

Born Where, When and To Whom? A Cohort Analysis of Formal and Non-Formal Educational Attainment in Rural Ghana

Niels-Hugo Blunch
Washington and Lee University & IZA
blunchn@wlu.edu

Jeffrey S. Hammer
Princeton University
jhammer@princeton.edu

This version: September 16, 2010

JEL Classification: I210, J240

Keywords: Human capital, formal and non-formal education, adult literacy programs, cohort analysis, Ghana.

Abstract:

Previous studies have examined the relationship between educational attainment and individual and socioeconomic background variables mainly focusing at the formal education system and at potentially important determining factors such as parental education and place of residence.

Using a cohort approach, pooling several nationally representative household surveys, this paper examines educational attainment in Ghana and its potential determinants, considering both educational attainment in the formal education system, as well as participation in adult literacy programs (where the latter, despite the name, has participants as young as 10-12 years of age). In so doing, due to the importance of constructing the correct counterfactual to adult literacy program participation, as well as some potential data issues arising due to problems arising during data collection (where during the first eight months of data collection for one of the surveys only individuals who never attended the formal education system were asked about adult literacy program participation), several estimation samples are pursued: one for individuals who never attended the formal education system, as well as two samples for individuals attended the formal education system (the first a “clean” sample, omitting the potentially problematic survey and one, which additionally includes individuals interviewed during the last four months of the survey, i.e. after the interviewing error had been discovered).

In addition to the potential importance of parental education and place of residence several additionally important determinants of formal and non-formal educational attainment are considered. First, since Ghana experienced an overall economic breakdown in 1983, it is possible that the cohort born prior to the crisis that would be roughly of primary school age at the time of breakdown and the first few years thereafter might be particularly hard hit in terms of their educational attainment (we suggest children born 1974-78 would belong to this cohort)—or, at least this cohort might be considered the last of the adversely hit cohorts vis-à-vis the positive social and economic development in Ghana in recent decades. Specifically, if considering adult literacy programs a (likely poorer) substitute for childhood education in the formal education system, one would expect this cohort to peak in terms of adult literacy program participation (whether as older children, youth, or adults) relative to later (and possibly earlier) cohorts and similarly to have lower formal educational attainment relative to later (and possibly earlier) cohorts.

While the place of residence is potentially important in affecting educational attainment through the access to educational facilities, we suggest that the region of birth is likely much more important than the region of current residence since that lies closer in timing with the timing of childhood schooling. We also consider more explicit measures of education access, namely current access to adult literacy programs, primary schools, and senior secondary schools in the area, whether there was access to any of these in the year of the economic breakdown, and finally we consider access to education defined as age relevant exposure to these facilities in the area.

Descriptive statistics reveal that adult literacy program participation does indeed peak with—considering the first estimation sample—14.2 percent for the “crisis cohort” and then drops to 8.7 and 6.4 percent, respectively, for the two subsequent cohorts and also reveal large regional differences, both across region of birth and region of current residence. In terms of the spatial variation, the three poorest regions in the north, Northern, Upper East, and Upper West region fares the worst in terms of formal educational attainment.

The estimation of regressions where all of these factors, as well as gender, parental education and survey fixed effects are taken into account, reveals that the dip in adult literacy program participation after the “crisis cohort” still survives when these other factors are controlled for. In terms of spatial variation, it turns out that the relationship between educational attainment and region of birth is stronger—both in substantive and statistical terms—than that between educational attainment and region of current residence. In turn, this indicates that controlling for current place of residence in studies of educational attainment and its determinants is not sufficient—the relevant spatial control is rather place of birth.

Again, adult literacy programs are specifically targeted at youth and adults with only limited schooling and also, in addition to their primary focus on literacy and numeracy, typically incorporate health knowledge and income generating components. In turn, this indicates that these programs are potentially beneficial not only in terms of literacy and numeracy per se but also in terms of public health and income generation. Hence, while—as shown in this paper—

less and less Ghanaians fall through the cracks of childhood education in the formal education system, there is still a large number of young people and adults who have never gone to school, especially in rural areas and the three poorest regions in the northern part of Ghana. Adult literacy programs in Ghana, therefore, should still be interesting for policy makers as a vehicle to increase the basic skills stock of Ghanaians who have fallen through the cracks of the traditional education system both in terms of basic literacy and numeracy and in terms of health knowledge and income generation.

References:

- Froot, K. A. (1989) "Consistent Covariance Matrix Estimation with Cross-sectional Dependence and Heteroskedasticity in Financial Data," *Journal of Financial and Quantitative Analysis* 24: 333–355.
- Huber, P. J. (1967) "The Behavior of Maximum Likelihood Estimates under Nonstandard Conditions," In: *Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability* Vol. 1, Berkeley, CA: University of California Press.
- White, H. (1980) "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica* 48(4): 817–830.
- Williams, R. L. (2000) "A Note on Robust Variance Estimation for Cluster-correlated Data," *Biometrics* 56: 645–646.

Table 1. Adult Literacy Program Participation and Years of Schooling across Birth Cohorts, Region of Birth, and Region of Current Residence

	<i>Never Attended School</i>		<i>May Have Attended School I (GLSS 4-5)</i>		<i>May Have Attended School II (Adding Potential Formal Education Completers from GLSS 3)</i>	
	<i>Adult literacy program participation</i>	<i>Years of schooling</i>	<i>Adult literacy program participation</i>	<i>Years of schooling</i>	<i>Adult literacy program participation</i>	<i>Years of schooling</i>
<i>Birth cohort:</i>						
1884-43	0.155	0.0	0.146	1.6	0.146	1.6
1944-53	0.131	0.0	0.125	4.0	0.125	4.0
1954-63	0.125	0.0	0.117	4.7	0.117	4.7
1964-73	0.129	0.0	0.114	4.4	0.114	4.4
1974-78	0.142	0.0	0.116	4.7	0.116	4.7
1979-88	0.087	0.0	0.061	5.8	0.061	5.8
1989-98	0.064	0.0	0.018	4.1	0.018	4.1
<i>Region of birth:</i>						
Western	0.129	0.0	0.06	5.7	0.06	5.7
Central	0.149	0.0	0.083	5.4	0.083	5.4
Greater Accra	0.01	0.0	0.045	4.9	0.045	4.9
Eastern	0.108	0.0	0.067	6.0	0.067	6.0
Volta	0.133	0.0	0.087	5.1	0.087	5.1
Ashanti	0.165	0.0	0.077	6.3	0.077	6.3
Brong Ahafo	0.214	0.0	0.091	5.4	0.091	5.4
Northern	0.103	0.0	0.099	1.4	0.099	1.4
Upper East	0.107	0.0	0.111	1.8	0.111	1.8
Upper West	0.137	0.0	0.124	2.0	0.124	2.0
Foreign country	0.099	0.0	0.093	2.6	0.093	2.6
<i>Region of residence:</i>						
Western	0.129	0.0	0.073	5.6	0.073	5.6
Central	0.141	0.0	0.077	5.6	0.077	5.6
Greater Accra	0.05	0.0	0.07	4.6	0.07	4.6
Eastern	0.106	0.0	0.063	5.7	0.063	5.7
Volta	0.123	0.0	0.085	5.0	0.085	5.0
Ashanti	0.142	0.0	0.08	5.8	0.08	5.8
Brong Ahafo	0.184	0.0	0.101	4.9	0.101	4.9
Northern	0.101	0.0	0.096	1.4	0.096	1.4
Upper East	0.111	0.0	0.108	1.8	0.108	1.8
Upper West	0.151	0.0	0.125	2.0	0.125	2.0

N	12798	12798	23658	23658	25131	25131
---	-------	-------	-------	-------	-------	-------

Notes: Calculations incorporate sampling weights.

