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What Determines the Performance of Graduates? Selection Versus Quality: Evidence from Top Law Schools

Eric Marshall
University of Northern Iowa

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ABSTRACT. Several studies have examined the factors that influence the performance of college graduates. Some studies have found that a student's inherent academic ability determines the performance of graduates. Others argue that the quality of the education a student receives determines graduate performance. Ability cannot be directly measured; however, the majority opinion is that both student ability and education quality influence graduate ability. I investigate the determinants of law school graduate performance. My law school models offer many advantages over existing research, and my findings support the belief that a student's academic ability and education quality determine the performance of graduates.

I. Introduction

Prestigious colleges and universities such as Harvard and Princeton consistently turn out more able graduates than your run of the mill local college. Why? One may hastily assume that it is because students at more prestigious schools receive a better education than students at less prestigious schools. To an extent, the assumption that students acquire more human capital at higher quality institutions may be correct. However, students at these higher quality universities also possess a higher level of human capital when they arrive at college. In fact, this is the very reason the students are accepted. But which determines the performance of a college's graduates: selecting able students or educating able students? According to previous studies it appears that both affect the amount of human capital a student acquires from schooling [Dale, 2002; Eide, 1998; James, 1989; Link, 1975; Strayer, 2002].

Several studies have sought to determine the factors that affect the performance of college graduates. Determining the extent to which these factors affect human capital acquisition is not a question that can be answered directly. The question is very complex and requires a large number of controls. It also requires many simplifying assumptions. Because so many assumptions must be made, it is difficult to infer which factors affect graduate performance from previous studies. However, case studies can contribute to an understanding of the effect both

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selection and inherent ability have on human capital [Dale, 2002; Eide, 1998; James, 1989; Link, 1975; Strayer, 2002].

To help foster an understanding I have examined factors that influence the performance of law school graduates. Like most studies of undergraduate universities, I find that both student ability and school quality affect the performance of law school graduates. I also find that law school demographics influence the performance of graduates.

According to CollegeBoard.com [2006, 4], during the 2006-2007 academic year the average tuition at a four-year private college was $22,218 and about $5,836 at a four-year public university. Students spending tens of thousands of dollars on education surely want to ensure that they are getting the most for their money. In order to ensure this, they must have an understanding of all variables that affect the quality of education.

Understanding what influences the amount of human capital acquired by graduates appears to be even more important when choosing a law school. During the 2005-2006 academic year the average cost of tuition at the top 25 law schools in America was $34,822. During the same year the average costs of tuition at the 26-100th ranked law schools was $27,033. Over a three year legal education, the difference totals more than $20,000 [US News, 2007, 1]. If the amount of human capital a law student acquires from law school is largely determined by his inherent ability and not by the quality of legal education he receives, investing in a top-notch legal education would likely be a foolish allocation of money.

II. Background

Nearly all empirical studies that have sought to determine which factors affect the quality of graduates from a school have used wages as a measure of ability. The use of wages as a proxy for ability is based on the theory of compensating wage differentials. The theory states that workers are paid different wages because they each possess a unique set of abilities and acquired skills, or human capital. Under the assumption of perfect compensating wage differentials, wages are perfectly proportionate to the level of human capital each worker possesses [Borjas, 2005, 207].

For reasons I will discuss, the theory of compensating wage differentials does not hold. Empirically, wages are not directly proportionate to the *skills required* to perform a job. Additionally, wages

are not proportionate to *worker ability* because some people are underemployed. A person who is underemployed possesses more skills than are required to perform his job. Therefore, even if his wage is representative of the amount of human capital necessary to perform the job, it is not representative of the amount of human capital the individual possesses.

The intellectual ability of students entering law school is often measured by their Law School Admissions Test, or LSAT, score. All students must take the LSAT to apply to accredited law schools. The exam tests an individual's ability to think critically, problem solve, construct and analyze arguments, and read critically. These skills are extremely important to success in law school.

One measure of law school graduate performance is the bar exam pass rate. The bar exam is the state licensing exam for lawyers. The exam covers several areas of law, and pass rates are generally measured as the percent of students at a school who pass the exam the first time they take it.

In the context of this paper, the terms college and university are interchangeable. Both refer to undergraduate institutions. Acceptance, attendance, and completion are not interchangeable. Acceptance describes those admitted to a given university, but it does not necessarily indicate matriculation. Attendance describes both acceptance to a university and matriculation. Attendance does not indicate the individual received a degree. Completion describes students who were accepted by a given school, matriculated at that school, and received a degree from that school.

The selectivity of a university refers to the ability required of students to be admitted to a given university. Ability is often measured by GPA, standardized testing, or a combination of both. More selective universities require higher grade point averages and standardized test score for acceptance.

