary models may also be preferred since levels regressions are more sensitive to measurement error present in income or expenditure data and because it may be difficult to impose the correct functional form to fit the data.

The main disadvantage of the probability model is that welfare comparisons are based on an arbitrary poverty line. Sensitivity (robustness) analysis should be performed to ascertain whether stochastic dominance is upheld at different poverty lines; this is obtained if the estimated coefficients remain of same sign in all regressions. The advantage of the levels regression over the binary probability model is that by using all the information in the income distribution it does not impose this restriction on the data. Additionally, consistency of the binary model is more sensitive to the assumption regarding error distribution than levels regression estimation. In levels regression the dependent variable can be logarithmically transformed, which may more closely approximate the distribution of the data.

In this paper we present results of estimation of both levels and binary dependent variables. Analysis is performed for each year separately. Additionally, separate regressions are also estimated for rural and urban sectors to examine whether migration variables correlate differently in rural and urban areas. Following earlier studies (see, for example, Glewwe, 1991, Grootaert, 1997, Teal, 2001, Tunali, 2000) we include six types of explanatory variable for household welfare.

1. *Human asset variables*, to account for household earnings ability, include number of years of schooling of economic head, highest education qualification of the head and head's age (as a proxy for experience). Welfare is modelled as a quadratic function of both years of schooling and age because of the likelihood of diminishing returns. Qualification indicator variables are included because years schooling may be a poor proxy for labour productivity, and also because qualifications may be used as a signalling device for potential employers.

2. *Household composition variables*, which account for the contribution of various members to household income as well as household needs, include sex, nationality and ethnicity[9] of head (to allow for possibility of labour market discrimination) and household size. Following Keyereme and Thorbecke (1991), age composition of the household is measured using a fertility index (the ratio of the number of children aged under 15 to all other household members) and a maturity index (the average age of these children

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[9] The language the interview was conducted in by the household head is used to approximate ethnicity of the economic head. In the 1998/9 survey a separate question on ethnicity was added but including a variable constructed from this question does not alter estimated coefficients.

divided by the average age of the remaining members). These attempt to measure the two opposing effects that children may have on the household: firstly, their presence increases the dependency ratio (the needs of the household relative to those that provide those needs); secondly, as children become older the net burden may diminish since they may be useful additions to the stock of earners (particularly in rural areas where children may be required to do farm work to support their consumption).

3. *Physical asset endowments*, which are also proxies for earnings ability, are measured by land ownership (in acres) and real values of livestock, farm equipment and non-farm assets.

4. *Employment variables* control for main economic activity of the household and the employment composition of the household's workforce (share of adults employed, share of employed adults who are female).

5. *Location variables* include region of residence, and whether in rural or urban sector. These allow for spatial causes of affluence or poverty such as infrastructure and other unobserved geographical heterogeneity.

6. *Migration variables* include indicator variables for the household head (whether the head moved during his or her lifetime, and whether the last move was an in-migratory or return migratory move), and the share of other adults who have moved during their lifetimes.

In these regressions, because of the difficulties in determining exogeneity, explanatory variables are termed 'correlates' rather than 'determinants' – i.e. there are good reasons to believe that regressors may themselves be determined by household welfare status. Even pre-determined variables such as educational attainment, asset holdings and migration cannot be considered completely exogenous since selectivity may induce certain households to actions in which they have comparative advantage (Glewwe, 1991). In the case of migration, individuals or households with better welfare-generating capabilities are more likely to migrate. A household that is currently poor may have been unable to afford the physical costs of migrating or the risk of failure making it worse off than at present. Conversely, a richer household will have been both more able to afford the costs of migration

and more likely to benefit since it may have had better access to information on potential destinations, been able to migrate over a wider area in order to maximise gains and been better endowed in certain characteristics such as education.

In order to determine the impact of migration on welfare we would ideally utilise a panel data set, and compare migrants' earnings before and after moving. Although in actuality we only have information on the same households at one point in time, we can approximate the effect of moving by comparing migrants to non-migrants, thus constructing from the latter a counterfactual outcome for migrants – i.e. one that would have occurred had the individual chosen not to migrate. However, if migrants are selected (non-random draws from the population), the estimated (average) impact of migration from an indicator variable (0=non-migrant, 1=migrant) in OLS estimation will be biased. More specifically, parameter estimates from standard OLS or probit will be biased upwards. A Heckman two-step procedure can produce consistent estimates in such circumstances but this is left to a separate exercise.[10] Appendix Table 1 presents the list of variables used in all regressions.

4.1 Consumption expenditure

Consumption, as opposed to income, is the preferred measure of monetary welfare since spending is arguably more closely related to utility and is subject to lesser fluctuations than income (since rational households prefer to smooth current consumption by holding a proportion of their income as savings). Consumption is measured at the level of the household, rather than the individual, because a significant number of surveyed individuals are self-employed and/or involved in family production thus data on money wages is not observed. The migration decision will also impact on the earnings of all economically active household members (Tunali, 2000). Household consumption expenditure is

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[10] Separate regressions are estimated for migrants and for non-migrants, each augmented with the 'Mills ratio' variable that controls for the omitted part of the distribution (induced by leaving out the group of non-migrants or migrants from the sample in each regression). The Mills ratio is calculated from the fitted values of a probit regression modelling the relevant non-random decision variable, in this case whether the individual migrated or not. Consistency is produced under the assumption of bivariate normality of errors distribution of the welfare and migration regressions (Greene, 2000).

estimated as the sum of household expenditures on food (including imputed own-food consumption), housing (including imputed rent), and other expenditure (including imputed flows from durable goods).[11] It is made comparable across all households by deflating by regional and consumer (temporal) price indexes and by the number of equivalent adults in the household. The equivalence scale employed allows for different nutritional needs of people of different ages and sex (GSS, 2000).

Tables 10 and 11 present the results of OLS regressions modelling the correlates of (the log of) household per adult equivalent expenditure in 1991/2 and 1998/9 respectively. Since the dependent variable in these regressions is a logarithmic transformation, the final column of each specification gives the marginal or the impact effect of a unit change in each variable on the absolute value of household per adult equivalent expenditure at the mean of the data.[12] The head's migration status is represented in specification (a) with the simple indicator variable MIGRATE, which is set equal to 1 if the head of the household migrated in his or her lifetime (0 otherwise), and in specification (b) with indicator variables INMIGR and RETMIGR to distinguish in-migrants from returnees. The regressions provide reasonably good fits of the data, with R-squared values around 0.47, and in all the F-statistics indicate the joint significance of all explanatory variables.

For both years, most explanatory variable coefficients are of the expected sign (notably, in accordance with Kyereme and Thorbecke (1991), the fertility and maturity indexes), with the exception of the relationship between age of the household head and expenditure, which is estimated to be convex rather than concave in 1991/2, with a minimum at 54 years of age (coefficients are not statistically significant in 1998/9), and the relationship between years of schooling and expenditure which is estimated to be concave in 1991/2, although only marginally significant. There are several other main

differences between 1991/2 and 1998/9 estimates. Firstly, school qualification variables are greater in magnitude and significance in 1991/2 than 1998/9. Secondly, impact effects of region dummies are larger in 1998/9 (and all significantly negative), which suggests that households in Greater Accra, the base category, benefited from economic reforms to a greater extent than the other regions. Thirdly, whilst households whose heads are from ethnic group categories Ga-Adangbe and OTHER on average had lower expenditure than those from Akan group (the base category) in 1991/2, differences between ethnic groups are not significant in 1998/9. Fourth, of all household main economic activities, the position of export farmers improves the most over the period: on average they are estimated to spend about 260,000 cedi per year more than food farmers (the base category).

The results suggest that the benefits of migration deteriorated over the 1990s. Migration dummy variable coefficients are positive and highly significant in all, but the estimated impact of migration on household expenditure per adult equivalent is lower in 1998/9. In 1991/2, households whose head had migrated expended on average 199,760 (approximately US$78 purchasing power parity, PPP) cedi per adult equivalent per annum more than those whose head had not. Of these, as postulated above, households with returnee heads fared better than those with in-migrant heads: the former spent on average 283,074 cedi more than non-migrants and 172,138 cedi more than in-migrants, this difference being statistically significant with over 99 per cent confidence.[13] By 1998/9, households with migrated heads expended only 99,604 cedi (or about US$39 PPP) per adult equivalent per annum more than non-migrants, and returnee households were no longer spending more than in-migrants. However, the result that in-migrant households performed marginally better than returnees on average (51,846 cedi more) is not statistically significant at conventional levels. The variable measuring the share of other household adults that migrated (SHMIGR) is significantly negative in both specifications and years, the coefficient indicating that an increase in the share

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[11] Household expenditure estimates exclude expenditure on remittances and major hospital treatment since they would be likely to inflate estimates of actual household welfare.

[12] The formula employed to obtain this is as follows: our regressions are of the form $ln(y_i) = \beta x_i$, thus the marginal effect of x on $ln(y)$ is given by $dln(y)/dx = \beta$. Using the logarithmic approximation $dln(y) \approx dy/y$, the marginal effect of x on y is thus given by $dy/dx = \beta y$.

[13] Given the null hypothesis Ho: $\beta_1 > \beta_2$ and alternative (Ha: $\beta_1 \leq \beta_2$), the test statistic is given by:

$t = (\beta_1 - \beta_2)/(se(\beta_1) + se(\beta_2) - 2cov(\beta_1, \beta_2))$, which is distributed according to the t-distribution with 2 degrees of freedom.

of migrants by 10 percentage points reduced household annual expenditure by between about 6,000 and 8,000 cedi on average.

Regressions were also estimated for rural and urban sectors separately (results are presented in Appendix Tables 2 and 3). The main findings are that schooling variables are more significantly correlated with expenditure in urban areas than rural, and the impact of migration variables is greater for rural residents.

4.2 Poverty incidence

Poverty incidence is estimated from household per adult equivalent expenditure. The lower poverty line was set (see GSS, 2000) at 700,000 cedi per annum in 1999 prices – roughly equivalent to US$275 PPP – and the upper poverty line at 900,000 cedi or about US$355 PPP per annum. The former, a measure of extreme poverty, represents the level of expenditure at which adults are just able to meet nutritional requirements; by this definition, people determined to be poor are unable to meet basic nutritional requirements even if they spend all their money on food. The upper poverty line also takes account of basic non-food requirements. Incidence measures the percentage of a population group whose annual expenditure is less than the poverty line.

Table 12 presents household poverty incidence by migration status of household head. The general observation that overall poverty incidence fell during the 1990s using both upper and lower definitions of poverty accords with the Poverty Profile (GSS, 2000), which found poverty to be falling, though unequally, across nearly all regions and socio-economic groups. Extreme poverty incidence was lower among households whose heads were migrants, although at this lower line poverty incidence fell by more for non-migrants; the opposite is true at the upper poverty line where households with migrant heads, who began in 1991/2 with higher poverty incidence, in 1998/9 with lower incidence than their counterparts. Households with return migrant heads were the only group whose incidence of extreme poverty rose over the 1990s. Poverty incidence was also lowest amongst households whose heads were international migrants and fell by the greatest proportion.