Source: Ghana Living Standards Survey (Rounds 3-5: 1991/92, 1998/99, and 2005/06).

Table 2. Adult Literacy Program Participation Regression Results from Alternative Samples and Alternative Measures of Educational Access in the Area (Linear Probability Model)

	<i>Estimation Sample</i>								
	<i>Never Attended School</i>			<i>May Have Attended School I (GLSS 4-5)</i>			<i>May Have Attended School II (Adding Potential Formal Education Completers from GLSS 3)</i>		
Female	-0.046*** [0.011]	-0.046*** [0.011]	-0.046*** [0.011]	-0.009* [0.005]	-0.010* [0.005]	-0.010* [0.005]	-0.009* [0.005]	-0.010* [0.005]	-0.010* [0.005]
<i>Birth cohort:</i>									
1944-53	-0.02 [0.020]	-0.02 [0.020]	-0.021 [0.020]	-0.014 [0.017]	-0.014 [0.017]	-0.015 [0.017]	-0.014 [0.017]	-0.014 [0.017]	-0.015 [0.017]
1954-63	-0.022 [0.017]	-0.024 [0.017]	-0.025 [0.017]	-0.02 [0.014]	-0.021 [0.013]	-0.023 [0.014]	-0.02 [0.014]	-0.021 [0.013]	-0.023 [0.014]
1964-73	-0.017 [0.018]	-0.019 [0.018]	-0.021 [0.019]	-0.025* [0.014]	-0.026* [0.014]	-0.029* [0.015]	-0.025* [0.014]	-0.026* [0.014]	-0.029* [0.015]
1974-78	0 [0.022]	-0.002 [0.021]	-0.004 [0.023]	-0.02 [0.016]	-0.022 [0.016]	-0.025 [0.018]	-0.02 [0.016]	-0.022 [0.016]	-0.025 [0.018]
1979-88	-0.056*** [0.018]	-0.057*** [0.017]	-0.060*** [0.020]	-0.072*** [0.014]	-0.074*** [0.014]	-0.077*** [0.018]	-0.072*** [0.014]	-0.074*** [0.014]	-0.077*** [0.018]
1989-94	-0.088*** [0.018]	-0.089*** [0.018]	-0.089*** [0.022]	-0.140*** [0.014]	-0.141*** [0.014]	-0.142*** [0.019]	-0.140*** [0.014]	-0.141*** [0.014]	-0.142*** [0.019]
<i>Region of birth:</i>									
Western	0.146*** [0.043]	0.138*** [0.045]	0.134*** [0.045]	0.034 [0.033]	0.033 [0.034]	0.031 [0.034]	0.034 [0.033]	0.033 [0.034]	0.031 [0.034]
Central	0.170*** [0.039]	0.165*** [0.039]	0.164*** [0.040]	0.067** [0.030]	0.066** [0.031]	0.068** [0.031]	0.067** [0.030]	0.066** [0.031]	0.068** [0.031]
Eastern	0.122*** [0.032]	0.121*** [0.033]	0.119*** [0.033]	0.060** [0.026]	0.059** [0.027]	0.061** [0.027]	0.060** [0.026]	0.059** [0.027]	0.061** [0.027]
Volta	0.144*** [0.025]	0.136*** [0.025]	0.135*** [0.025]	0.049 [0.030]	0.044 [0.030]	0.048 [0.030]	0.049 [0.030]	0.044 [0.030]	0.048 [0.030]
Ashanti	0.177*** [0.040]	0.175*** [0.040]	0.170*** [0.041]	0.05 [0.032]	0.053 [0.032]	0.05 [0.032]	0.05 [0.032]	0.053 [0.032]	0.05 [0.032]
Brong Ahafo	0.204*** [0.042]	0.207*** [0.044]	0.199*** [0.044]	0.045 [0.035]	0.048 [0.036]	0.044 [0.035]	0.045 [0.035]	0.048 [0.036]	0.044 [0.035]
Northern	0.136*** [0.031]	0.121*** [0.032]	0.121*** [0.032]	0.063 [0.042]	0.056 [0.042]	0.06 [0.042]	0.063 [0.042]	0.056 [0.042]	0.06 [0.042]
Upper East	0.112*** [0.043]	0.104** [0.043]	0.103** [0.043]	0.066 [0.042]	0.064 [0.043]	0.066 [0.043]	0.066 [0.042]	0.064 [0.043]	0.066 [0.043]
Upper West	0.104** [0.044]	0.098** [0.044]	0.093** [0.045]	0.06 [0.041]	0.058 [0.041]	0.058 [0.041]	0.06 [0.041]	0.058 [0.041]	0.058 [0.041]
Foreign country	0.097*** [0.037]	0.088** [0.037]	0.087** [0.037]	0.04 [0.037]	0.036 [0.037]	0.038 [0.037]	0.04 [0.037]	0.036 [0.037]	0.038 [0.037]
<i>Education access/exposure:</i>									
<i>(i) Current availability:</i>									
Adult literacy program	0.041** [0.018]			0.031*** [0.010]			0.031*** [0.010]		
Primary school	-0.040** [0.018]			-0.027** [0.011]			-0.027** [0.011]		
Senior secondary school	0.001 [0.040]			-0.016 [0.014]			-0.016 [0.014]		
<i>(ii) Availability in 1983:</i>									
Adult literacy program		0.004 [0.041]			-0.001 [0.029]			-0.001 [0.029]	
Primary school		-0.033** [0.017]			-0.029*** [0.010]			-0.029*** [0.010]	

