

# Gender Parity and Schooling Choices\*

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## Abstract

This paper examines gender differences in schooling choices. We focus on secondary school education in Ghana. Admission of junior high school students into senior high school is based on students' rankings of their top six program choices and their performance on a national exam. Students must choose a school as well as a program to study. There are clear gender differences in program choices – girls are significantly more likely to choose Home Economics, and boys are more likely to choose Technical Studies. Additionally, there is a substantial amount of geographical variation in these choices. We examine the relationship between gender equality and students' schooling choices by linking district-level measures of gender parity from census data to administrative data on students' application choices. We find that gender differences in program choices are most strongly correlated with differences in academic performance and economic opportunities.

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# 1 Introduction

Over 25 percent of female students applying to secondary school in Ghana list home economics as their first choice program to study, while less than 2 percent of male students do. Similar gender differences exist in other contexts. What explains these gender differences in schooling choices?

Existing research has examined the determinants of program choice. This literature highlights several potential explanations for gender differences, including:

1. **Employment opportunities:** Several studies have examined the role of labor market opportunities in influencing education decisions, such as through the arrival of calling centers and increased demand for English language skills in India (including Munshi and Rosenzweig (2006), Oster and Millett (2011), and Jensen (2012)).
2. **Identity:** Research on the economics of identity suggests that individuals often choose to behave in ways that conform to their sense of identity (Akerlof and Kranton (2000)). In our case, students may be inclined to conform to gender stereotypes about suitable courses of study.
3. **Ability and probability of success:** Students may be driven by other non-pecuniary factors including those relating to their individual academic ability and likelihood of succeeding in certain courses of study (Wiswall and Zafar (2011), Beffy, Fougère, and Maurel (2012) and Buser, Niederle, and Oosterbeek (2012)).
4. **Marriage market concerns:** Student considerations about the marriage market returns to different academic choices may affect decisions about fields of study. For example, studying home economics could be a signal of student type, or could make a student more effective in home production (Iyigun and Walsh (2007), Chiappori, Iyigun, and Weiss (2009) and Wiswall and Zafar (2011)).

We examine whether empirical evidence from Ghana appears to be consistent with any of these hypotheses.

Ghana provides a useful context in which to study gender differences because students are required to select academic tracks in secondary school, so we can explicitly observe gender differences in program choices at this point in time. Additionally, there is substantial variation in gender parity and social norms due to factors such as religious diversity, variation in economic development, and the presence of matrilineal societies. Program choices have direct implications for employment prospects and future academic opportunities, because

admission requirements at higher levels of education are often linked to earlier programs of study.

To begin our analysis, we construct a gender parity index at the district-level which covers three spheres of life: economic participation and opportunity, educational attainment, and health and survival. We find a significant correlation between the overall index and gender differences in program choices, with a particularly strong correlation between program choices and gender parity in economic participation and opportunity. One channel through which these connections appear to be operating is through a correlation with exam performance. These results are consistent with findings from research examining gender norms and differences in academic performance (such as Pope and Sydnor (2010) who look at variation in academic performance in the US, and Fryer and Levitt (2010) and Guiso, Monte, Sapienza, and Zingales (2008) who additionally examine cross-country variation). Although, Bharadwaj, Giorgi, Hansen, and Neilson (2012) find little correlation between gender parity and differences in math performance when they look at a larger range of countries.

To gain further insight into the determinants of schooling decisions, we look at application behavior at the student-level. Here, we are able to control for individual and school-level covariates, and examine variation within districts. We find that students from public schools and schools with lower average performance are more likely to pick home economics and technical studies, and that higher-performing students are less likely to do so.

We also look at application behavior within families. Here, local economic and marriage market conditions are fixed, as well as parental preferences and gender norms. We find that differences in academic performance still predict differences in program choices. Siblings who perform better on the secondary school admission exam are less likely to pick home economics. The fact that students apply to schools *before* taking the admission exam, suggests that correlations between program choices and realized exam scores arise from differences in intrinsic ability and are not simply an indication of poor admission chances following unlucky performance on the admission exam. Results from this within-family analysis provide additional support for the hypothesis that program choices are partly driven by considerations about academic ability and the probability of succeeding in a given field of study.

## 2 Determinants of Schooling Choices

Gender differences in schooling choices may reflect a variety of underlying factors. We briefly outline four hypotheses and their empirical implications below.

## 2.1 Employment Opportunities

A standard model of investment in schooling anticipates that students take expected returns to schooling into account when making their schooling choices. This standard model could explain gender differences in program choices if there are gender differences in expected returns to specific fields of study. Moreover, if students are primarily concerned about employment opportunities, then we should expect to see that students with more favorable employment opportunities and higher labor market returns to studying non-gendered fields will have higher likelihoods of selecting them. Additionally, there is substantial geographical variation in employment opportunities in Ghana in particular (Schultz (2013)), so this should be correlated with geographical variation in schooling choices.