III. Previous Empirical Contributions

Multiple studies have attempted to determine which factors affect the performance of college graduates. Each study has examined a slightly different array of variables. Most of these variables have been used to measure student ability prior to college and the quality of the college education received. Additionally, the impact of some social and

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demographic characteristics has been tested.

James *et al.,* [1989, 251-52] examined the effect of student characteristics, institutional characteristics, the higher education experience of a student, and labor market variables on future earnings. They found that institutional characteristics explain only one to two percent of the variance in earnings. Additionally, they found expenditures per student to have no affect on future earnings. The largest determinants of future wages are the college experience variables. Not surprisingly, the choice of major, amount of math taken, GPA, and a postgraduate degree affect future earnings. James *et al.,* concluded with the following thought:

> While sending your child to Harvard appears to be a good investment, sending him to your local state university to major in engineering, to take lots of math, and preferably to attain a high GPA, is an even better private investment. Apparently, what matters most is not which college you attend but what you do while you are there [James, *et al.*, 1989, 251-52].

In contrast, Daniel, Black, and Smith [1997, 22] found that, among respondents to the National Longitudinal Survey of Youth, the quality of the undergraduate university attended determines future earnings. They also conclude that the inherent intellectual ability of the student does not directly affect earnings. In their model Daniel, Black, and Smith control for individual ability, labor market experience, family background, industry of employment, and high school quality. Within the sample, male graduates of schools in the highest quality quintile earn 20 percent more than otherwise identical graduates from schools in the lowest quality quintile. They also found that background variables and tuition have no effect on earnings once quality is controlled for.

Dale and Krueger [2002, 1492-93, 1524] show that unobservable individual attributes influence the amount of human capital one acquires from attending an undergraduate institution. Motivation and determination greatly influence the ability of a student to complete a degree, but these attributes are inherent to the individual and are difficult to quantify. Two studies have attempted to control for these influences: Dale and Krueger's selectivity study and Behrman, Roswnzweig, and Taubman's twin study.

Dale and Krueger [2002, 1492-93] explore the effects of these non-

quantifiable characteristics on earnings by studying individuals who applied to and were accepted at similar schools. Through essays, recommendations, and interviews, counselors who make admission decisions at universities are more able than researchers to evaluate non-quantifiable characteristics. Therefore, such admission decisions signal the unobservable characteristics of applicants. By clustering students with similar application and acceptance patterns, Dale and Krueger essentially create cohorts of accepted applicants with similar non-quantifiable characteristics. Using this data they were able to measure earnings discrepancies among students within each cohort who *attended* colleges of varying quality. Results showed that attending a highly ranked school leads to higher earnings in the labor market. However, within these selectivity cohorts, the effect of quality is negated. This suggests that student ability determines future earnings, not school quality.

Behrman, Rosenzweig, and Taubman [1996, 672-73] investigate the earnings gap between twins to measure the effect family background, individual endowments, and college quality have on future earnings. They found that variations in earnings within twin sets are positively related to individual specific endowments, attendance at private Ph.D. granting institutions, smaller enrollments, and higher paid professors. Their sample is limited to female twins born in Minnesota between 1936 and 1955 who lived in the same home, attended the same high school and attended different colleges and are therefore highly unrepresentative of the greater population. However, their ability to control for both family background and individual endowments provides interesting insight into the importance of unobservable characteristics. Since earnings are a measure of prior human capital acquisition, all schooling should be included. Most studies of the effect of college quality on earnings do not account for the influence of primary and secondary school. Because each pair of twins examined attended the same high school, Behrman, Rosenzweig, and Taubman have controlled for the influence of high school quality. Unobservable personal characteristics such as motivation and family endowments are also controlled for within each twin set because these characteristics are highly influenced by the environment in which children are raised. Berhman, Roswnzweig, and Taubman also control for work experience and non-familial endowments specific to only one twin [Berhman, 1996, 679-83].

Many factors must be considered to fully understand what affects the

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ability of college graduates. The quality of the high school a student attended directly and indirectly influences the ability of college graduates. This relationship has not been controlled for in other studies. Most studies have only examined college students. Studies that have not controlled for the quality of all education prior to college may have interpreted returns to high quality primary or secondary education as returns to high quality college education.

Strayer [2002, 475-76] examines the effect of high school education quality on the type and quality of undergraduate institution a student attends. The quality of high school education indirectly affects future earnings by influencing the type of college a student chooses. Strayer finds that a higher proportion of teachers at a high school holding a graduate degree and smaller high school class sizes increase the probability of attending a four year college. Strayer also finds a direct influence of high school education on future earnings. An increase in the proportion of high school teachers with a graduate degree increases future earnings for students who attend college and students not pursuing higher education.

