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Economically active Children in Ghana: Analysis of Early Work Experiences on the Income of Individuals at Adulthood

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Abstract: *The study examines the effects of early work experiences on the income of individuals at adulthood. The effect of age at first work of adults who were economically active when they were between the ages of 5 and 14 years on their income at adulthood is elucidated. Thus, the study seeks to find out whether adults who were economically active when they were children between the ages of 5 and 14 years have higher income levels than adults who were not economically active when they were children.*

Using the sixth round of the Ghana Living Standards Survey, adults who worked when they were 5 to 14 years old are selected and a robust regression analysis is conducted to follow up on the effects of their early work experiences on their income levels at adulthood.Using a robust Ordinary Least Square model, the study observes that early work experiences reduce the income levels of individuals at adulthood. The Ghanaian data, which is the 2012/2013 Ghana Living Standards Survey used in the study shows the negative relationship between early work experiences and the income level of individuals at adulthood.

I. Introduction

Early work experiences of children in the basic, junior and senior high schools enhance the transition from school to the labour force (Bailey,1995; Bishop, 1996; and Osterman, 1995). Individuals who work during their early ages may gain experience and skills which may positively influence their employment and income status. Oettinger (1999) posits that as the returns to skills increases, there is a positive effect of early work experience on the income earnings of individuals. On the other hand, Staff, Schulenberg and Bachman (2010); and Monahan, Lee and Steinberg (2011) argue that strenuous early work experiences are inimical to the academic performances of individuals. It is very important to understand the effects of early work experiences since most adult recount the impact of their early exposure to work on the on their wages and income earnings.

II. Background of the study

The incidence of early work experiences among children who are of school going age is not a new development. Edmonds (2007) elucidates that most adults were engaged in one economic activity or the other during their early years. Most adults learned several skills and craft when they were children such as carpentry, masonry, fishing, blacksmith and trading among others. Due to the early work experience of individuals in learning one

skill or the other, their level of productivity in the skills they acquired during their childhood increases which positively influences their wages and annual income. However, when the acquisition of skills becomes time consuming and much involving, individuals may drop out of school or may not be able to achieve the best of grades in school which affects the higher educational attainment. With lower educational attainment, individuals may find it difficult to gain employment among reputable institutions which demand higher educational certificates like degree and masters certificate. Thus, with low level of education, individuals may have to look for menial jobs to do.

The welfare effects of early work experiences of 5-14-year-old children who are involved in various sort of work make it somewhat surprising as to why certain parents usher their children of such tender and vulnerable age into work. Grootaert and Kanbur (1995) explain that poor parents push their children into early work as a means of survival for the family. According to Basu and Van (1998), unselfish parents due to severe economic hardship can be coerced to use their children as a money making instrument in spite of the fact that they really are concerned about the safety, health and happiness of their children. Ahmed (1999) posits, "There is by now a virtually unanimous view that poverty is the main, although not the only causes of child labour."

Severe poverty might however not cause parents to send 5-14-year-old children to work for long hours. Nevertheless, when short-term financial and economic hardships occur, extra income earned from children who are working is useful to the family for upkeep. Unfortunately, what commenced as a short-term work may end up as a permanent work when the parents of the children focus more on the flow of income from the children's work or when the early exposure to work and petty income earnings cause children to be disinterested in schooling.

A critical assessment of the effect of early work experiences on the income level of individuals later in is undertaken by the study.

III. Theories and Empirical Studies

Several theories have explained why early work experience affects the welfare of individuals later in life in terms of employment and income levels. Human capital theory proposes that early work experienceprovides job-specific training and work experience which creates labour market skills that increases productivity in the future (Ahituv et al. 1997). Socialization theory posits that when children gain early work experiences, they develop strong interest in working which develops their desire for economic and social work in the future (Mortimer & Finch, 1992). In effect, both theories agree that lack of early work experiencedepict loss of opportunities to obtain early working experience which is vital for future work.Ahituv et al. (1997) find evidence to explain their assertion that males have early entry into the labour force and that childhood work experience increases the outcomes of the labour market of individuals. On the contrary, Hotz et al. (1999) point out to the disagreements as to whether the benefits of early work experiences of individuals who are schooling are greater than the benefits of schooling without working.