## 2.2 Identity

Studies in the economics literature have increasingly examined the importance of social identity as a determinant of individual behavior, particularly since Akerlof and Kranton (2000) outlined a formal theoretical model. Social identity and individual tastes for academic fields are likely to be more homogenous within families than across families. Thus, we should expect that same-sex siblings should have similar probabilities of choosing gender-specific programs, irrespective of differences in individual characteristics such as academic ability.

## 2.3 Ability

There is a rich literature on gender differences in academic ability. In addition, several studies have documented the importance of concerns about academic ability in determining decisions about program choice. These two factors suggest that a potential explanation for why female students are more likely to select home economics is that they have lower academic ability on average, and home economics is less academically challenging. If this is true, then we should find that lower ability female students are even more likely to choose home economics.

## 2.4 Marriage Market Concerns

Most existing analysis of marriage market concerns has focused on schooling decisions on the extensive margin (whether or not to attend school), rather than decisions on the intensive margin (e.g., what specific field to study). A notable exception is Wiswall and Zafar (2011) in their study of college major choice in the US. Using survey data from a sample of university students, they find that students' expectations of their future spouses' earning

varies according to their own major choices. Moreover, they document positive assortative matching by field of study, with students who majored in economics and business expecting their spouses' earnings to be highest, and those who majored in humanities and arts expecting the lowest spousal earnings. Iyigun and Walsh (2007) and Chiappori, Iyigun, and Weiss (2009) outline a theoretical foundation for marriage returns to investments in schooling. A testable implication of these models is that variations in marriage market sex ratios across geographical locations should lead to differences in pre-marital schooling choices.

### 3 Data

The data used in this study come from two main sources:

1. Student-level choices of secondary school programs from administrative data on secondary school applications in 2005
2. District-level measures of gender parity from Ghana's 2000 Census

**Program Choices** Application to secondary school in Ghana is centralized through a computerized school selection and placement system (CSSPS) which was introduced in 2005. The system allocates junior high school students to senior high school based on students' ranking of their preferred program choices and their performance on a standardized exam. Students submit a list of ranked choices (stating a secondary school and an academic track within that school for each choice) and then sit the Basic Education Certification Exam (BECE) to determine their admission outcomes. The available program choices include: Agriculture, Business, General Arts, General Science, Home Economics, Visual Arts, Technical Studies, or a vocational program from a Technical or Vocational Institute. Table A.1 lists respective course requirements for the secondary school certification exam taken at the end of secondary school.

Administrative data from the CSSPS cover the universe of students who applied to secondary education institutions in Ghana through the Computerized School Selection and Placement System. The data report background characteristics, application choices, entrance exam scores, and admission outcomes for each student. Approximately 300,000 students apply each year. For the main results reported in this paper, we focus on the academic program selected for each student's first choice. We also focus on applications from 2005, the first year the CSSPS was introduced, in order to avoid biases from students deliberately misreporting their program choices in order to influence their admission chances. (Analysis of application choices in later years, not reported here, indicates that students began to

apply to less competitive programs in order to increase their chances of gaining admission to selective schools.)

Only 55 percent of students who applied to secondary school in 2005 qualified for admission. We do not observe exam scores for students who did not qualify for admission, so we examine their choices in a separate analysis or assign them an imputed score of 50 (midway between 0 and the minimum passing score for qualified students).

**Gender Parity** In line with existing literature, we construct a set of gender parity indicators that are based on the World Economic Forum’s Gender Gap Index (Fryer and Levitt (2010), Guiso, Monte, Sapienza, and Zingales (2008), and Bharadwaj, Giorgi, Hansen, and Neilson (2012) use a similar index in their analyses of gender differences in mathematics performance). The index captures measures of gender equality in four primary domains – economic participation and opportunity, educational attainment, political empowerment, and health and survival. Data on district-level differences in political empowerment are not currently available for Ghana, so we construct measures of the other three aspects as follows:

1. Economic participation and opportunity (weighted average of female: male ratios)
  - (a) labor force participation
  - (b) legislators, senior officials, and managers,
  - (c) professional and technical workers
  - (d) income from employment
2. Educational attainment
  - (a) literacy rate
  - (b) primary level enrollment
  - (c) secondary level enrollment
  - (d) tertiary level enrollment
3. Health and survival
  - (a) ratio of girls to boys under one year of age

We use data from the Integrated Public Use Microdata Series - International 10 percent sample of Ghana’s 2000 census to construct these indicators (IPUMS (2008), see Appendix for more detail on the gender parity index). Since students are not making their application choices until 2005, we interpret these indicators as measuring prevailing gender norms and

the climate to which students were exposed during their upbringing, rather than viewing them as being a consequence of students’ schooling choices. There were 138 districts in Ghana in 2000.

