

Rosen, Sherwin

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The Market for Lawyers

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“The Market for Lawyers”

Sherwin Rosen

**George J. Stigler Center
for the Study of
the Economy and the State**

The University of Chicago

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Working Paper No. 72

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Center for the Study of the Economy and the State
The University of Chicago
1101 East 58th Street
Chicago, Illinois 60637

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ABSTRACT

Earnings, entry, and demographic composition of lawyers are analyzed empirically from CPS data for 1967-86. Entry of women and large college class sizes eligible for law school accounts for the enormous growth of the legal profession over the period. The size of law schools expanded remarkably quickly to accommodate increased demand. The number of schools increased at a slower pace. Real earnings of both lawyers and college graduates unadjusted for changing demographic composition followed a wave-like pattern, rising over 1967-1971, falling during 1972-81, and rising sharply thereafter. Correcting earnings data for demographic shifts implies that the rate of return to legal education increased by a point or two in the 1980s, but on whole was fairly flat over the entire period, supporting the idea that supplies of new entrants are elastic and responded rapidly to sharply increasing demand for legal services. However, the standard dynamic model does less well in explaining year-to-year changes in the timing of entry.

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THE MARKET FOR LAWYERS*

Sherwin Rosen

University of Chicago

I. INTRODUCTION

I became acquainted with the work of Henry Simons in graduate school, when his physical memory was fresh in the minds of my teachers and a lot of stories about him ran around among students. Simons' intellectual legacy is varied and long lasting. For one, he was among the first economists to teach in a law school: interactions between law and economics have enriched both fields. For another, every elementary student of price theory is implicitly acquainted with him from the price theory problems he devised in the 1930s. They still appear, though in varied form, in modern textbooks, and some have served as a basis for important journal articles in economics.¹

Simons' more important legacy is his written work. His contributions to technical economics mainly were in the field of public finance, where one of his specialties was income taxation. He argued for an all-inclusive income concept, an idea that is still widely accepted by economists today, and for progressive tax rates. Some of these

* Henry Simons Lecture, University of Chicago Law School, April, 1990. I am indebted to Jaewoo Ryoo and Frederick Flyer for research assistance, to Gary Becker, Aaron Director, and Robert Lucas for helpful discussion and comments, and to The National Science Foundation for research support.

¹ One of the best is Don Patinkin, "Multiplant Firms, Cartels and Imperfect Competition," Quarterly Journal of Economics, 61(1), Feb., 1947: 173-205.

writings were incredibly detailed, on such things as income averaging and loss offsets for capital gains taxation.²

Perhaps Simons' extensive writings on libertarian ideas had a greater effect on the profession. At least that is the case for me. Those articles helped elaborate how markets decentralize a complicated economic organization, in ways that still elude formal analysis, though their practical aspects are known all over the world today. They also expressed a strong egalitarian sentiment and at least an implied opinion that free enterprise might lead to excessive concentrations of wealth. Herein lay the connection to progressive income taxation. And in their polemical and philosophical style, they were more accessible and more forceful than the narrow formal analysis of decentralization of the day, on how central planners could mimic a competitive market system if they had enough information. The inspirational quality of these writings give Simon some cult status currently. May they inspire future generations of students, as they did for me a long time ago.

Some preliminary results from a larger study of entry and incomes in the professions are presented in what follows. For obvious reasons, I concentrate on the market for Lawyers. It is hardly news, but the plethora of bad jokes about lawyers should be the tip-off that the 1980s were a boom market for legal services. Data always lag behind a little, and mine are no exception: the current recession isn't included. But though the price of lawyers' time in the mid-1980s hadn't attained the all time heights of

² An indication of the range and nature of the work is found in the superb book by Walter J. Blum and Harry Kalven, The Uneasy Case for Progressive Taxation, Chicago: University of Chicago Press, 1953.

the late 1960s and early '70s, it was traveling fast in that direction. The harder problem is to understand why.