Tables 13 and 14 present estimates of the results of poverty probits at the lower poverty line. The signs and significance of coefficients in these are highly similar to the levels regressions, however they perform less well in terms of explanatory power (R-squared are around 0.26) and only correctly predict about 50 per cent of poor observations (although over 90 per cent of non-poor). Households with migrant heads, have a reduced probability of being poor than those without in 1991/2 only. Again the findings indicate that by 1998/9 there was much more regional variation in welfare as households residing in all regions are more likely to be poor than residents of Greater Accra, particularly more so in northern regions (Northern, Upper East and Upper West).[14]

At the upper poverty line the probit analysis performs poorly (Appendix Tables 4 and 5): explanatory and predictive power are very low and some coefficients are of opposite sign to earlier results, indicating the lack of robustness of probit results to choice of poverty line. The impact on poverty probability of migration of the household head is insignificant in 1991/2 but significant in 1998/9, the opposite of the finding at the lower poverty line.

4.3 School enrolment

Are these trends in household expenditure and lower poverty incidence mirrored in other socio-economic factors? Here we look at one such factor, child education attendance. Certainly one would expect that, other things being equal, households with higher income or consumption levels would be more able to afford to send their children to school, both because of the costs of school uniform and text books as well as foregone earnings of children.

Table 15 presents net attendance rates for children aged 6-11 and 12-15 and young adults aged 16-18 – i.e. those of each age group attending school as a proportion of the total number in that age group – by migrant status of household heads. The general trend observed is that over the 1990s, increasing percentages attended school in each age category (this accords with the observation of improved educational attainment for household heads); this is true across the whole population and across all categories of migrant. If children are from households where the head is classified as a migrant, all age categories are more likely to be

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[14] Probit results for rural and urban sectors are not presented here, but are available on request from the authors.

attending school than if the head is non-migrant, but this difference has been eroded over the 1990s.

In order to distinguish the contribution to primary enrolment of migration from other factors, we regress household share of primary aged children (aged 6 to 11) that have attended school in the past year on various correlates (including migrant status of head, household expenditure, household composition, household human and physical assets, household main economic activity and region of residence) for all households containing children of the relevant age. Results, presented in Tables 16 and 17 indicate that factors associated with higher primary enrolment include household expenditure (the marginal effects[15] indicate that at the means of the data an extra annual household expenditure of 100,000 cedi annually raises the enrolment rate by 5 per cent in 1991/2 and by about 1.5 per cent in 1998/9), the maturity index, female household head, household assets and qualifications of the household head, the latter exerting particularly strong influence on primary enrolment. However once controlling for these factors, migration variables do not exert a significant effect on household primary school enrolment rates. Only in 1991/2 urban sector and 1998/9 rural sector do households with migrant heads have statistically different enrolment rates (see Appendix Table 6), however the magnitude of the coefficients is small: in 1991/2 urban in-migrant households have on average 5 per cent lower enrolment than non-migrants (significant at 12 per cent); in 1998 rural households with returnee heads have 4 per cent higher enrolment on average (7 per cent significance).

5. Conclusion

This paper has examined the welfare outcomes of migrants and non-migrants in Ghana in the years 1991/2 and 1998/9 using nationally representative survey data. Our results show that migration is a common feature of household behaviour in Ghana in both years, with over 50% of individuals migrating at some point within their lives. There appears to have been a small decline in the extent of migration however over the decade, perhaps reflecting the economic reforms under

way in Ghana during the 1990s that reduced employment opportunities in urban areas. Much of the migration picked up the GLSS surveys is internal and most of that is rural to rural or urban to rural, rather than rural to urban, and much of the migration by heads of households is motivated by job search.

Our preliminary multivariate analysis of whether migrants are better off than non-migrants suggest mixed results. The OLS regressions of equivalised household consumption expenditure show that there is a premium for migrants: migrant households have statistically significantly higher living standards than non-migrants. However this premium seems to have deteriorated over the decade, falling by about a half. This may reflect declining employment opportunities as well as a general decline in terms of trade of cash crops. The poverty probits provide some support for the decline in the migration premium: migrants had a lower probability of being poor than non-migrants in 1991/92 but there was no statistically significant difference in 1998/99.

However if we extend our analysis to non-monetary indicators of living standards, such as education enrolment, there appear to be no differences between migrants and non-migrants. Our results, while preliminary, suggest that while migration remains an important self-improvement or coping strategy in Ghana, the benefits of migration have declined over the 1990s, perhaps as a result of the package of economic reforms adopted during that decade.

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[15] The formula used to estimate this is as follows: the relationship between enrolment and logged household expenditure is represented by $y_i = \beta ln(x_i)$, thus the marginal effect of x on y is given by $dy/dx = \beta/x$.

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Table 1 Temporal distribution of migration by total migrants and in-/return status

Year	Migrant status	# obs.	Weighted % of pop.	Migrated during past n years (%)					
				n<1	1≤n<2	2≤n<5	5≤n<10	n≥10	Total
1991/2	Non-migrant	4497	42.4						
	All migrants	6105	57.6	4.8	6.9	17.2	23.9	47.2	100.0
	In-migrant	3487	32.9	3.4	5.6	15.3	19.8	55.8	100.0
	Return migrant	2618	24.7	6.7	8.6	19.6	29.4	35.7	100.0
1998/9	Non-migrant	6681	46.5						
	All migrants	7543	53.5	4.9	5.8	15.5	24.0	49.9	100.0
	In-migrant	3956	29.9	4.6	4.6	12.9	23.5	54.5	100.0
	Return migrant	3587	23.6	5.4	7.3	18.7	24.5	44.1	100.0

Table 2 Temporal distribution of migration by internal/international status

Year	Migrant status	# obs.	Weighted % of pop.	Migrated during past n years (%)					
				n<1	1≤n<2	2≤n<5	5≤n<10	n≥10	Total
1991/2	Internal	5673	53.5	4.7	6.9	17.0	22.8	48.7	100.0
	International (intra-regional)	363	3.4	6.9	7.4	20.1	39.9	25.6	100.0
	International (inter-regional)	69	0.7	8.7	7.3	15.9	27.5	40.6	100.0
1998/9	Internal	7006	49.9	4.9	5.8	15.5	23.6	50.2	100.0
	International (intra-regional)	439	2.9	5.5	5.6	14.1	30.0	44.7	100.0
	International (inter-regional)	98	0.7	2.2	3.1	19.4	25.2	50.1	100.0

Figure 1a Percentage distribution of current location by previous location, 1991/2

Previous location

Figure 1b Percentage distribution of current location by previous location, 1998/9

Previous location

Table 3 Sectoral movement of all migrants, in-migrants and returnees (%)

	Migrant		In-migrant		Return migrant	
Year	1991/2	1998/9	1991/2	1998/9	1991/2	1998/9
Rural to urban	9.1	8.8	11.9	10.9	5.4	6.3
Rural to rural	31.7	29.3	36.9	30.7	24.8	28.0
Urban to urban	23.2	22.4	24.3	28.2	21.8	15.2
Urban to rural	28.9	32.7	23.8	26.9	35.6	39.9
International (intra-regional)	5.9	5.4	2.7	2.5	10.3	9.2
International (inter-regional)	1.2	1.3	0.4	0.8	2.1	1.9
Total*	100.0	100.0	100.0	100.0	100.0	100.6

Note: * may not sum to 100.0 per cent because of rounding errors.

Table 4 Main reason for moving (%)

Year	Migrant status	Own/ spouse's employment	Marriage	Other family reason	School	Drought/ war	Other/ not stated	Total
1991/2	All migrants	23.6	18.0	42.5	5.4	0.5	10.0	100.0
	In-migrant	27.7	22.5	36.3	5.5	0.5	7.6	100.0
	Return migrant	18.3	12.1	50.6	5.4	0.5	13.1	100.0
	Internal	24.1	18.4	42.7	5.6	0.4	8.9	100.0
	International (intra-regional)	18.2	14.6	40.2	2.8	2.2	22.0	100.0
	International (inter-regional)	18.8	7.3	36.2	4.4	1.5	31.9	100.0
1998/9	All migrants	27.6	14.5	45.5	2.9	1.0	8.6	100.0
	In-migrant	30.4	18.7	40.7	3.7	0.6	6.0	100.0
	Return migrant	24.1	9.3	51.5	1.9	1.4	11.9	100.0
	Internal	28.2	15.2	45.5	3.0	0.4	7.8	100.0
	International (intra-regional)	19.1	6.2	46.8	0.4	7.9	19.6	100.0
	International (inter-regional)	17.0	4.4	42.4	3.0	11.1	22.1	100.0

Table 5 Migrant status by household member status

Year	Migrant status	# obs.	Household member status (%)		
			Economic head	Other adult	Total
1991/2	Non-migrant	4488	31.1	68.9	100.0
	All migrants	6098	50.7	49.3	100.0
	In-migrant	3480	44.9	55.1	100.0
	Return migrant	2618	58.3	41.7	100.0
	Internal migrant	5666	49.9	50.1	100.0
	International (intra-regional)	363	60.6	39.4	100.0
	International (inter-regional)	69	62.3	37.7	100.0
1998/9	Non-migrant	6702	34.1	65.9	100.0
	All migrants	7556	48.8	51.2	100.0
	In-migrant	3964	43.5	56.5	100.0
	Return migrant	3592	55.4	44.6	100.0
	Internal migrant	7019	48.3	51.7	100.0
	International (intra-regional)	439	54.2	45.8	100.0
	International (inter-regional)	98	58.6	41.4	100.0

Table 6 Migrant status by sex

Year	1991/2		1998/9	
	Male %	Female %	Male %	Female %
Non-migrant	45.8	54.2	46.7	53.3
All migrants	46.4	53.6	43.3	53.7
In-migrant	44.8	55.2	44.0	56.0
Return migrant	48.4	51.6	49.1	50.9
Internal	45.6	54.4	45.5	54.5
International (intra-regional)	53.2	46.8	56.3	43.7
International (inter-regional)	66.7	33.3	65.7	34.3

Table 7 Migrant status by age

Year	Migrant status	Age in years (%)						
		15-24	*25-34*	*35-44*	*45-54*	*55-64*	*65+*	*Total**
1991/2	Non-migrant	47.2	20.0	11.9	9.0	5.3	6.7	100.0
	All migrants	21.1	24.7	20.8	16.2	9.4	7.9	100.0
	In-Migrant	23.7	25.2	20.2	15.6	8.1	7.2	100.0
	Return migrant	17.5	24.1	21.5	16.9	11.0	8.9	99.9
	Internal	21.6	24.1	20.4	16.4	9.6	7.9	100.0
	International (intra-regional)	14.6	35.3	26.2	11.3	4.7	8.0	100.0
	International (inter-regional)	8.7	20.3	29.0	23.2	11.6	7.3	100.0
1998/9	Non-migrant	42.7	20.9	14.7	9.3	5.7	6.8	100.0
	All migrants	19.3	24.9	21.5	15.6	9.2	9.6	100.0
	In-Migrant	22.2	26.0	21.1	14.1	8.1	8.5	100.0
	Return migrant	15.5	23.5	22.0	17.4	10.6	11.0	100.0
	Internal	19.7	25.0	21.0	15.4	9.2	9.7	100.0
	International (intra-regional)	14.4	24.0	29.5	18.6	7.6	6.0	100.0
	International (inter-regional)	5.8	18.8	28.5	18.1	12.7	16.1	100.0

Note: * may not sum to 100.0 per cent because of rounding errors.

