Fields of Study and Earnings Inequality with Highlight on a Gender-Specific Perspective

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Introduction

Does a college degree equally benefit every graduate in terms of earnings? Many individuals invest thousands of dollars each year to pursue a bachelor's degree; however, a college degree does not always guarantee a decent salary for all graduates despite the steep cost of tuition. The labour market outcomes are ideal for some people while much worse for others. Although this disparity can be affected by factors such as innate abilities and family backgrounds, fields of study, as the most intuitive horizontal stratification for college students, may play an essential role in determining earnings inequality among college graduates.

When discussing educational attainment and wage inequality, most research often focuses on the effect of the highest level of education while neglecting the differences in degrees in various fields. In the twenty-first century, as opposed to the period before 2000, the growing returns to college degrees now account for a significantly smaller portion of wage variation; the primary contributor to the increased wage disparity lies in the growing inequality among individuals with college degrees (Autor, Goldin, and Katz 2020). This implies that the wage gap between bachelor's degree holders and high school graduates is still valid, of course, but other dimensions of education that help explain the wage inequality among college graduates can become increasingly crucial.

To explore the impact of fields of study on the earnings gap, this dissertation will utilize the US National Survey of College Graduates (NSCG) in 2019 and perform OLS regression to draw inferences on the magnitude of impact on annual salary by fields of study of bachelor's degree. The NSCG public use microdata contains demographic and family background information (e.g., parent's education level), which are appropriate to include in the model as control variables. First, I picture the overall effect of fields of study on annual salary under different sets of covariates; second, I compare the impact on earnings across fields of study within gender and investigate the interaction effects of gender and fields of study on earnings.

The findings reveal that certain traditional STEM majors, such as engineering and computer science, tend to remarkably boost earnings in comparison to other STEM majors, such as biology. Non-STEM fields, except for management, are likely to yield adverse effects. A degree in education demonstrates the most significant negative impact on earnings regardless of gender. Furthermore, females benefit more from a degree in engineering, and there is almost no gender pay gap on average for engineering degree holders. In contrast, females with degrees in female-dominated fields like education and health are relatively disadvantaged in earnings.

This empirical study aims to facilitate a better understanding of wage inequality among college graduates. However, the significance of this study is not to suggest that choosing specific majors may be superior to choosing others under high salary expectations. Instead, it aims to emphasize the importance of adapting college education to meet the evolving demand for skills and pay more attention to the employment outcome of college graduates. This is particularly important for fields that tend to be disadvantaged in terms of earnings. Besides, it is crucial to account for gender differentials when designing policies. Other than keeping up with the positive outcomes, such as promoting women's involvement in engineering, it is equally important to understand and address the challenges women face in female-dominated fields like education.

Literature Review

Researchers have often been interested in the association between earnings inequality and higher education. Undeniably, education premium plays an important role in rising wage inequality, at least in the United States. From 1979 to 2012, the median annual earnings gap between college-educated and high school-educated has almost doubled for males working full-time in the US, and the trend is similar for females (Autor 2014). However, it is also worth noting that the college wage premium increased at a much higher speed from 1980 to 2000 than from 2000 to 2017 – more specifically, the rise in the returns to college explains 75% of the increased log hourly wage variance from 1980 to 2000, while it accounts for only 38% of the increased log hourly wage variance after 2000 (Autor, Goldin, and Katz 2020). Therefore, it is necessary to examine other dimensions of education to explore the increasing wage variance in the twenty-first century.

One factor researchers often neglect when exploring wage inequality and education is that the economic return to college education is not homogenous, which is crucial to investigating the wage inequality among college graduates. A study on the 2016 Canada Census of Population of young bachelor’s degree holders aged 25 to 34 shows that the median earnings for men with a STEM degree are 23.9% higher than the median earnings for men with a BHASE (business, humanities, health, arts, social science and education) degree, and 11.5% for women (Zhao 2017). The substantial disparity in earnings among college graduates by fields of study is more intuitive if compared from the lifetime earnings perspective. Kim, Tamborini, and Sakamoto (2015) utilize a sample of the US SIPP respondents matched to longitudinal earnings records to explore the relationship between fields of study and lifetime earnings. They have found that the gaps in lifetime earnings (age 20 to 59) of college graduates by fields of study are larger than the gaps between high school graduates and college graduates in many cases. For instance, the high school/bachelor's degree lifetime earnings gap for social science graduates is $374,000, which is less than 50% of the lifetime earnings gap between a BA in engineering and a BA in social science. This massive earnings inequality affects wealth accumulation and can be connected to intergenerational mobility.