The data are described in light of some fundamental economic ideas in what follows. Much important research on the economics of occupational choice has been done by economists who were at or associated with the University of Chicago over the years. Milton Friedman's Ph.D. thesis, published with Kuznets,³ was a remarkable, pioneering empirical study of incomes from independent professional practice, contrasting medicine with law. Some important aspects of that study were clarified and extended by H. Gregg Lewis many years later.⁴ Blank and Stigler's study of scientists and engineers was one of the first empirical studies of a subject still of great public policy concern.⁵ T.W. Schultz and Gary Becker developed the key economic idea of human capital to a highly refined state.⁶ The first modern study of labor market dynamics was completed by Richard Freeman while he was at Chicago, and at Harvard he followed it up with important studies of lawyers and other professions.⁷ Pashigian, Siow, and Pierce studied lawyers,

³ Milton Friedman and Simon Kuznets, Income for Independent Professional Practice. New York: National Bureau of Economic Research, 1945.

⁴ H. Gregg Lewis, Unionism and Relative Wages in the U.S.: An Empirical Inquiry. Chicago: University of Chicago Press, 1963.

⁵ David M. Blank and George J. Stigler, The Demand and Supply of Scientific Personnel. New York: National Bureau of Economic Research, 1957.

⁶ T. W. Schultz, The Economic Value of education, New York: Columbia University Press, 1963; and Gary S. Becker, Human Capital. New York: National Bureau of Economic Research, 1964.

⁷ The first is Richard B. Freeman, The Market for College Trained Manpower: A Study in the Economics of Career Choice, Cambridge, Mass.: Harvard University Press, 1971. Of specific interest here is Freeman's later study of lawyers: "Legal Cobwebs: A

and Zarkin studied teachers with more sophisticated time-series models of market dynamics.⁸ And important work on the economic and social organization of the legal industry has been done here, of which Spurr's work on the former and the Chicago Bar Project on the latter are notable.⁹

Three problems are examined here. One concerns the determinants of average differences in income among occupations, a problem which gets most interesting when those averages are large, as they are for such professions as law and medicine. Another relates to the structure of earnings within occupations and the factors that affect the distribution of income within them. The third is how earnings, entry, and exit adjust to changing market conditions in professional labor markets.

II. THE MEAN EARNINGS OF LAWYERS

Why is it that law and medicine are our most highly paid professions? Adam Smith, the most perspicacious of all economists, sketched the answer. High wages in a profession are necessary to compensate an entrant when great expenses must be incurred

Recursive Model of the Market for New Lawyers," Review of Economics and Statistics 57(2), May, 1975: 171-79.

⁸ These studies are: Peter B. Pashigian, "The Market for Lawyers: The Determination of the Demand for and the Supply of Lawyers," Journal of Law and Economics, 20 (no. 2) April, 1977: 53-85; Aloysious Siow, "Occupational Choice Under Uncertainty," Econometrica 52(3), May, 1984: 631-45; Brooks Pierce, "Occupational Choice: The Market for Lawyers," unpublished Ph.D. thesis, University of Chicago, 1990; and Gary A. Zarkin, "Occupational Choice: An Application to the Market for Public School Teachers," Quarterly Journal of Economics, 100(2), May, 1985: 409-446.

⁹ Stephen J. Spurr, "How the Market Solves an Assignment Problem: the Matching of Lawyers with Legal Claims," Journal of Labor Economics, 5(4), Oct., 1982: 502-532. The Chicago Bar Project is described in John P. Heinz and Edward O. Laumann, Chicago Lawyers, New York: Russell Sage Foundation, 1982.

for learning its trade. Differences in average incomes across occupations largely are determined by costs of entry, and by those conditions of supply that affect the number of entrants in a position to choose them. There are other causes of income differences, but this is one of the most important. Human capital theory shows that much of the cost of training is time and effort spent in school. The money value of time is measured by the rate of interest on other work opportunities foregone. Discounting for interest can cause large income differences across occupations. Average earnings in law illustrate the point.