Table 8 Highest educational qualification obtained

Year	Migrant status	Highest qualification obtained (%)								
		None	Basic	Vocational	O level	A level	Technical/ professional[1]	Higher	Other	Total*
1991/2	Non-migrant	74.1	21.2	0.5	2.9	0.5	0.5	0.1	0.2	100.0
	All migrants	63.8	27.8	1.2	3.5	0.9	2.2	0.5	0.2	100.1
	In-migrant	64.2	26.8	1.1	4.1	1.1	2.1	0.6	0.2	100.2
	Return migrant	63.2	29.0	1.3	2.9	2.9	2.4	0.5	0.1	102.3
	Internal	64.1	27.6	1.1	3.5	0.9	2.2	0.5	0.2	100.1
	International (intra-regional)	62.3	30.3	1.4	2.8	0.0	2.5	0.6	0.3	100.2
	International (inter-regional)	44.9	27.5	4.4	8.7	5.8	2.9	5.8	0.0	100.0
1998/9	Non-migrant	60.1	29.5	1.1	2.6	4.3	2.0	0.1	0.3	100.0
	All migrants	56.1	31.3	1.3	3.2	2.6	4.7	0.5	0.4	100.1
	In-migrant	53.3	31.7	1.5	3.5	3.2	5.8	0.7	0.3	100.0
	Return migrant	59.5	30.8	1.0	2.7	1.8	3.2	0.3	0.6	100.0
	Internal	56.3	31.2	1.3	3.1	2.6	4.7	0.5	0.3	100.0
	International (intra-regional)	56.1	31.8	0.6	3.4	2.5	3.2	0.2	2.2	100.0
	International (inter-regional)	39.0	41.1	0.4	6.0	2.2	7.9	1.9	1.6	100.1

Notes: [1] qualification includes teaching and, for 1998/9, nursing; * may not sum to 100.0 per cent because of rounding errors.

Table 9 Main economic activity of household by migrant status of household economic head

Year	Status of head	# obs.	Main economic activity of household (%)							
			Public sector	Private formal	Private informal	Export farmer	Food-crop farmer	Non-farm self-empl.	Not working	Total*
1991/2	All heads	4484	13.9	4.2	3.4	6.2	42.6	27.2	2.5	100.0
	Non-migrant	1394	10.4	2.9	3.6	5.0	49.0	26.9	2.2	100.0
	Migrant	3090	16.4	5.1	3.3	7.2	37.9	27.5	2.6	100.0
	In-migrant	1563	19.4	5.6	2.6	7.3	34.5	27.9	2.7	100.0
	Return migrant	1527	14.3	4.1	3.2	6.0	42.6	27.4	2.4	100.0
	Internal migrant	2827	16.6	5.3	3.1	7.3	38.6	26.5	2.6	100.0
	International (intra-regional)	220	9.1	5.5	5.9	5.0	30.5	40.5	3.6	100.0
	International (inter-regional)	43	20.9	0.0	11.6	2.3	16.3	37.2	11.6	100.0
1998/9	All heads	5980	10.7	4.9	2.9	7.0	38.7	33.8	2.1	100.1
	Non-migrant	2234	7.0	3.4	2.9	5.7	40.2	38.4	2.4	100.0
	Migrant	3746	12.9	5.7	2.8	7.8	37.8	31.1	1.9	100.0
	In-migrant	1744	16.2	7.5	3.3	9.0	26.3	35.8	2.0	100.1
	Return migrant	2002	9.4	3.9	2.4	6.6	49.8	26.3	1.8	100.2
	Internal migrant	3437	13.6	5.6	2.5	8.0	38.1	30.3	1.9	100.0
	International (intra-regional)	250	3.2	7.2	6.4	5.2	34.4	40.4	3.2	100.0
	International (inter-regional)	59	6.8	6.8	6.8	6.8	32.2	32.2	8.5	100.0

Note: * may not sum to 100.0 per cent because of rounding errors.

Table 10 OLS regression results 1991/2: dependent variable is LPAEXP

	Specification (1a)				Specification (1b)			
	Coefficient	t-statistic	P>|t|	Marginal/ impact effect on PAEXP[1]	Coefficient	t-statistic	P>|t|	Marginal/ impact effect on PAEXP[1]
SCHYRS	0.1892	1.64	0.102	321554	0.1885	1.65	0.099	320452
SCHYRS2	-0.0140	-1.57	0.117	-23715	-0.0138	-1.58	0.116	-23539
NO QUAL	(Omitted category)				(Omitted category)			
BASIC	0.1292	6.20	0.000	219693	0.1232	5.94	0.000	209453
VOCATIONAL	0.1494	1.35	0.177	254020	0.1391	1.25	0.211	236356
SECONDARY	0.2965	6.32	0.000	503973	0.2962	6.28	0.000	503519
HIGHER	0.2708	4.35	0.000	460263	0.2637	4.22	0.000	448218
OTHER	0.4333	2.47	0.014	736477	0.4536	2.58	0.010	770977
MIGRATE	0.1175	5.70	0.000	199760				
INMIGR					0.0594	2.49	0.013	100936
RETMIGR					0.1665	7.11	0.000	283074
SHMIGR	-0.0487	-2.19	0.029	-82825	-0.0362	-1.65	0.100	-61610
AKAN	(Omitted category)				(Omitted category)			
NZEMA	0.0277	0.31	0.757	47130	0.0188	0.21	0.832	31942
EWE	0.0343	0.87	0.385	58228	0.0467	1.18	0.237	79403
GA-ADANGBE	-0.1379	-3.17	0.002	-234378	-0.1384	-3.23	0.001	-235217
OTHER	-0.0711	-2.36	0.019	-120785	-0.0631	-2.05	0.041	-107219
HHSIZE	-0.0704	-13.64	0.000	-119615	-0.0700	-13.69	0.000	-119046
FERTILITY	-0.0760	-6.73	0.000	-129101	-0.0772	-6.85	0.000	-131268
MATURITY	0.2474	8.15	0.000	420550	0.2525	8.40	0.000	429218
NON-GHANAIAN	-0.1526	-3.25	0.001	-259435	-0.1415	-2.96	0.003	-240571
URBAN	0.3495	9.36	0.000	594134	0.3438	9.26	0.000	584306
FEMALE	0.0754	2.82	0.005	128091	0.0742	2.79	0.006	126094
AGEHEAD	-0.0068	-2.05	0.041	-11640	-0.0069	-2.06	0.040	-11674
AGEHEAD2	0.0001	1.85	0.065	107	0.0001	1.84	0.066	106
FEMP	0.0772	2.37	0.018	131154	0.0746	2.31	0.021	126767
ADEMP	0.3632	6.95	0.000	617384	0.3648	7.01	0.000	620003

FOOD	(Omitted category)				(Omitted category)			
PUBLIC	0.2502	7.85	0.000	425206	0.2648	8.33	0.000	450179
PRIVFORMAL	0.2492	5.45	0.000	423505	0.2556	5.54	0.000	434502
PRIVINFORMAL	0.1530	3.09	0.002	259996	0.1517	3.07	0.002	257785
EXPORT	0.0538	1.47	0.144	91410	0.0561	1.60	0.110	95397
NFARM	0.2184	7.60	0.000	371151	0.2248	7.83	0.000	382026
NOTEMP	0.4783	6.62	0.000	812968	0.4820	6.61	0.000	819294
ACCRA	(Omitted category)				(Omitted category)			
WESTERN	-0.1500	-2.32	0.021	-254979	-0.1603	-2.49	0.013	-272498
CENTRAL	0.0235	0.31	0.757	40021	0.0027	0.04	0.971	4634
EASTERN	-0.0810	-1.39	0.165	-137672	-0.0890	-1.54	0.125	-151249
VOLTA	-0.1459	-1.99	0.048	-247955	-0.1706	-2.30	0.022	-289943
ASHANTI	0.0558	0.89	0.375	94857	0.0390	0.62	0.534	66337
BRONG-AHAFO	-0.0932	-1.45	0.147	-158379	-0.0991	-1.55	0.122	-168470
NORTHERN	-0.1376	-1.43	0.153	-233882	-0.1539	-1.59	0.112	-261643
UPPERW	-0.3990	-3.55	0.000	-678143	-0.4231	-3.76	0.000	-719225
UPPERE	-0.0349	-0.31	0.760	-59263	-0.0721	-0.63	0.531	-122586
LAND	0.0001	0.64	0.521	210	0.0001	0.73	0.465	218
LVSTOCK	0.0001	4.30	0.000	99	0.0001	4.31	0.000	99
EQUIPMENT	0.0000	1.84	0.066	40	0.0000	1.94	0.053	42
NFASSET	0.0000	4.30	0.000	31	0.0000	4.21	0.000	31
CONSTANT	13.6880	121.55	0.000		13.6963	122.94	0.000	
#Obs.	4484				4484			
F	57.0				55.9			
P>F	0.00				0.00			
R-squared	0.471				0.474			

Note: [1]calculated at the mean (PAEXP= 1,436,306 cedi per annum (Accra Jan. 1999 prices)).