Among research on fields of study and earnings, gender differentials are often highlighted. Kim, Tamborini, and Sakamoto (2015) mentioned statistically significant gender differences in fields where women tend to be concentrated, for example, education and health majors. Compared to high school graduates, the extra lifetime return of a bachelor’s degree in education for women is $167,500 more than that for men. They claim that the financial returns of these fields for women are higher when measured using lifetime earnings than annual earnings, partially given that women are more likely to remain in the labour markets in these traditionally female-dominated fields.

The prevailing belief is that women face lower pay compared to men across all fields of study, while a study by Morgan (2008) suggests an alternative perspective. Morgan (2008) studies the connection between college majors and early-career gender pay gaps using the 1993 National Survey of College Graduates data. She discovers that for those fields that are tighter linked to jobs, women have slightly better earnings than men if controlled for job characteristics. This suggests that it is sensible to encourage women to participate in fields such as engineering and mathematics. Nevertheless, there are significant gender pay penalties in social sciences, arts and humanities, and business administration, where women are concentrated. Jobs explain a large portion of these penalties. Morgan (2008) concludes that gender pay differentials among college graduates are primarily determined by the choice of fields of study in college, at least for the early-career stage.

This dissertation leverages more recent data to demonstrate a contemporary view of the relationship between earnings inequality and well-categorized fields of study in the twenty-first century. Going beyond a broad examination, this study explores the implication of fields of study on gender-specific earnings disparities. Moreover, the analysis extends further to individuals regardless of career stage and takes into account the confounding effect of family background on earnings.

Data and Method

Data are from the 2019 National Survey of College Graduates (NSCG), sponsored by the National Science Foundation (NSF). The target population of NSCG is individuals younger than 76, living in the United States during the survey reference week, and who obtained a bachelor's degree or higher before 1 January 2018.

The NSCG has advantages, particularly in studying earnings inequality among college graduates compared to other data sources. First, the NSCG contains not only vertical stratification (e.g., degree types) but also horizontal stratification, such as fields of study, at a relatively detailed level. Furthermore, the NSCG provides information on work activities and salaries of individuals, which is crucial to associate fields of study with earnings. Finally, the NSCG includes rich demographic and family background dimensions, such as age, race, citizenship status, and parents' education level. Although these variables are not our primary interests, they are necessary covariates given their potential effects on individual earnings.

The public use 2019 NSCG data files include 92,537 observations. The analysis of this dissertation intends to focus on the "typical" college graduates; thus, I filter for individuals (1) who obtained one bachelor's degree as their highest education; (2) who are in the labour force and worked full-year (52 weeks) and full-time (no less than 30 hours per week); (3) who are not self-employed or employed by the U.S. military, since salaries reported in these cases are unauthentic and are likely to be influenced by other unobserved factors; (4) whose employer is in the U.S.; (5) whose annualized salary is no lower than $8100 which is equivalent to an hourly wage $5.19 if works 30 hours per week and full year, since wage lower than this may not be reliable (Morgan 2008). These left us with 25,738 observations.

The proposed model for analysis is the ordinary least squares regression with multiple regressors. The initial dependent variable is the annual salary in 2019 dollars. However, the original salary in dollars does not satisfy the normality assumption of applying OLS. Therefore, I transformed the annual salary to the log scale so that the model fits better for the response variable $ln(Salary)$.