The expected present value of choosing an occupation is approximately average annual career earnings divided by the rate of interest. A refinement for finite life should be made, but it's a small adjustment for the kind of mortality experience and career lengths common today: interest discounting gives far less weight to earnings late in a career and implies that an occupation that lasts for 40 years has almost the same present value as one that lasts forever. Another refinement for changes in earnings with experience over a career is more important and will be considered later. These experience effects complicate the calculations, but we can get surprisingly far in understanding mean differences in earnings even if they are ignored.

Consider next an alternative occupation that requires N years of additional full-time education. This too has an approximate expected capital value of its mean earnings divided by the discount rate. However, it begins to pay off N periods later than the other, so an additional discount must be applied for those N periods of zero earnings. This second discount factor is very important, because it occurs at the beginning, not at

the end of a career. Discounting makes early events very important to supply decisions and later events much less important. *Ceteris paribus*, the expected present value of career earnings in the two occupations must be equalized to make both equally attractive to prospective entrants. This implies that annual average earnings in the second occupation must exceed earnings in the first occupation to compensate entrants for the greater costs, effort, and investment in learning the trade. For instance, an interest rate of 10 percent and an incremental schooling period of just three years implies that an earnings difference of 33 percent per year over an entire career is necessary to equalize present values.¹⁰

It takes a full-time student three years to complete law school after college graduation and 10 percent is in the vicinity of the rate of return to college education (compared to high school) found in the U.S. labor market up to the 1970s. Data from the Current Population Survey show that American college graduates earned an average of about \$38,000 per year from 1967-87, in dollars of 1987 purchasing power. Lawyers earned about \$62,000 (in 1987 dollars) during that period. Working the above calculation in reverse, the 63 percent premium in annual earnings of lawyers implies a return of more than 16 percent for three years of hard labor in law school. Sixteen percent is a very high return to education, a little too good to be true. It turns out that more labor is involved in law than merely slaving away in law school. The average lawyer works many more hours per year than the average college graduate. In census

¹⁰ Let y_i be earnings in occupation i and let r be the rate of interest. If occupation 2 requires N additional years of school than occupation 1, the equilibrium condition described in the text is $y_1/r = y_2(1 + r)^{-N}/r$, or $y_2/y_1 = (1 + r)^N$.

data lawyers report working close to a six-day work week, at 47+ hours per week, whereas college graduates report closer to the five-day work week, at 41. This ignores differences in weeks worked per year, which also are greater for lawyers. A proper comparison requires either adjusting college graduate's earnings to an as-if 47 hours basis or adjusting lawyers' earnings to an as-if 41 hours basis. Choosing the first makes the appropriate comparison number \$43,500 for a 47-hour college graduate instead of \$38,000. Then a discount rate of 11.8 percent equalizes the two present values, which is close to the ballpark estimate of the rate of return to college education. Making allowances for tuition and out-of-pocket expenses would make it even closer.

This is a neat example of how a little economics can account for an important regularity. It can be improved upon by noting that lawyers as a group are more select and able than are college graduates as a group. Judging from test scores, law students tend to come from the top of their college classes. Furthermore, selection on ability appears to be increasing over time, making it likely that the average lawyer would have earned more than \$43,500 as a college graduate working a six day week. If it was as little as 13 percent more, the equalizing discount rate would fall to 8 percent rather than 11.8 percent, certainly well within range of rates of return to higher education found in most developed economies.

III. LAWYER DEMOGRAPHY AND EARNINGS

There is substantial variation around mean earnings among lawyers: the standard deviation is about \$25,000 (1987 dollars), or more than 40 percent of the mean. Some variation is caused by interpersonal differences in easily measured characteristics, such as

experience, sex, and working hours, that are themselves associated with earnings differences. The rest is attributable to such random factors as year-to-year luck and fluctuations in local business conditions; to more systematic but harder to measure factors such as differences in talent, connections, and special skills, and to measurement error.