Table 11 OLS regression results 1998/9: dependent variable is LPAEXP

	Specification (1a)				Specification (1b)			
	Coefficient	t-statistic	P>|t|	Marginal/ impact effect on PAEXP[1]	Coefficient	t-statistic	P>|t|	Marginal/ impact effect on PAEXP[1]
SCHYRS	0.0009	0.14	0.887	1251	0.0013	0.21	0.833	1861
SCHYRS2	0.0009	1.86	0.064	1247	0.0008	1.81	0.072	1212
NO QUAL	(Omitted category)				(Omitted category)			
BASIC	0.0546	1.90	0.058	78491	0.0543	1.90	0.059	77933
VOCATIONAL	0.1629	2.83	0.005	233999	0.1635	2.85	0.005	234869
SECONDARY	0.1089	1.81	0.072	156448	0.1079	1.80	0.073	154950
HIGHER	0.0713	0.79	0.430	102433	0.0711	0.79	0.429	102156
OTHER	-0.0444	-0.43	0.668	-63837	-0.0392	-0.38	0.705	-56236
MIGRATE	0.0693	3.27	0.001	99604				
INMIGR					0.0896	3.42	0.001	128710
RETMIGR					0.0535	2.29	0.023	76864
SHMIGR	-0.0468	-2.38	0.018	-67149	-0.0491	-2.51	0.013	-70514
AKAN	(Omitted category)				(Omitted category)			
NZEMA	0.0481	0.40	0.689	69078	0.0506	0.42	0.675	72738
EWE	-0.0426	-0.99	0.321	-61236	-0.0453	-1.06	0.291	-65049
GA-ADANGBE	0.0162	0.35	0.726	23211	0.0201	0.44	0.663	28866
OTHER	0.0093	0.21	0.834	13364	0.0063	0.14	0.887	9056
HHSIZE	-0.0788	-12.37	0.000	-113225	-0.0791	-12.48	0.000	-113674
FERTILITY	-0.0744	-5.56	0.000	-106912	-0.0738	-5.51	0.000	-105995
MATURITY	0.2011	6.48	0.000	288811	0.2011	6.50	0.000	288889
NON-GHANAIAN	-0.1794	-2.58	0.010	-257717	-0.1879	-2.69	0.008	-269880
URBAN	0.1688	3.84	0.000	242479	0.1682	3.84	0.000	241526
FEMALE	0.0570	2.26	0.025	81869	0.0565	2.24	0.026	81125
AGEHEAD	0.0034	1.18	0.240	4831	0.0034	1.18	0.241	4826
AGEHEAD2	0.0000	-1.51	0.131	-62	0.0000	-1.51	0.133	-61
FEMP	0.0573	1.81	0.071	82369	0.0582	1.84	0.066	83561
ADEMP	0.2443	5.54	0.000	350827	0.2446	5.57	0.000	351335

FOOD	(Omitted category)				(Omitted category)			
PUBLIC	0.2636	6.60	0.000	378678	0.2585	6.58	0.000	371342
PRIVFORMAL	0.3107	6.81	0.000	446294	0.3075	6.80	0.000	441648
PRIVINFORMAL	0.1301	2.67	0.008	186832	0.1282	2.63	0.009	184082
EXPORT	0.1804	4.30	0.000	259142	0.1779	4.26	0.000	255571
NFARM	0.2175	6.67	0.000	312421	0.2155	6.67	0.000	309458
NOTEMP	0.2940	4.39	0.000	422235	0.2943	4.40	0.000	422644
ACCRA	(Omitted category)				(Omitted category)			
WESTERN	-0.1375	-2.22	0.027	-197504	-0.1357	-2.20	0.029	-194872
CENTRAL	-0.3869	-5.78	0.000	-555715	-0.3815	-5.71	0.000	-547902
EASTERN	-0.3606	-4.88	0.000	-517989	-0.3524	-4.74	0.000	-506149
VOLTA	-0.3183	-5.35	0.000	-457218	-0.3156	-5.33	0.000	-453349
ASHANTI	-0.1351	-2.02	0.044	-194024	-0.1300	-1.94	0.053	-186709
BRONG-AHAFO	-0.2139	-2.60	0.010	-307246	-0.2079	-2.51	0.013	-298643
NORTHERN	-0.5185	-4.49	0.000	-744745	-0.5120	-4.43	0.000	-735374
UPPERW	-0.7471	-8.05	0.000	-1073098	-0.7393	-8.00	0.000	-1061808
UPPERE	-0.9416	-8.46	0.000	-1352427	-0.9284	-8.34	0.000	-1333527
LAND	0.0002	2.16	0.032	304	0.0002	2.21	0.028	310
LVSTOCK	0.0000	3.13	0.002	1	0.0000	3.12	0.002	1
EQUIPMENT	0.0000	1.46	0.147	8	0.0000	1.46	0.146	8
NFASSET	0.0000	1.50	0.135	3	0.0000	1.50	0.135	3
CONSTANT	14.0233	131.21	0.000		14.0209	131.11	0.000	
#Obs.	5980				5980			
F	90.0				88.0			
P>F	0.00				0.00			
R-squared	0.473				0.473			

Note: [1]calculated at the mean (PAEXP= 1,699,769 cedi per annum (Accra Jan. 1999 prices)).

Table 12 *Incidence of poverty at lower and upper poverty lines*

Status of head	Lower poverty line (%)		Upper poverty line (%)	
	1991/2	*1998/9*	*1991/2*	*1998/9*
All	36.6	26.9	15.2	12.6
Non-migrant	43.6	29.7	14.4	13.9
Migrant	33.6	25.3	15.5	11.8
In-migrant	36.3	19.0	15.5	10.4
Return migrant	30.8	31.8	15.6	13.3
Internal	34.3	25.9	15.5	11.8
International (intra-regional)	28.5	20.7	16.1	14.0
International (inter-regional)	8.2	3.8	14.7	5.8

Table 13 Probit regression results 1991/2: dependent variable is POORL

	Specification (1a)			Specification (1b)		
	Marginal/ impact effect	z-statistic	P>|z|	Marginal/ impact effect	z-statistic	P>|z|
SCHYRS	-0.4750	-2.24	0.025	-0.4791	-2.30	0.021
SCHYRS2	0.0347	2.21	0.027	0.0350	2.27	0.023
NO QUAL	(Omitted category)			(Omitted category)		
BASIC	-0.0298	-1.79	0.074	-0.0262	-1.57	0.117
VOCATIONAL	-0.0340	-0.40	0.693	-0.0307	-0.34	0.731
SECONDARY	-0.0793	-2.08	0.038	-0.0795	-2.08	0.037
HIGHER	-0.0717	-1.77	0.076	-0.0669	-1.62	0.105
OTHER	-0.0375	-0.25	0.800	-0.0467	-0.32	0.752
MIGRATE	-0.0574	-3.77	0.000			
INMIGR				-0.0203	-1.19	0.235
RETMIGR				-0.0816	-4.99	0.000
SHMIGR	0.0123	0.70	0.484	0.0041	0.23	0.815
AKAN	(Omitted category)			(Omitted category)		
NZEMA	-0.0559	-0.73	0.464	-0.0514	-0.66	0.509
EWE	-0.0179	-0.60	0.552	-0.0261	-0.86	0.389
GA-ADANGBE	0.0977	2.31	0.021	0.0931	2.26	0.024
OTHER	0.0563	2.34	0.020	0.0499	2.05	0.040
HHSIZE	0.0360	8.75	0.000	0.0359	8.73	0.000
FERTILITY	0.0500	5.84	0.000	0.0507	5.93	0.000
MATURITY	-0.0571	-2.18	0.029	-0.0604	-2.32	0.020
NON-GHANAIAN	0.1021	2.58	0.010	0.0949	2.36	0.018
URBAN	-0.1978	-7.79	0.000	-0.1958	-7.70	0.000
FEMALE	-0.0281	-1.29	0.198	-0.0251	-1.15	0.251
AGEHEAD	0.0069	2.56	0.011	0.0069	2.55	0.011
AGEHEAD2	-0.0001	-2.39	0.017	-0.0001	-2.38	0.017
FEMP	-0.0279	-0.98	0.329	-0.0272	-0.96	0.337
ADEMP	-0.2196	-5.71	0.000	-0.2196	-5.74	0.000
(Omitted category)	(Omitted category)			(Omitted category)		

PUBLIC	-0.1195	-5.71	0.000	-0.1237	-5.96	0.000
PRIVFORMAL	-0.1200	-3.48	0.001	-0.1208	-3.52	0.000
PRIVINFORMAL	-0.1021	-2.81	0.005	-0.0998	-2.74	0.006
EXPORT	-0.0210	-0.80	0.422	-0.0226	-0.89	0.371
NFARM	-0.1059	-5.07	0.000	-0.1099	-5.28	0.000
NOTEMP	-0.1508	-4.38	0.000	-0.1527	-4.45	0.000
ACCRA	(Omitted category)			(Omitted category)		
WESTERN	0.0901	1.70	0.090	0.0947	1.80	0.072
CENTRAL	-0.0377	-0.67	0.506	-0.0272	-0.48	0.631
EASTERN	0.0320	0.69	0.492	0.0362	0.78	0.435
VOLTA	0.1029	1.68	0.093	0.1215	1.94	0.053
ASHANTI	-0.0166	-0.36	0.721	-0.0101	-0.22	0.827
BRONG-AHAFO	0.0603	1.19	0.235	0.0610	1.21	0.226
NORTHERN	0.0935	1.47	0.143	0.1040	1.62	0.104
UPPERW	0.2915	2.52	0.012	0.3122	2.72	0.007
UPPERE	0.0203	0.28	0.776	0.0434	0.59	0.556
LAND	-0.0007	-1.32	0.187	-0.0006	-1.11	0.265
LVSTOCK	0.0000	-2.43	0.015	0.0000	-2.45	0.014
EQUIPMENT	0.0000	-0.98	0.329	0.0000	-0.99	0.324
NFASSET	0.0000	-2.61	0.009	0.0000	-2.64	0.008
#Obs.	4484			4484		
R-squared	0.260			0.263		
% poor correctly predicted	91.75			91.97		
% non-poor correctly non-poor	48.29			48.04		

Table 14 Probit regression results 1998/9: dependent variable is POORL

	Specification (1a)			Specification (1b)		
	Marginal/ impact effect	z-statistic	P>|z|	Marginal/ impact effect	z-statistic	P>|z|
SCHYRS	-0.0015	-0.38	0.702	-0.0016	-0.41	0.679
SCHYRS2	0.0000	-0.07	0.947	0.0000	-0.05	0.956
NO QUAL	(Omitted category)			(Omitted category)		
BASIC	-0.0432	-2.34	0.019	-0.0430	-2.32	0.020
VOCATIONAL	-0.0748	-1.87	0.062	-0.0747	-1.86	0.062
SECONDARY	-0.0672	-1.82	0.069	-0.0664	-1.79	0.073
HIGHER	-0.0721	-1.31	0.189	-0.0717	-1.31	0.191
OTHER	0.0449	0.61	0.540	0.0434	0.59	0.552
MIGRATE	-0.0155	-1.39	0.165			
INMIGR				-0.0210	-1.52	0.128
RETMIGR				-0.0111	-0.89	0.373
SHMIGR	0.0054	0.45	0.653	0.0059	0.50	0.618
AKAN	(Omitted category)			(Omitted category)		
NZEMA	-0.0353	-0.73	0.467	-0.0359	-0.75	0.456
EWE	0.0161	0.63	0.529	0.0171	0.67	0.502
GA-ADANGBE	-0.0170	-0.54	0.592	-0.0173	-0.55	0.586
OTHER	0.0052	0.25	0.804	0.0066	0.32	0.748
HHSIZE	0.0293	8.96	0.000	0.0294	9.06	0.000
FERTILITY	0.0291	4.19	0.000	0.0289	4.16	0.000
MATURITY	-0.0396	-2.04	0.042	-0.0400	-2.05	0.040
NON-GHANAIAN	0.0899	1.77	0.077	0.0931	1.82	0.069
URBAN	-0.0497	-2.38	0.017	-0.0496	-2.38	0.017
FEMALE	-0.0186	-1.31	0.192	-0.0186	-1.30	0.193
AGEHEAD	-0.0008	-0.44	0.661	-0.0008	-0.43	0.664
AGEHEAD2	0.0000	0.85	0.395	0.0000	0.85	0.395
FEMP	-0.0210	-1.12	0.261	-0.0212	-1.14	0.256
ADEMP	-0.0576	-2.10	0.036	-0.0573	-2.09	0.037
FOOD	(Omitted category)			(Omitted category)		