Senior secondary school		0.110 [0.093]			0.030 [0.029]			0.030 [0.029]	
<i>(iii) Exposure (years of access during relevant age):</i>									
Adult literacy program			0.001 [0.001]			0.002* [0.001]		0.002* [0.001]	
Primary school			0 [0.001]			-0.001 [0.000]		-0.001 [0.000]	
Senior secondary school			0.002 [0.002]			0.001 [0.001]		0.001 [0.001]	
<i>Educational attainment:</i>									
<i>(i) Own:</i>									
Some education				0.008 [0.011]	0.009 [0.011]	0.008 [0.011]	0.008 [0.011]	0.009 [0.011]	0.008 [0.011]
Primary				-0.002 [0.010]	-0.002 [0.010]	-0.004 [0.010]	-0.002 [0.010]	-0.002 [0.010]	-0.004 [0.010]
Middle/JSS				-0.056*** [0.010]	-0.054*** [0.010]	-0.057*** [0.010]	-0.056*** [0.010]	-0.054*** [0.010]	-0.057*** [0.010]
Secondary and above				-0.082*** [0.013]	-0.081*** [0.013]	-0.086*** [0.013]	-0.082*** [0.013]	-0.081*** [0.013]	-0.086*** [0.013]
<i>(ii) Mother's education:</i>									
Primary	0.046 [0.070]	0.049 [0.071]	0.049 [0.070]	0.011 [0.010]	0.012 [0.010]	0.011 [0.010]	0.011 [0.010]	0.012 [0.010]	0.011 [0.010]
Middle/JSS	-0.101*** [0.035]	-0.096*** [0.036]	-0.097*** [0.036]	-0.002 [0.008]	0.001 [0.008]	-0.003 [0.008]	-0.002 [0.008]	0.001 [0.008]	-0.003 [0.008]
Secondary and above	-0.034 [0.046]	-0.036 [0.045]	-0.041 [0.047]	-0.016 [0.020]	-0.012 [0.020]	-0.018 [0.021]	-0.016 [0.020]	-0.012 [0.020]	-0.018 [0.021]
Don't know	-0.076* [0.045]	-0.081* [0.045]	-0.083* [0.046]	-0.02 [0.026]	-0.018 [0.026]	-0.02 [0.026]	-0.02 [0.026]	-0.018 [0.026]	-0.02 [0.026]
Missing	-0.103*** [0.022]	-0.107*** [0.024]	-0.108*** [0.020]	-0.056*** [0.008]	-0.053*** [0.009]	-0.055*** [0.009]	-0.056*** [0.008]	-0.053*** [0.009]	-0.055*** [0.009]
<i>(iii) Father's education:</i>									
Primary	-0.032 [0.046]	-0.035 [0.046]	-0.033 [0.046]	-0.012 [0.011]	-0.013 [0.011]	-0.013 [0.011]	-0.012 [0.011]	-0.013 [0.011]	-0.013 [0.011]
Middle/JSS	0.039 [0.035]	0.038 [0.034]	0.037 [0.035]	0.005 [0.007]	0.005 [0.007]	0.003 [0.007]	0.005 [0.007]	0.005 [0.007]	0.003 [0.007]
Secondary and above	0.019 [0.072]	0.017 [0.073]	0.016 [0.074]	0.026* [0.015]	0.022 [0.015]	0.022 [0.015]	0.026* [0.015]	0.022 [0.015]	0.022 [0.015]
Don't know	0.019 [0.042]	0.025 [0.043]	0.021 [0.043]	0.019 [0.017]	0.021 [0.017]	0.018 [0.017]	0.019 [0.017]	0.021 [0.017]	0.018 [0.017]
Missing	0.031 [0.123]	0.055 [0.121]	0.046 [0.121]	-0.054*** [0.019]	-0.052** [0.020]	-0.052*** [0.017]	-0.054*** [0.019]	-0.052** [0.020]	-0.052*** [0.017]
<i>Region of residence:</i>									
Western	-0.021 [0.053]	-0.028 [0.055]	-0.024 [0.055]	-0.022 [0.049]	-0.025 [0.048]	-0.023 [0.049]	-0.022 [0.049]	-0.025 [0.048]	-0.023 [0.049]
Central	-0.039 [0.060]	-0.046 [0.060]	-0.05 [0.061]	-0.05 [0.049]	-0.051 [0.048]	-0.055 [0.049]	-0.05 [0.049]	-0.051 [0.048]	-0.055 [0.049]
Eastern	-0.033 [0.041]	-0.043 [0.039]	-0.036 [0.040]	-0.054 [0.044]	-0.058 [0.042]	-0.055 [0.043]	-0.054 [0.044]	-0.058 [0.042]	-0.055 [0.043]
Volta	-0.018 [0.040]	-0.031 [0.040]	-0.025 [0.040]	-0.022 [0.047]	-0.028 [0.047]	-0.028 [0.048]	-0.022 [0.047]	-0.028 [0.047]	-0.027 [0.048]
Ashanti	-0.017 [0.049]	-0.04 [0.049]	-0.029 [0.049]	-0.018 [0.049]	-0.03 [0.048]	-0.024 [0.049]	-0.018 [0.049]	-0.03 [0.048]	-0.024 [0.049]
Brong Ahafo	0.02 [0.047]	-0.006 [0.048]	0.002 [0.047]	0.004 [0.050]	-0.008 [0.049]	-0.005 [0.050]	0.004 [0.050]	-0.008 [0.049]	-0.005 [0.050]
Northern	-0.026 [0.046]	-0.041 [0.047]	-0.037 [0.047]	-0.03 [0.057]	-0.035 [0.056]	-0.036 [0.058]	-0.029 [0.057]	-0.035 [0.056]	-0.036 [0.057]

Upper East	-0.004 [0.056]	-0.023 [0.057]	-0.016 [0.056]	-0.028 [0.056]	-0.037 [0.056]	-0.036 [0.057]	-0.027 [0.056]	-0.037 [0.056]	-0.036 [0.057]
Upper West	0.03 [0.060]	0.023 [0.059]	0.03 [0.059]	-0.011 [0.058]	-0.014 [0.057]	-0.012 [0.058]	-0.011 [0.058]	-0.014 [0.057]	-0.012 [0.058]
<i>Survey FEs:</i>									
GLSS 4	0.019 [0.041]	0.023 [0.041]	0.018 [0.041]				0.032** [0.015]	0.038** [0.015]	0.033** [0.015]
GLSS 5	0.007 [0.039]	0.008 [0.039]	0.007 [0.039]	0.020** [0.009]	0.017* [0.009]	0.020** [0.009]	0.052*** [0.014]	0.055*** [0.015]	0.053*** [0.015]
Constant	0.051 [0.055]	0.087* [0.047]	0.073 [0.047]	0.112*** [0.040]	0.140*** [0.035]	0.122*** [0.037]	0.080** [0.038]	0.102*** [0.034]	0.089** [0.035]
R ²	0.03	0.03	0.02	0.04	0.04	0.04	0.04	0.04	0.04
N	12798	12798	12798	23658	23658	23658	25131	25131	25131

Notes: Calculations incorporate sampling weights. Robust Huber-White (Huber, 1967; White, 1980) standard errors, adjusted for within-cluster correlation/clustering (Froot, 1989; Williams, 2000), in brackets under parameter estimates. *: statistically significant at 10 percent; **: statistically significant at 5 percent; ***: statistically significant at 1 percent. Reference categories are “1893-1943” (birth cohort); “Greater Accra” (region of birth/residence); “No education” (maternal/paternal education).