Even though several studies agree that early work experiences yield positive labour market outcomes which increase the income of individuals at adulthood, human capital development is negatively affected which may lead to generally low wages and income for future employment (Steinberg et al., 1981). It is very much important for work experiences to be gained after completing high school which will be of high quality compared to work experience gained during schooling. It is preferred that quality working experiences enhance career development and labour force participation. Due to the fact that the returns to human capital reduces over time, working experiences achieved at later ages depreciates less by adulthood as compared to working experiences obtained during childhood.

The human capital formation of individuals is critical in the development of nations. Becker (1975) and Mincer (1974) explain that with the use of human capital model, early work experience increases the labour market outcomes since young individuals with skills and knowledge enhances their productivity. Ruhm (1997) depicts

that early work experience of individuals in senior high schools positively affects the hourly and annual earnings of individuals at adulthood, measured 6 to 9 years after completing school. Light (1999) explains that high school employment increases for the first 6 years of after graduation by 6 percent for working 25 hours per week. Light (2001) posits that working during schooling for two years increases the wages of graduates by 10 to 18 percent. Wright and Brody (1996) observe that high school employment increases labour force participation, employment and income measured after 10 years of completing school. On the other hand, Hotz, Xu, Tienda and Ahituv (2002) argue that the positive effects of high school work on income later in life which are found in the literature are because of the unobserved heterogeneity.

IV. Methodology

4.1 Data Source

Secondary data was used for the study. The data was obtained from the sixth round of the Ghana Living Standards Survey from the Ghana Statistical Service.

4.2 The Econometric Framework of the Ordinary Least Square (OLS) Regression Model

The OLS regression will be used to estimate the effect of age at first work on the incomes of adults who were economically active when they were children.

An individual level analysis will be carried out. Data on adults will be used. A sample of individuals who worked during their childhood (5-14 years) will be used. The OLS regression will have on the left-hand side, the income of adults who were economically active as children, and on the right-hand side age at first work, among other regressors.

The OLS model specification is given as:

Income= $\alpha_0 + \alpha_1 \text{AFW}_i + \alpha_2 Gender_i + \alpha_3 I\_occup_i + \alpha_4 I\_educ_i + u_1$

Where,

AFW= age at first work

I_occup_i= occupation of the individual

I_educ_i =education of an individual

4.3 Descriptive Statistics for the age at first work variable

Male adults and female adults who had their age at first work between 5-14 years amount to a percentage of 56.90 and 54.50 respectively. Thus, there were more adult males who worked when they were children than adult females. Also, more individuals who worked at their first age of between 15-65 years were females (45.50%) than males (43.10 %).

Table 4.3 Descriptive Statistics for Age at First Work

Age at First Work	National	Female	Male
5- 14	55.67	54.50	56.90
15-65	44.33	45.50	43.10

Source: Author's compilation from GLSS 6

V. Findings and discussions

5.1The Ordinary Least Squares result of the effect of age at first work in the income of the individual

The OLS regression is used to investigate the effects of early work experience on the income of an individual at adulthood.