Eide, Brewer, and Ehrenberg [1998, 371-72] investigate an indirect effect of undergraduate education quality on future earnings. They found that attending a high quality undergraduate institution greatly increases the probability that a student will attend a high quality graduate school. Specifically, attending a high quality undergraduate institution increases the likelihood a student will attend a major research institution. Eide, Brewer and Ehrenberg's study examines cohorts of 1972, 1980, and 1982 high school graduates. They found that the influence undergraduate quality has on attending high quality graduate schools declined from 1972 to 1982. Attending graduate schools has an opportunity cost of not working. Eide, Brewer, and Ehrenberg argue that the declining influence of elite private college attendance on graduate school attendance represents an increase in the opportunity cost of attending graduate school. The higher opportunity cost is a result of increasing wages earned by elite private college graduates not attending graduate school. This signals an increase in the impact of elite private undergraduate college attendance on future earnings [Eide, 1998, 374].

Link [1975, 477-83] suggests that graduate school quality, graduate school prestige, and the effect of students' peers all affect future earnings. Link studied male electrical engineers who received at least some graduate school education. He found that earnings increased with more

education. Within Link's study, the earnings gap may be smaller than the gap in ability because those receiving a Ph.D. are more likely to enter a career in relatively low paying academia. Once Link controlled for student ability and educational quality, the earnings gap between some graduate education and doctoral degree attainment fell by 25 to 33 percent.

Research suggests that African-Americans acquire human capital from formal education at a greater rate than non-African-Americans. Daniel, Black and Smith [1997, 11] do not reach this conclusion, but do offer an explanation of why other studies have found diversity to be important. They suggest that increased diversity at a university creates an environment more conducive to learning. Greater diversity forces students to think differently and consciously consider many of their own paradigms. Daniel, Black and Smith argue that greater diversity provides more perspectives on a subject. They believe more perspectives lead to a more complete understanding of the material being studied. If this is true, diversity increases the gains from education for *all* students at a university.

Daniel, Black and Smith [1997, 12] found that men who attended college with a higher proportion of women earn lower wages. They do not offer an explanation for these findings. One possible explanation for this is that the average school in Daniel, Black and Smith's study was 53% female. Therefore, increasing the proportion of female students would lead to less sexual equality. These findings may indicate that greater sexual equality leads to higher wages. Daniel, Black, and Smith's findings may also be explained by the fact that women are more likely to enter low paying jobs such as education [Crockett, 1992, 268]. Also, as Mitra [2003, 1023] points out, women have fewer opportunities than men to advance into high paying supervisory positions.

IV. Drawbacks to Existing Models

Several of the previous studies have attempted to determine whether school quality or inherent intellectual ability determine the amount of human capital a college graduate possesses. The methodologies and proxies used in some previous research are suspect, and there are many drawbacks to applying existing research to the larger question of what determines the amount of human capital possessed by a graduate.

The largest drawback to using existing research is that most existing

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research uses earnings as a proxy for graduate ability. A wide array of factors that are not related to ability can influence income. The earnings of a graduate may be the result of the prestige of the college attended and not a reflection of the human capital the individual possesses. Additionally, if not adjusted for cost of living, an individual's earnings may be greatly swayed by the geographic area in which he or she works. Wages also vary greatly between the public and private sectors. The industry in which an individual is employed also greatly affects earnings. This makes analysis across industries, and even across jobs within an industry, difficult.

The race or sex of an individual may also affect earnings. Individuals may be subjected to discrimination or reverse-discrimination. Sex is also important because females are more likely than males to temporarily exit the labor market to raise a family. During a period of unemployment, an individual's ability is not enhanced by on-the-job training and may even deteriorate. Upon reentering the labor market, this leads to lower wages than those of an otherwise identical individual who did not exit the labor market. According to Borjas [2005, 289-96], on average, females tend to be employed for fewer years than males. Therefore, females have less time to acquire additional skills in the labor market and fewer opportunities to be promoted. Both of these factors decrease the earnings of females as a whole.

The selectivity of the college one attends affects future earnings independently of educational quality. Relative to the other students at a college, a given student is *relatively* less able at a highly selective college than at an unselective college. According to Dale and Krueger [2002, 1492], *ceteris paribus,* students who attend an undergraduate university with a 100 point higher average SAT will rank five to seven percentage points lower in their graduating class. Students graduating seven percentage points lower in their class can anticipate three percent lower wages. Since the quality and selectivity are correlated, potential returns to attending a high quality university may be diminished by the fact that such a school is likely to be more selective and therefore result in a lower class rank for any particular student. The labor market undervalues the true abilities of the students who choose to attend a more selective college [Dale, 2002, 1492-96].

Link [1975, 478] points out another drawback to the use of earnings as a measure of ability. Earnings can be distorted by career advancement into management positions. For example, an engineer possessing a high

level of human capital earns more than an engineer with a low level of human capital. In this case the wage discrepancy is a function of the engineers' abilities. However, the highly capable engineer is more likely to progress into a management position and receive even higher earnings. These higher earnings may be compensation for things such as increased stress and longer hours, and therefore, are not *directly* a function of the individual's ability *as an engineer*. The increased wage discrepancy between the high and low ability engineers may overstate the difference in ability between these engineers.