## 4 Empirical Analysis

### 4.1 Descriptive Statistics

We begin with a set of descriptive results which illustrate four stylized facts:

1. Gender differences in program choices (Figure 1)
2. Differences in program choices based on academic performance (Figure 2)
3. Geographic variation in gender differences in choices (Figure 3)
4. Geographic variation in gender parity indicators (Figure 4)

Table 1 provides a set of summary statistics, which highlights differences in characteristics of students who pick Home Economics and Technical or Vocational Studies as their first choice programs. Figure 5 plots the correlation between the district-level gender gap index and female-male ratio of: i) students choosing home economics as a first choice program, ii) students choosing technical studies as a first choice program, and iii) BECE performance.

### 4.2 Student-Level Regressions

We begin by estimating a set of regressions at the student level. In doing so, we analyze the correlation between individual-level program choice and observable student characteristics.

$$Y_{is} = \alpha_0 + \alpha_1 BECE_{is} + \gamma X_{is} + \epsilon_{is}$$

where  $Y_{is}$  is an indicator for student  $i$  in school  $s$  selecting a gender-specific program,  $BECE_{is}$  is the student’s score on the BECE exam, and  $X_{is}$  is a set of student characteristics. We estimate a separate set of regressions for male and female students. The results of this analysis are presented in Table 2.

### 4.3 District-Level Regressions

In order to examine these correlations more systematically, we estimate an additional set of regressions that capture the relationship between students’ choices and prevailing gender

parity indicators. Here we analyze the correlation between district-level program choices and district-level gender norms:

$$Y_{dr} = \beta_0 + \beta_1 \text{GenderIndex}_d + \lambda_r + \epsilon_{dr}$$

where  $Y_{dr}$  is the female-male ratio or share of students in district  $d$  and region  $r$  who chose a gender-specific program.  $\text{GenderIndex}_d$  is a district-level measure of gender parity, and  $\lambda_r$  is a region fixed-effect. The results of this analysis are presented in Tables 3 and 4.

## 4.4 Siblings

We also construct a sample of siblings (twins and triplets) and estimate a set of within-family regressions:

$$Y_{if} = \delta_0 + \delta_1 \text{BECE}_{if} + \delta_2 \text{Male}_{if} + \eta_f + \epsilon_{if}$$

here, program choice for student  $i$  in family  $f$  is estimated to be a function of BECE scores and sex. We also include  $\eta_f$ , a family fixed-effect. The motivation behind this analysis is that it provides an opportunity to examine the difference between choices within and across families. Since we do not explicitly observe family members, we create a proxy measure by identifying students who share the same last name and date of birth and who attended the same junior high school. These selection criteria result in a sample of 3,205 siblings. Table 5 reports basic summary statistics. We find that gender differences hold within families and that lower-performing siblings are more likely to choose Home Economics and Technical Studies (Table 6).

## 5 Conclusion

Altogether, this paper provides some evidence that gender parity relates to schooling choices. An area for further research is to more closely explore the mechanisms through which this relationship persists. In ongoing work, we are examining the effect of exogenous changes in labor market opportunities.



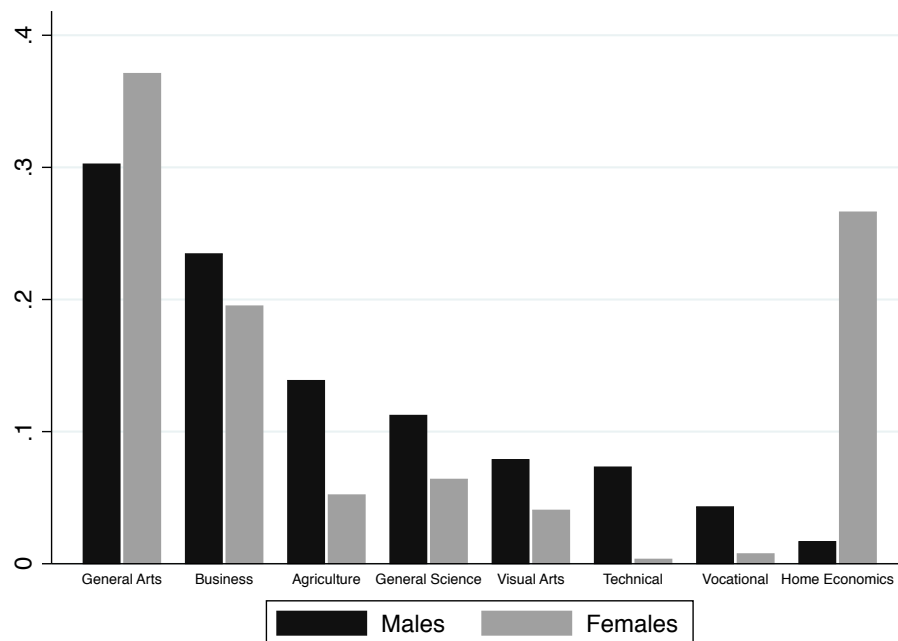


Figure 1: Gender Differences in Program Choices

Notes: Figure illustrates percentage of secondary school applicants who selected each program as their first choice in 2005.