Source: Ghana Living Standards Survey (Rounds 3-5: 1991/92, 1998/99, and 2005/06).

Table 3. Adult Literacy Program Participation Regression Results from Alternative Samples—Using Current Access as Measure of Educational Access in the Area (Linear Probability Model/OLS)

	<i>Estimation Sample</i>							
	<i>May Have Attended School I (GLSS 4-5)</i>				<i>May Have Attended School II (Adding Potential Formal Education Completers from GLSS 3)</i>			
	<i>Primary and above</i>	<i>Middle/JSS and above</i>	<i>Secondary and above</i>	<i>Years of schooling</i>	<i>Primary and above</i>	<i>Middle/JSS and above</i>	<i>Secondary and above</i>	<i>Years of schooling</i>
Female	-0.173*** [0.008]	-0.161*** [0.008]	-0.041*** [0.004]	-1.933*** [0.068]	-0.173*** [0.008]	-0.161*** [0.008]	-0.041*** [0.004]	-1.933*** [0.068]
<i>Birth cohort:</i>								
1944-53	0.207*** [0.018]	0.154*** [0.017]	0.029*** [0.009]	2.354*** [0.217]	0.207*** [0.018]	0.154*** [0.017]	0.029*** [0.009]	2.354*** [0.217]
1954-63	0.296*** [0.018]	0.213*** [0.017]	0.030*** [0.008]	3.165*** [0.196]	0.296*** [0.018]	0.213*** [0.017]	0.030*** [0.008]	3.165*** [0.196]
1964-73	0.270*** [0.016]	0.177*** [0.015]	0.023*** [0.006]	2.863*** [0.167]	0.270*** [0.016]	0.177*** [0.015]	0.023*** [0.006]	2.864*** [0.167]
1974-78	0.329*** [0.019]	0.224*** [0.018]	0.042*** [0.009]	3.096*** [0.186]	0.329*** [0.019]	0.224*** [0.018]	0.042*** [0.009]	3.096*** [0.186]
1979-88	0.417*** [0.017]	0.243*** [0.017]	0.037*** [0.007]	3.779*** [0.163]	0.417*** [0.017]	0.243*** [0.017]	0.037*** [0.007]	3.779*** [0.163]
1989-94	0.115*** [0.017]	-0.104*** [0.014]	-0.032*** [0.006]	1.715*** [0.157]	0.115*** [0.017]	-0.104*** [0.014]	-0.032*** [0.006]	1.716*** [0.157]
<i>Region of birth:</i>								
Western	0.052 [0.055]	0.016 [0.052]	-0.013 [0.028]	0.157 [0.539]	0.052 [0.055]	0.016 [0.052]	-0.013 [0.028]	0.157 [0.539]
Central	0.005 [0.054]	-0.005 [0.052]	-0.01 [0.028]	-0.256 [0.566]	0.005 [0.054]	-0.005 [0.052]	-0.01 [0.028]	-0.256 [0.566]
Eastern	0.103** [0.049]	0.016 [0.047]	-0.008 [0.024]	0.595 [0.475]	0.103** [0.049]	0.016 [0.047]	-0.008 [0.024]	0.595 [0.475]
Volta	0.015 [0.051]	-0.017 [0.049]	0.005 [0.032]	0.107 [0.555]	0.015 [0.051]	-0.017 [0.049]	0.005 [0.032]	0.107 [0.554]
Ashanti	0.117** [0.050]	0.088* [0.049]	0.002 [0.028]	1.061** [0.529]	0.117** [0.050]	0.088* [0.049]	0.002 [0.028]	1.062** [0.529]
Brong Ahafo	0.081 [0.058]	0.039 [0.054]	-0.011 [0.029]	0.528 [0.602]	0.081 [0.058]	0.039 [0.054]	-0.011 [0.029]	0.528 [0.602]
Northern	-0.227*** [0.053]	-0.161*** [0.049]	-0.021 [0.032]	-2.527*** [0.635]	-0.227*** [0.053]	-0.161*** [0.049]	-0.021 [0.032]	-2.527*** [0.634]
Upper East	-0.235*** [0.054]	-0.162*** [0.050]	-0.013 [0.028]	-2.447*** [0.581]	-0.235*** [0.054]	-0.162*** [0.050]	-0.013 [0.028]	-2.447*** [0.581]
Upper West	-0.213*** [0.056]	-0.148*** [0.052]	-0.007 [0.032]	-2.244*** [0.629]	-0.213*** [0.056]	-0.148*** [0.052]	-0.007 [0.032]	-2.243*** [0.629]
Foreign country	-0.160*** [0.057]	-0.168*** [0.050]	-0.019 [0.029]	-2.133*** [0.581]	-0.160*** [0.057]	-0.168*** [0.050]	-0.019 [0.029]	-2.132*** [0.581]
<i>Education access/exposure:</i>								
<i>Current availability:</i>								
Adult literacy program	0 [0.015]	0.007 [0.013]	0.004 [0.005]	0.132 [0.141]	0 [0.015]	0.007 [0.013]	0.004 [0.005]	0.132 [0.141]
Primary school	0.095*** [0.015]	0.067*** [0.012]	0.016*** [0.006]	0.871*** [0.149]	0.095*** [0.015]	0.067*** [0.012]	0.016*** [0.006]	0.871*** [0.149]
Senior	0.052** [0.015]	0.054** [0.012]	0.047*** [0.006]	0.863*** [0.149]	0.052** [0.015]	0.054** [0.012]	0.047*** [0.006]	0.863*** [0.149]