The log linear model is as below:

$$ln(Annual\ salary) = \beta_0 + \beta_i FOS_i + \gamma_j X_j + \epsilon_{ij} \qquad (1)$$

The independent variable FOS_i is fields of study for bachelor's degree. I categorize majors into ten fields: (1) Computer and mathematics sciences; (2) Engineering; (3) Physical, chemistry and related sciences; (4) Biological and environmental life sciences; (5) Social sciences, including majors such as economics, sociology and psychology; (6) Arts and humanities; (7) Health; (8) Management and administration; (9) Education, including both science and math teacher education and non-science and math teacher education; (10) Other fields, including social service, sales and marketing and other related fields. For short, I label these ten fields as

$$CompSci, Engineering, Physical, Biology, SocialSci, Arts, Health,$$

$$Management, Education, Other$$

The coefficients of interest are β_i's.

X_j is a set of covariates, including age, minority, disability, citizenship, parents' education level, and whether the degree was obtained from a private college. Those factors will likely impact individual earnings and should be controlled to avoid omitted variable bias. Age can partially indicate work experience, as older individuals tend to have more work experience than young graduates. Minority, disability, and citizenship are potential factors that may bring discrimination to earnings. Minority is 1 for races other than White and Asian, disability is 1 for disabled individuals, and citizenship is 1 for native or naturalized U.S. citizens; otherwise, it is 0. Parents' education level and graduation from private college have implications on family income, which may be associated with individual earnings. I create two indicators, $HSDAD$ and $HSMOM$, assigning a value of 1 if the parent's education is high school or below, and 0 otherwise. $Private$ is 1 when a person graduated from a private college.

Firstly, based on the proposed model, I will examine the overall relation between fields of study and earnings. I will systematically introduce covariates and observe changes in coefficients for fields of study, providing a comprehensive overview of the impact of fields of study on annual salary.

Moreover, I will shed some light on gender differentials. I will first analyze the association between fields of study and earnings inequality within each gender by conducting separate regressions for females and males. I will extend the analysis using a modified base model incorporating interaction terms to study the between-gender earnings differential across fields of study.

Descriptive Statistics

Before proceeding to the empirical results, I will present a series of descriptive statistics of annual salary by fields of study and gender. All statistics in this section and the regression results in the later section are computed using weighted data.

Table 1.1 (see Appendix) describes the average and quantiles of annual salary by fields of study, along with the proportion of bachelor's degree holders in each field.

Among all fields of study, graduates with a degree in Engineering have the highest average salary of $109,898.80 and the highest salary at each quantile. Engineering bachelor's degree holders make up 9.2% of all bachelor's degree holders. This percentage is not at the top among all fields of study; however, it represents the highest proportion of degree holders within the realm of STEM fields: computer science constitutes 8.6% of the total, biology makes up 5.4% of the total, and physical only accounts for around 2%. Interestingly, the lower quantile (25th) salary of engineering graduates is higher than the median salary of all fields of study except for computer science, which, to some extent, implies how strong the engineering graduates' earnings are.

Biology graduates have the lowest average annual salaries at $67,553.82 among STEM fields and the second lowest median annual salaries among all fields. The salary distribution of biology graduates is similar to that of arts graduates. Moreover, the salary of biology graduates at each quantile is $1,000 to $2,000 lower than that of arts graduates. With a slightly larger proportion of graduates (6%) than biology (5.4%), education degree holders have the lowest average and salaries at each quantile. The gap in salary between education graduates and other graduates is widening from lower to upper quantile. At the 75th quantile, the salary of education graduates is only $56,000, which is $22,000 lower than the salary of biology graduates.

The majority of bachelor's degrees are concentrated in management (20.4%), other (15.8%) and social science (13.1%). Individuals in these fields account for almost 50% of all graduates.

Table 1.2 and Table 1.3 incorporate gender to examine the distribution of fields of study within and between genders. The weighted population is 18,996,968, with 47.3% females and 52.7% males.

From Table 1.2, the fields of study in which males and females are concentrated differ. The majority of female college graduates obtain degrees in non-STEM fields such as management, social science, health, and arts. The percentage of females with a degree in biology, computer science, engineering, and physical is only 13.6%; furthermore, biology contributes the most to this percentage. As illustrated by Table 1.1 previously, biology graduates have the lowest average salary among STEM fields. On the contrary, around 35% of male graduates obtained a STEM degree, most majoring in computer science or engineering. Compared to males, a higher percentage of females are concentrated in fields with middle to low earnings, including health, social science, arts and education. In particular, 9.3% of female bachelor’s degree holders obtained a degree in education, three times the percentage of males with education degrees. Given the analysis of Table 1.1, it will be reasonable to anticipate gender earnings differentials in light of the different distribution of college graduates in fields of study, especially those fields with top salaries and bottom salaries.

