

Ghana's Labor Market (1987-92)

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The rate of return to education in Ghana increases with higher education and work experience. The return for each additional year of schooling ranges from 4 to 6 percent, quite high for a Sub-Saharan African country. Private and social returns to education are greater for primary than for secondary or postsecondary education.



Summary findings

Using the household survey and other data sources, Canagarajah and Thomas analyze returns to education and other aspects of Ghana's labor market profile from 1987 to 1991.

The labor force grew slower than the population did between 1980 and 1990, but the supply of labor is expected to increase as the population of youth is expected to grow faster from 1990 to 2000. And labor force participation rates for 26- to 45-year-olds have been increasing rapidly.

Over time, the average labor force participation rates of women have become equal to men's; that of children younger than 15 has remained unchanged at 38 percent. More than half of Ghana's child laborers are employed in agriculture.

The formal sector's share of employment is on the decline, while the private informal sector's share has increased, especially in urban areas. Over time, the informal sector (in which most workers have a primary education or less) has absorbed more labor than the

formal sector (in which most workers have middle or secondary schooling).

Unemployment is pervasive in urban areas, and is less visible in rural areas. Labor productivity may not have increased and is possibly declining.

Between 1987 and 1992, there was reverse migration, with many people moving from urban to rural areas, mostly for family reasons. Employment-related migration has also been on the increase.

As is true elsewhere, the level of education affects participation in the labor force. Literacy rates for women are lower than those for men, which is one reason men dominate the private formal sector. The rate of return to education increases with higher education and work experience. The return for each additional year of schooling ranges from 4 percent to 6 percent in Ghana, quite high for a Sub-Saharan African country. Private and social returns to education are greater for primary than for secondary or postsecondary education.

This paper — a product of Human Development 3, Africa Technical Families — is part of a larger effort in the region to analyze the links between education and employment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Betty Casely-Hayford, room J8-270, telephone 202-473-4672, fax 202-473-8065, Internet address bcaselyhayford@worldbank.org. April 1997. (50 pages)

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1. INTRODUCTION

Since 1983, the Government of Ghana has implemented a gradual but sustained adjustment strategy under the Economic Recovery Program (ERP), under the belief that the changes in the relative prices, which are central to any adjustment program will incite economic agents to allocate resources based on market signals. The reforms under the ERP have successfully turned the economy around. During the period 1983-93, the growth rate of real GDP averaged around 5 percent per annum. A large part of the growth in per capita GDP reflected the larger growth in per capita private consumption, which increased by an average amount of 3% per annum over the period 1987-92. Average per capita income growth rate has increased during the same period from -5 percent to 2 percent per annum. Inflation has come down from a peak of 123 percent in 1983 to 10 percent in 1992. The year 1991 was the high point in Ghana's ERP; inflation was down, a budget surplus equivalent to 1.5 percent of the GDP, real GDP growth rate at 5.3 percent, the growth in money supply high-but falling. However, in 1992 a fiscal shock resulted in a break in the otherwise sustained progress in terms of inflation, fiscal balance, private investment and current account balance (World Bank, 1995).

The success of any adjustment program depends on a well functioning and flexible labor market, in which labor is allocated through the market mechanism, and which creates sufficient incentives for human capital investment. Labor markets have three kinds of effects on the allocative efficiency between the micro- and macroeconomies. First, they match labor supply and demand between workers and employers through the wage rate. Secondly, they allocate workers among sectors by matching skills with job requirements through relative wages, and finally they provide information about incentives for the allocation of resources over a time period, i.e., for human resource development through education and training. Evidence indicates -some anecdotal and some empirical- that a large public sector impedes the competitive functioning of labor markets and of the overall economy (Stevenson, 1992). The role of the public sector is particularly salient in light of the renewed emphasis on efficient labor markets as critical to sustainable growth².

The likely presence of wage rigidity or labor mobility raises the fundamental questions regarding the effectiveness of macroeconomic policies and the extent to which the supply response needed for adjustment will be forthcoming. The conventional view assumes that macroeconomic policies such as those emphasizing demand restrictions via fiscal and/or monetary policies to control inflation or exchange rate policies aimed at raising the relative price of traded goods - reduce nominal wage increases and thereby lower real wages. These policies rely heavily on the "transitory" nature of the increased unemployment induced in order to "discipline" the labor market. Real wage flexibility is

² In Ghana, the public sector is an important concern for policy makers because it employs a large share of the formal sector work force (over 62% in 1992), absorbs a large portion of the government recurrent expenditure, and affects the private labor markets (see Aldermann *et al.*, 1995).

a necessary condition to attain macroeconomic adjustment. Although often complicated by labor market regulations, the labor allocation between tradable and non-tradable industries is the fundamental ingredient to achieve structural adjustment. The presence of formal mechanisms of wage indexation has been usually mentioned as a deterrent of the wage flexibility needed for structural adjustment. In particular, the dynamic role of unions and minimum wages in pushing the entire wage structure (and inflation) has also been pointed out as a crucial mechanism for creating wage rigidity in many countries. It is in this context that we examine whether the ERP was helped or hindered by the labor market and whether the reliance on market forces to reallocate and absorb labor was indeed justifiable.

This labor market study uses the Ghana Living Standards Survey (GLSS) data which provided sufficient information to monitor the trend in employment patterns, unemployment, migration, earnings, and the demand for labor. The study uses all three rounds of the GLSS data sets. The available data relate to the periods from September 1987-August 1988 (GLSS 1), October 1988-September 1989 (GLSS 2), and September 1991-September 1992 (GLSS 3)³.

This paper provides an overview of characteristics of labor markets in Ghana. Section 1 deals with the Supply of labor, labor force participation and its determinants. Section 2 is concerned with the absorption of labor- the sectoral pattern of employment, characteristics of the wage and non-wage workers, their sources of income- wages and earnings, characteristics of child labor, turnover rates and trends in earnings and employment. Section 3 deals with unemployment rates and its distribution by region. Section 4 deals with migration and the characteristics of migrant workers, while Section 5 deals with literacy rates, drop outs, characteristics of university graduates, returns to schooling and private and social returns to education. Section 6 concludes with a summary of major findings and implications.

³ One of the main issue with these three rounds of survey is the that of comparability, since the format of the questionnaire has changed slightly in GLSS 3, making some of the modules incompatible with the earlier formats of GLSS 1& GLSS 2.

Table 1: Macro Indicators in Ghana, 1984-94.

Indicator	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	Kenya	Cote D' Ivoire
GNP per capita (percent growth)		1.1	1.4	1.0	2.5	2.2	0.7	2.3	1.0	1.7	0.6	0.2 (1980-92)	-4.7 (1980-92)
Gross Domestic Income (percent growth)		2.9	6.3	4.5	5.1	3.3	2.7	5.4	3.3	3.5	5.2		
Terms of trade (1984=100)	100	91	105	101	96	81	75	77	71	62	73	67 (1987-100)	65 (1987=100)
Nominal exchange rate (domestic currency/dollar)	36	54.5	106.4	162.4	202.4	270	330	375	437	649	956.6	32.22 (1992)	264.7 (1992)
Debt service (percent of exports)	21.6	23.5	28.5	45.8	56.0	51.8	34.7	28.3	24.6	35.1	26.6		
Inflation (percent growth)		10.4	24.6	39.7	31.4	25.2	37.2	17.9	10.1	25.0	24.8	9.3 (1980-92)	1.9 (1980-92)
Trade balance(millions USD)	-66.6	-44.7	-0.1	-114.0	-117.2	-202.4	-303.4	-315.3	-470.8	-664.1	-350.5	-374 (1992)	-873 (1992)
Life expectancy at birth (years)									56.0			59.0	56.0
Illiteracy rate (in percent)							40.0					31.0	46.0
Population growth rate (in percent p.a)	2.2 (1970-80)								3.2 (1980-92)			3.6 (1980-92)	3.8 (1980-92)
Labor force growth rate (percent p.a)	2.4 (1970-80)								2.7 (1980-92)			3.5 (1980-92)	2.6 (1980-92)
Infant mortality rate (per live 1000 births)	111 (1970)								82 (1992)			66 (1992)	91 (1992)

Source: Ghana private sector growth and poverty reduction: A country Economics Memorandum, The World Bank, 1995; World Development Report, 1994.

2. Supply of Labor

In the 1970s and early 1980s the labor force growth rate has been slower than the population growth rate (Table 1), but projections for 1990s and beyond show that the labor force is expected to grow at a faster rate than the population growth rate (Table 2). These increased labor force growth rates will be brought about by an increased growth rate of the youth population, which is expected to grow faster than the overall labor force growth rates in the 1990s. This means that labor markets have to become more efficient to absorb the increase in active population. The growth rate in labor force has been brought about mainly by change in the age composition of population (the population pyramid) and age specific participation rates (Table 3). In fact the contribution to labor force participation of the group of workers between 26-45, which tend to have higher rates of labor force participation have increased.

Labor force participation rates are defined as the proportion of the total number of economically active persons in the working age group (those between the ages 15-64); A person is defined as economically active if he/she is employed (either on a weekly or yearly basis). This definition differs slightly from the definition of Beaudry and Sowa (1994), whose economically active group, also includes the unemployed persons who are not too young or old and who are not actively searching for a job, a group that is currently not being rewarded by the labor market.

Table 3 shows the trends in participation rates in Ghana by age groups, gender and rural/urban sectors. The table indicates that the overall participation rates have increased from 55.8% in 1987 to 65.4% in 1991. The rates were higher for men than for women in 1987, but the participation rates of women have increased during this period and in 1991 the rates for men and women were almost equal. The rates are especially higher (about 95%) in the 25-60 year age group for males. The participation rates for both men and women have increased during this period in all the age groups. The issue of child labor (ages 7-16) can also be pictured from Table 3. In the rural areas, 47% of the children in the 7-16 age group participate in the labor market. In the 7-16 age group, the participation rate for male is 37% while the same is 31% for females (probably an underestimate), which indicates that almost one-third of the children in 7-16 year age group are economically active and participate in the labor market. It is also possible that the increased female participation in the labor force has come from expanding employment opportunities in the public sector (Table 6); the percentage of female public sector workers have increased from 24% in 1987 to 28% in 1991.

Eventhough the male participation rates are higher than the females, the change in the female participation rates are more impressive, as the gap between the male and female participation rates have narrowed during this period. Even though the overall participation rates have become more or less same, the rates are higher for males in the prime age-groups (26-60 years). One of the reasons for the low participation rates for females is the difference in education between men and women. Over 26% of the males

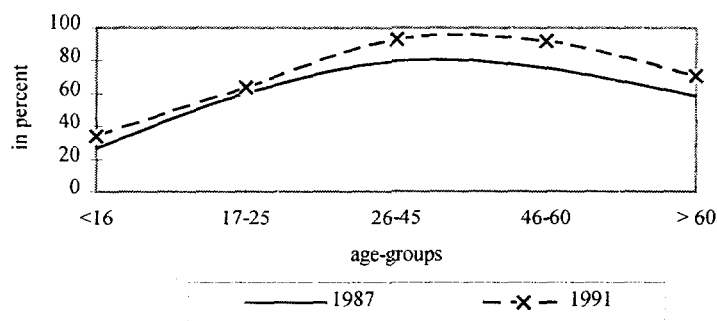
Table 2: Main population indicators and trends (1990-2035).