secondary school								
	[0.023]	[0.022]	[0.016]	[0.265]	[0.023]	[0.022]	[0.016]	[0.265]
<i>Educational attainment:</i>								
<i>(i) Mother's education:</i>								
Primary	0.054*** [0.019]	-0.023 [0.019]	-0.008 [0.007]	0.370*** [0.142]	0.054*** [0.019]	-0.023 [0.019]	-0.008 [0.007]	0.370*** [0.142]
Middle/JSS	0.137*** [0.017]	0.133*** [0.017]	0.052*** [0.012]	1.404*** [0.150]	0.137*** [0.017]	0.133*** [0.017]	0.052*** [0.012]	1.404*** [0.150]
Secondary and above	0.106** [0.043]	0.133*** [0.050]	0.094* [0.054]	1.550** [0.615]	0.106** [0.043]	0.133*** [0.050]	0.094* [0.054]	1.551** [0.615]
Don't know	0.007 [0.048]	0.012 [0.048]	-0.012 [0.010]	0.037 [0.354]	0.007 [0.048]	0.012 [0.048]	-0.012 [0.010]	0.037 [0.354]
Missing	0.032 [0.077]	0.065 [0.102]	0.013 [0.061]	0.893 [1.058]	0.032 [0.077]	0.065 [0.102]	0.013 [0.061]	0.893 [1.058]
<i>(ii) Father's education:</i>								
Primary	0.066** [0.026]	0.046** [0.022]	0.006 [0.011]	1.007*** [0.208]	0.066** [0.026]	0.046** [0.022]	0.006 [0.011]	1.006*** [0.207]
Middle/JSS	0.129*** [0.014]	0.090*** [0.013]	0.016** [0.007]	1.295*** [0.120]	0.129*** [0.014]	0.090*** [0.013]	0.016** [0.007]	1.295*** [0.120]
Secondary and above	0.171*** [0.027]	0.156*** [0.030]	0.107*** [0.027]	2.176*** [0.329]	0.171*** [0.027]	0.156*** [0.030]	0.107*** [0.027]	2.176*** [0.329]
Don't know	-0.031 [0.032]	-0.046* [0.027]	-0.017** [0.008]	-0.115 [0.253]	-0.031 [0.032]	-0.046* [0.027]	-0.017** [0.008]	-0.115 [0.253]
Missing	0.072 [0.174]	-0.066 [0.129]	-0.039** [0.018]	0.055 [1.170]	0.072 [0.174]	-0.066 [0.129]	-0.039** [0.018]	0.055 [1.170]
<i>Region of residence:</i>								
Western	0.025 [0.069]	0.054 [0.071]	0.031 [0.028]	0.734 [0.721]	0.025 [0.069]	0.054 [0.071]	0.031 [0.028]	0.734 [0.720]
Central	0.068 [0.070]	0.058 [0.073]	0.02 [0.029]	1.086 [0.757]	0.068 [0.070]	0.058 [0.073]	0.02 [0.029]	1.086 [0.756]
Eastern	0.023 [0.064]	0.073 [0.067]	0.026 [0.026]	0.721 [0.676]	0.023 [0.064]	0.073 [0.067]	0.026 [0.026]	0.721 [0.676]
Volta	0.015 [0.072]	0.035 [0.072]	0.008 [0.032]	0.351 [0.787]	0.015 [0.072]	0.035 [0.072]	0.008 [0.032]	0.351 [0.786]
Ashanti	-0.001 [0.066]	0.013 [0.070]	0.004 [0.028]	0.209 [0.709]	-0.001 [0.066]	0.013 [0.070]	0.004 [0.028]	0.209 [0.709]
Brong Ahafo	-0.025 [0.071]	-0.005 [0.073]	0.022 [0.029]	0.197 [0.770]	-0.025 [0.071]	-0.005 [0.073]	0.022 [0.029]	0.197 [0.769]
Northern	-0.088 [0.071]	-0.022 [0.073]	0.02 [0.036]	-0.428 [0.855]	-0.088 [0.071]	-0.022 [0.073]	0.02 [0.036]	-0.428 [0.854]
Upper East	-0.026 [0.072]	-0.001 [0.072]	0.018 [0.029]	0.07 [0.776]	-0.026 [0.072]	-0.001 [0.071]	0.018 [0.029]	0.07 [0.776]
Upper West	0.003 [0.072]	0.021 [0.073]	0.016 [0.032]	0.26 [0.816]	0.003 [0.072]	0.021 [0.073]	0.016 [0.032]	0.26 [0.815]
<i>Survey FEs:</i>								
GLSS 4					-0.056** [0.026]	0.012 [0.021]	0.029*** [0.010]	-0.027 [0.232]
GLSS 5	0.022* [0.013]	0.041*** [0.012]	0.004 [0.006]	0.958*** [0.147]	-0.034 [0.025]	0.054** [0.021]	0.033*** [0.009]	0.932*** [0.214]

Constant	0.135** [0.061]	0.076 [0.055]	0.003 [0.013]	0.727 [0.508]	0.191*** [0.062]	0.063 [0.054]	-0.025* [0.015]	0.753 [0.502]
R ²	0.29	0.24	0.06	0.33	0.29	0.24	0.06	0.33
N	23658	23658	23658	23658	25131	25131	25131	25131

Notes: Calculations incorporate sampling weights. Robust Huber-White (Huber, 1967; White, 1980) standard errors, adjusted for within-cluster correlation/clustering (Froot, 1989; Williams, 2000), in brackets under parameter estimates. *: statistically significant at 10 percent; **: statistically significant at 5 percent; ***: statistically significant at 1 percent. Reference categories are “1893-1943” (birth cohort); “Greater Accra” (region of birth/residence); “No education” (own/maternal/paternal education).

Source: Ghana Living Standards Survey (Rounds 3-5: 1991/92, 1998/99, and 2005/06).

Table 4. Adult Literacy Program Participation Regression Results from Alternative Samples—Using Access in 1983 as Measure of Educational Access in the Area (Linear Probability Model/OLS)