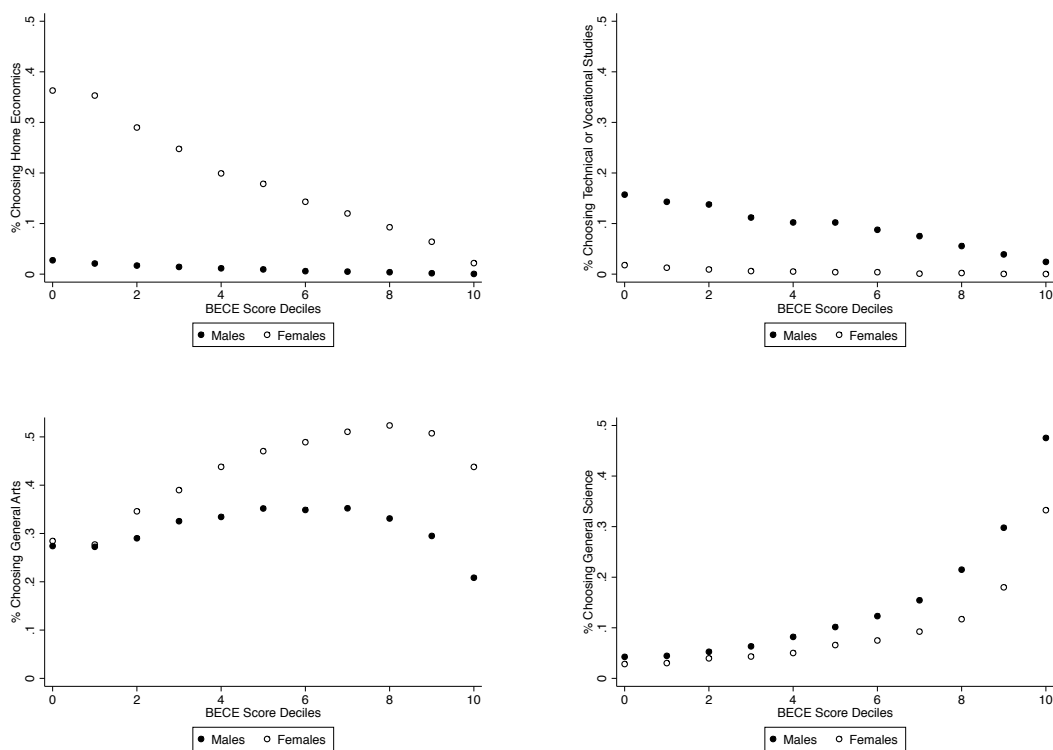
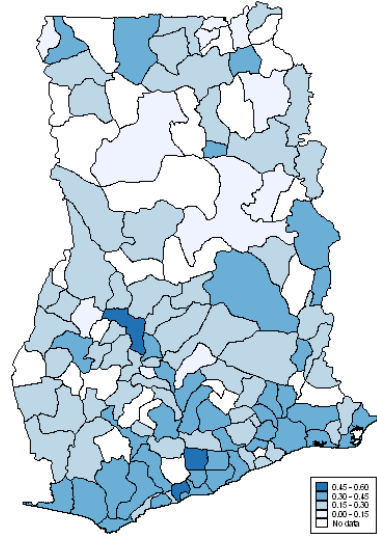


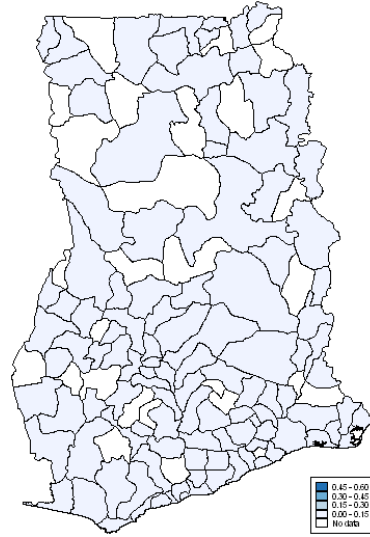
Figure 2: Academic Performance and Program Choices

Notes: Figures illustrate percentage of secondary school applicants who selected each program as their first choice, by their decile of performance on the Basic Education Certification Exam. Students who fail the exam are included at 0.