As a complement, Table 1.3 provides a more intuitive description of gender dominance in each field. The most explicit heterogeneity is in engineering, where only 13.7% of the degree holders are female. That is, there is only one female in every eight engineering graduates. While the percentage of female bachelor's degree holders in computer science is higher at 22.6% compared to engineering, it remains significantly lower than that of males. Females dominate in health and education, constituting over 70% of degree holders in these fields. For arts, biology, management, and social science, the ratio of females to males is more uniform, with some fields having slightly more males while others have slightly more females.

Empirical Results

An Overall Picture of Fields of Study and Earnings Inequality

Table 2.1 reveals the overall pattern of fields of study and earnings inequality using weighted data. There are four stages of regression, and each stage contains different regressors: stage (1) includes only fields of study but no covariates; stage (2) adds age as the covariate; stage (3) adds three additional control variables, minority, disability and citizen; stage (4) further includes parents' education level and private college. The omitted field of study is social science ($SocialSci$). The following interpretation of coefficients takes social science bachelor's degree holders as the reference group.

In all four stages, the estimated coefficients for computer science, engineering, health and management are significant and positive, while the estimated coefficients for biology, education and arts are significant and negative. This indicates that whether controlling for demographic and family background, college graduates with degrees in computer science, engineering, health and management earn more on average compared to the reference group (social science graduates). On the contrary, biology, education and arts graduates earn less on average compared to the reference group. We may consider this a "boost" or "penalty" on earnings by a field of study. Note that the analysis below only implies the magnitude of the effect and does not represent a percentage "boost" or "penalty" on salary.

Among all fields of study, engineering has the highest boost effect of 0.449 on annual salary compared to the reference group, and this effect slightly decreases to 0.413 after adding complete control in stage (4) but is still the highest among all fields. Computer science also has a noticeable high boost effect of 0.315 in stage (1) and 0.282 in stage (2) after control. Not all STEM fields have a positive effect on salary. A degree in biology has around a -0.1 penalty on the salary, which is greater than the penalty of -0.095 associated with a degree in arts. A degree in education has the most considerable penalty effect on salary among all fields, which is -0.296 in stage (1). After controlling for age in stage (2), this penalty effect increases by 0.06 and becomes -0.355, similar to the estimate in stage (4). For graduates with similar demographics and family backgrounds, a degree in education has a considerable negative impact on earnings, which are three or more times higher than the penalty for a degree in biology or arts.

Overall, it can be observed that among college graduates with similar demographics and family backgrounds, fields of study have extremely diverse effects on earnings. Individuals with a degree in some traditional STEM fields, such as engineering and computer science, tend to have strong earnings. In contrast, other STEM fields, such as physics and biology, have a negligible positive effect or even penalty on earnings. For non-STEM fields, health and management show significant yet comparatively lower bonus effects on earnings. At the same time, a degree in education exhibits a noteworthy negative correlation with earnings, exceeding three times the negative effect on salary associated with a degree in arts.

Fields of Study and Earnings Differentials by Gender

This section will first focus on the within-gender earnings inequality across fields of study and subsequently examine the between-gender earnings inequality by fields of study.

To study the within-gender earnings inequality, I subset the 25,738 observations into female and male groups with 9,940 and 15,798 observations, respectively. The results based on weighted data are shown in Table 2.2. Model (F1) and (F2) are regression against females, and model (M1) and (M2) are against males. The reference group is social science graduates of each gender, aligned with the previous. We may think of a positive coefficient as better earnings compared to the social science graduates of the same gender and vice versa.