	<i>Estimation Sample</i>							
	<i>May Have Attended School I (GLSS 4-5)</i>				<i>May Have Attended School II (Adding Potential Formal Education Completers from GLSS 3)</i>			
	<i>Primary and above</i>	<i>Middle/JSS and above</i>	<i>Secondary and above</i>	<i>Years of schooling</i>	<i>Primary and above</i>	<i>Middle/JSS and above</i>	<i>Secondary and above</i>	<i>Years of schooling</i>
Female	-0.173*** [0.008]	-0.160*** [0.008]	-0.041*** [0.004]	-1.925*** [0.067]	-0.173*** [0.008]	-0.160*** [0.008]	-0.041*** [0.004]	-1.926*** [0.067]
<i>Birth cohort:</i>								
1944-53	0.204*** [0.018]	0.152*** [0.017]	0.027*** [0.010]	2.317*** [0.219]	0.204*** [0.018]	0.152*** [0.017]	0.027*** [0.010]	2.317*** [0.219]
1954-63	0.295*** [0.019]	0.212*** [0.017]	0.029*** [0.008]	3.146*** [0.199]	0.296*** [0.019]	0.212*** [0.017]	0.029*** [0.008]	3.146*** [0.199]
1964-73	0.270*** [0.016]	0.176*** [0.015]	0.021*** [0.006]	2.840*** [0.169]	0.270*** [0.016]	0.176*** [0.015]	0.021*** [0.006]	2.840*** [0.169]
1974-78	0.330*** [0.019]	0.224*** [0.018]	0.040*** [0.009]	3.088*** [0.188]	0.330*** [0.019]	0.224*** [0.018]	0.040*** [0.009]	3.088*** [0.188]
1979-88	0.417*** [0.017]	0.243*** [0.017]	0.036*** [0.007]	3.760*** [0.164]	0.417*** [0.017]	0.243*** [0.017]	0.036*** [0.007]	3.760*** [0.164]
1989-94	0.113*** [0.017]	-0.106*** [0.014]	-0.034*** [0.006]	1.684*** [0.159]	0.113*** [0.017]	-0.106*** [0.014]	-0.034*** [0.006]	1.684*** [0.159]
<i>Region of birth:</i>								
Western	0.052 [0.055]	0.013 [0.052]	-0.015 [0.028]	0.123 [0.546]	0.052 [0.055]	0.013 [0.052]	-0.015 [0.028]	0.124 [0.546]
Central	0.002 [0.054]	-0.009 [0.053]	-0.014 [0.028]	-0.322 [0.571]	0.002 [0.054]	-0.009 [0.053]	-0.014 [0.028]	-0.321 [0.571]
Eastern	0.098** [0.050]	0.01 [0.048]	-0.013 [0.024]	0.507 [0.486]	0.098** [0.049]	0.01 [0.048]	-0.013 [0.024]	0.508 [0.486]
Volta	0.012 [0.051]	-0.021 [0.049]	0.001 [0.032]	0.037 [0.559]	0.012 [0.051]	-0.021 [0.049]	0.001 [0.032]	0.037 [0.559]
Ashanti	0.110** [0.050]	0.08 [0.049]	-0.003 [0.028]	0.960* [0.530]	0.110** [0.050]	0.08 [0.049]	-0.003 [0.028]	0.961* [0.530]
Brong Ahafo	0.069 [0.057]	0.026 [0.054]	-0.019 [0.029]	0.35 [0.602]	0.069 [0.057]	0.026 [0.054]	-0.019 [0.029]	0.351 [0.602]
Northern	-0.206*** [0.053]	-0.150*** [0.049]	-0.023 [0.032]	-2.400*** [0.637]	-0.206*** [0.053]	-0.150*** [0.049]	-0.023 [0.032]	-2.400*** [0.636]
Upper East	-0.235*** [0.053]	-0.165*** [0.050]	-0.018 [0.028]	-2.500*** [0.584]	-0.235*** [0.053]	-0.165*** [0.050]	-0.018 [0.028]	-2.500*** [0.584]
Upper West	-0.217*** [0.056]	-0.156*** [0.052]	-0.013 [0.032]	-2.351*** [0.636]	-0.217*** [0.056]	-0.156*** [0.052]	-0.013 [0.032]	-2.351*** [0.636]
Foreign country	-0.162*** [0.058]	-0.172*** [0.051]	-0.024 [0.029]	-2.206*** [0.596]	-0.161*** [0.058]	-0.171*** [0.051]	-0.024 [0.029]	-2.205*** [0.596]
<i>Education access/exposure: Availability in 1983:</i>								
Adult literacy program	-0.039 [0.052]	-0.034 [0.035]	-0.011 [0.019]	-0.228 [0.491]	-0.039 [0.052]	-0.034 [0.035]	-0.011 [0.019]	-0.228 [0.491]
Primary school	0.098*** [0.014]	0.076*** [0.011]	0.020*** [0.005]	0.959*** [0.141]	0.098*** [0.014]	0.076*** [0.011]	0.020*** [0.005]	0.959*** [0.141]
Senior secondary	0.093***	0.042	0.016	0.805*	0.093***	0.042	0.016	0.805*

school	[0.024]	[0.040]	[0.022]	[0.428]	[0.024]	[0.040]	[0.022]	[0.428]
<i>Educational attainment:</i>								
<i>(i) Mother's education:</i>								
Primary	0.053*** [0.019]	-0.024 [0.019]	-0.009 [0.007]	0.366** [0.142]	0.053*** [0.019]	-0.024 [0.019]	-0.009 [0.007]	0.366** [0.142]
Middle/JSS	0.135*** [0.017]	0.133*** [0.017]	0.053*** [0.012]	1.413*** [0.157]	0.135*** [0.017]	0.133*** [0.017]	0.053*** [0.012]	1.413*** [0.157]
Secondary and above	0.105** [0.043]	0.132** [0.051]	0.093* [0.054]	1.531** [0.621]	0.105** [0.043]	0.132** [0.051]	0.093* [0.054]	1.531** [0.621]
Don't know	0.002 [0.048]	0.008 [0.047]	-0.015 [0.010]	-0.02 [0.355]	0.002 [0.048]	0.008 [0.047]	-0.015 [0.010]	-0.02 [0.355]
Missing	0.034 [0.078]	0.066 [0.102]	0.015 [0.060]	0.939 [1.049]	0.034 [0.078]	0.066 [0.102]	0.016 [0.060]	0.939 [1.049]
<i>(ii) Father's education:</i>								
Primary	0.066** [0.026]	0.046** [0.022]	0.006 [0.011]	1.001*** [0.209]	0.066** [0.026]	0.046** [0.022]	0.006 [0.011]	1.001*** [0.208]
Middle/JSS	0.127*** [0.014]	0.088*** [0.013]	0.016** [0.007]	1.278*** [0.121]	0.127*** [0.014]	0.088*** [0.013]	0.016** [0.007]	1.278*** [0.121]
Secondary and above	0.167*** [0.027]	0.154*** [0.030]	0.108*** [0.027]	2.155*** [0.331]	0.167*** [0.027]	0.154*** [0.030]	0.108*** [0.027]	2.154*** [0.331]
Don't know	-0.031 [0.032]	-0.046* [0.027]	-0.016* [0.008]	-0.111 [0.252]	-0.031 [0.032]	-0.046* [0.027]	-0.016* [0.008]	-0.111 [0.252]
Missing	0.074 [0.172]	-0.065 [0.127]	-0.041** [0.017]	0.061 [1.149]	0.074 [0.172]	-0.065 [0.127]	-0.041** [0.017]	0.061 [1.149]
<i>Region of residence:</i>								
Western	0.027 [0.067]	0.055 [0.068]	0.028 [0.027]	0.718 [0.687]	0.027 [0.067]	0.055 [0.068]	0.028 [0.027]	0.717 [0.686]
Central	0.073 [0.067]	0.061 [0.070]	0.019 [0.029]	1.108 [0.718]	0.073 [0.067]	0.061 [0.070]	0.019 [0.029]	1.108 [0.718]
Eastern	0.018 [0.061]	0.068 [0.064]	0.021 [0.025]	0.621 [0.643]	0.018 [0.061]	0.068 [0.064]	0.021 [0.025]	0.621 [0.642]
Volta	0.02 [0.070]	0.04 [0.069]	0.009 [0.031]	0.397 [0.757]	0.02 [0.070]	0.04 [0.069]	0.009 [0.031]	0.396 [0.757]
Ashanti	0.003 [0.061]	0.017 [0.066]	0.003 [0.027]	0.215 [0.662]	0.003 [0.061]	0.016 [0.066]	0.003 [0.027]	0.215 [0.662]
Brong Ahafo	-0.02 [0.067]	-0.003 [0.068]	0.019 [0.028]	0.177 [0.719]	-0.02 [0.067]	-0.003 [0.068]	0.019 [0.028]	0.177 [0.719]
Northern	-0.092 [0.067]	-0.025 [0.069]	0.015 [0.035]	-0.518 [0.815]	-0.092 [0.067]	-0.025 [0.069]	0.015 [0.035]	-0.518 [0.815]
Upper East	0.001 [0.067]	0.02 [0.067]	0.02 [0.028]	0.28 [0.728]	0.001 [0.067]	0.02 [0.067]	0.02 [0.028]	0.28 [0.728]
Upper West	0.02 [0.071]	0.036 [0.071]	0.016 [0.032]	0.416 [0.807]	0.02 [0.071]	0.036 [0.071]	0.016 [0.032]	0.416 [0.806]
<i>Survey FEs:</i>								
GLSS 4					-0.049* [0.027]	0.019 [0.022]	0.031*** [0.010]	0.062 [0.244]
GLSS 5	0.025* [0.014]	0.042*** [0.013]	0.003 [0.007]	0.972*** [0.154]	-0.024 [0.026]	0.061*** [0.022]	0.034*** [0.010]	1.034*** [0.228]
Constant	0.144**	0.088*	0.017	0.994**	0.192***	0.069	-0.014	0.932**