Table 5.1 OLS results of the effect of Age at First Work on the income of the individual

Natural log of Income Regressors	Coefficient (Standard error)
Age at first work (ref. cat. 15-65 years)	
5-14 years	-0.114***
	(0.0282)
Gender (ref. cat. Female)	
Male	0.622***
	(0.0290)
Individual's educational attainment (ref. cat. Basic)	
None	-0.0397
	(0.133)
At least secondary school education	0.517***
	(0.0283)
Individual's occupation (ref. cat. Elementary occupation)	
Armed forces	1.795***
	(0.369)
Manager	1.585***
	(0.0984)
Professional	1.651***
	(0.0707)
Technician	1.288***
	(0.0923)
Clerical	1.208***
	(0.105)
Sales or Service worker	0.177***
	(0.0596)
Skilled agric., forestry, or fishery worker	1.597***
	(0.0595)
Craft or related trade	0.235***
	(0.0622)
Plant or machine operator	0.556***
	(0.0728)
Constant	3.548***
	(0.0583)
Observations	12,302
R-squared	0.287

Standard errors in parentheses

***** p<0.01, ** p<0.05, * p<0.1**

Source: Author's compilation from GLSS 6

5.2 Diagnostic tests

5.2.1Test for heteroscedasticity

The Breusch-Pagan test and white test for heteroscedasticity are presented below. The null hypothesis for the tests is that there is no heteroscedasticity (meaning the variance of the error term is constant) and the alternative hypothesis is that there is heteroscedasticity (the variance of the error term is not constant). From the Breusch-Pagan test, prob> chi2 = 0.0000 which is less than 0.05 which indicates that the regression is significant at 0.05 level. Thus, there is a 95 percent confidence that the null hypothesis of no heteroskedasticity can be rejected and the alternative hypothesis of the presence of heteroscedasticity is accepted. Similarly, the white test has a p-value of 0.0000 which is highly significant and hence the null hypothesis of no heteroskedasticity is rejected and hence the conclusion is made that the variance of the model is not constant and thus the alternative hypothesis of heteroscedasticity is accepted.

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of x

Chi2 (1) = 29.31

Prob> chi2 = 0.0000

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	P
Heteroscedasticity	615.92	50	0.0000
Skewness	252.28	13	0.0000
Kurtosis	1.48	1	0.2241
Total	869.68	64	0.0000

Since there is heteroscedasticity in the OLS regression, a robust OLS regression is run to deal with the problem of heteroscedasticity. The result is presented as follows.

5.2.2 Robust OLSresults of the effect of Age at First Work on the income of the individual

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Individual's occupation (ref. cat. Elementary occupation)	
Armed forces	1.795***
	(0.369)
Manager	1.585***
	(0.0984)
Professional	1.651***
	(0.0707)
Technician	1.288***
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Sales or Service worker	0.177***
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Constant	3.548***
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Observations	12,302
R-squared	0.287

Standard errors in parentheses

***** p<0.01, ** p<0.05, * p<0.1**

Source: Author's compilation from GLSS 6

5.2.3Test for multicollinearity

The variance inflation factor (vif) is used to diagnose multicollinearity in the model. The rule of thumb says that a variable with a vif value greater than ten (10) suffers from multicollinearity and demands further investigation. From the table below, since the vif values for all the variables are less than ten (10) or since the 1/vif values are less than 0.1 the model is free from collinearity.

Variables	VIF	1/VIF
Age at first work (ref. cat. 15-65 years)		
5-14 years	1.07	0.932962
Gender (ref. cat. Female)		
Male	1.28	0.779537
Individual's educational attainment (ref. cat. Basic)		
None	1.01	0.989454
At least secondary school education	1.23	0.812315
Individual's occupation (ref. cat. Elementary occupation)		
Armed forces	1.02	0.977290
Manager	1.43	0.700367
Professional	2.54	0.393842
Technician	1.52	0.658590
Clerical	1.38	0.727073
Sales or Service worker	4.70	0.212947
Skilled agric., forestry, or fishery worker	3.91	0.255592
Craft or related trade	3.21	0.311356
Plant or machine operator	2.08	0.479793
Mean VIF	**2.03**	