PUBLIC	-0.1055	-6.09	0.000	-0.1048	-6.06	0.000
PRIVFORMAL	-0.0976	-4.03	0.000	-0.0968	-4.00	0.000
PRIVINFORMAL	-0.0485	-1.87	0.062	-0.0477	-1.84	0.066
EXPORT	-0.0714	-3.70	0.000	-0.0709	-3.68	0.000
NFARM	-0.0567	-3.81	0.000	-0.0563	-3.79	0.000
NOTEMP	-0.0244	-0.72	0.474	-0.0243	-0.71	0.475
ACCRA	(Omitted category)			(Omitted category)		
WESTERN	0.0889	2.12	0.034	0.0891	2.12	0.034
CENTRAL	0.2794	5.34	0.000	0.2780	5.31	0.000
EASTERN	0.2693	4.69	0.000	0.2660	4.63	0.000
VOLTA	0.2012	4.22	0.000	0.2011	4.23	0.000
ASHANTI	0.1404	3.25	0.001	0.1392	3.22	0.001
BRONG-AHAFO	0.1400	2.58	0.010	0.1386	2.54	0.011
NORTHERN	0.4087	5.26	0.000	0.4055	5.23	0.000
UPPERW	0.5075	6.20	0.000	0.5036	6.17	0.000
UPPERE	0.6874	8.37	0.000	0.6826	8.30	0.000
LAND	-0.0004	-0.95	0.342	-0.0004	-0.95	0.340
LVSTOCK	0.0000	-1.84	0.066	0.0000	-1.85	0.064
EQUIPMENT	0.0000	-1.46	0.145	0.0000	-1.46	0.144
NFASSET	0.0000	-1.87	0.061	0.0000	-1.89	0.059
#Obs.	5980			5980		
R-squared	0.281			0.281		
% poor correctly predicted	95.32			95.30		
% non-poor correctly non-poor	38.17			38.17		

Table 15 *Percentage of children in age group currently attending school, by migrant status of household head*

Year	Migrant status of head	**Age 6-11**	*Age 12-15*	*Age 16-18*
1991/2	All	74	76	49
	Non-migrant	68	71	45
	Migrant	77	79	51
	In-migrant	78	78	53
	Return migrant	77	80	49
	Internal migrant	77	79	52
	International migrant	85	79	38
1998/9	All	85	84	57
	Non-migrant	83	84	54
	Migrant	86	85	58
	In-migrant	87	85	58
	Return migrant	86	85	58
	Internal migrant	86	85	58
	International migrant	89	85	67

Table 16 OLS regression results 1991/2: dependent variable is PRIMARY

	Specification 3a			Specification 3b		
	Coefficient	t-statistic	P>|t|	Coefficient	t-statistic	P>|t|
NO QUAL	(Omitted category)			(Omitted category)		
BASIC	0.1029	5.72	0.000	0.1007	5.61	0.000
VOCATIONAL	0.1520	4.71	0.000	0.1483	4.56	0.000
SECONDARY	0.1486	4.83	0.000	0.1515	4.95	0.000
HIGHER	0.1628	5.31	0.000	0.1610	5.24	0.000
OTHER	0.2876	1.69	0.091	0.2965	1.77	0.078
PAEXP	0.0730	4.57	0.000	0.0714	4.46	0.000
MIGRATE	0.0040	0.22	0.828			
INMIGR				-0.0181	-0.79	0.430
RETMIGR				0.0215	1.13	0.259
MANYMIGR	0.0197	1.01	0.314	0.0262	1.31	0.192
AKAN	(Omitted category)			(Omitted category)		
NZEMA	0.0208	0.40	0.686	0.0205	0.41	0.685
EWE	0.0030	0.09	0.928	0.0077	0.23	0.815
GA-ADANGBE	-0.0488	-1.61	0.109	-0.0475	-1.55	0.123
OTHER	-0.0338	-1.40	0.163	-0.0305	-1.28	0.203
MATURITY	0.5035	4.42	0.000	0.5135	4.52	0.000
FERTILITY	0.0263	3.43	0.001	0.0262	3.42	0.001
URBAN	-0.0255	-1.04	0.297	-0.0260	-1.06	0.291
FEMALE	0.0566	3.06	0.002	0.0553	3.02	0.003
AGEHEAD	0.0050	1.50	0.136	0.0049	1.46	0.145
AGEHEAD2	-0.0001	-1.51	0.132	-0.0001	-1.47	0.142
FOOD	(Omitted category)			(Omitted category)		
PUBLIC	0.0649	2.16	0.031	0.0690	2.29	0.022
PRIVFORFMAL	0.0516	1.26	0.210	0.0512	1.25	0.211
PRIVINFORMAL	0.1017	1.89	0.060	0.0984	1.83	0.068
EXPORT	0.0274	0.65	0.516	0.0290	0.70	0.485
NFARM	0.0858	3.43	0.001	0.0884	3.54	0.000

NOTEMP	-0.1378	-1.82	0.070	-0.1325	-1.75	0.082
ACCRA	(Omitted category)			(Omitted category)		
WESTERN	-0.0338	-0.75	0.456	-0.0384	-0.84	0.400
CENTRAL	-0.0690	-1.66	0.097	-0.0782	-1.87	0.062
EASTERN	0.0196	0.60	0.552	0.0144	0.43	0.664
VOLTA	0.0102	0.22	0.824	-0.0001	0.00	0.999
ASHANTI	0.0047	0.15	0.879	-0.0020	-0.06	0.948
BRONG-AHAFO	0.0696	1.83	0.068	0.0661	1.74	0.083
NORTHERN	-0.2649	-4.27	0.000	-0.2717	-4.39	0.000
UPPERW	-0.3286	-3.20	0.002	-0.3400	-3.26	0.001
UPPERE	-0.3618	-5.63	0.000	-0.3782	-5.87	0.000
LAND	0.0014	2.70	0.007	0.0013	2.56	0.011
EQUIPMENT	0.0000	2.19	0.029	0.0000	2.18	0.030
LVSTOCK	0.0000	-1.01	0.314	0.0000	-0.99	0.322
NFASSET	0.0000	0.48	0.631	0.0000	0.62	0.533
CONSTANT	-0.5486	-2.15	0.032	-0.5231	-2.06	0.041
#Obs.			2288			2288
F	37,	364)	15.65	38,	364)	15.40
P>F			0.000			0.000
R-squared	0.268			0.269		

Table 17 OLS regression results 1998/9: dependent variable is PRIMARY

	Specification 3a			Specification 3b		
	Coefficient	t-statistic	P>|t|	Coefficient	t-statistic	P>|t|
NO QUAL	(Omitted category)			(Omitted category)		
BASIC	0.0882	6.30	0.000	0.0870	6.23	0.000
VOCATIONAL	0.0946	3.01	0.003	0.0952	3.03	0.003
SECONDARY	0.1278	6.57	0.000	0.1286	6.61	0.000
HIGHER	0.1292	5.95	0.000	0.1289	5.93	0.000
OTHER	0.2402	4.22	0.000	0.2333	4.18	0.000
PAEXP	0.0244	1.75	0.080	0.0247	1.77	0.077
MIGRATE	0.0051	0.36	0.717			
INMIGR				-0.0126	-0.72	0.470
RETMIGR				0.0186	1.20	0.230
MANYMIGR	-0.0081	-0.53	0.598	-0.0056	-0.36	0.717
AKAN	(Omitted category)			(Omitted category)		
NZEMA	0.0546	1.15	0.253	0.0539	1.15	0.250
EWE	-0.0286	-1.10	0.274	-0.0255	-0.98	0.330
GA-ADANGBE	-0.0370	-1.49	0.138	-0.0409	-1.67	0.097
OTHER	-0.0570	-2.31	0.022	-0.0525	-2.09	0.038
MATURITY	0.3814	4.32	0.000	0.3882	4.39	0.000
FERTILITY	-0.0168	-2.37	0.018	-0.0170	-2.41	0.017
URBAN	0.0412	2.38	0.018	0.0411	2.37	0.019
FEMALE	0.0274	2.07	0.040	0.0269	2.03	0.044
AGEHEAD	-0.0044	-1.58	0.115	-0.0044	-1.59	0.112
AGEHEAD2	0.0000	1.62	0.105	0.0000	1.65	0.100
FOOD	(Omitted category)			(Omitted category)		
PUBLIC	0.0434	2.11	0.036	0.0479	2.36	0.019
PRIVFORFMAL	0.0105	0.39	0.695	0.0146	0.54	0.589
PRIVINFORMAL	0.0310	0.88	0.378	0.0349	0.99	0.322
EXPORT	0.0519	1.97	0.050	0.0561	2.13	0.034
NFARM	0.0226	1.23	0.219	0.0248	1.36	0.174

NOTEMP	-0.0271	-0.51	0.608	-0.0249	-0.47	0.639
ACCRA	(Omitted category)			(Omitted category)		
WESTERN	0.0299	1.03	0.304	0.0269	0.92	0.356
CENTRAL	0.0472	1.64	0.101	0.0416	1.44	0.150
EASTERN	0.0401	1.09	0.276	0.0328	0.90	0.371
VOLTA	0.0527	1.92	0.056	0.0497	1.79	0.074
ASHANTI	0.0436	1.80	0.073	0.0384	1.56	0.119
BRONG-AHAFO	0.0653	2.07	0.039	0.0593	1.86	0.064
NORTHERN	-0.1024	-1.65	0.100	-0.1096	-1.75	0.082
UPPERW	-0.2530	-2.05	0.041	-0.2627	-2.14	0.033
UPPERE	-0.0748	-0.89	0.376	-0.0877	-1.03	0.304
LAND	0.0000	-0.74	0.461	0.0000	-0.78	0.435
EQUIPMENT	0.0000	0.19	0.852	0.0000	0.22	0.827
LVSTOCK	0.0000	2.34	0.020	0.0000	2.36	0.019
NFASSET	0.0000	0.96	0.336	0.0000	1.02	0.309
CONSTANT	0.4609	2.14	0.034	0.4582	2.12	0.035
#Obs.			3022			3022
F	36,	299)		37,	299)	
P>F				F		
R-squared	0.157			0.159		