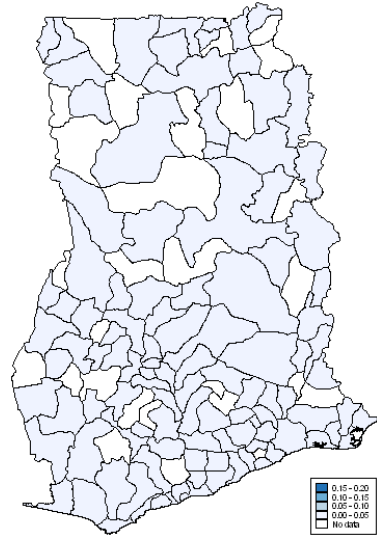
(a) Share of Females choosing Home Economics



(b) Share of Males choosing Home Economics



(c) Share of Females choosing Technical Studies



(d) Share of Males choosing Technical Studies

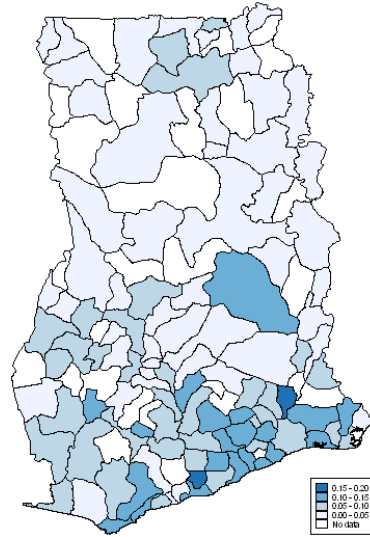
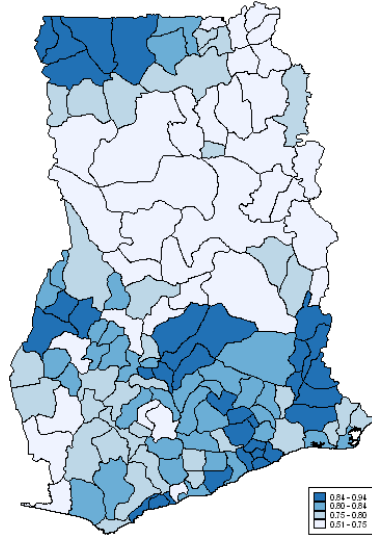


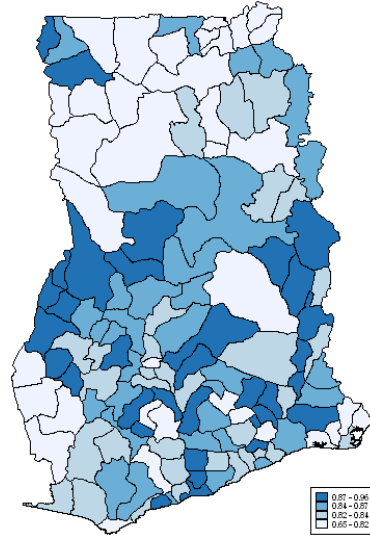
Figure 3: Geographic Differences in Program Choices

Notes: Figures illustrate district-level variation in the percentage of secondary school applicants who selected each program as their first choice.

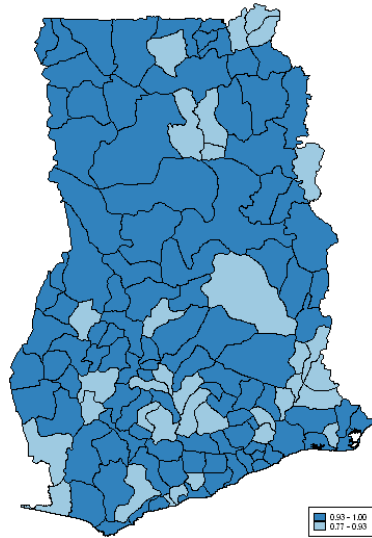
(a) Economic Opportunity



(b) Educational Attainment



(c) Health and Survival



(d) Gender Gap Index

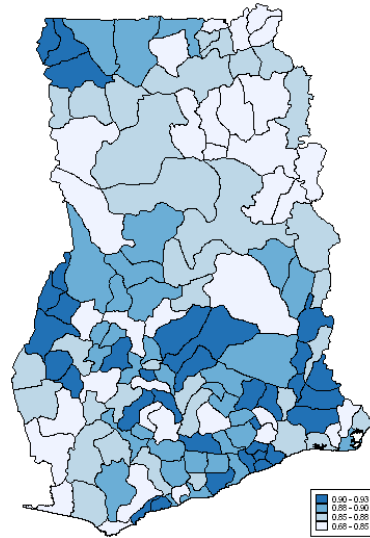


Figure 4: Geographic Differences in Gender Parity

Notes: Figures illustrate district-level variation in gender parity indicators, constructed using data from 2000 census.