The patterns are interestingly different for females and males. For females, a computer science, engineering, health or management degree significantly affects salary. In particular, the bonus effect of engineering on earnings for females is dramatically high, at 0.516 without control and 0.498 after control for demographic and family backgrounds. The magnitude of the after-control bonus effect is greater than the coefficients for engineering in the overall result shown in Table 2.1, regardless of stages. Education is the only field with a significant penalty on salary for females, and the penalty effect grows to -0.311 after adding control variables in (F2). It is worth noticing that education also has a significant penalty effect on salary for males, yet the effect of -0.281 in (M2) is smaller than for females. By combining the lower mean salary for the female reference group (see Table 1.4) and the higher penalty for a degree in education, women with an education degree face the most pronounced disadvantage in earnings.

For males, a degree in computer science or engineering has a significant but minor boost effect on earnings compared to the effect for females. However, other fields except management either have significant penalty effects or non-significant effects on earnings. Males with a degree in biology or arts face a significant penalty effect of more than -0.2 on earnings, while the penalty is not statistically significant for female graduates with a degree in biology or arts. The coefficients for biology and arts in (M2) are almost double the coefficients (around -0.1) in Table 2.1. This is possible because male social science graduates as the reference group have better earnings than overall social science graduates (see Table

1.4), so the bonus effect of majoring in computer science or engineering shrinks, but the penalty effect of majoring in other fields increases relative to the overall result.

With social science graduates of the same gender as a reference, females benefit more in earnings from a degree in engineering or computer science but suffer the greater penalty of a degree in education. Males with a degree in fields other than computer science or engineering tend to have no advantage or disadvantage in earnings compared to males in the reference group.

To analyze between-gender earnings inequality, I draw on the previous study by Morgan (2008) and tweak the model (1) that is previously specified by adding an interaction term:

$$ln(Annual\,Salary) = \beta_0 + \beta_{1i}\,Female\!:\!FOS_i + \beta_{2i}FOS_i + \gamma_j\,X_j + \epsilon_{ij} \qquad (2)$$

In this model, $Female$ is an indicator of whether an individual is female; $\mathrm{Female\!:\!FOS_i}$ is the interaction term of gender and fields of study; β_{1i} is the coefficient of interest to examine between-gender earnings inequality by fields of study.

The result in Table 2.3 omits the main effect of FOS_i variables for readability. First, the interaction effect of being female and having a degree in engineering on earnings is statistically significant at the 0.05 level in stage (1), where control variables are absent. However, it is not significant after controlling for demographics in stage (2). This indicates that for engineering graduates, females have almost no disadvantages in earnings compared to males, holding other factors constant. This aligns with the previous finding that females benefit more from a degree in engineering. Computer science does not have similar patterns as engineering in this case since being female has a significant penalty effect on salary compared to males, and the magnitude of this effect is relatively large at around -0.24. This corresponds to a large gender pay gap in computer science graduates in descriptive statistics. This is surprising from the perspective of skills and job characteristics since a computer science major is considered to have a tighter link to jobs in terms of the skills acquired from college (Morgan 2008).

Social science has the second largest penalty effect of being female on earnings at around -0.25, controlling for demographic and family background in stage (3). The connection between skills and jobs may also explain this: discrimination tends to be more prevalent when a degree has less obvious characteristics associated with the positions they are qualified for (Morgan 2008). For instance, a woman with a bachelor's degree in social science or arts may be likelier and easier to be assigned to a low-paying job such as an administrative role than a woman with a computer science or engineering degree.

Education has the highest negative effect after controlling for demographics in stage (2). Most other fields have seen a decrease in the magnitude of the coefficient after controlling for demographic and family background; however, the magnitude of the coefficient increased for education after adding a complete set of control variables. This implies a wide gender earnings gap for education degree holders. Penalties on earnings for arts, biology and physics are not statistically significant after controlling in stage (3).

For predominately female fields, males may experience a glass escalator effect and obtain higher salaries (Wilson et al. 2017), while for predominately male fields, the best outcome for women is to have “no disadvantage” in earnings, which possibly depends on whether there is a strong connection between the degree characteristics and job characteristics. More commonly, women tend to experience varying degrees of disadvantage in both female-dominated and male-dominated fields.