Appendix

Appendix Table 1 Variables list and definitions

Variable type	Variable	Definition
Dependent variable	LPAEXP	Natural log of household per adult equivalent expenditure (in Jan. 1999 Accra constant prices)
	PAEXP	Household per adult equivalent expenditure (in Jan. 1999 Accra constant prices)
	POORU	Household is defined as poor at upper poverty line (900,000 cedi per annum in Jan. 1999 Accra constant prices
	POORL	Household is defined as poor at lower poverty line (700,000 cedi per annum in Jan. 1999 Accra constant prices
	PRIMARY	(Number of primary education aged children in household that attended school in the past 12 months)/(Total number of primary age children in household)
Explanatory variables		
Human assets	SCHYRS	Number of years schooling of household economic head
	SCHYRS2	SCHYRS^2
	NO QUAL*	Household economic head has no formal qualifications
	BASIC*	Economic head has basic education qualification
	VOCATIONAL*	Economic head has vocational qualification
	SECONDARY*	Economic head has secondary qualification
	HIGHER*	Economic head has higher/post-secondary qualification
	OTHER*	Economic head has other qualification
	AGEHEAD	Age of economic head
	AGEHEAD2	AGEHEAD^2
Migration variables	MIGRATE*	Economic head has migrated during lifetime
	INMIGR*	Economic head is currently an in-migrant
	RETMIGR*	Economic head has returned from a migratory move
	MANYMIGR	Share of adult household members (other than head) who have migrated during lifetimes
Household composition	HHSIZE	Number of members of household
	FERTILITY	Fertility index = (number aged 0-14)/(number aged 15+)
	MATURITY	Maturity index = (average age of those aged 0-14)/(average age of all other members)
	NON-GHANAIAN*	Economic head's nationality is not Ghanaian
	AKAN*	Head conducted interview in Akan language
	NZEMA*	Head conducted interview in Nzema language

	EWE*	Head conducted interview in Ewe language
	GA-ADANGBE*	Head conducted interview in Ga-Adangbe language
	OTHER*	Head conducted interview in other language (including English)
	FEMALE*	Economic head is female
Employment variables	FEMP	(number of members employed that are female)/(number of members employed)
	ADEMP	(Number aged 15+ employed)/(total number aged 15+)
	PUBLIC*	Household's main economic activity is in public sector employment
	PRIVFORMAL*	Household's main economic activity is in private formal sector employment
	PRIVINFORMAL*	Household's main economic activity is in private informal sector employment
	EXPORT*	Household's main economic activity is in export farming
	FOOD*	Household's main economic activity is in food-crop farming
	NFARM*	Household's main economic activity is in non-farm employment
	NOTEMP*	Household is not-employed
Location	RURAL*	Household is in rural area
	URBAN*	Household is in urban area
	ACCRA*	Household resides in Greater Accra region
	WESTERN*	Household resides in Western region
	CENTRAL*	Household resides in Central
	EASTERN*	Household resides in Eastern region
	VOLTA*	Household resides in Volta region
	ASHANTI*	Household resides in Ashanti region
	BRONG-AHAFO*	Household resides in Brong-Ahafo region
	NORTHERN*	Household resides in Northern region
	UPPERE*	Household resides in Upper Eastern region
	UPPERW*	Household resides in Upper Western region
Physical assets	LAND*	Amount of land owned by household in acres
	LVSTOCK*	(Value of livestock owned by household)/1000 (in Jan. 1999 Accra constant prices)
	EQUIPMENT*	(Value of equipment owned by household)/1000 (in Jan. 1999 Accra constant prices)
	NFASSET*	(Value of non-farm assets owned by household)/1000 (in Jan. 1999 Accra constant prices)
Costs of migration	MARRY*	Economic head is married
	PREVAGE'	Age at time of last move (=age for non-migrants)

	PREVYRS2'	PREVYRS^2
	NOOCC*'	Not employed in previous location
	PROFESS*'	Professional/technical worker in previous location
	MANAGER*'	Manager/administrator in previous location
	CLERICAL*'	Clerical worker in previous location
	SALES*'	Sales or services worker in previous location
	AGRICULT*'	Agricultural worker in previous location
	PRODUCT*'	Production worker in previous location

Notes: * denotes indicator (dummy) variable, equal to 1 in case of definition and 0 otherwise;
' variable is equal to current status for non-migrants.

Appendix Table 2 OLS regression results 1991/2: dependent variable is LPAEXP

	1a Rural			1b Rural			1a Urban			1b Urban		
	Coefficient	t-statistic	Marginal effect on PAEXP[1]	Coefficient	t-statistic	Marginal effect on PAEXP[1]	Coefficient	t-statistic	Marginal effect on PAEXP[2]	Coefficient	t-statistic	Marginal effect on PAEXP[2]
SCHYRS	-0.0410	-0.17	-46688	-0.0835	-0.34	-95171	0.1810	1.78	360754	0.1826	1.80	363923
SCHYRS2	0.0055	0.30	6318	0.0088	0.47	10037	-0.0145	-1.89	-28884	-0.0146	-1.92	-29001
NO QUAL	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
BASIC	0.1104	4.24	125817	0.1035	4.01	117969	0.1655	5.02	329891	0.1619	4.92	322584
VOCATIONAL	0.0336	0.20	38335	0.0341	0.21	38912	0.3062	2.19	610155	0.2918	2.05	581464
SECONDARY	0.1770	2.47	201730	0.1825	2.55	208032	0.3735	6.29	744416	0.3707	6.22	738819
HIGHER	0.1828	2.32	208287	0.1822	2.29	207609	0.3789	4.38	755055	0.3699	4.30	737250
OTHER	0.3904	6.29	444925	0.4294	6.81	489329	0.3311	1.99	659752	0.3440	2.04	685454
MIGRATE	0.1193	4.64	135998				0.0881	2.67	175633			
INMIGR				0.0626	2.08	71328				0.0501	1.36	99851
RETMIGR				0.1654	5.68	188553				0.1223	3.10	243676
SHMIGR	-0.0561	-2.01	-63984	-0.0453	-1.65	-51619	-0.0384	-1.11	-76602	-0.0291	-0.83	-57938
AKAN	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
NZEMA	0.1057	1.03	120412	0.0938	0.90	106958	-0.0926	-1.16	-184528	-0.0954	-1.22	-190094

EWE	0.0448	0.83	51049	0.0626	1.15	71321	0.0045	0.09	9036	0.0074	0.15	14693
GA-ADANGBE	-0.2890	-4.29	-329344	-0.2731	-4.06	-311243	-0.0601	-1.38	-119741	-0.0702	-1.60	-139975
OTHER	-0.0602	-1.56	-68627	-0.0476	-1.21	-54220	-0.0463	-1.10	-92360	-0.0455	-1.08	-90715
HHSIZE	-0.0686	-11.71	-78238	-0.0687	-11.71	-78253	-0.0803	-7.48	-160121	-0.0796	-7.50	-158621
FERTILITY	-0.0745	-5.35	-84853	-0.0752	-5.41	-85753	-0.0752	-4.30	-149781	-0.0760	-4.35	-151541
MATURITY	0.2322	5.86	264603	0.2387	6.04	272089	0.2594	5.02	516852	0.2620	5.17	522049
NON-GHANAIAN	-0.1258	-2.50	-143316	-0.1091	-2.15	-124310	-0.2186	-2.39	-435717	-0.2151	-2.34	-428563
FEMALE	0.0519	1.44	59103	0.0470	1.31	53611	0.1084	2.85	216101	0.1117	2.93	222519
AGEHEAD	-0.0098	-2.67	-11157	-0.0098	-2.71	-11200	0.0002	0.02	384	0.0006	0.07	1115
AGEHEAD2	0.0001	2.30	94	0.0001	2.33	94	0.0000	0.20	36	0.0000	0.14	25
FEMP	0.1009	2.34	114970	0.0994	2.32	113241	0.0572	1.17	114019	0.0541	1.12	107869
ADEMP	0.3683	4.96	419725	0.3660	4.95	417091	0.4034	5.60	803891	0.4073	5.64	811636
FOOD	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
PUBLIC	0.2382	6.15	271445	0.2508	6.36	285868	0.2283	3.69	454924	0.2380	3.90	474301
PRIVFORMAL	0.3314	4.11	377704	0.3399	4.18	387404	0.1786	2.58	355861	0.1829	2.65	364435
PRIVINFORMAL	0.1494	2.06	170229	0.1441	2.01	164254	0.1319	1.71	262805	0.1336	1.74	266217
EXPORT	0.0477	1.28	54357	0.0517	1.44	58900	0.0961	0.89	191436	0.0856	0.77	170668
NFARM	0.2107	5.79	240135	0.2189	6.00	249529	0.1796	3.23	357911	0.1830	3.31	364720

NOTEMP	0.5259	4.92	599300	0.5303	4.94	604326	0.4464	4.41	889600	0.4507	4.42	898169
ACCRA	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
WESTERN	-0.3884	-2.55	-442632	-0.3876	-2.50	-441784	-0.1124	-1.24	-224029	-0.1211	-1.35	-241421
CENTRAL	-0.1334	-0.84	-152060	-0.1435	-0.89	-163578	-0.1088	-1.27	-216754	-0.1228	-1.44	-244716
EASTERN	-0.2791	-1.88	-318038	-0.2789	-1.84	-317816	-0.0537	-0.84	-107046	-0.0608	-0.96	-121232
VOLTA	-0.3814	-2.40	-434662	-0.4011	-2.47	-457118	-0.0983	-1.77	-195858	-0.1034	-1.81	-205966
ASHANTI	-0.1978	-1.30	-225437	-0.1980	-1.28	-225634	0.1619	2.19	322694	0.1419	1.90	282688
BRONG-AHAFO	-0.4030	-2.65	-459343	-0.3929	-2.54	-447809	0.0788	1.00	157057	0.0649	0.83	129296
NORTHERN	-0.4397	-2.37	-501166	-0.4486	-2.39	-511287	-0.0051	-0.05	-10128	-0.0152	-0.14	-30259
UPPERW	-0.6318	-3.42	-720022	-0.6458	-3.44	-735955	-0.6065	-8.17	-1208604	-0.6284	-8.09	-1252283
UPPERE	-0.2906	-1.61	-331220	-0.3180	-1.73	-362457	(dropped)			(dropped)		
LAND	0.0001	0.44	88	0.0001	0.52	97	0.0049	1.67	9723	0.0046	1.61	9250
LVSTOCK	0.0001	4.09	63	0.0001	4.07	63	0.0001	3.10	185	0.0001	3.21	186
EQUIPMENT	0.0000	1.60	22	0.0000	1.72	23	0.0000	1.34	46	0.0000	1.44	50
NFASSET	0.0000	5.02	16	0.0000	5.16	16	0.0000	4.80	69	0.0000	4.76	70
CONSTANT	14.0090	72.48		14.0081	71.90		13.7985	67.07		13.7938	67.08	
#Obs.	2925			2925			1559			1559		
F[3]												
P>F												

R-squared	0.390	0.393	0.416	0.418

Notes: [1] calculated at the rural sector mean (PAEXP= 1, 139,678 cedi per annum (Accra Jan. 1999 prices)); [2] calculated at the urban sector mean (PAEXP= 1,992,841 cedi per annum (Accra Jan. 1999 prices)); [3] degrees of freedom for rural regressions, degrees of freedom for urban regressions.