	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Total population	14.8	17.2	20.0	23.0	26.2	29.6	32.7	35.9	38.8	41.6
Active population (15-64 yrs)	7.5	8.8	10.4	12.3	14.4	16.8	19.4	22.2	25.0	27.5
Active population (as % of total population)	50.32	51.3	52.2	53.7	54.8	56.8	59.3	61.9	64.4	66.3
Youth population (15-25 yrs)	2.8	3.3	4.0	4.71	5.4	6.0	6.8	7.5	7.9	8.4
Youth population (as % of total population)	18.9	19.2	20.0	20.5	20.6	20.3	20.8	20.9	20.4	20.2
Growth Rate (in percent)	1990-95	1995-2000	2000-05	2005-10	2010-15	2015-20	2020-25	2025-30	2030-35	
Total population	2.96	2.99	2.82	2.65	2.38	2.03	1.82	1.59	1.35	
Active population	3.37	3.41	3.45	3.06	3.15	2.95	2.72	2.39	1.96	
youth population	3.3	3.9	3.3	2.77	2.13	2.53	1.97	1.04	1.23	

Source: World population projections 1994-95.

are literate (people who can read and write) in Ghana, while only 16% of the females are literate. Women on average have received less years of education than men. Among the literate over 50% of men have education beyond the primary level, only 30 percent of the women have received primary schooling (Table 10). Wage differentials between male and female could also lead to lower female participation rates, if the way individual's productive characteristics are rewarded in the labor market depends on whether it is a male or female.

Fig 1: Labor force participation rates by age-groups, 1987-91.



Source: GLSS 1,,3.

The increased rates have been brought about by women in the 26-45 year age-group whose participation rate has increased from 72% in 1987 to 92% in 1991. Naturally, younger and older women have lower participation rates than prime age women (Figure 1). This is a commonly observed pattern in many developing countries, and Ghana is no different in that aspect. The main argument being school enrollment for younger groups and the existence of pensions/savings for the older groups. The increased rates for females of prime age could be due to a variety of reasons ranging from increased hourly wages/earnings, increased levels of education, and lower fertility rates (issues which will be discussed in the later sections). The participation rates have increased substantially in the rural areas from 62% in 1987 to 75% in 1991.

One of the features of the this increasing labor force is that it is an educated labor force, with most of the workers having middle or secondary education. The increase in the stocks of educated labor (primary and above) and increased enrollment rates have also contributed to an increased supply of educated labor force.

Table 3: Labor force participation rates by age-group, gender and sector, 1987-91(in percent).

Age-groups	Rural	Urban	Male	Female	Total
1987					
7-16	43.77	14.81	36.72	30.58	33.74
17-25	66.26	46.58	60.26	58.01	59.08
26-45	78.18	71.02	79.81	72.00	75.51
46-60	76.90	70.84	78.60	71.73	74.86
> 60	61.61	42.64	66.19	46.63	56.31
Total	62.00	44.45	58.23	53.59	55.80
1988					
7-16	32.40	13.48	28.46	24.29	26.45
17-25	66.49	48.85	63.04	57.67	60.14
26-45	80.75	76.76	86.82	72.81	79.27
46-60	75.46	75.25	82.59	69.83	75.39
> 60	60.72	50.82	68.00	49.10	58.35
Total	57.87	47.49	57.70	51.39	54.33
1991					
7-16	47.54	6.30	36.78	30.54	33.78
17-25	81.29	36.26	60.31	67.44	63.99
26-45	97.05	86.25	94.50	91.93	93.01
46-60	94.17	86.09	95.64	88.60	91.79
> 60	76.45	54.66	82.45	59.47	71.00
Total	75.02	47.27	65.41	65.42	65.41

Source: Authors calculations from GLSS1, 2, 3.

Note: Labor force participation is defined as the ratio of Individuals who are either wage workers or self-employed to the working population (i.e. those between 15-64 yrs of age)

Source: GLSS 1,2,3

2.1. Determinants of Labor force participation

Table 4 presents the results from the estimates of the labor force participation equation using maximum likelihood probit model. Age is included in the participation equation to reflect the effects of human capital investments on wages which will effect participation. As expected, age has a positive effect on work in all the three years. An interpretation is that as age increases, the level of human capital acquired increases and the offered wage goes up. An increasing wage, holding all else constant will increase the probability of participation. Age-squared is included as a regressor to pick up the possible non-linearities in this relationship. The significance of the squared terms in all the three periods supports the hypothesis of non-linear effects of age on the probability of participation. Education variable has mixed results. In fact, a person with no schooling

Table 4: Probit estimates of labor force participation model.

Variables	1987	1988	1991
Intercept	-6.9 (-24.75)	-6.64 (-26.5)	-6.67 (-13.81)
age	0.388 (32.4)	0.40 (21.95)	0.34 (17.4)
age-squared	-0.004 (-35.97)	-0.004 (-20.01)	-0.004 (-17.86)
exp	0.047 (5.4)	0.05 (3.61)	0.012 (0.72)
primary	0.84 (4.5)	0.32 (2.13)	-0.295 (0.86)
middle	1.00 (5.8)	0.41 (2.51)	0.004 (0.2)
secondary	0.395 (2.14)	0.09 (0.45)	-0.28 (-1.11)
higher	0.299 (1.08)	0.64 (2.26)	0.31 (2.01)
income	-0.0001 (-2.53)	0.0003 (-1.43)	-0.003 (-1.24)
hhsiz	-0.009 (-1.6)	-0.002 (-0.44)	-0.03 (-5.34)
rural/urban	0.57 (12.3)	0.56 (11.89)	1.02 (22.16)
N	7357	7293	8428
Log Likelihood	-2225.65	-2160.73	-2522.45
Pseudo-R ²	0.56	0.56	0.57

is not likely to participate, while the probability of a person with higher level education to participate should be high. In 1987 and 1988, participation was higher for primary and secondary school leavers, while in 1992, participation was higher for those with higher than primary and secondary levels of education, which indicates that labor market is becoming more responsive to education and skilled employment. The household size variable could have positive or negative result. If there are a large number of children under 10 years of age then participation rates could be low, since the parent may have to stay home and look after the child; however if there are a number of adult children in the household then older children can reduce childcare costs of labor force participation by taking care of their siblings while the parents are at work. In our analysis, we find that the household size has a negative effect, but is significant only in 1992. Similarly, the income variable as expected, have negative effects on participation, but is only significant in 1987. Being in a rural area significantly increases the probability of participation.

Thus human capital variables, such as age education and experience and household variables such as income and household size effects an individuals participation decision.

3. The Absorption of Labor

3.1 Sectoral Employment

The growing labor force was absorbed in the different segments of Ghana's labor market. In this section we analyze the distribution of formal and informal workers, the public-private composition of wage workers-especially the formal workers. The questions one would like to ask is: Is public sector the main provider of wage jobs? Does female employment distribution differ from that of male employment distributions? What is the main source of wage employment for females? Does public employment depend on educational level? Are most of the wage jobs in the rural or urban areas? Is agriculture still the main source of employment in the rural areas or has there been a decline in the agricultural sector employment. The objective here is to identify the important sectors of employment and changes -if any -in the relative importance of sectors during this period. A related issue will be to find out to what extent are the employment differentials - occupational or industrial- justified? Another broad distinction is the difference between private and public wage employment. The GLSS data set allows us to make this distinction within the formal labor⁴ market.

Looking at the broad employment distribution we find that agriculture is still the main form of employment for the labor force as a whole. In terms of formal and informal employment, in 1992, 21% of the workers were wage workers, of which 13% worked in the public sector; in 1987, 24% of the workers were wage workers, of which 14% were formal sector workers. Over 74% of the workers were self employed, of which 48% were engaged in agriculture (a decline from 49% in 1987). Among the wage workers, 62% were formal sector workers and 38% were informal sector workers. In terms of male and female workers, over 49% of the male workers and 47% of the female workers were engaged in agriculture (Table 6). These figures indicate that formal sector is still the main provider of wage jobs although its share has declined during this period. Interestingly, among the formal wage workers, 71% were males and the only 29% were females. Similar pattern was observed among the informal sector wage workers. Thus most of the wage jobs are taken up by males. Only in the self employed category were the proportion of females greater than those of the males. During 1992, in the urban areas, 43% were self employed doing business and 24% were public sector workers, while in the rural areas 64% were engaged in agriculture. Over 39% of the urban workers were wage workers while only 14% of the rural workers were wage workers, perhaps an indication that most of the wage jobs exist in the urban areas (Table 5).

⁴ A person is classified as employed in the formal sector if he is a wage worker, is not self-employed and gets fringe benefits such as health insurance, leave, pension etc.

Table 5: Employment by urban and rural sectors (Figures in percent).

	1987			1988			1991		
Sector	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Government	9.67	23.87	14.06	10.21	23.77	14.09	8.70	23.49	12.97
private-formal	2.93	14.15	6.92	4.70	14.04	7.89	2.45	9.10	4.51
Private-informal	2.43	5.22	3.37	3.03	5.58	3.87	2.71	6.36	3.91
Self-employed agriculture	68.71	14.06	49.24	59.88	11.84	43.57	64.34	11.98	47.0
Self-employed business	15.92	39.17	21.54	21.93	42.39	28.80	20.41	43.24	27.46
Non-working	0.34	3.54	2.14	0.25	2.37	1.74	1.39	5.82	4.13
	100.0	100.00	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors calculations using GLSS 1,2,3

In terms of education and employment we find that most of the wage workers had middle school education (Table 6). Over 70% of the private sector wage workers had middle school education. Of those with post-secondary school education, in 1992, 52% were employed in the public sector and 16% in agriculture, implying that education pays in the public sector. Among the self employed in agriculture 52% only had primary school education. Thus public sector seems to be attracting workers with higher education, while those with little or no education are self employed. However, the share of formal employment has decreased during this period, while the share of private informal has increased especially in the urban areas. Females are predominantly engaged in self-employed business/trading activity, a sector which has been growing in Ghana in the last decade.

In summary, we find that formal sector share of employment has decreased over time. Most people are still self employed in agriculture, even though its share is declining. On the other hand, the self employed business category has increased, which indicates that trade and commerce is absorbing more labor. Most of the educated workers are in the formal sector, with a majority of them having middle or secondary schooling. If informal sector has more potential of growth and labor absorption it may indicate that the present education system does not seem relevant for the informal sector. Over half of the post-secondary educated are employed in the public sector- an indication that education pays in the public sector. The public sector is dominated by males, but the share of females in the public sector has also increased over time.

Table 6: Employment by broad sectors, education and gender in Ghana , Ages 7-64.
(figures in percent).