Source: Author's compilation from GLSS 6

5.2.4Test for endogeneity

The ivreg 2sls regression command was used in stata to find out whether endogeneity existed in the model. From the table below, it was concluded that there were no endogenous regressors in the model. Thus, none of the regressors correlates with the error term.

```
Instrumental variables (2SLS) regression

      Source |       SS       df       MS              Number of obs =   12302
-------------+------------------------------           F(  4, 12297) =  647.48
       Model |  5989.4385     4  1497.35962             Prob > F      =  0.0000
    Residual |  28438.1938 12297  2.31261233            R-squared     =  0.1740
-------------+------------------------------           Adj R-squared =  0.1737
       Total |  34427.6323 12301  2.79876695            Root MSE      =  1.5207

------------------------------------------------------------------------------
           X |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         AFW |   .0480044   .0297513     1.61   0.107    -.0103129    .1063217
      Gender |   1.052376   .0282034    37.31   0.000     .9970933     1.10766
   educlevel |   .4882599   .0287104    17.01   0.000     .4319831    .5445367
     I_occup |  -.1810177   .0078835   -22.96   0.000    -.1964706   -.1655647
       _cons |   4.244145   .1004401    42.26   0.000     4.047267    4.441023
------------------------------------------------------------------------------
(no endogenous regressors)
```

5.3 Interpretation of the OLS regression results

The Ordinary Least Square regression shows a negative relationship between early work and one's income level at adulthood. This is significant at 1 percent critical level. Thus, the study finds that age at which a person works for the first time is statistically significant in affecting one's income level later in life. Thus, the result of the study is consistent with the study by Emerson, Ponczek et al. (2017) on child labour and learning which found evidence alluding to the fact that child work before 14 years old has a negative effect on the incomes of adults who worked during their childhood. However, Baum and Ruhm (2016) found out that when an individual has a working experience during the final year of the senior high school, after 5-11 years of graduation there is a predicted positive effect of the working experience on the labour market outcomes in terms of the income earnings of the individual. In brief, early work experiences may not always lead to higher incomes at adulthood. This is because individuals with early work experiences may not have had quality human capital formation in terms of education which enhances a person's chances of getting a well-paid job and high income at adulthood.

According to the OLS regression results, education significantly affects individual's income level positively. Thus, the educational attainment of at least secondary school education positively affects the income attainment of individuals at adulthood. This is significant at 1 percent critical levels. However according to the study by Kingdon and Söderbom (2007)even though education plays a vital role in helping people to gain employment in highly paid jobs, its direct effects on earnings is low. Also, education raises wages by little margins only in jobs that pay wages and hence for most workers in Ghana, education does not directly increase earnings because self-employment and agriculture which make up about 82.5 percent of the employed workforce have very low returns to education as discussed by Kingdon and Söderbom (2007). This is similar to the findings of the study by Baffour (2015)that in the public sector, education plays a vital role in enhancing entry into profitable formal sector jobs, but there is no direct impact of education on earnings in the public sector.

The gender of the individual, whether male or female, significantly influences the income of the individuals. There is a positive effect of gender on the income of individuals.

The occupation of an individual affects one's income attainment. From the study, there is a positive relationship between the occupation of an individual and the income earnings of the individual. The various occupation of an individual such as armed forces, manager, professional, technician, clerical, sales or service worker, agricultural workers, craft or related trade, plant or machine operator increase one's income at adulthood.

VI. Conclusion

Early work experience among 5 to 14 year old children remains a major challenge in the Sub-Saharan African (SSA) region because SSA has the highest incidence of child labour in the world (ILO, 2010). Early work experience affects the human capital development and the earning potential of individuals at adulthood. Early working exposure may hinder the higher educational attainment of individuals later in life. Unfortunately, the number of children involved in economic activities has negative repercussions for the families involved and the nation at large.

The robust Ordinary Least Square estimates showed a negative relationship between early work experience and income at adulthood. Also, at least secondary school educationattainment positively enhances one's income earnings. Gender (male) and residence (urban) positively affect the income attainment of individuals. It is therefore recommended that work experiences be gained after schooling so as to secure quality job and to better develop the educational achievements of individuals.

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