Appendix Table 3 OLS regression results 1998/9: dependent variable is LPAEXP

	1a Rural			1b Rural			1a Urban			1b Urban		
	Coefficient	t-statistic	Marginal effect on PAEXP[1]	Coefficient	t-statistic	Marginal effect on PAEXP[1]	Coefficient	t-statistic	Marginal effect on PAEXP[2]	Coefficient	t-statistic	Marginal effect on PAEXP[2]
SCHYRS	0.0010	0.12	1403	0.0011	0.12	1440	0.0121	1.41	27570	0.0125	1.45	28559
SCHYRS2	0.0003	0.36	354	0.0003	0.36	352	0.0006	1.08	1396	0.0006	1.04	1361
NO QUAL	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
BASIC	0.0799	2.27	109087	0.0799	2.27	109117	0.0436	0.97	99123	0.0414	0.92	94205
VOCATIONAL	0.0446	0.44	60863	0.0445	0.44	60696	0.2113	3.12	480868	0.2147	3.19	488572
SECONDARY	0.0639	0.76	87284	0.0639	0.76	87224	0.1064	1.47	242104	0.1043	1.45	237381
HIGHER	0.2047	1.56	279532	0.2047	1.56	279545	0.0559	0.54	127222	0.0538	0.52	122507
OTHER	-0.2883	-2.44	-393660	-0.2880	-2.44	-393190	0.2435	2.51	554287	0.2475	2.49	563217
MIGRATE	0.0853	3.16	116413				0.0410	1.30	93422			
INMIGR				0.0863	2.44	117870				0.0687	1.86	156261
RETMIGR				0.0846	2.98	115507				0.0118	0.33	26816
SHMIGR	-0.0388	-1.54	-52941	-0.0388	-1.55	-53042	-0.0645	-2.04	-146738	-0.0700	-2.19	-159407
AKAN	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
NZEMA	0.0926	0.63	126425	0.0927	0.63	126615	-0.0311	-0.31	-70827	-0.0310	-0.31	-70538

EWE	-0.0467	-0.80	-63785	-0.0469	-0.80	-64029	-0.0668	-1.29	-152002	-0.0693	-1.35	-157771
GA-ADANGBE	0.0419	0.60	57173	0.0419	0.60	57220	-0.0789	-1.44	-179565	-0.0691	-1.25	-157285
OTHER	-0.0145	-0.25	-19743	-0.0148	-0.26	-20153	0.0213	0.35	48555	0.0223	0.36	50719
HHSIZE	-0.0772	-9.36	-105363	-0.0772	-9.39	-105376	-0.0896	-10.62	-204016	-0.0902	-10.65	-205236
FERTILITY	-0.0776	-4.76	-105891	-0.0775	-4.77	-105875	-0.0518	-2.37	-117919	-0.0500	-2.27	-113765
MATURITY	0.2461	6.67	335963	0.2461	6.66	335997	0.1262	2.36	287244	0.1258	2.36	286305
NON-GHANAIAN	-0.2253	-2.84	-307554	-0.2256	-2.84	-308059	-0.0826	-0.75	-187988	-0.0964	-0.85	-219512
FEMALE	0.0397	1.27	54229	0.0397	1.27	54227	0.1075	2.76	244561	0.1049	2.71	238734
AGEHEAD	0.0022	0.58	2967	0.0022	0.58	2970	0.0042	0.98	9664	0.0041	0.95	9424
AGEHEAD2	0.0000	-0.87	-44	0.0000	-0.87	-44	0.0000	-0.91	-92	0.0000	-0.86	-88
FEMP	0.0933	2.28	127442	0.0934	2.29	127505	-0.0172	-0.38	-39119	-0.0147	-0.32	-33368
ADEMP	0.2765	4.79	377548	0.2764	4.79	377458	0.1919	2.93	436835	0.1954	2.99	444626
FOOD	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
PUBLIC	0.2415	4.35	329771	0.2413	4.36	329485	0.3526	4.96	802539	0.3425	4.85	779473
PRIVFORMAL	0.3426	5.04	467785	0.3423	5.05	467401	0.3394	4.25	772557	0.3347	4.20	761677
PRIVINFORMAL	0.1519	2.27	207394	0.1518	2.27	207304	0.1893	2.30	430745	0.1844	2.25	419625
EXPORT	0.1851	4.03	252796	0.1850	4.05	252633	0.1352	1.80	307795	0.1383	1.85	314786
NFARM	0.1619	4.06	221055	0.1618	4.08	220974	0.3181	4.75	724077	0.3119	4.67	709968

NOTEMP	0.2018	2.00	275534	0.2019	1.99	275738	0.3397	3.34	773037	0.3375	3.32	768095
ACCRA	(Omitted category)			(Omitted category)			(Omitted category)			(Omitted category)		
WESTERN	-0.2186	-1.67	-298443	-0.2188	-1.67	-298691	-0.1075	-1.16	-244560	-0.0996	-1.08	-226712
CENTRAL	-0.3902	-2.91	-532706	-0.3902	-2.91	-532749	-0.5489	-6.23	-1249242	-0.5348	-6.14	-1217252
EASTERN	-0.3865	-2.69	-527788	-0.3863	-2.70	-527492	-0.4274	-4.55	-972844	-0.4175	-4.42	-950146
VOLTA	-0.3190	-2.50	-435558	-0.3192	-2.50	-435784	-0.4399	-5.43	-1001188	-0.4279	-5.26	-973794
ASHANTI	-0.2609	-1.90	-356176	-0.2608	-1.90	-356158	-0.0526	-0.63	-119772	-0.0435	-0.52	-98927
BRONG-AHAFO	-0.3371	-2.28	-460229	-0.3370	-2.28	-460144	-0.0718	-0.64	-163362	-0.0606	-0.54	-137990
NORTHERN	-0.5532	-3.19	-755278	-0.5529	-3.20	-754944	-0.5253	-2.95	-1195529	-0.5193	-2.88	-1181964
UPPERW	-0.8283	-5.45	-1131008	-0.8280	-5.47	-1130552	-0.6423	-9.23	-1461846	-0.6354	-8.89	-1446187
UPPERE	-1.0467	-6.60	-1429206	-1.0461	-6.64	-1428375	-0.4825	-7.49	-1098262	-0.4853	-7.45	-1104572
LAND	0.0002	2.37	284	0.0002	2.38	284	0.0039	1.38	8952	0.0039	1.34	8828
LVSTOCK	0.0000	4.85	1	0.0000	4.85	1	0.0000	0.59	2	0.0000	0.61	2
EQUIPMENT	0.0000	1.34	7	0.0000	1.34	7	0.0000	4.63	63	0.0000	4.72	64
NFASSET	0.0000	3.39	26	0.0000	3.39	26	0.0000	1.66	3	0.0000	1.65	3
CONSTANT	14.0711	78.75		14.0712	78.70		14.1685	88.37		14.1652	87.76	
#Obs.	3784			3784			2196			2196		
F[3]	40,			41,			39,			40,		
P>F												

R-squared	0.4132	0.4132	0.4446	0.4455

Notes: [1] calculated at the rural sector mean (PAEXP= 1,365,384 cedi per annum (Accra Jan. 1999 prices)); [2] calculated at the urban sector mean (PAEXP= 2,275,959 cedi per annum (Accra Jan. 1999 prices)); [3] degrees of freedom for rural regressions, degrees of freedom for urban regressions.

Appendix Table 4 Probit regression results 1991/2: dependent variable is POORU

	Specification (1a)			Specification (1b)		
	Marginal/ impact effect	z-statistic	P>|z|	Marginal/ impact effect	z-statistic	P>|z|
SCHYRS	-0.1137	-1.37	0.169	-0.1137	-1.38	0.169
SCHYRS2	0.0086	1.40	0.162	0.0086	1.40	0.161
NO QUAL						
BASIC	-0.0328	-2.62	0.009	-0.0328	-2.62	0.009
VOCATIONAL	-0.0492	-0.80	0.426	-0.0491	-0.79	0.427
SECONDARY	-0.0697	-2.98	0.003	-0.0697	-2.98	0.003
HIGHER	-0.0589	-2.26	0.024	-0.0589	-2.26	0.024
OTHER						
MIGRATE	-0.0063	-0.56	0.576			
INMIGR				-0.0058	-0.46	0.649
RETMIGR				-0.0066	-0.53	0.593
SHMIGR	0.0263	2.17	0.030	0.0262	2.14	0.032
AKAN						
NZEMA	0.0751	1.92	0.054	0.0752	1.92	0.054
EWE	-0.0198	-1.05	0.294	-0.0199	-1.05	0.293
GA-ADANGBE	0.0210	0.89	0.371	0.0209	0.89	0.372
OTHER	-0.0071	-0.47	0.635	-0.0072	-0.48	0.631
HHSIZE	0.0045	1.89	0.058	0.0045	1.89	0.058
FERTILITY	-0.0074	-1.14	0.256	-0.0074	-1.13	0.257
MATURITY	-0.1062	-5.26	0.000	-0.1062	-5.28	0.000
NON-GHANAIAN	0.0028	0.10	0.921	0.0027	0.10	0.923
URBAN	-0.0396	-3.21	0.001	-0.0396	-3.20	0.001
FEMALE	0.0013	0.09	0.932	0.0014	0.09	0.931
AGEHEAD	0.0001	0.04	0.971	0.0001	0.04	0.970
AGEHEAD2	0.0000	0.18	0.861	0.0000	0.18	0.861
FEMP	-0.0347	-1.60	0.110	-0.0347	-1.60	0.110
ADEMP	-0.0523	-2.06	0.039	-0.0523	-2.06	0.039
(Omitted category)						