Discussion and Conclusion

The empirical findings indicate that fields of study have varied impacts on earnings. STEM fields tend to have significant bonus effects or mild penalty effects on earnings, while non-STEM fields have mostly mild bonus effects and dramatic penalty effects on earnings (e.g., a degree in education). It further proves the significance of considering fields of study as a horizontal dimension when discussing the association between education and earnings inequality since earnings are not uniform for college graduates.

There are evident gender earnings differentials across fields of study. For men, obtaining a degree in fields other than engineering and computer science can result in either a negligible boost or a substantial penalty on earnings compared to their male counterparts. Women experience significant benefits from obtaining a degree in engineering, and this is the only predominantly male field with hardly a gender pay differential after controlling for individual demographics.

While we appreciate the positive outcome for women with a degree in engineering, it is essential to investigate further why women with a degree in predominately female fields like education (and health) face such a significant gender pay penalty. The previous study by Morgan (2008) based on 1993 NSCG data shows that women with degrees in these fields have a slight earnings advantage over men, and this result may fail to account for factors like glass ceilings in women's career paths due to its focus on the early-career stage. Results in other studies may not agree with Morgan (2008). Wilson et al. (2017) compare the gender pay gap for nurses and teachers and reveal women's disadvantage in earnings in these fields, even though the authors claim that the pay gap is smaller for teachers than for nurses. The current study focuses on the association between fields of study and earnings and thus did not control for occupational characteristics. It would be valuable to explore the reason behind the gender earnings inequality for college graduates in these predominately female fields. For instance, whether women with a degree in education tend to be assigned roles with lower earnings than men of similar qualifications or if wage discrimination within the same role contributes more significantly to the gender pay gap of education degree holders.

In addition to the potential value of incorporating job characteristics into this study, it would be beneficial to investigate whether the impact of fields of study on earnings changes over time, although this would require a longitudinal dataset. Moreover, given that the salary information is self-reported, the empirical result may be more reliable and accurate if the NSCG data is linked to tax records.

This study has provided a comprehensive overview of the correlation between fields of study and earnings inequality, emphasizing its interaction with gender. Existing research on fields of study and earnings inequality is relatively limited in contrast to the substantial studies on education and earnings. Hopefully, these findings can inspire future investigations into this topic, and provide insights on developing targeted policies to foster gender equity in different academic and professional domains.

Appendix

Table 1.1: Estimated statistics of annual salary and fields of study (weighted)

Field of study	Avg. Salary	25^{th} Salary	50^{th} Salary	75^{th} Salary	Est. Population [1]
Arts	66,453.14	41,031	56,000	79,667	1,906,767 (10.0%)
Biology	67,553.82	40,000	54,200	78,000	1,029,760 (5.4%)
Computer Science	97,249.28	62,000	90,000	123,000	1,630,163 (8.6%)
Education	51,780.56	37,000	45,000	56,000	1,146,698 (6.0%)
Engineering	109,898.80	75,500	100,000	131,000	1,755,640 (9.2%)
Health	76,014.30	52,000	70,000	91,400	1,809,617 (9.5%)
Management	87,577.82	55,000	75,000	108,000	3,867,072 (20.4%)
Other	70,823.48	40,500	60,000	85,000	3,001,703 (15.8%)
Physical	75,942.77	37,440	65,000	97,000	362,716 (1.9%)
Social Science	75,028.12	41,000	60,000	90,000	2,486,832 (13.1%)
Total					18,996,968 (100%)

[1] number of people and its percentage of all bachelor's degree holders in brackets

Table 1.2: Estimated number and percentage of graduates across fields of study by gender (weighted)

Field of study	Female	Male
Arts	1,049,534 (11.7%)	857,233 (8.6%)
Biology	486,856 (5.4%)	542,903 (5.4%)
Computer Science	368,038 (4.1%)	1,262,125 (12.6%)
Education	832,387 (9.3%)	314,311 (3.1%)
Engineering	240,959 (2.7%)	1,514,681 (15.1%)
Health	1,332,934 (14.8%)	476,683 (4.8%)
Management	1,665,185 (18.5%)	2,201,886 (22.0%)
Other	1,490,184 (16.6%)	1,511,519 (15.1%)
Physical	129,351 (1.4%)	233,366 (2.3%)
Social Science	1,385,962 (15.4%)	1,100,870 (11.0%)
Total	8,981,391 (100%)	10,015,577 (100%)