Bias exists even under the assumption that wages are a perfect indicator of the amount of human capital possessed by an individual. On-the-job training increases the human capital of an individual. Therefore, even if wages correctly indicate the amount of human capital an individual possesses, it is difficult to distinguish whether it was gained from schooling or from on-the-job training. This distinction is particularly difficult to make across industries because the amount of on-the-job training may vary greatly across industries.

It is generally thought that the human capital gained from formal education deteriorates over time [Borjas, 2005, 277]. If it deteriorates at different rates among individuals or among industries, then wages will not accurately represent the amount of human capital an individual gained *during college* even if wages do represent the *total* amount of human capital possessed. If human capital deteriorates, it is also important to consider the amount of time that has passed since the individual graduated when measuring earnings. If the human capital acquired from formal education completely or nearly completely deteriorates, it is possible that earnings in some previous studies have been measured after the human capital gained from formal education no longer exists.

The value of expenditures per student as a proxy for college quality may be biased as well. High expenditures per student is often used as a proxy for quality because it indicates smaller student to faculty ratios, better resources, and higher levels of research. Smaller student to faculty ratios indicate greater levels of learning because professors have more time to spend with each individual student. Additionally, better resources facilitate more learning. High levels of research help to keep faculty knowledgeable, and therefore, increases learning. However, at the undergraduate level, an emphasis on research may indicate less emphasis on teaching, and therefore decrease learning.

Most existing research has used SAT scores as a measure of incoming

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student ability. Although these scores may be one of the best proxies for student ability available, they are far from perfect. SAT scores are highly influenced by an individual's ability to take tests. SAT scores are also a broad measure of ability. Scores may indicate ability within some areas more accurately than others, and therefore, are a better proxy within some academic areas than others. For example, SAT scores are probably a good indicator of inherent intellectual ability for someone who studies math or science and pursues a subsequent career in that field. However, for an individual who studies music and pursues a career in performance, SAT scores likely do not accurately reflect ability.

Much of the data used in existing research was obtained through surveys. Many factors affect the validity of survey data. First, in order to draw conclusions from a survey about the larger population, the appropriate sample size and sampling method must be determined. Second, surveys tend to have low response rates. Low response rates may make the sample of *respondents* unrepresentative even if the sample *surveyed* is representative.   Since most surveys are anonymous researchers are unable to tell if this is the case. Even if overall response rates are not low, respondents may not be evenly distributed across the sample surveyed. Response rates may be high from some factions of the population and low from others leading to biased results.   Third, the phrasing of questions is extremely important. It is difficult, if not impossible, to structure a series of questions that will be interpreted identically by all respondents. Finally, respondents may be inclined to lie to improve the perception the researcher has of them.   The individual may provide the response he believes the researcher wants to hear instead of the truth.

V. Model

It is important to determine why high quality colleges produce high quality students. Unfortunately, no situation exists that allows for quantitative analysis of this highly qualitative question. Investigations of various educational institutions and their returns to schooling have allowed researchers to offer small contributions that move us toward a better understanding of what determines the amount of human capital college graduates possess. I investigate the effect of law school characteristics on performance of law school graduates to make my contribution. Performance of graduates is not necessarily a measure

human capital possessed by graduates. However, it is possible that some of the hypotheses I will present can contribute to a better understanding of what may affect the amount of human capital a student acquires through higher education.

Drawing on hypotheses presented in existing empirical research I have developed several models to determine what characteristics of law schools and law students affect the performance of law school graduates. Each model looks at the impact of various school and student characteristics on graduate performance. I approach the issue from a macro level with each variable being a composite measure of a law school. The sample population is comprised of the top 100 law schools as determined by US News and World Report [2007, 1].

Using law school data to investigate the effect of school quality and student ability on law school graduate performance offers many improvements over existing research. First, in addition to earnings, the performance of graduates can be measured by bar pass rate. Because of the drawbacks to using earnings as a proxy for graduate ability mentioned earlier, the bar pass rate may lead to a better understanding of student ability.

Most existing research uses SAT scores of entering students to control for a student's intellectual ability prior to attending college. A student's SAT score is a very broad measure intended to indicate potential success in a broad array of careers. The LSAT is a much narrower descriptor. The LSAT measures skills particularly important to success in the narrow field of law. Therefore, the LSAT provides a much tighter control for inherent ability than the SAT.

A student's ability and determination to complete a rigorous college degree with high success cannot be measured by an exam. All law school students have shown the ability to complete a college degree with a high level of success. This filters out many students who do not have the determination to complete a degree. It is also possible that this ability is measurable by previous grade point averages. A student's undergraduate GPA may better indicate ability to complete a law degree than high school GPA indicates ability to complete an undergraduate degree.