	[0.056]	[0.049]	[0.013]	[0.442]	[0.058]	[0.051]	[0.015]	[0.459]
R ²	0.29	0.24	0.06	0.34	0.29	0.24	0.06	0.34
N	23658	23658	23658	23658	25131	25131	25131	25131

Notes: Calculations incorporate sampling weights. Robust Huber-White (Huber, 1967; White, 1980) standard errors, adjusted for within-cluster correlation/clustering (Froot, 1989; Williams, 2000), in brackets under parameter estimates. *: statistically significant at 10 percent; **: statistically significant at 5 percent; ***: statistically significant at 1 percent. Reference categories are “1893-1943” (birth cohort); “Greater Accra” (region of birth/residence); “No education” (own/maternal/paternal education).

Source: Ghana Living Standards Survey (Rounds 3-5: 1991/92, 1998/99, and 2005/06).

Table 5. Adult Literacy Program Participation Regression Results from Alternative Samples—Using Age Relevant Exposure (in Years) as Measure of Educational Access in the Area (Linear Probability Model/OLS)

	<i>Estimation Sample</i>							
	<i>May Have Attended School I (GLSS 4-5)</i>				<i>May Have Attended School II (Adding Potential Formal Education Completers from GLSS 3)</i>			
	<i>Primary and above</i>	<i>Middle/JSS and above</i>	<i>Secondary and above</i>	<i>Years of schooling</i>	<i>Primary and above</i>	<i>Middle/JSS and above</i>	<i>Secondary and above</i>	<i>Years of schooling</i>
Female	-0.174*** [0.008]	-0.162*** [0.008]	-0.041*** [0.004]	-1.947*** [0.067]	-0.174*** [0.008]	-0.162*** [0.008]	-0.041*** [0.004]	-1.947*** [0.067]
<i>Birth cohort:</i>								
1944-53	0.220*** [0.019]	0.167*** [0.018]	0.032*** [0.010]	2.505*** [0.225]	0.220*** [0.019]	0.167*** [0.018]	0.032*** [0.010]	2.505*** [0.225]
1954-63	0.326*** [0.020]	0.241*** [0.018]	0.038*** [0.008]	3.499*** [0.212]	0.326*** [0.020]	0.241*** [0.018]	0.038*** [0.008]	3.499*** [0.212]
1964-73	0.315*** [0.018]	0.219*** [0.017]	0.035*** [0.007]	3.368*** [0.197]	0.315*** [0.018]	0.219*** [0.017]	0.035*** [0.007]	3.368*** [0.197]
1974-78	0.387*** [0.021]	0.278*** [0.020]	0.057*** [0.010]	3.742*** [0.207]	0.387*** [0.021]	0.278*** [0.020]	0.057*** [0.010]	3.742*** [0.207]
1979-88	0.491*** [0.020]	0.313*** [0.020]	0.058*** [0.008]	4.607*** [0.202]	0.491*** [0.020]	0.313*** [0.020]	0.058*** [0.008]	4.608*** [0.202]
1989-94	0.207*** [0.021]	-0.017 [0.017]	-0.006 [0.007]	2.748*** [0.193]	0.207*** [0.021]	-0.017 [0.017]	-0.006 [0.007]	2.748*** [0.193]
<i>Region of birth:</i>								
Western	0.054 [0.056]	0.012 [0.052]	-0.015 [0.027]	0.116 [0.539]	0.054 [0.056]	0.012 [0.052]	-0.015 [0.027]	0.117 [0.539]
Central	0.003 [0.054]	-0.008 [0.052]	-0.013 [0.028]	-0.307 [0.563]	0.003 [0.054]	-0.008 [0.052]	-0.013 [0.028]	-0.306 [0.563]
Eastern	0.095* [0.050]	0.008 [0.048]	-0.013 [0.024]	0.482 [0.476]	0.095* [0.050]	0.008 [0.048]	-0.013 [0.024]	0.482 [0.476]
Volta	0.011 [0.051]	-0.021 [0.049]	0.002 [0.032]	0.031 [0.551]	0.011 [0.051]	-0.021 [0.049]	0.002 [0.032]	0.032 [0.551]
Ashanti	0.111** [0.050]	0.078 [0.049]	-0.003 [0.028]	0.950* [0.520]	0.111** [0.050]	0.078 [0.049]	-0.003 [0.028]	0.950* [0.520]
Brong Ahafo	0.077 [0.058]	0.031 [0.054]	-0.016 [0.029]	0.429 [0.596]	0.077 [0.058]	0.031 [0.054]	-0.016 [0.029]	0.43 [0.596]
Northern	-0.212*** [0.053]	-0.153*** [0.048]	-0.022 [0.031]	-2.435*** [0.622]	-0.212*** [0.053]	-0.153*** [0.048]	-0.022 [0.031]	-2.434*** [0.622]
Upper East	-0.234*** [0.054]	-0.163*** [0.050]	-0.016 [0.028]	-2.473*** [0.579]	-0.234*** [0.054]	-0.163*** [0.050]	-0.016 [0.028]	-2.472*** [0.578]
Upper West	-0.215*** [0.055]	-0.153*** [0.051]	-0.011 [0.032]	-2.320*** [0.624]	-0.215*** [0.055]	-0.153*** [0.051]	-0.011 [0.032]	-2.319*** [0.624]
Foreign country	-0.153*** [0.058]	-0.162*** [0.050]	-0.019 [0.029]	-2.090*** [0.589]	-0.153*** [0.058]	-0.162*** [0.050]	-0.019 [0.029]	-2.090*** [0.588]
<i>Education access/exposure: Exposure (years of access during relevant age):</i>								
Adult literacy program	0.001 [0.001]	0.001 [0.001]	0 [0.000]	0.005 [0.012]	0.001 [0.001]	0.001 [0.001]	0 [0.000]	0.005 [0.012]
Primary school	0.003*** [0.000]	0.003*** [0.000]	0.001*** [0.000]	0.034*** [0.005]	0.003*** [0.000]	0.003*** [0.000]	0.001*** [0.000]	0.034*** [0.005]