	Sectors	Education				Gender	
		Primary	Middle	Secondary	Post-sec	Males	Females
1987	Government	4.8 (2.58)	63.54 (10.28)	17.90 (16.77)	13.76 (52.27)	75.22 (11.58)	24.22 (3.38)
	private-formal	12.24 (3.52)	71.43 (6.18)	15.51 (7.77)	0.82 (1.82)	82.37 (7.00)	17.63 (1.33)
	Private-informal	24.42 (4.93)	70.35 (4.28)	4.65 (1.64)	0.58 (0.91)	64.90 (4.33)	35.10 (2.07)
	Self employed agriculture	25.7 (54.81)	66.21 (42.51)	6.77 (25.15)	1.32 (21.82)	47.45 (51.54)	52.55 (50.54)
	Self-employed business	22.25 (21.83)	68.54 (20.25)	8.01 (13.70)	1.20 (9.09)	24.83 (9.75)	75.17 (26.15)
	Non-working	15.41 (11.50)	60.38 (13.57)	22.97 (29.86)	1.26 (7.27)	45.24 (13.84)	54.76 (14.84)
	Government	6.42 (3.07)	59.34 (10.46)	18.29 (17.67)	15.95 (73.87)	76.95 (13.03)	23.05 (3.32)
	private-formal	12.94 (3.72)	69.26 (7.34)	16.83 (9.77)	0.97 (2.70)	82.18 (8.50)	17.82 (1.57)
	Private-informal	21.72 (4.46)	72.40 (5.49)	5.43 (2.26)	0.45 (0.90)	63.96 (4.98)	36.04 (2.39)
	Self employed agriculture	30.94 (52.04)	61.05 (37.89)	7.46 (25.38)	0.55 (9.01)	46.63 (47.62)	53.37 (46.35)
	Self-employed business	25.79 (25.65)	66.26 (24.31)	7.20 (14.47)	0.75 (7.21)	24.90 (11.93)	75.10 (30.61)
	Non-working	16.73 (11.05)	59.49 (14.50)	22.78 (30.45)	1.11 (6.31)	42.93 (13.94)	57.07 (15.76)
	Government	5.07 (2.90)	59.96 (8.29)	32.07 (22.96)	2.90 (51.61)	71.27 (10.87)	28.73 (3.75)
	private-formal	5.67 (1.45)	70.85 (4.38)	23.08 (7.39)	0.40 (3.23)	80.34 (4.96)	19.66 (1.04)
	Private-informal	14.80 (3.01)	70.41 (3.46)	14.80 (3.76)	0.00 (0.00)	63.12 (4.04)	36.88 (2.02)
	Self employed agriculture	23.63 (51.71)	71.31 (37.73)	4.83 (13.23)	0.24 (16.13)	47.45 (49.68)	52.55 (47.09)
	Self-employed business	17.23 (20.21)	75.35 (21.37)	7.33 (10.77)	0.09 (3.23)	24.26 (9.98)	75.74 (26.66)
	Non-working	13.16 (20.73)	65.07 (24.77)	21.25 (41.89)	0.53 (25.81)	47.39 (20.47)	52.61 (19.45)

Note: The first row in each sector gives the row percentage, while figures in parenthesis gives the column percentage.

In order to better understand the characteristics of wage workers, we break down the wage workers by age-groups, education, place of residence and the type of industry where the person is employed. The wage worker group is predominantly young; majority of both the male and female workers belong to under 40 years age group. Only 10% of the female workers and 19% of the male workers are over 50 years old (Table 7). However, between 79-81% of the workers had recently migrated to the place of work as they had a period of residence less than 1 year. As mentioned earlier, 64% of the female workers had middle schooling and 28% had secondary schooling. Similar pattern was found among the males also. In terms of type of employment, 60% of the female workers and 49% of the male workers were involved in public services and finance, while among the self employed between 64-85% were engaged in agriculture. Thus, the wage workers are relatively young, recent immigrants, with a middle to secondary level education and working predominantly in the services sector.

If we look at the characteristics of the self-employed, we find that it is a young group like the wage workers, recent immigrants and with primary to middle school level education. In terms of employment, most of the self employed are engaged in agriculture or in trade and commerce, such as retail and wholesale trade (Table 8). If we look at the characteristics of the workers in the informal sector we find that almost 77% have either a primary or middle school level of education. In the rural areas 46% of the female workers have primary education, while in the urban areas 44% of the female workers have middle school education. In the urban areas the female workers have almost the same level of education as male workers. In terms of occupation agriculture is the main occupation of most of the informal sector workers, Eventhough its share has gone down from 65% in 1987 to 60% in 1991. At the same time the share of services has gone up from 25% in 1987 to 31% in 1991. In the rural localities agriculture is the main source of income(between 78-89%) for workers, while in the urban areas most of the workers earn their income from sales, a sector dominated by females (Table 9). Also, among the informal wage workers, the share of those with no education has increased form 1.7% in 1987 to 15% in 1991.

Table 7: Characteristics of male and female wage workers, 1987-91.
(in percent)

Characteristics	1987		1988		1991	
	Male	Female	Male	Female	Male	Female
Age						
under 30	36.00	57.38	36.90	54.01	26.12	35.83
30-40	29.03	27.52	27.62	27.78	28.59	36.90
40-49	19.43	10.07	21.07	11.42	25.91	17.38
over 50	15.54	5.03	14.42	6.79	19.38	9.89
Period of residence						
less than 1 yr	95.28	95.94	91.12	92.88	79.98	81.40
2-4 yr	2.57	2.67	4.63	3.73	4.35	3.77
5-9 yr	1.24	0.76	2.27	1.02	3.48	3.50
10-19 yr	0.58	0.19	1.61	1.69	6.53	8.89
over 20 yrs	0.33	0.38	0.38	0.68	5.66	2.43
Education						
None	0.15	0.43	0.62	0.00	0.50	0.3
Primary	12.59	13.62	11.85	14.55	7.51	6.23
Middle	67.62	59.15	65.34	60.07	64.87	64.36
Secondary	14.39	13.62	14.96	14.93	25.64	28.37
Post-secondary	5.25	13.19	7.23	10.45	1.98	1.04
Industry						
Agri/forestry	11.00	10.00	11.48	6.95	8.70	11.60
Mining/Manufact.	14.76	16.67	13.35	20.85	14.04	11.60
Elec./Water/Const.	10.03	2.08	12.06	5.02	8.00	1.93
Wholesale/retail	5.57	15.42	4.57	11.58	5.80	11.33
Transportation	12.67	1.25	11.48	1.16	14.97	2.76
Finance/Community	45.96	54.58	47.07	54.44	48.49	60.77

Source: Authors' own calculations using GLSS 1,2,3.

Table 8: Characteristics of male and female self-employed workers, 1987-91.**(in percent)**

Characteristics	1987		1988		1991	
	Male	Female	Male	Female	Male	Female
Age						
under 30	58.54	51.55	57.29	49.09	43.51	39.01
30-40	14.01	17.66	14.51	19.23	20.79	25.26
40-49	10.19	13.03	9.73	12.32	15.19	17.23
over 50	17.26	17.76	18.47	19.36	20.51	18.49
Period of residence						
less than 1 yr	93.71	93.90	92.11	92.35	84.09	83.36
2-4 yr	3.31	2.00	3.29	3.67	2.95	3.35
5-9 yr	1.99	2.66	2.48	1.87	3.81	3.77
10-19 yr	0.87	0.78	1.06	1.29	5.25	5.57
over 20 yrs	0.17	0.67	1.06	0.83	3.89	3.95
Education						
None	1.98	1.08	1.99	1.42	2.41	2.60
Primary	37.68	43.30	39.32	43.49	16.90	25.91
Middle	51.60	52.31	49.87	51.26	73.01	67.40
Secondary	7.31	2.94	8.11	3.56	7.38	4.02
Post-secondary	1.42	0.36	0.71	0.27	0.31	0.06
Industry						
Agri/forestry	87.34	69.37	82.45	61.07	84.82	64.00
Mining/Manufact.	5.00	8.94	6.28	12.37	5.46	8.73
Elec./Water/Const.	0.58	0.01	1.45	0.03	0.98	0.02
Wholesale/retail	3.96	20.82	5.08	25.19	4.37	25.96
Transportation	0.81	0.03	1.07	0.07	1.19	0.02
Finance/Community	2.31	0.84	3.67	1.26	3.18	1.26

Source: Authors' own calculations using GLSS 1,2,3.

Table 9: Characteristics of wage workers in the informal sector

Years	1987					1988					1991				
Sector	urban		Rural		All	urban		Rural		All	Urban		Rural		All
Sex	Male	Female	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female	
Educ. level															
No education	0.88	1.79	1.42	2.69	1.76	0.64	0.29	0.67	1.3	0.77	12.32	12.37	15.98	17.85	15.09
primary	25.83	31.98	33.32	41.68	34.00	14.12	23.21	26.03	39.26	26.74	32.99	32.61	39.39	46.42	38.65
middle	55.78	54.97	56.02	52.43	54.71	68.70	65.19	65.64	57.49	63.99	39.29	44.07	39.25	33.59	38.60
secondary	11.40	9.51	6.23	2.07	6.75	11.96	9.89	6.52	1.86	6.92	14.21	10.04	4.21	1.74	6.76
Higher	0.77	0.28	0.80	0.22	0.51	0.01	0.14	0.27	0.01	0.12	0.32	0.12	0.34	0.18	0.25
TTA/koranic	5.34	1.46	2.21	0.91	2.26	4.58	1.29	0.87	0.09	1.46	0.85	0.79	0.83	0.21	0.66
Occupation															
Professional/technical	0.08	0.15	0.01	0.23	0.14	0.0	0.27	0.09	0.12	0.12	0.75	0.20	0.14	0.10	0.17
Admin./ managerial	0.25	0.25	0.50	0.39	0.38	0.61	0.72	0.14	0.93	0.59	2.24	0.30	0.09	0.14	0.27
clerical	7.05	3.28	1.18	0.35	1.83	7.48	4.83	1.94	0.19	2.54	2.49	0.40	0.23	0.01	0.29
sales	13.33	53.38	4.24	11.71	17.58	14.34	48.08	3.96	13.97	16.32	23.88	58.85	1.95	13.20	17.12
service	9.59	3.64	2.10	1.23	2.81	12.50	6.26	2.79	1.93	4.41	4.73	4.25	0.73	0.75	1.53
agricultural	69.69	37.93	91.94	85.66	76.82	64.96	37.21	90.99	82.43	75.38	58.21	18.30	94.23	79.57	73.72
production	0.0	1.36	0.04	0.43	0.45	0.10	2.68	0.09	0.43	0.64	7.71	17.71	2.64	6.24	6.89
Type of Industry															
Agriculture	29.45	24.47	86.57	82.96	64.79	25.20	22.94	81.53	79.82	62.53	20.72	16.19	80.56	77.38	59.29
Industry	40.79	17.77	5.27	6.17	10.22	21.12	20.96	6.83	7.53	11.62	17.5	17.41	6.21	6.37	9.91
Services	29.77	57.76	8.15	10.87	24.99	53.68	56.10	11.63	12.64	25.84	61.78	66.39	13.23	16.25	30.8

Table 10: Source of income for wage workers by locality (in percent).