Although there are no majors in law school the salary in different areas of law can vary significantly. Much like the major of undergraduates, the area of practice can be quite difficult to control for. This is especially true at the macro level. However, the area of practice does not influence bar pass rates. Therefore when bar pass rates are used as a measure of

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performance the area of practice does not need to be controlled for.

When specifically measuring how earnings are affected by various institution and student characteristics, law school data offers an important advantage over undergraduate universities. In studies of undergraduate universities, earnings are affected by on-the-job training. To practice as a lawyer one must complete law school. Although students entering law school may have some experience in the legal field, none of them have on-the-job training as a lawyer. Because starting salary is used in my model, on-the-job training is not obtained by graduates between graduation and measurement of the sample. I cannot completely control for on-the-job training due to the possibility of non-practicing experience in the legal field and on-the-job through internships. However, for the reasons above I can greatly reduce the effect of on-the-job training.

The major drawback to the use of bar pass rates to test the impact of school and student characteristics is that bar pass rates are also a function of student enrollment in bar preparation programs. According to the AALS survey of law schools, grades, LSAT scores, race, and enrollment in a bar exam preparation courses influence bar pass rates [White, 2001, 1-2]. In my study I am able to control for undergraduate grades, LSAT scores and race, but I am unable to control for student enrollment in bar exam courses.

Based on the hypotheses of existing research I first examine how various characteristics affect the performance of law school graduates. I test the effect of each variable on graduate earnings and bar pass rates. The variables used in the models are defined as follows:

W is the starting salary of graduates from each law school.
P is the first time bar pass rate for each school.
X is a constant.
B is the coefficient of each independent variable
Q is the quality score of each school.
L is the 75th percentile LSAT score of incoming students at each school.
G is the 75th percentile GPA of incoming students at each school.
S is the school's student to faculty ratio.
M is the percent of males in the student body.
D is a measure of diversity at each school.

I first test the effect of school quality and student ability on graduate

performance using the model:

$$W = X + BQ + BL + BG \quad \text{(I)}$$
$$P = X + BQ + BL + BG \quad \text{(VIII)}$$

L and G are used as measures of student ability. L measures the inherent intelligence of the students at each law school. G is used to measure the ability of a school's students to learn and enhance their intelligence.

I also seek to determine what factors may accurately measure the educational quality of law schools. One possible measure of quality is the student to faculty ratio. A low student to faculty ratio may indicate that professors are able to dedicate more time to each individual student, thereby enhancing student learning. Many researchers have used expenditures per student as a proxy for school quality because a lower student to faculty ratio is correlated with a school's spending. By measuring the student to faculty ratio directly we can avoid some of the drawbacks to using expenditures per student. In the second model, the student to faculty ratio of each school is added as an additional measure of the quality of education provided by each school. The effect is measured by:

$$W = X + BQ + BL + BG + BS \quad \text{(II)}$$
$$P = X + BQ + BL + BG + BS \quad \text{(IX)}$$

Prior studies have documented a relationship between diversity and the performance of college graduates. I use my law school data to test this theory using the function:

$$W = X + BQ + BL + BG + BD \quad \text{(III, IV, V)}$$
$$P = X + BQ + BL + BG + BD \quad \text{(X, XI, XII)}$$

where D is a measure of school diversity. Models III and X use the percentage of the student body identifying as African-American as the measure of diversity. Models IV and XI use the percentage of the student body identified as Caucasian, and Models V and XII use the US News and World Report diversity index as a diversity measure.

Previous empirical research has also shown a relationship between sex and college graduate performance. I test the possibility of a similar effect among the top 100 law schools using:

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$$W = X + BQ + BL + BG + BM \qquad \text{(VI)}$$
$$P = X + BQ + BL + BG + BM \qquad \text{(XIII)}$$

Finally, I measured the relationship between all of the independent variables and performance. This complete model took the form of:

$$W = X + BQ + BL + BG + BS + BD + BM \quad \text{(XII)}$$
$$P = X + BQ + BL + BG + BS + BD + BM \quad \text{(XIV)}$$

where D is the school diversity index in Model XII and the percentage of the student body identifying as Caucasian in Model XIV

VI. Data

The data used in the models presented in section V have been drawn from US News and World Report's top 100 law schools. The data represent 99 of the 100 law schools ranked. Tulane University School of Law's data have been omitted from my analysis because it did not provide data for the 2007 rankings due to Hurricane Katrina.

Index Bar Pass – Each state develops its own bar examination, so students are not subjected to the same testing in each state. For that reason I have indexed each school's first time bar pass rate by calculating the ratio of each school's first time bar pass rate in the jurisdiction where the majority of 2005 graduates took the exam to the overall first time bar pass rate within that jurisdiction. It should be noted that the jurisdiction in which the majority of graduates took the exam is not always the same jurisdiction the law school is located in.