Senior secondary school	0.002 [0.001]	0.002 [0.002]	0.003** [0.001]	0.048** [0.020]	0.002 [0.001]	0.002 [0.002]	0.003** [0.001]	0.048** [0.020]
<i>Educational attainment:</i>								
<i>(i) Mother's education:</i>								
Primary	0.061*** [0.019]	-0.018 [0.019]	-0.006 [0.008]	0.447*** [0.142]	0.061*** [0.019]	-0.018 [0.019]	-0.006 [0.008]	0.447*** [0.142]
Middle/JSS	0.146*** [0.018]	0.141*** [0.017]	0.055*** [0.012]	1.524*** [0.153]	0.146*** [0.018]	0.141*** [0.017]	0.055*** [0.012]	1.524*** [0.153]
Secondary and above	0.110** [0.045]	0.134*** [0.052]	0.095* [0.053]	1.595** [0.628]	0.110** [0.045]	0.134*** [0.052]	0.095* [0.053]	1.595** [0.628]
Don't know	0.004 [0.048]	0.009 [0.047]	-0.014 [0.010]	0.003 [0.351]	0.004 [0.048]	0.009 [0.047]	-0.014 [0.010]	0.003 [0.351]
Missing	0.034 [0.078]	0.064 [0.100]	0.012 [0.061]	0.882 [1.048]	0.034 [0.078]	0.064 [0.100]	0.012 [0.061]	0.882 [1.048]
<i>(ii) Father's education:</i>								
Primary	0.067*** [0.026]	0.047** [0.022]	0.006 [0.011]	1.024*** [0.205]	0.067*** [0.026]	0.047** [0.022]	0.006 [0.011]	1.023*** [0.205]
Middle/JSS	0.134*** [0.014]	0.093*** [0.013]	0.017** [0.007]	1.337*** [0.119]	0.134*** [0.014]	0.093*** [0.013]	0.017** [0.007]	1.337*** [0.119]
Secondary and above	0.180*** [0.027]	0.163*** [0.030]	0.110*** [0.027]	2.262*** [0.326]	0.180*** [0.027]	0.162*** [0.030]	0.110*** [0.027]	2.262*** [0.326]
Don't know	-0.03 [0.032]	-0.047* [0.027]	-0.017** [0.008]	-0.111 [0.246]	-0.03 [0.032]	-0.047* [0.027]	-0.017** [0.008]	-0.111 [0.246]
Missing	0.072 [0.177]	-0.066 [0.128]	-0.040** [0.018]	0.061 [1.183]	0.072 [0.177]	-0.066 [0.128]	-0.040** [0.018]	0.061 [1.183]
<i>Region of residence:</i>								
Western	0.021 [0.066]	0.052 [0.068]	0.027 [0.026]	0.678 [0.676]	0.021 [0.066]	0.052 [0.068]	0.027 [0.026]	0.678 [0.676]
Central	0.061 [0.065]	0.05 [0.069]	0.015 [0.028]	0.993 [0.703]	0.061 [0.065]	0.05 [0.069]	0.015 [0.028]	0.993 [0.703]
Eastern	0.015 [0.060]	0.067 [0.063]	0.021 [0.024]	0.614 [0.628]	0.015 [0.060]	0.067 [0.063]	0.021 [0.024]	0.614 [0.627]
Volta	0.02 [0.069]	0.036 [0.068]	0.005 [0.031]	0.351 [0.738]	0.02 [0.069]	0.036 [0.068]	0.005 [0.031]	0.351 [0.737]
Ashanti	-0.001 [0.061]	0.012 [0.066]	0 [0.026]	0.151 [0.652]	-0.001 [0.061]	0.012 [0.066]	0 [0.026]	0.151 [0.651]
Brong Ahafo	-0.026 [0.067]	-0.009 [0.068]	0.016 [0.027]	0.112 [0.713]	-0.026 [0.067]	-0.009 [0.068]	0.016 [0.027]	0.111 [0.713]
Northern	-0.092 [0.066]	-0.026 [0.068]	0.015 [0.034]	-0.507 [0.798]	-0.092 [0.066]	-0.026 [0.068]	0.015 [0.034]	-0.507 [0.798]
Upper East	-0.019 [0.068]	0.002 [0.067]	0.014 [0.028]	0.106 [0.725]	-0.019 [0.068]	0.002 [0.067]	0.014 [0.028]	0.105 [0.725]
Upper West	0.007 [0.069]	0.026 [0.069]	0.013 [0.031]	0.316 [0.776]	0.007 [0.069]	0.026 [0.069]	0.013 [0.031]	0.316 [0.775]
<i>Survey FEs:</i>								
GLSS 4					-0.072*** [0.027]	-0.002 [0.022]	0.025** [0.010]	-0.166 [0.240]
GLSS 5	0.002 [0.013]	0.024** [0.012]	-0.002 [0.006]	0.738*** [0.140]	-0.071*** [0.025]	0.022 [0.021]	0.024** [0.009]	0.572*** [0.219]

Constant	0.116** [0.054]	0.049 [0.049]	0.003 [0.013]	0.572 [0.440]	0.188*** [0.056]	0.05 [0.049]	-0.023 [0.014]	0.738* [0.444]
R ²	0.29	0.24	0.06	0.34	0.29	0.24	0.06	0.34
N	23658	23658	23658	23658	25131	25131	25131	25131

Notes: Calculations incorporate sampling weights. Robust Huber-White (Huber, 1967; White, 1980) standard errors, adjusted for within-cluster correlation/clustering (Froot, 1989; Williams, 2000), in brackets under parameter estimates. *: statistically significant at 10 percent; **: statistically significant at 5 percent; ***: statistically significant at 1 percent. Reference categories are “1893-1943” (birth cohort); “Greater Accra” (region of birth/residence); “No education” (own/maternal/paternal education).

Source: Ghana Living Standards Survey (Rounds 3-5: 1991/92, 1998/99, and 2005/06).