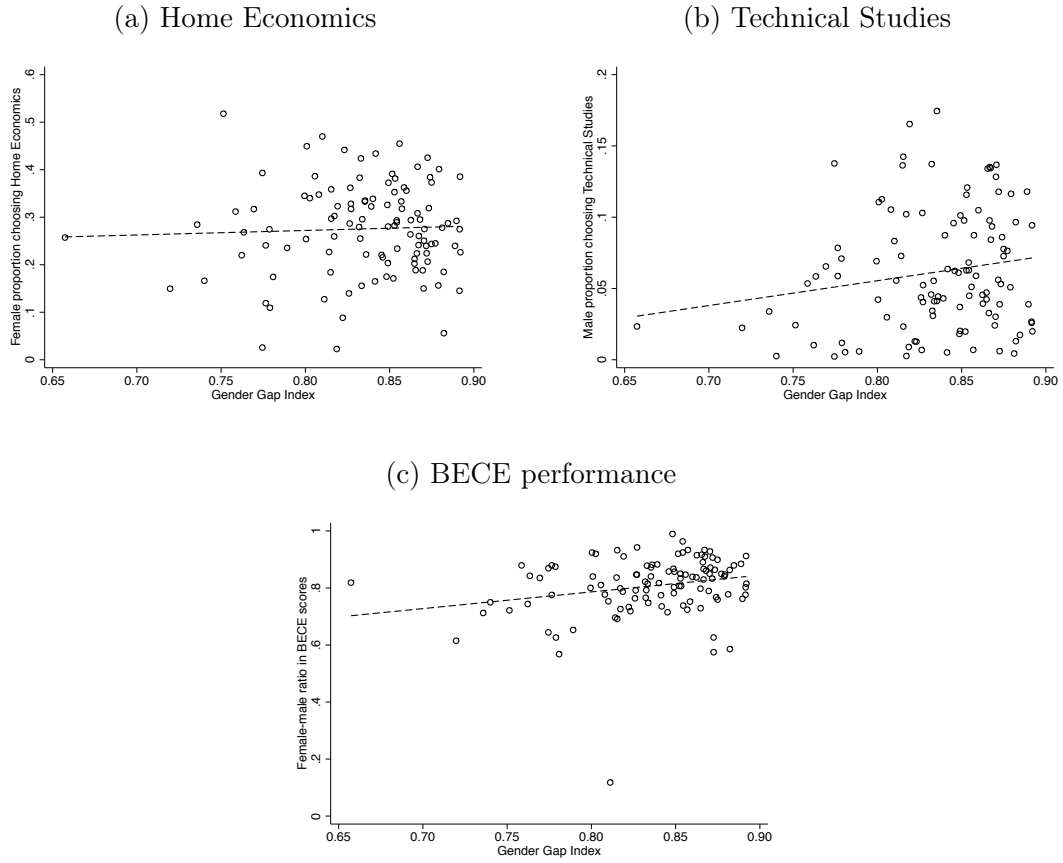


Figure 5: District-Level Correlations

Notes: Figures illustrate correlation between district-level measures of gender parity and a) female likelihood of choosing Home Economics, b) male likelihood of choosing Technical Studies, and c) female-male ratio of BECE performance.

Table 1: Summary Statistics

	All	Female		Male	
		First choice is home economics	First choice is another program	First choice is technical studies	First choice is another program
	(1)	(2)	(3)	(4)	(5)
<i>Student Characteristics</i>					
Age	17.014	17.104	16.540	17.597	17.251
Male	0.552	0.000	0.000	1.000	1.000
JHS Public	0.834	0.900	0.795	0.879	0.841
Number of JHS Classmates	62.720	58.486	67.554	57.564	61.008
<i>Academic Performance</i>					
Qualified for SHS	0.556	0.334	0.584	0.463	0.597
BECE score	284.589	250.427	288.375	266.097	287.892
Imputed BECE score	172.716	108.619	166.890	140.721	193.910
<i>First Choice Program</i>					
Home economics	0.128	1.000	0.000	0.000	0.018
Technical studies	0.042	0.000	0.005	1.000	0.000
General science	0.091	0.000	0.087	0.000	0.121
General arts	0.333	0.000	0.505	0.000	0.326
<i>Gender Gap Indicators</i>					
Gender Gap Index	0.852	0.852	0.855	0.857	0.850
Employment Subindex	0.830	0.832	0.837	0.842	0.824
Education Subindex	0.752	0.753	0.752	0.753	0.751
Health Subindex	0.974	0.972	0.975	0.975	0.973
Percentage Matrilineal	0.490	0.497	0.493	0.509	0.485
<i>N</i>	287328	34245	94434	11607	147042