PUBLIC	-0.0149	-0.83	0.405	-0.0150	-0.83	0.406
PRIVFORMAL	0.0015	0.06	0.949	0.0015	0.06	0.950
PRIVINFORMAL	0.0060	0.22	0.828	0.0060	0.22	0.827
EXPORT	-0.0146	-0.79	0.429	-0.0146	-0.79	0.429
NFARM	-0.0175	-1.23	0.219	-0.0175	-1.23	0.218
NOTEMP	-0.1025	-3.52	0.000	-0.1025	-3.52	0.000
ACCRA						
WESTERN	0.0119	0.38	0.706	0.0120	0.38	0.704
CENTRAL	0.0169	0.54	0.592	0.0170	0.54	0.587
EASTERN	-0.0017	-0.07	0.947	-0.0017	-0.06	0.949
VOLTA	0.0027	0.08	0.936	0.0028	0.09	0.932
ASHANTI	0.0057	0.19	0.846	0.0058	0.20	0.843
BRONG-AHAFO	0.0305	0.95	0.341	0.0305	0.95	0.340
NORTHERN	-0.0412	-1.30	0.195	-0.0411	-1.30	0.195
UPPERW	0.0202	0.32	0.752	0.0204	0.32	0.750
UPPERE	-0.0344	-0.99	0.322	-0.0341	-0.98	0.325
LAND	-0.0017	-3.17	0.002	-0.0017	-3.16	0.002
LVSTOCK	0.0000	-0.70	0.481	0.0000	-0.71	0.481
EQUIPMENT	0.0000	0.32	0.751	0.0000	0.32	0.752
NFASSET	0.0000	-1.44	0.150	0.0000	-1.44	0.150
#Obs.	4476			4476		
R-squared	0.052			0.053		
% poor correctly predicted	99.72			99.72		
% non-poor correctly non-poor	0.00			0.00		

Appendix Table 5 Probit regression results 1998/9: dependent variable is POORU

	Specification (1a)			Specification (1b)		
	Marginal/ impact effect	*z-statistic*	*P>|z|*	*Marginal/ impact effect*	*z-statistic*	*P>|z|*
SCHYRS	-0.0009	-0.32	0.750	-0.0012	-0.42	0.676
SCHYRS2	-0.0001	-0.41	0.683	-0.0001	-0.35	0.728
NO QUAL						
BASIC	0.0029	0.20	0.845	0.0033	0.22	0.825
VOCATIONAL	-0.0092	-0.29	0.772	-0.0088	-0.28	0.780
SECONDARY	-0.0112	-0.40	0.692	-0.0104	-0.37	0.714
HIGHER	0.0028	0.07	0.941	0.0038	0.10	0.921
OTHER	0.0284	0.47	0.641	0.0263	0.43	0.666
MIGRATE	-0.0172	-2.21	0.027			
INMIGR				-0.0256	-2.85	0.004
RETMIGR				-0.0099	-1.19	0.235
SHMIGR	-0.0045	-0.50	0.620	-0.0034	-0.38	0.702
AKAN						
NZEMA	-0.0047	-0.17	0.865	-0.0057	-0.20	0.838
EWE	0.0093	0.69	0.492	0.0110	0.81	0.417
GA-ADANGBE	0.0471	2.30	0.021	0.0463	2.28	0.023
OTHER	-0.0065	-0.47	0.635	-0.0046	-0.34	0.736
HHSIZE	0.0068	3.34	0.001	0.0070	3.43	0.001
FERTILITY	0.0050	0.95	0.344	0.0048	0.90	0.367
MATURITY	-0.0768	-5.36	0.000	-0.0765	-5.35	0.000
NON-GHANAIAN	-0.0092	-0.29	0.774	-0.0052	-0.16	0.874
URBAN	-0.0263	-2.55	0.011	-0.0260	-2.55	0.011
FEMALE	-0.0207	-1.92	0.055	-0.0206	-1.92	0.055
AGEHEAD	0.0015	1.09	0.277	0.0015	1.08	0.279
AGEHEAD2	0.0000	-0.93	0.352	0.0000	-0.92	0.357
FEMP	-0.0120	-0.78	0.438	-0.0123	-0.80	0.424
ADEMP	-0.0290	-1.59	0.113	-0.0287	-1.58	0.114
FOOD						

PUBLIC	-0.0077	-0.49	0.621	-0.0058	-0.37	0.714
PRIVFORMAL	-0.0249	-1.32	0.188	-0.0238	-1.27	0.204
PRIVINFORMAL	-0.0333	-1.47	0.141	-0.0319	-1.40	0.162
EXPORT	0.0104	0.82	0.410	0.0118	0.94	0.345
NFARM	-0.0176	-1.78	0.075	-0.0166	-1.69	0.091
NOTEMP	-0.0122	-0.47	0.642	-0.0125	-0.48	0.632
ACCRA						
WESTERN	0.1047	3.23	0.001	0.1045	3.23	0.001
CENTRAL	0.1685	5.48	0.000	0.1656	5.41	0.000
EASTERN	0.1305	4.18	0.000	0.1249	4.03	0.000
VOLTA	0.1371	5.11	0.000	0.1361	5.11	0.000
ASHANTI	0.1291	4.52	0.000	0.1265	4.44	0.000
BRONG-AHAFO	0.1618	4.78	0.000	0.1584	4.69	0.000
NORTHERN	0.1020	2.82	0.005	0.0972	2.73	0.006
UPPERW	0.2133	3.77	0.000	0.2052	3.65	0.000
UPPERE	0.0959	2.44	0.015	0.0863	2.23	0.026
LAND	-0.0001	-1.16	0.245	-0.0001	-1.17	0.243
LVSTOCK	0.0000	-2.24	0.025	0.0000	-2.22	0.026
EQUIPMENT	0.0000	0.81	0.419	0.0000	0.84	0.402
NFASSET	0.0000	-0.61	0.539	0.0000	-0.60	0.549
#Obs.	5980			5980		
R-squared	0.077			0.078		
% poor correctly predicted	100.00			100.00		
% non-poor correctly non-poor	0.00			0.00		

Appendix Table 6 OLS regression results rural and urban sectors: dependent variable is PRIMARY

	1991/2 rural		1998/9 rural		1991/2 urban		1998/9 urban	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
NO QUAL	(Omitted category)		(Omitted category)		(Omitted category)		(Omitted category)	
BASIC	0.1105	4.61	0.1036	5.76	0.0747	2.74	0.0509	2.59
VOCATIONAL	0.2053	5.20	0.1464	2.07	0.0745	1.51	0.0627	1.93
SECONDARY	0.1799	3.42	0.1589	5.44	0.0985	2.54	0.0793	2.93
HIGHER	0.2266	4.82	0.1380	4.31	0.0920	2.16	0.0944	3.07
OTHER	0.2122	3.78	0.2688	3.28	0.1139	0.58	0.1059	2.40
PAEXP	0.0678	3.07	0.0270	1.44	0.0746	3.64	0.0181	1.24
INMIGR	-0.0185	-0.58	-0.0128	-0.53	-0.0463	-1.57	-0.0272	-1.28
RETMIGR	0.0184	0.76	0.0356	1.80	0.0122	0.44	-0.0135	-0.67
MANYMIGR	0.0340	1.27	-0.0146	-0.73	0.0087	0.33	0.0113	0.53
AKAN	(Omitted category)		(Omitted category)		(Omitted category)		(Omitted category)	
NZEMA	0.0213	0.34	0.0964	2.27	0.0176	0.28	-0.0459	-0.76
EWE	-0.0022	-0.04	-0.0036	-0.10	0.0136	0.39	-0.0656	-1.92
GA-ADANGBE	-0.0378	-0.72	-0.0218	-0.61	-0.0429	-1.47	-0.0739	-2.10
OTHER	-0.0370	-1.15	-0.0514	-1.32	-0.0318	-1.02	-0.0459	-1.57
MATURITY	0.6074	4.07	0.3560	2.91	0.3689	2.07	0.4992	4.46
FERTILITY	0.0201	2.02	-0.0176	-1.90	0.0354	2.98	-0.0130	-1.30
FEMALE	0.0748	3.02	0.0389	2.15	0.0208	0.78	-0.0067	-0.40
AGEHEAD	0.0033	0.74	-0.0059	-1.66	0.0113	2.17	-0.0016	-0.38
AGEHEAD2	0.0000	-0.73	0.0001	1.79	-0.0001	-2.18	0.0000	0.35
FOOD	(Omitted category)		(Omitted category)		(Omitted category)		(Omitted category)	
PUBLIC	0.0520	1.29	0.0592	2.24	0.0510	0.96	-0.0047	-0.15
PRIVFORFMAL	-0.0040	-0.06	0.0347	0.78	0.0320	0.47	-0.0115	-0.34
PRIVINFORMAL	0.0930	1.07	0.0572	1.08	0.0400	0.48	0.0065	0.14
EXPORT	0.0163	0.37	0.0502	1.77	0.0344	0.27	0.0010	0.01
NFARM	0.1072	3.80	0.0201	0.84	0.0378	0.70	0.0060	0.22
NOTEMP	0.0199	0.16	-0.1048	-1.03	-0.2179	-2.21	0.0209	0.39

ACCRA	(Omitted category)		(Omitted category)		(Omitted category)		(Omitted category)	
WESTERN	0.1213	1.15	0.0565	1.29	-0.1638	-2.70	-0.0351	-0.88
CENTRAL	0.0380	0.37	0.0601	1.36	-0.1113	-1.58	0.0117	0.34
EASTERN	0.1471	1.53	0.0366	0.67	-0.0438	-1.29	0.0094	0.30
VOLTA	0.1373	1.29	0.0613	1.49	-0.0776	-1.76	0.0203	0.64
ASHANTI	0.1269	1.27	0.0594	1.40	-0.0402	-1.22	-0.0038	-0.15
BRONG-AHAFO	0.2176	2.10	0.0905	1.99	-0.0352	-0.80	-0.0132	-0.31
NORTHERN	-0.2211	-1.85	-0.1431	-1.71	-0.1412	-2.88	-0.0112	-0.24
UPPERW	-0.1796	-1.27	-0.3024	-2.32	-0.7632	-12.87	0.0703	2.17
UPPERE	-0.2366	-2.05	-0.0962	-1.02	(dropped)		0.1177	3.86
LAND	0.0013	2.34	-0.0001	-1.55	0.0007	0.43	0.0013	2.83
EQUIPMENT	0.0000	1.09	0.0000	0.44	0.0000	2.12	0.0000	-1.37
LVSTOCK	0.0000	-0.57	0.0000	2.00	0.0000	-0.99	0.0000	-2.39
NFASSET	0.0000	0.69	0.0000	-0.57	0.0000	-0.14	0.0000	1.44
CONSTANT	-0.5918	-1.62	0.4379	1.51	-0.5613	-1.60	0.5926	2.51
#Obs.	1533		2035		755		987	
F	36,	264)	36,	189)	35,	99)	35,	109)
P>F								
R-squared	0.294		0.182		0.187		0.080	