Private Sector Salary – The vast majority of existing research uses earnings as a proxy for the amount of human capital an individual possesses. Within the legal field there is a large discrepancy between earnings in the public and private sectors. Many law school graduates accept positions in the lower paying public sector because of loan forgiveness programs. Because these forgiveness programs are difficult to account for, I have used the median starting salary for 2004 graduates in the *private* sector as a measure of earnings.

LSAT –The LSAT is used as a proxy for a student's intelligence in areas

that are crucial to the study of law and to success in the legal profession. Although millions of dollars are spent on courses to prepare for the LSAT, more able students will still perform at a rate above less able students regardless of the influence of prep classes [Berkowitz 1998, 84]. LSAT score is measured by the 75th percentile LSAT score of the school's incoming class in 2005.

GPA – In addition to a student's intellectual ability, success in law school is also affected by characteristics such as motivation and determination to complete the rigorous curriculum. An individual's undergraduate GPA demonstrates his will and ability to complete a college degree. GPA is the 75th percentile GPA of the school's incoming class of 2005.

Quality Score – Each year US News and World Report asks the law school deans, deans of academic affairs, chairs of faculty appointments, and the most recently tenured faculty member at the 180 accredited law schools in the United States to rate the quality of the other universities with which they are familiar on a scale of one to five. A score of one represents "marginal" quality and a score of five indicates "outstanding" quality. Approximately 67% of those asked responded. The average score was then calculated for each school. Legal professionals, state attorney generals, and judges were asked to complete a similar survey. About 26% of those asked responded. The average score was then calculated. The two scores were then indexed by weighting the lawyer and judge's score with a weight of 0.375 and the peer school's score by a weight of 0.625. These weights are the same weights used by US News and World Report [2007]. The resulting index is the quality score used in the study.

Percent Black – The percent of the student body identifying themselves as black is used as one measure of diversity.

Percent White – In order to properly test whether diversity really does stimulate learning, all races need to be included. To account for this the percent of the student body self-identifying as Caucasian is used. At all 99 schools Caucasian is the majority race. Therefore, one minus the percent Caucasian accounts for all minority races.

Diversity Index – US News and World Report computes a diversity index

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that accounts for the representation of African-Americans, Hispanics, American Indians, Asian-Americans, and non-Hispanic whites at each university. The index produces a score for each school between zero and one. Higher scores represent greater diversity at the university. This may serve as a better proxy of diversity than percent black or percent white.

Percent Male – Percent male is the percent of males in a given university's student body.

Student/Faculty Ratio – This is the ratio of students at a given law school to the number of faculty at that school.

V. Results and Interpretations

School quality, diversity, sex, the student to faculty ratio, and inherent intellectual ability as measured by the LSAT all affect the starting salary of graduates from the top 100 law schools. The most complete model, Model VII, explains 72% of the variation in starting salaries among the top 100 law schools.

A school's 75th percentile LSAT score demonstrates statistically significant predictive power in all seven models. In Model VII a one point increase in the LSAT scores results in an increased starting salary of approximately $3000. This finding is consistent with Berkowitz's [1998, 80] conclusion that one point on the LSAT is equivalent to approximately $2600 in starting salary.

Results show that law school quality is also highly correlated with starting salary. When controlling for all factors measured in my study, a one point increase in a school's quality assessment score results in a $14,751 increase in starting salary. To put this into perspective, the difference in quality assessment scores between the top five law schools and the 50 to 55th law schools is approximately two points. This difference implies nearly a $30,000 difference in starting salaries in the private sector.

Starting salary is also affected by the school's student to faculty ratio. Strangely, within the top 100 law schools, a higher student to faculty ratio is correlated with higher earnings. For the reasons discussed earlier, one would expect a school's student to faculty ratio to be an indicator of educational quality, and therefore, provide results consistent with quality.

Dependent Variable: Private Salary	Independent Variables									
Model	Constant	LSAT	GPA	Quality Score	Percent Black	Percent White	Diversity Index	Percent Male	Student/Faculty Ratio	Adjusted R-sq
I	-431.1100 *0.002*	3.0701 *0.000*	-9.0083 *0.631*	14.0090 *0.005*						0.6580
II	-512.6900 *0.000*	3.2524 *0.000*	-6.9158 *0.691*	17.0670 *0.000*					2.3690 *0.000*	0.7061
III	-425.2600 *0.003*	3.0367 *0.000*	-9.2084 *0.625*	14.3690 *0.006*	-12.5800 *0.822*					0.6545
IV	-395.6500 *0.003*	2.7759 *0.001*	2.3090 *0.902*	12.0960 *0.013*		-33.7300 *0.010*				0.6782
V	-452.2200 *0.001*	2.8704 *0.000*	3.4383 *0.852*	11.2380 *0.020*			44.1240 *0.003*			0.6860
VI	-390.4600 *0.004*	3.0610 *0.000*	-11.2430 *0.542*	14.8060 *0.003*				-62.7420 *0.034*		0.6707
VII	-514.4300 *0.000*	3.0785 *0.000*	2.1431 *0.904*	14.7510 *0.002*			34.1230 *0.039*	-10.1270 *0.751*	2.1357 *0.000*	0.7222

The top number within each model is the coefficient of the given variable. The italicized number below each coefficient is the p-value of the variable.