Table 2: Individual-Level Analysis of Gender Differences in Choices

	All Females		Qualified for secondary		Did not qualify for secondary	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. Home Economics</i>						
Age	0.030 (0.002)***	0.026 (0.002)***	0.018 (0.002)***	0.016 (0.002)***	0.024 (0.002)***	0.023 (0.002)***
Qualified for SHS	-0.167 (0.009)***	-0.132 (0.009)***				
JHS Public		0.037 (0.006)***	-0.007 (0.006)	0.027 (0.006)***	0.079 (0.010)***	0.063 (0.013)***
Number of JHS Classmates		-0.000 (0.000)		-0.000 (0.000)***		-0.000 (0.000)
Median score in JHS		-0.046 (0.006)***		0.086 (0.007)***		-0.041 (0.014)***
Share of JHS Classmates male		0.066 (0.022)***		0.055 (0.022)**		0.049 (0.031)
BECE score			-0.002 (0.000)***	-0.003 (0.000)***		
Region Dummies	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.066	0.074	0.075	0.086	0.022	0.024
$N$	128634	125795	58063	58063	62032	59221
Mean Outcome	0.266	0.264	0.177	0.177	0.367	0.368
	All Males		Qualified for secondary		Did not qualify for secondary	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel B. Technical Studies</i>						
Age	0.008 (0.001)***	0.007 (0.001)***	0.006 (0.001)***	0.006 (0.001)***	0.006 (0.001)***	0.006 (0.001)***
Qualified for SHS	-0.034 (0.009)***	-0.028 (0.008)***				
JHS Public		0.020 (0.004)***	-0.002 (0.003)	0.011 (0.003)***	0.033 (0.009)***	0.031 (0.010)***
Number of JHS Classmates		-0.000 (0.000)		-0.000 (0.000)		-0.000 (0.000)*
Median score in JHS		-0.007 (0.003)**		0.030 (0.004)***		-0.006 (0.006)
Share of JHS Classmates male		-0.045 (0.014)***		-0.039 (0.015)***		-0.065 (0.020)***
BECE score			-0.000 (0.000)***	-0.001 (0.000)***		
Region Dummies	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.024	0.026	0.025	0.028	0.031	0.033
$N$	158573	154520	84372	84372	65537	61530
Mean Outcome	0.073	0.073	0.059	0.059	0.095	0.096

Notes: All regressions are run with robust standard errors, clustered at the district level. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

Table 3: District-Level Analysis of Gender Differences in Program Choices

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Panel A. Percentage of Females Choosing Home Economics</i>							
Gender Gap Index	0.095 (0.223)	-0.602 (0.199)***					-0.528 (0.192)***
Employment Subindex			-0.381 (0.138)***				
Education Subindex				-0.294 (0.185)			
Health Subindex					-0.204 (0.140)		
Mean Female BECE Score						-0.001 (0.000)***	-0.001 (0.000)***
Region Dummies	No	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.002	0.385	0.385	0.349	0.351	0.393	0.430
$N$	109	109	109	109	109	109	109
<i>Panel B. Percentage of Males Choosing Technical Studies</i>							
Gender Gap Index	0.174 (0.078)**	-0.010 (0.093)					-0.008 (0.095)
Employment Subindex			0.052 (0.055)				
Education Subindex				-0.109 (0.076)			
Health Subindex					-0.013 (0.061)		
Mean Male BECE Score						0.000 (0.000)	0.000 (0.000)
Region Dummies	No	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.031	0.453	0.458	0.462	0.453	0.397	0.453
$N$	109	109	109	109	109	139	109

*Notes:* All regressions are run with robust standard errors. For information on the subindices and the weighting used to construct the Gender Gap Index, see Appendix Table A.2. All ratios consist of female measures in the numerator and male measures in the denominator. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.



Table 4: District-Level Analysis of Gender Differences in BECE Performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Dependent variable: Score Ratio</i>							
Gender Gap Index	0.586 (0.233)**	0.537 (0.281)*					0.491 (0.322)
Employment Subindex			0.173 (0.178)				
Education Subindex				-0.008 (0.198)			
Health Subindex					0.461 (0.274)*		
Percent Matrilineal						0.075 (0.055)	0.044 (0.063)
Region Dummies	No	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.052	0.320	0.298	0.290	0.348	0.300	0.323
$N$	109	109	109	109	109	109	109

*Notes:* All regressions are run with robust standard errors. For information on the subindices and the weighting used to construct the Gender Gap Index, see Appendix Table A.2. All ratios consist of female measures in the numerator and male measures in the denominator. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

Table 5: Sibling Summary Statistics

	Full Sample (1)	Sibling Sample (2)	Sisters Only (3)	Brothers Only (4)
<i>Student Characteristics</i>				
Age	17.014	16.562	16.357	16.896
Male	0.552	0.513	0.000	1.000
JHS Public	0.834	0.837	0.834	0.860
Number of JHS Classmates	62.720	69.121	70.285	64.873
<i>Academic Performance</i>				
Qualified for SHS	0.556	0.609	0.573	0.627
BECE score	284.589	290.263	287.744	289.401
Imputed BECE score	166.332	173.768	158.255	180.742
<i>Gender Gap Indicators</i>				
Gender Gap Index	0.852	0.857	0.859	0.853
Employment Subindex	0.830	0.842	0.846	0.834
Education Subindex	0.752	0.752	0.753	0.751
Health Subindex	0.974	0.977	0.978	0.974
Percentage Matrilineal	0.490	0.474	0.483	0.464
<i>Sibling Characteristics</i>				
Sisters Only		0.356	1.000	0.000
Brothers Only		0.382	0.000	1.000
Mixed Sex Siblings		0.261	0.000	0.000
<i>Sibling Choices</i>				
Both Chose Home Ec		0.053	0.134	0.008
None Chose Home Ec		0.792	0.669	0.970
Only One Chose Home Ec		0.154	0.197	0.022
Both Chose Tech		0.012	0.000	0.031
None Chose Tech		0.933	0.995	0.895
Only One Chose Tech		0.055	0.005	0.074
<i>N</i>	287328	3205	1142	1225