Occupation	1987					1988					1991				
	Accra	Other urban	Rural coastal	Rural forest	Rural savannah	Accra	Other urban	Rural coastal	Rural forest	Rural savannah	Accra	Other urban	Rural coast	Rural forest	Rural savanna
Professional	2.32	0.73	0.69	0.47	0.45	2.89	1.16	1.05	0.04	0.17	7.11	1.43	0.27	0.26	0.07
technical															
Admin./ managerial	5.24	4.10	1.50	2.56	1.80	4.63	4.76	2.17	3.69	1.70	6.28	5.65	1.46	1.96	1.11
clerical	7.49	4.15	0.34	0.87	0.34	12.96	4.48	1.12	0.94	0.28	14.05	5.46	0.38	0.55	0.26
sales	48.39	34.40	16.68	6.84	5.74	38.95	34.96	14.72	11.26	7.52	38.68	39.10	11.97	5.91	5.76
service	5.02	7.33	0.82	1.69	1.66	8.80	5.72	3.26	1.51	1.02	7.93	5.08	1.95	1.56	0.95
agricultural	30.64	48.22	79.49	87.39	89.92	30.56	47.05	76.67	82.43	89.32	1.49	33.3	77.68	85.92	88.54
production	0.90	1.06	0.47	0.18	0.08	1.21	1.86	1.01	0.13	0.01	24.46	9.98	6.28	3.83	3.31

Source: Authors own calculations.

In Table 10 we discuss the source of income for wage workers. It is apparent that in Accra and other urban areas, most of the workers are engaged in trading activities (39% in 1991), while in the rural areas it is predominantly agriculture. If we look at the civil service workers, most of them are males located in the urban areas, with middle or secondary level education, and most of them (83% in 1991) are non-poor.

Table 11: The characteristics of civil service workers in Ghana.

Characteristics	1987	1988	1991
Sex			
male	75.22	76.95	68.97
female	24.22	23.05	31.03
Education level			
primary	4.8	6.42	5.07
middle	63.54	59.34	59.96
secondary	17.90	18.29	32.07
higher	13.76	15.95	2.90
locality			
urban	60.8	58.1	61.0
rural	39.2	41.9	39.0
Poverty			
poor	14.9	14.7	17.0
non-poor	85.1	85.3	83.0

3.2 Child Labor

Child labor is perceived to be a problem in developing countries and Ghana is no different. Child labor is especially prevalent in the rural areas where the capacity to enforce minimum age requirement for schooling and work is lacking. Children work for a variety of reasons, the most important being poverty. Though children are not well paid, they still serve as major contributors to family income in developing countries. Schooling problems also contribute to child labor. Many times children seek employment simply because there is no access to school. When there is access, the low quality of education often makes attendance a waste of time for the students. As a result parents may find no use in sending their children to school when they could be home learning a skill (trade or agriculture) and supplementing the family income.

The concept of child labor is problematic, since it can apply to a range of activities which children do. They can range from domestic work to wage work. It could be light artisan work to heavy physical work. A key element is whether the arrangement is exploitative- in the extreme case this can take the form of bonded labor or feudal relationships. The International Labor Organization (ILO) defines child labor as an

economically active population under the age of 15. Based on this definition, it estimates a participation rate among 10-14 years old in Africa at 22%. For West Africa the number is 24.2%. In Ghana the child labor force participation rate was 39% in 1992.

Table 12 : Characteristics of child labor by sector, education level , gender and occupation (Figures in percent).

	1987	1988	1991
Sector			
Urban	18.50	16.45	14.84
Rural	81.51	83.55	85.16
Education level			
No education	15.50	19.50	27.65
Primary	62.83	61.58	52.44
Middle	20.32	17.00	18.49
Secondary	1.15	1.92	1.41
Gender			
Male	48.00	53.34	53.0
Female	52.00	47.00	47.0
Occupation			
Agriculture related	82.55	78.99	67.55
Non-agriculture	17.45	16.83	32.45
Industry of work			
Agriculture	82.75	70.61	59.21
Mining &Manufact.	5.22	8.43	9.01
Elec. const, water	0.00	1.66	0.90
Wholesale &trade	9.58	13.98	20.39
Finance and transport	0.66	0.65	1.54
Services	1.78	4.68	8.95
Sample size	1677	1526	3732
Participation rate	38.0	32.8	39.0
(in percent)			
Cote d' Ivoire			54-55%
Nigeria			27-50%

Source: Authors calculations from GLSS 1,2,3.

Note: Child labor is defined as any child who is below 15 years of age and is working, either as a wage worker or through self employment

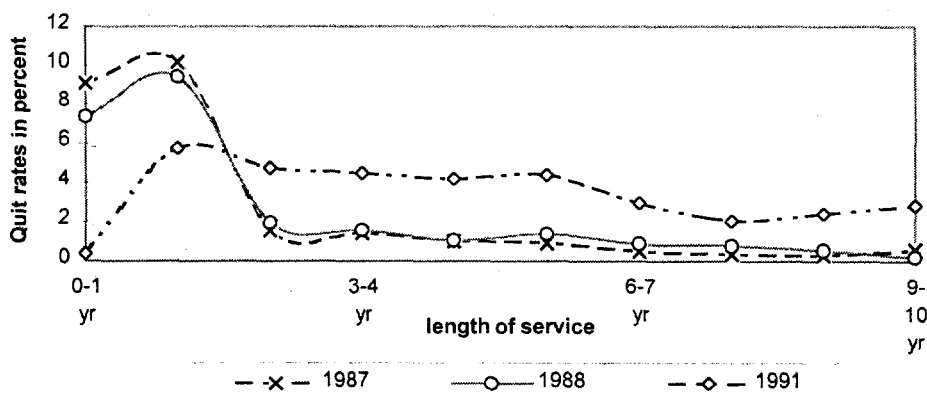
This is based on the above mentioned ILO definition. Estimates from other west-African countries range from 27-50% in Nigeria to 54% in Cote d' Ivoire (Kanbur and Grootaert, 1995).

Since the child labor force participation is high in Ghana, we would like to understand the characteristics of the child labor. As seen in Table 12, most of the child labor is concentrated in the rural areas (almost 85%). Almost 28 percent do not have any education (an increase from 16% in 1987), while almost 52% have primary level education. This also explains the dropout rate from primary to secondary being high. On gender basis, boys contribute more to the child labor pool than females. With regards to occupation and type of industry of work, it is not surprising to find that most of the child labor is engaged in agriculture related activities, and small portion in trade and commerce.

3.3 Turnover rates

An issue related to the absorption of labor is the stability of the labor force. This can be seen from the data on turnover rates for different years estimated from the GLSS data sets. We find that the quit rates have increased during this period, perhaps an indication that the labor market is very dynamic and active. However, the labor market is more stable in 1991, compared to 1987 and 1988. Perhaps the quit rates were kept low by the high wages in the formal sector, while the economic reform program undertaken in the recent years have resulted in a large movement of workers from the formal to informal sector during 1992, as seen in Figure 2. Also, the quit rates are lower for those with higher levels of education (Table 13) and highest for those with no education.

Fig 2: The estimated quit rates among wage workers in Ghana.



Source: Authors' own calculations using GLSS 1,2,3.

Note: Quit rates are estimated using the years of experience. The quit rates for those with experience t_1 to t_2 is estimated as the percentage of the labor force with atleast t_1 experience minus the percentage with atleast t_2 experience divided by the percentage with atleast t_1 experience.

Table 13: Quit rates by educational level and gender, 1991.

Years of work exp.	Level of education				Gender	
	no educ.	primary	second.	higher	male	female
0-1	1.51	0.27	1.60	2.33	0.26	0.49
1-2	13.55	13.29	14.59	8.33	8.56	9.17
2-3	18.0	18.52	15.19	5.19	10.11	11.12
3-4	16.1	14.39	16.42	8.33	9.78	10.28
4-5	13.37	14.60	16.96	7.81	9.40	9.40
5-6	12.75	15.72	11.83	8.47	9.69	11.39
6-7	11.54	9.84	9.76	12.96	7.88	8.44
7-8	14.78	8.18	16.22	6.38	6.08	6.23
8-9	10.2	7.67	11.29	4.55	6.64	6.28
9-10	15.92	10.72	10.91	4.29	8.00	7.19

3.4 Trends in earnings and employment

Confronted with the lack of reliable data on the evolution of employment in Ghana, trends in employment can be assessed by labor demand alone, primarily through the analysis of trend in production growth (GDP). It is well recognized that demand for labor is determined by two factors: production growth and labor productivity, with the latter being influenced by technical advances, elasticities of substitution, labor intensity and variances in labor costs. In the absence of reliable data on these factors we rely on production growth to see if growth in production in different sectors is being matched by a growth in employment in those sectors. As seen in Table 14, agriculture contributed about 47% of the GDP in 1991, while 56% of the population was absorbed in that sector (Tables 15-20). Similar pattern was observed in other sectors also. This means increase in production was perhaps obtained by increase in employment. In Ghana, there exists a dual economy, which features a urban modern economy and a rural subsistence economy. The pattern has remained the same during this period, except that the share of urban self-employed business has increased.

Table 14: Share of different sectors in the total GDP (in percent).

Sectors	1988	1989	1990	1991	1992	1993	1994
Agriculture	49.6	49.0	47.9	48.6	48.6	47.8	47.3
Agriculture & livestock	34.9	33.2	33.3	33.9	33.5	33.1	33.0
Cocoa production & Mktg.	8.8	9.7	9.1	9.5	9.8	9.3	9.0
Industry	16.6	16.7	15.9	16.0	16.2	16.0	16.2
Mining	2.0	1.9	1.8	1.8	1.9	2.0	1.8
Manufact.	9.6	10.0	9.2	8.7	8.7	9.1	9.0
Construction	2.9	3.0	3.1	3.5	3.5	3.2	3.3
Services	33.6	33.4	35.8	35.3	34.9	35.7	36.1
transport,storage & Comm.	4.2	4.3	4.4	4.5	4.4	4.3	4.4
wholesale and retail trade	18.9	18.7	19.0	17.2	18.3	19.0	19.2
Finance and insurance	2.7	2.7	3.9	4.2	3.6	3.8	3.8
Govt.services	6.9	6.9	7.5	8.2	7.5	7.5	7.5
Community, social services	0.7	0.8	1.0	1.1	1.0	1.0	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

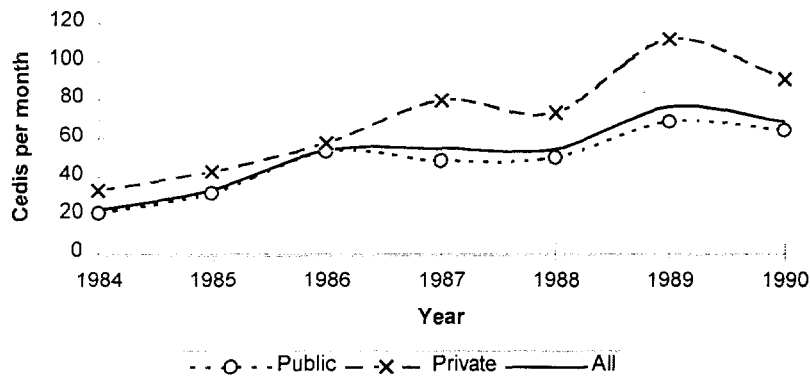
Source: Ghana Statistical service, Ghana.