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Assuming that lower student to faculty ratios imply higher quality education, this perverse sign suggests that higher quality leads to lower earnings. Conversely, if we assume that higher quality leads to higher earnings, these results suggest that high student to faculty ratios imply high educational quality.

Several empirical studies have shown a connection between race and earnings when controlling for inherent ability and school quality. Most of these studies have found that African-Americans' earnings are more greatly affected by education than non-African-Americans. If this is the case we should be able examine this phenomenon by testing the effect of the percent of each school's student body that is black. Doing so shows no such relationship within the top 100 law schools.

Several races other than African-Americans contribute to diversity at a school. Since the majority of students at each of the top 100 law schools are Caucasian we can test the effect of diversity through the percent of the student body that is not white. Doing so indicates that the diversity of a law school does affect starting salaries. A one percentage point increase in the percent of the student body comprised of minority races indicates a $337 increase in starting salary. Likewise, a .01 increase in a school's diversity index implies a $341 higher starting salary. This is consistent with Daniel, Black and Smith's [1997, 11] hypothesis that a diverse student body stimulates learning.

If we assume that diversity increases learning, then these results show that higher levels of learning lead to higher wages. Greater learning leading to higher wages is consistent with the theory of compensating wage differentials. Such support of compensating wage differentials should allow more confident inferences to be drawn from studies that use earnings as a measure of ability.

It is also possible that the relatively high earnings of graduates from highly diverse schools are not related to the ability of the graduates. There may be a premium paid to minorities because of affirmative action policies and the relative shortage of minority graduates. Schools with high diversity indices would have more people receiving this premium. This would be inconsistent with the theory of compensating wage differentials.

Daniel, Black and Smith [1997, 12] found that schools with higher proportions of men produce graduates who earn higher wages. Using equation VI, I find the opposite relationship to be true among the top 100 law schools. A one percent point increase in the percent of males in the

student body decreases starting salaries by $627. However, after controlling for diversity and the student to faculty ratio, the effect of sex fails to achieve statistical significance.

One explanation of the contradictory findings in Model VI regarding sex is the composition of the schools studied. The average school studied by Daniel, Black and Smith [1997, 48] was 53% female. Therefore, increasing the proportion of men at the school would lead to more sexual equality. In my study, the average school was 53% male. Increasing the proportion of men at the law schools would lead to less sexual equality. My findings in Model VI and Daniel, Black and Smith's findings support the hypothesis that greater sexual equality leads to higher earnings.

The undergraduate GPA of law students does not help to predict the starting salary of law school graduates in any of my models. This implies that the student characteristic that affects starting salary is intellectual ability, not the determination and ability to manage the rigors of completing a degree. This supports my prior hypothesis that all law students have already demonstrated the motivation and determination to complete a college degree with high levels of success.

The motivation to complete a degree may not be incremental but rather an attribute that is either possessed or not possessed. If this is the case, a threshold GPA may exist that demonstrates this motivation. This threshold GPA may be below the GPA demonstrated by students at the universities I have examined. If this is true, GPA may have predictive power, but within my sample the threshold may be exceeded by all schools. If all law students possess the motivation to complete a degree and undergraduate GPA is an efficient proxy for this motivation, we would not expect GPA to be correlated with earnings.

The performance of law school graduates can also be measured as a function of bar pass rates. School quality, diversity, sex, the student to faculty ratio, inherent ability as measured by LSAT scores, and motivation as measured by undergraduate GPA, all affect the first time bar pass rate of graduates from the top 100 law schools. The most complete model, Model XIV, explains nearly 45% of the variation in bar pass rates among the top 100 law schools.