Table 1.3: Estimated number and proportion of graduates within fields of study by gender (weighted)

Fields of study	Overall	Female	Male
Arts	1,906,767	1,049,534 (55.0%)	857,233 (45.0%)
Biology	1,029,760	486,856 (47.3%)	542,903 (52.7%)
Computer Science	1,630,163	368,038 (22.6%)	1,262,125 (77.4%)
Education	1,146,698	832,387 (72.6%)	314,311 (27.4%)
Engineering	1,755,640	240,959 (13.7%)	1,514,681 (86.3%)
Health	1,809,617	1,332,934 (73.7%)	476,683 (26.3%)
Management	3,867,072	1,665,185 (43.1%)	2,201,886 (56.9%)
Other	3,001,703	1,490,184 (49.6%)	1,511,519 (50.4%)
Physical	362,716	129,351 (35.7%)	233,366 (64.3%)
Social Science	2,486,832	1,385,962 (55.7%)	1,100,870 (44.3%)
Total	18,996,968	8,981,391 (47.3%)	10,015,577 (52.7%)

Table 1.4: Estimated average annual salary ($) by fields of study and gender (weighted)

Fields of study	Avg.Salary (Females)	SE	Avg.Salary (Males)	SE
Arts	62,906	3,274	70,795	3,053
Biology	63,601	2,577	71,099	3,516
Computer Science	81,524	3,001	101,835	1,924
Education	46,837	1,902	64,872	5,268
Engineering	104,009	5,096	110,836	1,938
Health	72,671	1,351	85,363	4,738
Management	77,688	2,548	95,057	3,329
Other	65,694	2,653	75,880	3,026
Physical	64,567	5,173	82,248	5,734
Social Science	63,969	1,551	88,951	2,577

Table 2.1: OLS estimates of effects of fields of study on annual salaries for individuals (weighted)

	Dependent variable:			
	log(Salary)			
	(1)	(2)	(3)	(4)
CompSci	0.315***	0.291***	0.285***	0.282***
	(0.027)	(0.026)	(0.027)	(0.027)
Biology	−0.103***	−0.088***	−0.100***	−0.102***
	(0.030)	(0.028)	(0.028)	(0.028)
Physical	0.030	0.034	0.013	0.015
	(0.058)	(0.049)	(0.050)	(0.050)
Engineering	0.449***	0.425***	0.416***	0.413***
	(0.022)	(0.021)	(0.022)	(0.022)
Health	0.097***	0.076***	0.068***	0.074***
	(0.027)	(0.026)	(0.026)	(0.026)
Management	0.190***	0.143***	0.140***	0.148***
	(0.029)	(0.028)	(0.028)	(0.028)
Education	−0.296***	−0.355***	−0.368***	−0.356***
	(0.036)	(0.037)	(0.036)	(0.036)
Arts	−0.080**	−0.084**	−0.095***	−0.095***
	(0.036)	(0.033)	(0.034)	(0.034)
Other	−0.023	−0.038	−0.041	−0.037
	(0.033)	(0.030)	(0.029)	(0.029)
Age		0.011***	0.011***	0.012***
		(0.001)	(0.001)	(0.001)
MinorityY			−0.175***	−0.145***
			(0.020)	(0.020)
DisableY			−0.069***	−0.064**
			(0.026)	(0.026)
Citizen			0.062	0.047
			(0.044)	(0.043)
HSDAD				−0.112***
				(0.018)
HSMOM				−0.041**
				(0.018)
Private				0.011
				(0.018)
Constant	11.039***	10.590***	10.590***	10.604***
	(0.018)	(0.031)	(0.051)	(0.050)
Observations	25,738	25,738	25,738	25,738
Weighted	18,996,968	18,996,968	18,996,968	18,996,968

Note: *p<0.1; **p<0.05; ***p<0.01

Table 2.2: OLS estimates of effects of fields of study on annual salaries based on subsets of data categorized by gender (weighted)