The trends in the real average monthly earnings per wage worker in the public and private sector are shown in Figure 3. It is apparent from the graph that the real earnings have some resemblance to the rate of growth of GDP over the years. The dominant picture is that of a steady increase in real earnings in the early 1980s with a somewhat decline in the late 1980s, more so in the public sector than in the private sector (Fig 3). While the real earnings in the private sector have remained flat in the 1980s, the same in the public sector have been very unstable, with the real earnings having fallen in the late 1980s. Does the fall in earnings in the formal sector imply that the large wage differential in favor of the formal sector observed in the 1970s and early 1980s has largely disappeared. In other words is the labor market closer to an equilibrium situation in which the formal sector wages are more in line with the supply price or alternate earnings of labor? This question has to be addressed in terms of the urban informal and rural sectors.

Another related issue is whether the fall in real earnings was caused by a fall in real wages or by a fall in employment or both. The data analysis tells us that there has been a fall in employment in the formal sector, but we don't have the wage information of the self-employed. Similarly, secondary data (Ghana Statistical Yearbook) also provides the evidence that there has been a fall in overall employment, more so in the public sector (Fig 4). Thus, we can say that fall in employment was one of the factor resulting in the fall in real earnings. The effect of the trend of real wages on the trend of real earnings also depend on the wage determination process in the formal sector-through unions or the government. Government labor market policies either through minimum

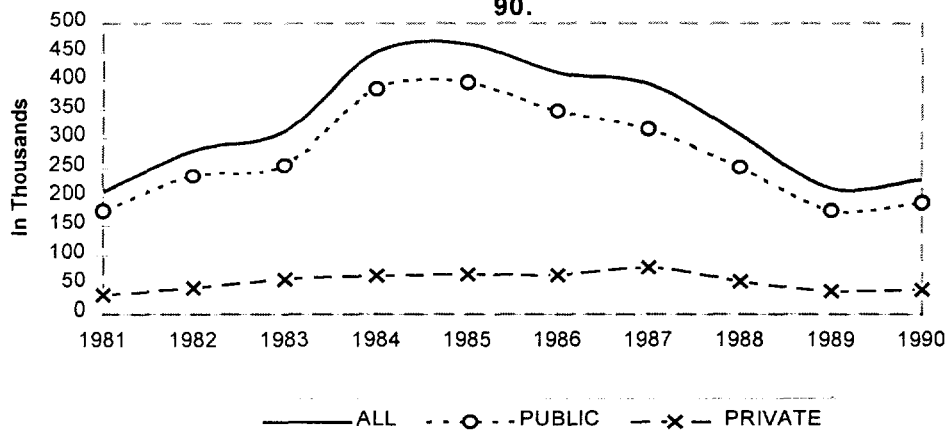
wages or the wages set by the government in the formal sector have added substantial importance to wages and employment matters in the formal sector. On the other hand even though there has been a decline in the aggregate employment, the real GDP has increased during this period (Figure 5), which means that increase in labor productivity was one of the factors that made this possible. It is not clear whether formal sector leads the wage determination process, an issue which needs further investigation.

Fig 3: Trend of real monthly earnings per employee in public and private sector in Ghana.



Source: Ghana Statistical Service.

Fig 4: The Trend in Employment by sectors in Ghana, 1981-90.



Source: Ghana Statistical Service.

Fig 5a: The trend of employment and real GDP in the agriculture sector.

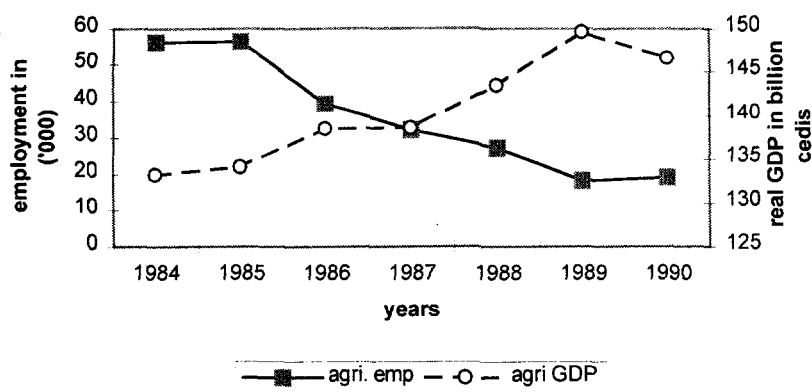


Fig 5b: The trend of employment and Real GDP in the industrial sector

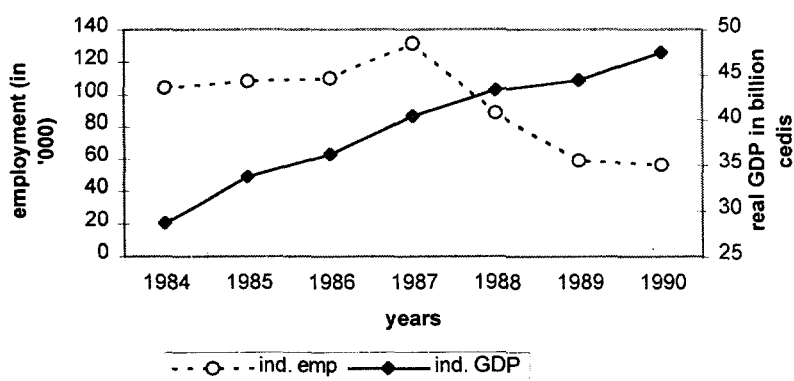


Fig 5c: The trend of employment and real GDP in the services sector in Ghana.

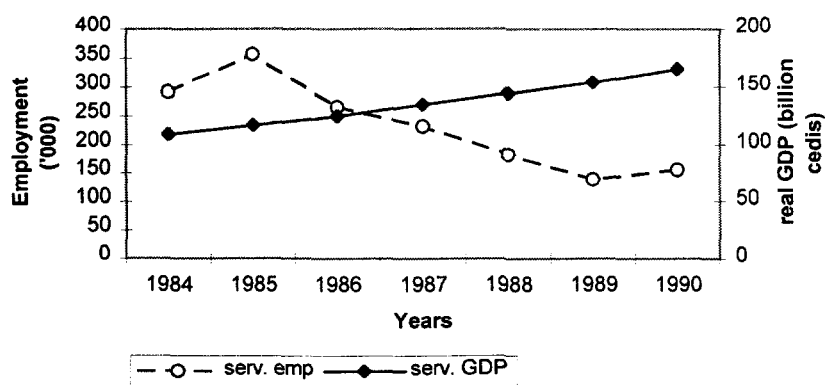


Table 15: Employment and locality (1987)

Category	Accra		Other Urban		Rural-coast		Rural-Forest		Rural-Savannah		ALL
	urban	Total	urban	total	rural	Total	rural	Total	rural	Total	
Government	23.88	80	22.47	191	6.92	33	11.89	109	5.62	33	14.08
Priv-formal	26.27	88	8.94	76	5.66	27	1.74	16	2.04	12	6.9
Pri-Informal	4.78	16	5.41	46	3.56	17	2.51	23	0.85	5	3.38
Self-Agri	2.09	7	19.76	168	51.57	246	72.96	669	79.9	469	49.24
Self-Buss	37.91	127	39.65	337	30.61	146	10.25	94	10.73	63	24.2
Unemp-Inact	2.69	9	3.06	26	1.68	8	0.65	6	0.68	4	1.67
Unemp-Act	2.39	8	0.71	6	0.00	0	0.0	0	0.17	1	0.47
Total	100.0	335	100.00	850	100.0	477	100.0	917	100.0	587	100.0

Table 16: Industry and locality (1987)

Category	Accra		Other Urban		Rural-coast		Rural-Forest		Rural-Savannah		All
	urban	total	urban	total	rural	total	rural	Total	rural	Total	
Agr/forestry	4.4	12	23.11	156	54.24	211	77.35	632	82.52	392	63.56
Mining&Mfg.	17.60	47	14.96	101	17.73	69	6.24	51	3.78	18	8.77
Elec., Const.	7.49	20	3.41	23	1.23	5	0.85	7	1.05	5	1.74
Wholesale/retail	29.58	79	28.88	195	14.39	56	5.87	48	5.47	26	16.18
Transport	7.86	21	6.07	41	1.03	4	0.24	2	0.42	2	1.71
Services&fin.	32.95	88	23.55	159	11.31	44	9.42	77	7.16	34	8.03
Total	100.0	267	100.00	675	100.0	389	100.0	817	100.0	475	100.0

Source: Authors' own calculations using GLSS 1,2,3.

Table 17: Employment and locality (1988)

Category	Accra		Other Urban		Rural-coast		Rural-Forest		Rural-Savannah		ALL
	urban	Total	urban	total	rural	Total	rural	Total	rural	Total	
Government	28.8	110	19.88	171	9.51	50	10.13	108	7.51	45	14.88
Priv-formal	20.68	79	11.16	96	7.03	37	4.41	47	2.00	12	7.89
Pri-Informal	4.97	19	5.70	49	3.04	16	3.85	41	1.34	8	3.87
Self-Agri	1.57	6	17.67	152	42.78	225	62.38	665	74.79	448	43.6
Self-Buss	38.22	146	43.95	378	36.31	191	17.92	191	13.86	83	28.8
Unemp-Inact	3.93	15	1.40	12	1.33	7	1.31	14	0.50	3	1.48
Unemp-Act	1.83	7	0.23	2	0.00	0	0.0	0	0.00	0	0.26
Total	100.0	382	100.00	860	100.0	526	100.0	1066	100.0	599	100.0

Table 18: Industry and locality (1988)

Category	Accra		Other Urban		Rural-coast		Rural-Forest		Rural-Savannah		All
	urban	total	urban	total	rural	total	rural	Total	rural	Total	
Agr/forestry	2.25	7	22.72	160	52.28	195	67.96	628	77.07	380	53.15
Mining&Mfg.	15.11	47	14.35	101	19.30	72	9.52	88	7.30	36	11.51
Elec., Const.	11.57	36	4.12	29	3.21	12	2.16	20	2.03	10	2.98
Wholesale/retail	27.65	86	27.98	197	22.25	83	8.76	81	4.26	21	16.33
Transport	7.71	24	6.39	45	2.95	11	0.54	5	1.01	5	2.72
Services&fin.	35.69	111	24.43	172	15.55	58	11.04	102	8.31	41	13.30
Total	100.0	311	100.00	704	100.0	373	100.0	924	100.0	493	100.0

Source: Authors' own calculations using GLSS 1,2,3.