Dependent Variable: Index Bar Pass	Independent Variables									
Model	Constant	LSAT	GPA	Quality Score	Percent Black	Percent White	Diversity Index	Percent Male	Student/Faculty Ratio	Adjusted R-sq
VIII	-0.3943 *0.622*	0.0043 *0.382*	0.1642 *0.142*	0.0595 *0.041*						0.3642
IX	-0.6972 *0.378*	0.0049 *0.300*	0.1719 *0.115*	0.07090 *0.014*					0.0088 *0.017*	0.3952
X	-0.3089 *0.705*	0.0038 *0.447*	0.1612 *0.151*	0.0648 *0.036*	-0.1836 *0.579*					0.3595
XI	-0.13885 *0.856*	2.14E-03 *0.648*	0.24567 *0.026*	1.57E-02 *0.102*		-0.2498 *0.002*				0.4228
XII	-0.51552 *0.503*	3.11E-03 *0.507*	0.23563 *0.033*	4.36E-02 *0.125*			0.25342 *0.004*			0.4126
XIII	-0.1100 *-0.141*	0.0042 *0.375*	0.1485 *0.172*	0.0651 *0.022*				-0.4389 *0.012*		0.3996
XIV	-0.3039 *0.692*	0.0031 *0.494*	0.2255 *0.039*	0.0608 *0.031*		-0.1868 *0.022*		-0.2151 *0.046*	0.0071 *0.046*	0.4472

The top number within each model is the coefficient of the given variable. The italicized number below each coefficient is the p-value of the variable.

Bar pass rates are influenced by undergraduate GPA and not by LSAT scores. None of the models show a statistically significant relationship between LSAT scores and bar pass rates. Undergraduate GPA is positively correlated with bar pass rates. In model XIV a .10 increase in undergraduate GPA signals a .022 higher bar pass index. I was not able to test the hypothesis that bar pass rates are highly affected by bar exam preparation courses. However, assuming such a relationship may help to validate my findings. GPA would likely serve as a proxy for the ability to succeed in bar exam preparation courses. Greater success in these courses would lead to higher bar pass rates.

The educational quality of a school also affects bar pass rates. A one point increase in quality assessment scores is associated with 6.08 percentage point increase in bar pass rates. This implies that *ceteris paribus* the top five law schools can expect bar pass index approximately .12 higher than the 50 to 55th ranked law schools.

As with earnings, diversity appears to influence bar pass rates. The percent of the student body that is black again has no affect, but the percent that is white and the diversity index affect bar pass rates. In model XIV a one percent increase in the percent of the student body comprised of minority races leads to an increase in bar pass indexes of .0018. One of the biggest drawbacks to conclusions about the effect of race on performance in prior studies was that performance was measured by earnings. Earnings may be highly biased by discrimination or socio-economic variables. Discriminatory action and socio-economic standing are not issues when measuring the effect of diversity on bar pass rates. This means we can put more confidence in the impact of race on bar pass rates. It also strengthens the argument that diversity affects overall performance.

Among the top 100 law schools, the percent of the student body that is male is negatively correlated with bar pass rates. When controlling for all other factors in Model XIV a one percentage point increase in the percent of males indicates a decreased bar pass index of .002. This again contradicts Daniel, Black and Smith's [1997, 11] finding that increasing the percent of a school comprised of males leads to better performance by graduates. Like in Model VI, this is consistent with the hypothesis that greater sexual equality leads to better graduate performance.

Two variables that were believed to have potentially predictive power were the size of the school's library and whether it was a public or private school. Library size could potentially be a proxy for the amount of

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resources available to students or for the endowment size of the school. A dummy variable for whether the school is a public or private institution is another possible proxy for the amount of financial resources available to students. Neither of these variables achieved statistical significance in my models.

VI. Conclusion

Like undergraduate education, both student ability and school quality affect the performance of law school graduates. The inherent intellectual ability of students affects their starting salaries, and the ability to complete a rigorous degree affects bar pass rates. The student to faculty ratio of a school also appears to influence the performance of law school graduates. Further research is needed to understand the perverse coefficient of the student to faculty ratio. As Daniel, Black and Smith [1997, 11] hypothesized, increased diversity within a law school student body appears to foster a higher level of learning. The effect of diversity on bar pass rates is particularly interesting because bar pass rates are not subject to the possible discriminatory effects earnings are subject to. The proportion of the student body composed of males or females is also significantly related to law school graduate performance.

As students prepare to spend tens of thousands of dollars on college it is important that they understand the value of what they are paying for. The large differences in tuition between high and medium quality law schools make such an understanding even more important when choosing a law school. Based on these findings, it is important for students to consider both their abilities and educational quality when choosing a school. When choosing a law school, quality should be considered. However, depending on the student's abilities, the advantages of higher quality may not offset the higher price. Additional research is needed to determine the relative significance of ability and quality when choosing a law school.

This study has examined a select sample that is not representative of higher education as a whole. The dependent variables measuring performance cannot be equated with the amount of human capital a student acquires from legal education, much less education at large. What my study has done is identify variables that potentially affect returns to education. Also, it has fostered an increased understanding of why several previously hypothesized relationships are worthy of further

investigation. While the extent to which inherent ability and educational quality affect human capital acquisition is extremely ambiguous, the results of case studies from within various areas of education suggest that both factors exert some influence on the performance of graduates.

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