	Dependent variable:			
	log(Salary)			
	(F1)	(F2)	(M1)	(M2)
CompSci	0.261***	0.222***	0.203***	0.189***
	(0.052)	(0.051)	(0.033)	(0.032)
Biology	−0.009	−0.018	−0.235***	−0.219***
	(0.040)	(0.040)	(0.043)	(0.039)
Physical	0.039	0.043	−0.067	−0.085
	(0.074)	(0.062)	(0.083)	(0.070)
Engineering	0.516***	0.498***	0.294***	0.272***
	(0.045)	(0.043)	(0.029)	(0.027)
Health	0.201***	0.164***	0.008	0.004
	(0.029)	(0.028)	(0.062)	(0.057)
Management	0.220***	0.186***	0.101***	0.060*
	(0.042)	(0.043)	(0.038)	(0.036)
Education	−0.241***	−0.311***	−0.261***	−0.281***
	(0.039)	(0.039)	(0.073)	(0.070)
Arts	0.001	−0.012	−0.183***	−0.201***
	(0.050)	(0.044)	(0.049)	(0.049)
Other	0.034	0.026	−0.115**	−0.133***
	(0.046)	(0.040)	(0.046)	(0.040)
Age		0.011***		0.012***
		(0.001)		(0.001)
MinorityY		−0.093***		−0.181***
		(0.029)		(0.027)
DisableY		−0.124***		−0.031
		(0.041)		(0.032)
Citizen		0.110		0.006
		(0.083)		(0.047)
HSDAD		−0.113***		−0.100***
		(0.026)		(0.025)
HSMOM		−0.039		−0.043*
		(0.026)		(0.025)
Private		−0.011		0.038
		(0.025)		(0.026)
Constant	10.908***	10.456***	11.205***	10.775***
	(0.022)	(0.089)	(0.025)	(0.061)
Observations	9,940	9,940	15,798	15,798
Weighted	8,981,391	8,981,391	10,015,577	10,015,577
Note:	*p<0.1; **p<0.05; ***p<0.01			

Table 2.3: OLS estimates of the interaction effect of gender and fields of study on annual salaries (weighted)

	Dependent variable:		
	log(Salary)		
	(1)	(2)	(3)
Female:CompSci	-0.239^{***}	-0.243^{***}	-0.239^{***}
	(0.051)	(0.051)	(0.051)
Female:Arts	-0.113^{*}	-0.086	-0.080
	(0.062)	(0.058)	(0.058)
Female:Biology	-0.071	-0.065	-0.057
	(0.049)	(0.046)	(0.046)
Female:Engineering	-0.075^{*}	-0.029	-0.041
	(0.042)	(0.039)	(0.039)
Female:Physical	-0.191^{*}	-0.159^{*}	-0.135
	(0.107)	(0.091)	(0.089)
Female:Health	-0.104^{*}	-0.107^{*}	-0.104^{*}
	(0.060)	(0.057)	(0.057)
Female:Management	-0.178^{***}	-0.149^{***}	-0.142^{***}
	(0.046)	(0.045)	(0.045)
Female:Education	-0.277^{***}	-0.296^{***}	-0.303^{***}
	(0.076)	(0.074)	(0.074)
Female:Other	-0.148^{***}	-0.113^{**}	-0.104^{**}
	(0.055)	(0.048)	(0.047)
Female:SocialSci	-0.297^{***}	-0.264^{***}	-0.259^{***}
	(0.033)	(0.032)	(0.032)
Age		0.011^{***}	0.012^{***}
		(0.001)	(0.001)
MinorityY		-0.165^{***}	-0.137^{***}
		(0.020)	(0.020)
DisableY		-0.074^{***}	-0.069^{***}
		(0.025)	(0.025)
Citizen		0.064	0.048
		(0.044)	(0.043)
HSDAD			-0.106^{***}
			(0.018)
HSMOM			-0.040^{**}
			(0.018)
Private			0.015
			(0.018)
Constant	11.205^{***}	10.744^{***}	10.754^{***}
	(0.025)	(0.054)	(0.053)
Observations	25,738	25,738	25,738
Weighted	18,996,968	18,996,968	18,996,968
Note:			*p<0.1; **p<0.05; ***p<0.01

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