Table 19: Employment and locality (1991)

Category	Accra		Other Urban		Rural-coast		Rural-Forest		Rural-Savannah		ALL
	urban	Total	urban	total	rural	Total	rural	Total	rural	Total	
Government	24.18	111	21.72	243	6.14	44	10.14	139	5.83	50	12.98
Priv-formal	14.60	67	6.43	72	3.63	26	2.26	31	0.93	8	4.51
Pri-Informal	8.50	39	5.27	59	3.63	26	2.84	39	1.63	14	3.91
Self-Agri	0.44	2	17.07	191	54.11	388	64.54	885	77.01	660	47.0
Self-Buss	40.74	187	43.61	488	29.85	214	17.58	241	13.07	112	27.46
Non-working	11.55	53	5.90	66	2.65	19	2.63	36	1.52	13	4.13
Total	100.0	459	100.00	1119	100.0	717	100.0	1371	100.0	857	100.0

Table 20: Industry and locality (1991)

Category	Accra		Other Urban		Rural-coast		Rural-Forest		Rural-Savannah		ALL
	urban	total	urban	total	rural	total	rural	Total	rural	Total	
Agr/forestry	1.22	5	20.19	207	59.05	401	69.95	922	81.23	671	55.78
Mining&Mfg.	22.30	91	13.75	141	11.34	77	8.19	108	3.26	27	9.69
Elec., Const.	5.88	24	3.22	33	2.06	14	1.36	18	0.60	5	1.38
Wholesale/retail	27.20	111	32.48	333	18.41	125	9.63	127	8.35	69	19.24
Transport	6.13	25	7.32	75	1.62	11	1.21	16	0.48	4	2.26
Services&fin.	37.25	152	23.02	236	7.51	51	9.63	127	6.05	50	11.65
Total	100.0	408	100.00	1025	100.0	679	100.0	1318	100.0	826	100.0

Source: Authors' own calculations using GLSS 1,2,3.

3. Unemployment

Defining unemployment can be a particular challenge, as the conventional subdivision of the economically active population between employed and unemployed does not capture the large number of those falling in neither of these categories. In many instances it is difficult to determine the size of the labor force because of the prevalence of subsistence activities in the rural areas and the informal sector labor force comprising the self-employed, casual and unpaid workers in the urban areas. Basically, three broad categories of unemployed can be distinguished. First, there are the unemployed per se, those out of a job and actively looking for work. Second, there are the underemployed, those who are working voluntarily less than full-time, or those who are working long hours but earning less than the minimum living standards income. Third there are the “discouraged” unemployed, who are unemployed but not actively looking for work. In our analysis, we define the unemployed as those who are between 15-64 years of age and are actively looking for work; and the discouraged workers as those not actively searching for work.

We see on the basis of GLSS data, that the overall unemployment rate for active persons has decreased slightly from 1.9 to 1.5 percent. The unemployment rates for the inactive persons, though of higher order has also declined from 14% to 8%. A close inspection of the data reveals that unemployment rates tend to decrease with age. Eventhough the total unemployment rates have declined the composition of the unemployed have changed with more younger people (age 15-24 yrs) in the category (Table 9). Overall, young people's stock of unemployed is about 25% higher than their share of labor force. Also most of the unemployed are females compared to males, eventhough the female labor force participation rates have increased dramatically over the years. The unemployment rates also vary by educational levels, and tend to decrease with education. In 1992, over 54% of the unemployed only had middle school level education and 16% had secondary education, while only 10% of the unemployed had primary schooling. It appears that those who are educated but not having acquired specific skills are disadvantaged in the labor market. This would suggest a mis-match between their training and job expectations and the characteristics of the jobs available in the economy. On the other hand, unemployment among the illiterates is the lowest of all (0.8 % in 1992), and open employment seem to increase with education level. A possible explanation for this could be that in the context of general shortage of jobs, unskilled workers with low expectations are better prepared to accept available jobs in the informal sector which are low paid and less secure. This points to the issue of the relevancy of the current educational system which raises the student expectations without providing the skills that are in demand in the economy. The incidence of unemployment also seems to be a urban phenomenon. In 1992, more than 80% of the unemployed belonged to the urban areas up from 75% in 1987. However, this needs to be interpreted with caution, because in rural areas many workers may be just engaged in farming as a part-time worker since he/she has nothing else to do. Eventhough the worker is not working full-time he/she can be classified as employed as per our definition. As a result the unemployment rates may be artificially low in the rural areas than in urban areas.

Table 21: Unemployment rates by sector, locality, age-groups, gender and education level, 1987-91 (figures in percent).

	1987		1988		1991	
Category	Unemp. (active)	Unemp. (Inactive)	Unemp. (active)	Unemp. (Inactive)	Unemp. (active)	Unemp. (Inactive)
Urban	79.50	55.40	89.32	52.05	84.52	60.65
Rural	20.50	44.61	10.68	47.95	15.48	39.35
Gender						
Male	49.07	45.8	45.63	44.12	42.75	46.55
Female	50.93	54.2	54.37	55.88	57.25	53.55
Age-groups						
15-19	24.84	47.97	40.78	53.10	11.76	55.97
20-24	35.40	18.90	32.04	17.26	33.33	20.15
25-44	26.09	20.28	21.36	18.48	43.53	15.28
45-49	0.62	2.07	1.94	2.01	3.14	3.49
50-54	4.97	3.45	2.91	2.44	4.31	7.12
55-59	5.59	3.62	0.97	2.62	2.75	7.34
60-64	2.48	3.71	0.00	4.10	1.18	12.01
Educ. level						
No education	0.00	1.73	0.00	2.18	0.78	3.83
primary	9.32	16.65	10.68	19.09	9.80	11.61
middle	55.28	39.60	58.25	43.07	53.73	45.89
secondary	4.35	8.98	6.80	8.20	16.08	14.79
Higher	0.62	0.52	0.00	0.52	0.00	0.38
others	30.43	32.53	24.27	26.94	19.61	23.49
Poverty						
Poor	20.94	36.07	16.83	36.08	21.57	30.18
Non-poor	79.06	63.93	83.17	63.92	78.43	69.82
Locality						
Accra	37.27	24.29	46.60	26.32	23.81	18.65
Urban	42.24	19.66	42.72	16.64	60.71	42.00
R.Coastal	8.07	7.94	2.91	9.26	3.57	9.38
R.forest	9.94	11.89	6.80	11.82	7.54	16.23
R.Savanah	2.48	8.37	0.97	7.90	4.37	13.74
All	1.93	13.92	1.21	13.44	1.56	8.23
Kenya	6.1	6.9				
	(1978)	(1986)				

Source: Authors' own calculations using GLSS 1,2,3.

The major results are summarized below:

1. Unemployment rates (for those actively searching) has declined during this period.
2. The share of male unemployment rates has declined while that of female unemployment has increased.
3. The decline in male unemployment is mainly brought about by the 15-24 age groups whose share has declined in the total number of unemployed.
4. There is no direct relation between formal levels of education and unemployment. The share of secondary school educated have gone up in the total number of unemployed.
5. Unemployment is lower in the rural areas than in the urban areas. Perhaps an artifact because, in the rural areas even though a person is underemployed, he may still identify himself as being employed. The urban unemployment figures may be more close to reality.

3.6 Migration

The GLSS data sets contain a small amount of information about migration in Ghana. This section examines the pattern of migration to get a broad picture of migration flows to different regions in Ghana. From the data a few observations can be made regarding the pattern of migration. First, there is a reverse pattern of migration-most of the migration is from urban to rural than from rural to urban (Table 22). Second, there is regional segmentation in migration-migration to high growth regions, such as Greater Accra, Ashanti and Western regions (Table 23); there is more between migration than within migration to these regions. Third, Eventhough most of the migration is family based, employment related migration has increased substantially during this period, especially in the last period (Table 24).

Table 22: Sectoral Migration in Ghana, 1987-88 (in percent).

Sectors	1987		1988		1991	
	Rural	Urban	Rural	Urban	Rural	Urban
From Rural	33.46	11.56	34.68	10.97	58.37	30.24
Urban	32.21	22.77	31.91	22.44	6.63	4.76
All	65.67	34.33	66.58	33.42	65.00	35.00
Sample size	4948	2587	4359	3660	3765	6991

Table 23: Regional Migration in Ghana, 1987-91 (in percent).

Regions	1987		1988		1991	
	Within	Between	Within	Between	Within	Between
Western	53.78	46.22	48.03	51.97	36.46	63.54
Central	50.86	49.14	55.16	44.84	42.37	57.63
Gr.Accra	39.82	60.18	35.28	64.72	15.38	84.62
Eastern	60.46	39.54	62.78	37.22	52.52	47.48
Volta	61.50	38.50	60.43	39.57	43.97	56.03
Ashanti	61.72	38.28	60.41	39.59	47.97	52.03
Brong-Ahafo	54.45	45.55	61.01	38.99	47.17	52.83
Northern	76.91	23.09	73.76	26.24	50.00	50.00
U/West	72.21	27.79	58.04	41.96	26.76	73.24
U/East	54.25	45.75	42.74	57.26	4.89	95.11

Source: Authors' own calculations using GLSS 1,2,3.

Table 24: Major reasons for migration, 1987-91.(in percent)

Reasons for Migration	1987	1988	1991
Moving with family	54.35	56.15	43.3
Work-related	14.84	14.01	19.6
Marriage	13.54	10.44	23.1
school	7.02	6.54	6.1
Adventure	3.65	2.71	--
Others	6.37	10.15	7.8

Source: Authors' own calculations using GLSS 1,2,3.

Since most of the migration is towards the high growth regions-Ashanti, Greater Accra and Western , it would be interesting to look at the characteristics of the migrant workers- their educational levels, age, occupation and kind of industry in which they find

employment . As seen in Table 25, most of the migrant workers are females migrating mainly for family reasons (Table 24), Eventhough their share has declined during this period, most of them have a primary to middle school level education, but the share of those with secondary and higher level education has also increased. Most of the migrants are engaged in agriculture related activities, Eventhough the share has declined. Most of them migrate from rural forest areas followed by other urban areas.

Table 25: The characteristics of migrant workers in Ghana (in percent).