Table 6: Sibling Analysis of Gender Differences in Program Choices

All Siblings							
	(1)	(2)	(3)	(4)	(5)	(6)	(8)
<i>Panel A. Home Economics</i>							
Female	0.261 (0.023)***	0.255 (0.023)***	0.334 (0.038)***	0.162 (0.029)***	0.847 (0.140)***	0.307 (0.051)***	
Imputed BECE score		-0.000 (0.000)***	-0.000 (0.000)		-0.000 (0.000)		-0.000 (0.000)
Female $\times$ Imputed BECE score			-0.000 (0.000)***				
BECE score				-0.002 (0.000)***	-0.001 (0.000)**		-0.004 (0.001)***
Female $\times$ BECE score					-0.002 (0.000)***		
$R^2$	0.115	0.119	0.125	0.112	0.157	0.113	0.055
N	3205	3205	3205	1651	1651	1252	520
All Siblings							
	(1)	(2)	(3)	(4)	(5)	(6)	(8)
<i>Panel B. Technical Studies</i>							
Male	0.095 (0.014)***	0.099 (0.015)***	0.146 (0.025)***	0.065 (0.018)***	0.242 (0.080)***	0.145 (0.034)***	
Imputed BECE score		-0.000 (0.000)***	-0.000 (0.000)		-0.000 (0.000)		-0.000 (0.000)
Male $\times$ Imputed BECE score			-0.000 (0.000)***				
BECE score				-0.000 (0.000)	0.000 (0.000)		-0.001 (0.000)
Male $\times$ BECE score					-0.001 (0.000)***		
$R^2$	0.043	0.048	0.054	0.025	0.034	0.069	0.007
N	3205	3205	3205	1651	1651	1252	669

Notes: All regressions are run with robust standard errors, clustered at the family level. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

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## A Appendix

This appendix provides additional information on the implications of program choices for secondary school study in Ghana (Table A.1). It also provides summary statistics on the district-level distribution of our gender gap index (Table A.2.).

Table A.1: Course Requirements for Secondary School Programmes

Programme	Required Courses	Elective Courses
General Arts	<i>1 of the following languages:</i> French Dagaare, Dagbani, Dangme, Ewe, Ga, Gonja, Kasem, Nzema, Twi (Akuapem), Twi (Asante)	<i>3 or 4 of the following:</i> Christian Religious Studies Geography Government History Literature-in-English  Islamic Religious Studies Economics Mathematics (Elective) Music
General Science	Mathematics (Elective)	<i>2 or 3 of the following:</i> Biology Chemistry Physics French OR Music Geography
Home Economics	Management-In-Living	<i>1 of the following:</i> Clothing and Textiles Foods and Nutrition  <i>1 of the following:</i> General Knowledge-In-Art Textiles French Economics  <i>1 of the following:</i> Biology Chemistry Physics Mathematics (Elective)
Technical Studies	Technical Drawing	<i>2 or 3 of the following:</i> Applied Electricity Auto Mechanics Building Construction  Electronics Metalwork Woodwork  Mathematics (Elective) Physics French

*Notes:* Table lists secondary school courses associated with four of the available program choices. The West African Examination Council guidelines on exam requirements state that: "The Core Subjects for the Secondary School Certification Examination are: English Language, Integrated Science, Mathematics (Core), Social Studies. In addition to the Core Subjects, each candidate must choose ONE of the Options under ONE of the Programmes and must enter and sit for THREE or FOUR Elective Subjects from the Option of his/her choice."  
(<http://www.ghanawaec.org/wasce.html>.)

Table A.2: Index Components Summary Statistics Across Districts

	Mean	SD	SD per 1% change	Weight
<b>Subindex: Economic Opportunity</b>				
Ratio of Employed Women to Men	0.958	0.0415	0.241	0.584
Ratio of Prof/Tech Women to Men	0.567	0.123	0.0813	0.197
Ratio of Legislator/Manager Women to Men	0.705	0.220	0.0454	0.110
Ratio of Income from Employment Women to Men	0.767	0.220	0.0454	0.110
<b>Subindex: Educational Attainment</b>				
Ratio of Literate Women to Men	0.702	0.105	0.0950	0.234
Ratio of Primary Enrolled Girls to Boys	0.954	0.0623	0.161	0.395
Ratio of Secondary Enrolled Girls to Boys	0.784	0.112	0.0896	0.220
Ratio of Tertiary Enrolled Girls to Boys	0.520	0.164	0.0610	0.150
<b>Subindex: Health and Survival</b>				
Ratio of Girls to Boys Under One Year of Age	0.963	0.0587	0.170	1