	1987	1988	1991
Sex			
male	36.12	47.49	48.68
female	63.88	52.51	51.32
Educ. level			
no education	1.74	1.00	14.6
primary	22.34	22.83	30.5
middle	63.20	60.95	40.3
secondary	8.41	9.32	7.1
higher	0.82	0.95	2.3
TTA/Others	3.49	4.96	5.1
Occupation			
Professional/ technical	0.76	0.97	1.04
Admin./ managerial	3.51	4.91	3.31
clerical	2.60	3.77	2.63
sales	18.76	17.37	15.97
service	3.69	4.69	3.31
agricultural	70.24	67.53	66.93
production	0.44	0.76	6.81
Locality(5)			
Accra	12.21	14.26	11.75
Other Urban	29.48	28.40	27.57
Rural coast	13.75	14.95	14.28
Rural forest	33.39	32.24	35.26
Rural Savannah	11.17	10.14	11.14

4. Education and Employment

The potential contribution of education to improving labor productivity, lowering income inequality and promoting growth and development is well recognized, and virtually all governments set aside a substantial portion of their public expenditure budget for education. Since independence, the nations of sub-Saharan Africa have invested heavily in the education sector. The achievements in the sector have been impressive both in absolute terms and in relation to other sectors. However, primary enrollments have stagnated or even declined recently, and the quality of education has apparently declined. These reversals have occurred in an era of mounting fiscal austerity, population growth and strained political climate, all of which have hurt the education sector, and the deterioration in educational services have exacerbated the regions' economic and social problems. Between 1970 and 1980, while the world's population grew at an average annual rate of 1.9 percent, Africa's population grew at 2.9 percent (World Bank, 1993, P.18), and is projected to grow even faster at a rate of 3.2 percent a year, while growth rates are declining in other parts of the world. Africa's rapid population growth creates serious problems for education. To keep pace with the growth of school-age children, more schools, teachers, books etc. are required.

Extensive experience from Africa and elsewhere provide strong evidence that increased investment in education can yield broad economic benefits-including higher incomes and lower fertility. It can accelerate the growth process, and act as a complement to other growth inducing factors. However, public expenditure on education, both absolutely and as a percentage of GNP has fallen in many countries. The economic evidence based on micro and macro-level data indicate significant returns to education. The micro-level analysis examine the relation between an individuals education level and his/her productivity in the labor market as a wage worker or self-employed worker; or by linking the education of individuals to the outcomes of household behavior, such as fertility, child mortality etc. The macroeconomic evidence relates to the growth of national economies to prior investments in education controlling for other factors. Even though there is an enormous literature on estimating rates of return to schooling and on the job training, there are few empirical studies from sub-Saharan Africa (Ghana, Kenya). This paper build on the earlier paper on returns to education in Ghana (Glewwe, 1988). While Glewwe's (1988) work was based on GLSS 2, we look at the returns to education during the period 1987-91. This survey includes two time periods, before and after the educational reforms in Ghana, and can help us better understand whether education pays in the labor market..

4.1 Literacy rates by region and gender in Ghana

Literacy raises the productivity and earning potential of the population, and improves their quality of life. However, low literacy rates continue to be a problem in most of sub-Saharan African countries. Most of the educational systems with high enrollment rates are often plagued by high dropout rates. Even though there is no clear cut definition of literacy, we define a person to be “literate” if he can read and write. Of course this definition is very subjective. A person is considered to be “read literate” if he can read the newspaper, “write literate” if he can write a letter and “math literate” if he can do simple calculations. This section will examine the status of literacy in Ghana, based on the GLSS survey. This will help us better understand the extent of differences across such social lines as gender, region and age groups. Table 26 shows the literacy rates for the whole population. Literacy rates(read&write) have increased from 37% in 1987 to 49% in 1991⁵. Literacy rates are higher in the urban areas(65%) than in the rural(40%) in 1991. Also, the male literacy rates are higher than the female literacy rates. Looking at literacy rates within the age groups cohorts, we find that younger the age cohort, the more literates. Higher literacy rates in the younger age groups is an indication of advancement in the primary and secondary schooling, while lower literacy rates among age cohort 25 and above is an indication of lower access to primary education in the past. The main results are: The adult Literacy rates(read and write) is about 49% ; Government estimates around 44% in the 1984 census. Male literacy is higher than female literacy. Urban literacy is higher than rural literacy and by age-cohort, the literacy rates are higher for younger people.

4.2 Dropouts and repetition:

The GLSS data sets do not provide much information on dropouts and repetition, therefore one has to rely on indirect sources to ascertain information on this aspect. One such way is to look at the educational level by age groups. Obviously, one would think that age 5-10 yr children would be predominantly in primary, 11-15 yr olds in middle, 16-20 yr olds in secondary and 21-25 yr olds in higher level education. As seen in Table 27, most of the 11-15 yr old are still in primary level, when one would expect them to be in middle level, and similarly in the age group 16-20 year olds, most of the students are still in middle, when they are supposed to be in secondary. These numbers would suggest that the dropouts/repetition are higher in the 11-20 year age category.

⁵ The GLSS3 is not fully compatible to the GLSS1 & 2, in terms of literacy measures since the survey questions are slightly different. In the GLSS1&2 the question asked is: Can you read a newspaper or can you write a letter, while in GLSS3 the asked question is: “Can you read a newspaper in your language or in English”; and “can you write in your native language or in English”.

Table 26: Progress in Adult literacy (figures in percent).

.Items	1987	1988	1991
read literacy	38.70	39.40	
Read&Write literacy	36.61	37.03	48.8
Read, Write & Maths literacy	36.20	36.84	
Read and Write Literacy			
Male	48.18	48.51	60.8
Female	25.44	25.97	38.5
Age-group (by cohort)			
15-19 yrs	36.64	34.57	
20-24 yrs	50.46	47.26	
25-44 yrs	44.33	47.86	
> 44 yrs	19.06	19.71	
Urban	48.54	54.29	65.0
Rural	29.73	27.94	40.0

Source: Authors' own calculations using GLSS 1,2,3.

Note: A person is defined as "Literate" if he is able to read and write.

Table 27: Educational level by age-groups for those currently enrolled.

	1987				1988				1991			
Age-group	Pri	Mid.	Sec.	High.	Pri	Mid.	Sec.	High.	Pri	Mid.	Sec.	High.
5-10	28.03	0.48	0.0	0.58	35.79	0.79	0.16	0.35	32.28	0.37	0.71	0.96
11-15	20.50	16.10	14.24	10.56	27.36	10.25	7.53	8.76	31.74	11.17	4.96	6.71
16-20	15.56	22.83	27.71	14.33	9.24	21.79	28.19	7.86	10.04	22.22	27.62	6.27
20-25	9.94	18.89	23.53	11.20	6.69	16.18	19.69	11.95	6.16	15.62	21.67	19.70
over 25	25.76	59.34	34.52	75.51	20.91	51.07	43.44	71.38	19.78	50.62	45.04	67.36

4.3 University graduates:

Among the university graduates in the sample, we find that the proportion of females have increased during this period. At the regional level, most of the graduates come from Accra and other urban areas, but the number of graduates coming from rural areas has increased during this period. Most of them come from smaller households, perhaps an indication that they are becoming independent from the nuclear family. Even though most of the graduates are non-poor, the share of poor graduates has increased during this period, which is also reflected in the increased unemployment rates for university graduates.

Table 28: Characteristics of University graduates (in percent).

Characteristics	1987	1988	1991
Gender			
Male	85.11	85.00	81.75
Female	14.89	15.00	18.25
Sector			
Rural	19.15	8.51	25.00
Urban	80.85	91.49	75.00
Hhsize			
1-5 persons	57.45	59.57	55.36
6-10 persons	40.43	40.43	37.51
10-15 persons	2.13	0.00	7.13
> 15 persons	0.00	0.00	0.00
Poverty status			
poor	10.64	2.13	16.90
Non-poor	89.36	97.87	83.04
Unemployment rate	0.55	0.54	1.51
Locality-5			
Accra	27.66	40.43	34.82
Other Urban	53.19	51.06	40.18
Rural.coastal	2.13	0.00	7.14
Rural forest	14.89	8.51	10.71
Rural Savanah	2.13	0.00	7.14

Source: Authors' own calculations using GLSS 1,2,3.

5. Returns to Education

The returns to education can be estimated using the human capital model (Becker, 1975 and Mincer, 1974), wherein one can estimate the returns to additional years of schooling by using the wage data collected from persons who have different levels of education. The model assumes that wage earners are paid according to their marginal product, which rises as more human capital is accumulated. Using the earnings function approach, we can write the wage earnings (W), a function of years of schooling(S), years of experience(E) and other factors.

$$\ln(w_i) = \alpha_0 + \alpha_1 S_i + \alpha_2 E_i + \alpha_3 E_i^2 + u_i \quad (1)$$

Years of schooling can be interpreted as an aggregate measure of human capital obtained from formal schooling, while experience is an indicator of human capital acquired while employed (or on the job training). One can interpret α_1 as the private rate of return to schooling, based on Mincer's earnings function. If we assume that the cost of additional schooling is simply the wages foregone (W_{s-1}), then the private rate of return (α_1) can be shown to be equal to the annual increase in income ($W_s - W_{s-1}$) divided by the cost of investment (which is the wages foregone, W_{s-1}). A more general variant of (1) allows different levels of schooling (e.g. primary, secondary and higher) to have different private returns, and can be written as:

$$\ln(w_i) = \alpha_0 + \alpha_p S_{pi} + \alpha_s S_{si} + \alpha_t S_{ti} + \alpha_2 E_i + \alpha_3 E_i^2 + u_i \quad (2)$$

where S_{pi} , S_{si} and S_{ti} are the number of years in primary, secondary and tertiary education respectively for the i^{th} individual.

Table 29 : Mean Wage Earnings by Educational level in Ghana (in cedis).

Education level	1987		1991	
	Earnings	mean schooling	earnings	mean schooling
No education	72398.36		213786.6	
Primary	57152.43	3.1	200805.01	6.1
Middle	62512.13	6.0	264004.8	9.2
Secondary	90653.82	11.1	357161.7	13.6
Higher	141900.6	20.9	591255.8	19.7
All	84462.72	7.0	297584.9	7.1

Mean earnings estimates by educational level are presented in Table 29. It shows significant earnings differential by level of education. In 1991, workers who have completed tertiary level education earned 2.7 times more than do illiterate workers. In an attempt to explain the earnings variance of the sample we estimate earnings function, as shown in Table 30. As discussed earlier, the model is of the Mincerian type with continuous years of schooling and experience as the independent variable. The signs of the

coefficients conform with the human capital theory. As expected, both years of schooling and experience have positive and significant effects on earnings, indicating that earnings increase with schooling and experience. The results are more or less same for the three surveys.

Table 30: Basic Earnings function by years of schooling, in Ghana.

Variable	1987	1991
school	0.035 (7.04)	0.061 (13.3)
Age	0.11 (6.8)	0.08 (4.5)
Age-squared	-0.001 (-5.2)	-0.007 (-3.1)
Log hours worked	-0.24 (-8.25)	-0.34 (-7.6)
female	0.11 (1.76)	-0.06 (-1.04)
Other urban	0.09 (1.4)	-0.27 (-4.4)
Rural coastal	0.12 (1.2)	-0.12 (-1.33)
Rural forest	0.07 (0.8)	-0.22 (-3.03)
Rural Savannah	0.16 (0.8)	-0.14 (-1.26)
Constant	2.75 (8.40)	4.9 (10.9)
R-squared	0.24	0.29
Sample size	765	1021

Earnings function using the dummy variables for the different levels of education are given in Table 31. The results corroborate the findings described earlier. Instead of using the years of schooling we use the highest attained level of education. However, we don't have information whether the individual has completed that level or not. This specification enables one to analyze the earnings premium associated with each level of education. Clearly, the earnings premium increases significantly with the level of education (Psacharopoulos, 1981). This is particularly the case for those with secondary and higher level education, and especially higher level.

Table 31 : Extended earnings function by levels of education, in Ghana.

Variable	1987	1991
below Primary	-0.07 (-0.58)	-0.07 (-0.57)
Primary	-0.2 (-1.1)	-0.02 (-0.1)
Middle	0.09 (0.8)	0.42 (5.2)
Secondary	0.27 (3.8)	0.77 (8.6)
Higher	0.87 (7.4)	1.18 (10.8)
Age	0.11 (7.4)	0.09 (5.3)
Age-squared	-0.001 (-5.7)	-0.008 (-3.7)
Log hours worked	-0.29 (-10.4)	-0.31 (-7.25)
Other urban	0.13 (1.99)	-0.27 (-4.3)
Rural coastal	0.15 (1.5)	-0.08 (-0.9)
Rural forest	0.05 (0.58)	-0.19 (-2.5)
Rural Savannah	0.08 (0.8)	-0.18 (-1.7)
Constant	3.23 (10.3)	4.73 (10.9)
R-squared	0.24	0.27
Sample size	919	1140

Table 32 : Marginal returns to additional years of schooling in Ghana.

Variable	1987	1991
schooling	0.13	0.063
Schooling-squared	-0.0021	-0.0005
experience	0.02	0.03
urban	-0.68	0.07
hours	-0.34	-0.46
constant	4.94	7.66
R-square	0.29	0.28
Sample size	512	797

5.1 Private and Social returns to education

On the basis of the earnings profiles of the individuals, one can estimate the private rate of return by using the short cut method (Psacharopoulos, 1995):

$$\text{Private rate of return} = (Y_h - Y_l) / S * Y_l$$

where the mean earnings by level of education are used. Y_h refers to the mean earnings at the higher level of education and Y_l the mean earnings at the lower level of education. S is the number of years spent at the higher level of education. Thus $Y_h - Y_l$ is the earnings differential between the two levels of education, and Y_l refers to the student's foregone earnings or indirect costs.

In order to estimate the social returns to education we have to include the full resource cost of investment (direct cost and foregone earnings). These costs will be added to the denominator so that the formula becomes:

$$\text{Social rate of return} = (Y_h - Y_l) / S * (Y_l + C_h)$$

Where C_h is the annual direct cost of the higher level of education. Since the costs are higher in a social rate of return calculation relative to the private rate of return, the social returns are lower than the private returns. The difference between the private and social rates reflect the degree of public subsidization of education.

Table 33: Unit costs of public education by levels, in Ghana (in cedis)

Educational Level	1987-88	1991
primary	3199	17071
middle	4561	27648
Secondary	12624.5	53979
Higher	178954	554000

Note: The costs are per student by level.

Source: Staff appraisal report, No . , West Africa Department, The Worldbank.

As elsewhere, primary education exhibits the highest private and social rates of return than any other level of education. In 1991 the return to higher education is almost the same as that of the primary level. Also, we can see that higher education is most heavily subsidized, with a public subsidization of index (the percent by which the private rate exceeds the social rate) of 255.1 as opposed to 125.8 for primary education. The results are similar to those found elsewhere (Psacharopoulos et al, 1994)

Table 34: Private and Social returns to education by levels using the short-cut method (in percent).

	1987		1991	
Educational Level	Private	Social	Private	Social
Secondary (vs. primary)	7.3	5.9	10.3	8.2
Higher (vs secondary)	6.2	2.1	10.9	4.2

The “Full method” which discounts the actual net age-earnings profiles is the most appropriate method of estimating the returns to education because it takes into account the most important part of the early earning history of the individual. The private rate of return to educational investment in such a case can be estimated by finding the rate of discount that equalizes the stream of discounted benefits to the stream of costs at a given point in time. However, it requires more comprehensive data on age-educational earnings for constructing a “well behaved” (non-intersecting) age-earnings profiles. Table 35 shows the private and social rates of return using the full method.

Table 35: Returns to education by four levels of education using full method, 1991. (in percent)

Educational Level	Private	Social
Primary (vs. no education)	19.4	11.2
Junior Sec. (vs. Primary)	13.5	10.6
Senior Sec. (vs Junior Sec.)	19.5	14.0
Higher (vs Senior sec.)	9.1	7.2

6. Summary and Conclusions

We have seen that labor force growth rate being slower than the population growth rate in Ghana during 1980-90, but the pattern has reversed ever since. Hence there is going to be an increased supply of labor, and this is very true of the youth population of this country which is expected to grow at an even faster rate during 1990-2000. In order to cope with this increased young labor force the labor markets have to become more efficient and be able to absorb the increase in active population. The labor force participation rates of those between 26-45 years have been increasing rapidly and having its pressure on increasing labor force. Although on average female participation rates have become equal to males during this period, still there is wide dispersions between females and males when looked at by sector of employment. Women are mostly in the self-employed group while wage employment is unduly over represented by men. The increase in female LFP has increased the participation rates in rural areas from 62 percent in 1987 to 75 percent in 1992. However, one of the worrying features of increasing labor force and those unemployed is that they are on average highly educated than those of a decade ago.

The share of formal employment is on decline while private informal sector share has been increasing, especially in urban areas. Self employed trade category has been absorbing more labor during this period with majority of them having primary education or less. Formal sector employs most of the educated labor with a majority of them having middle or secondary schooling. Most of the post-secondary qualified are in the public sector and most of them are males. The share of females has been increasing but only marginally. Unemployment is a pervasive problem in urban areas while visible unemployment is much smaller in rural areas. The latter may be due to large hidden underemployment in rural areas as has been shown elsewhere (Alderman et al, 1993).

The production figures by broad sectors show that increases in GDP share has been corresponded by larger number of people employed. This indicates that labor productivity may have not been increasing and possibly declining. This, among other things, definitely has implications for the profitability of most economic activities and their absorptive capacity in the long-run and require further analysis.

Between 1987-92 the survey figures indicate that there has been reverse migration with large number of people moving from urban to rural areas. Apart from few growth poles, such as Greater Accra, Ashanti and Western regions, all other urban centers have been displaying out migration. In terms of reasons most migration has been for family reasons; employment related migration has been on the increase. This indicates that labor mobility has been increasing, but it is difficult to establish how many of them were moving with lucrative employment.

Literacy rates have been showing an interesting picture. Female literacy rates have been lower than males and this seem to have had an impact on employment opportunities in the informal sector, making it a male dominated sector. The proportion of female graduates is on the increase although the rates of return are still low. Most of the

graduates continue to come from urban centers and nuclear families. Most of the graduates have been able to escape from poverty in the past although recently this trend has been changing.

The rate of return to schooling increases with higher education and job experience. It is observable that in the wage sector primary education without skills has not been very rewarding. The return to an additional year of schooling has been varying between 4-6 percent in Ghana which is quite high for a Sub-Saharan African country. However, it is very important to note that the sectoral wage differences and public sector does reward formal sector better on average. Also, there has been the concern that the quality of education is declining. This is an issue which needs further investigation and might be useful in understanding the relevance of present education system for emerging new employment opportunities in Ghana. The returns to education analysis based on wage workers show that private and social returns to education are higher for primary than secondary or post-secondary. However, it is worth noting that higher education carries the larger amount of public subsidization compared to primary and might be useful for designing educational reform and policies in Ghana. This again is an issue which needs further investigation. Also, the rate of returns to education from self-employment might have a different story to tell and one needs to explore this before making broad inferences about education-employment mismatch (Vijverberg, 1995).

The present overview paper has elaborated some interesting hypothesis and broad relationships which can be further analyzed and used for policy design and sector investment. The current state of knowledge although useful does not give robust results to make causal links. Also, the GLSS data itself does not lend itself to meaningful analysis and one needs to see other sources of information and methodologies. Female education, female employment and self-employment sector are currently very weak in terms of causal links and until one has some firm findings it is not easy to be useful for policy design or even poverty alleviation in this country. A country with more than one third of its population below poverty level and almost 70 percent in agriculture and self-employment, any useful analysis has to give due weight to the various sectoral compositions of employment in the economy. This has to be a high priority in the future analytical work on labor markets and poverty in Ghana.

7. Bibliography

- Alderman, H, Sudharshan Canagarajah and Stephen Younger. 1995. A comparison of Ghanaian Civil Servant's Earnings Before and After Retrenchment. *Journal of African Economies*, Volume 4, No.2, pp 259-88.
- Beaudry, P and N.K.Sowa. 1994. "Ghana". In *Labor markets in an era of adjustment*, by Susan Horton, Ravi Kanbur and Dipak Mazumdar (Eds.), The World Bank, Washington, D.C
- Cohen, Barney and William House. 1994. Education, Experience and Earnings in the labor market of a developing Economy: The case of Urban Khartoum. *World Development*, Vol. 22, No. 10, pp 1549-1565.
- Glewwe, Paul. 1988. Schooling, skills and returns to government investment in education, LSMS working paper No. 76, The World Bank.
- Heckman, James. 1979. Sample Selection as a specification error. *Econometrica*, Vol. 46, No 2, pp 153-61.
- Horton, S, Ravi Kanbur and Dipak Mazumdar. 1994. *Labor Markets in an era of adjustment*, The World Bank.
- Kanbur, R and C.Grootaert. 1995. Child Labor: A review. Working paper No. 1454, The World Bank.
- Mazumdar, Dipak. 1991. *Labor Markets in Kenya*. Mimeo, Africa Region, The World Bank, Washington, D.C.
- Mincer, J. 1974. *Schooling, Experience and Earnings*. National Bureau of Economic Research. New York.
- Psacharopoulos, George, Eduardo Valdez and Harry A. Patrinos. 1994. Education and Earnings in Paraguay, *Economics of Education Review*, Vol.13, No.4, pp 321-327.
- Psacharopoulos, George. 1981. Returns to Education: an updated international comparison. *Comparative Education*, Volume 17, No. 3, pp 321-341.
- Riveros, Luis and Lawrence Bouton. 1991. Efficiency wage theory, labor markets and adjustment, WPS No. 731, The World Bank, Washington, D.C
- Stevenson, Gail. 1992. How public sector pay and employment affect labor markets. WPS No. 944, The World Bank, Washington, D.C
- Van Adams, Arvil, John Middleton and Adrian Ziderman. 1992. Manpower planning in a market economy with labor market signals, WPS No. 837, The World Bank, Washington, D.C
- Vijverberg, W.P.M. 1995. Measuring income from Family Enterprises with Household Surveys, LSMS working paper no. 84. The World Bank.

World Bank. 1995. Ghana:Poverty, private sector and structural Adjustment. West
Central Africa Department, The World Bank, Washington, D.C.

-----, 1993. World Development Report, The World Bank.

-----, 1995. World Development Report, The World Bank.

-----, 1991. Youth Unemployment in Mali. West Africa Department, The World
Bank, Washington, D.C.

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