In this section the systematic component is described, based on a statistical analysis of individual lawyers from 21 annual Current Population Surveys (CPS) for the month of March over the 1967-87 period. The CPS is the major survey instrument for updating decennial censuses and for gauging the state of the labor market. It is a large random sample of the U.S. population and contains reasonably accurate samples for major occupations, such as law, engineering, and accounting. In each of the years 1967-87 the statistical records of all persons classified as lawyers were drawn from the larger survey and analyzed below.

Like all economic data, these are not ideal. However, checks from independent sources strongly suggest that accurate inferences can be drawn from them. A description of some procedures required to use them is appended. Analysis has been confined to year-round, full-time practitioners, defined as persons working 50 or more weeks per year and 35 or more hours in a typical week. These data are the most comprehensive individual earnings records of lawyers available and provide a useful companion to the excellent earlier work of Sander and Williams.¹¹

¹¹ Richard H. Sander and E. Douglass Williams, "Why are There so Many Lawyers? Perspectives on a Turbulent Market," Law and Social Inquiry, 14(3), Summer, 1989: 431-479 is a comprehensive and complementary statistical description of the legal profession.

A. LAWYER DEMOGRAPHY

Descriptive sample statistics for CPS full-time lawyers are presented in Table 1. Two features dominate all others in these data: One is growth in the number of lawyers in the 1970s, and the other is a major demographic shift in the proportion of female practitioners.

The "litigation explosion" is manifested by enormous growth in the number of sample lawyers and their population extrapolation in the first two columns of Table 1. Lawyers doubled their numbers between 1967 and 1979, with much of the increase concentrated between 1971 and 1977. Another big jump occurs in the 1980s, with numbers increasing by almost fifty percent between 1979 and 1987.¹² Lawyer numbers would have increased in the 1970s even if the fraction of college graduates choosing law careers had remained unchanged, just because the number of college graduates rose so much. College participation rates increased across successively later cohorts, and large numbers of post World War II "baby boom" birth cohorts graduated from college in those years and entered law school. This appears to be a major factor through the early 1970s.

¹² Martindale-Hubell lawyer counts exceed Census counts by 30 percent before 1970, but the differences shrink to less than 5 percent in the 1980s. Why these sources differ cannot be ascertained, though it probably has something to do with different definitions of economically active.

Figure 1 plots the ratio of law degrees granted three years later to baccalaureate degrees granted in each year, for all degree holders and also by sex.¹³ This statistic is highly correlated with the propensity for college graduates to choose law careers. The fraction of male college graduates successfully completing law school three years later fluctuates cyclically prior to the 1970s, but has little discernable trend. On the other hand, the number of baccalaureate degrees granted rose by a factor of 2.5 from the early 1960s to the early 1970s. By the mid-1970s the number of baccalaureate degrees granted had essentially leveled off, but growth in the number of lawyers really started to climb. Though the proportion of male participants in Figure 1 probably increased on average over the 1960s decade, it decreased thereafter. Evidently, increasing female participation in the legal profession is a major contributor to the growth in numbers of lawyers in the 1970s.

Census population counts in the twentieth century cast these numbers in a slightly different light. From 1900 to 1970, the ratio of lawyers to population fluctuated near 1.3 lawyers per 1000 population. For perspective, the corresponding figure for doctors was 1.8 per 1000. After seven decades of stability, both ratios took off in 1970. But lawyer numbers increased more. Sometime around 1980, when there were about 2.5 practitioners per 1000 in each profession, the number of lawyers surpassed the number of doctors. By 1987 there were practically 2.9 lawyers per 1000 and 2.76 doctors per 1000.

¹³ Law degree statistics come from American Bar Association, A Review of Legal Education in the U.S.: Law Schools and Bar Admission Requirements, Chicago, various issues. Statistics on College graduates come from U.S. National Center for Education Statistics, Digest of Education Statistics, Washington: U.S. Government Printing Office, various issues.

The differences are even larger today. Since 1970 the number of lawyers has also increased substantially more than the number of engineers and accountants, though both of those professions remain much larger than the legal profession.

Prior to 1975, the proportion of women in law fluctuated from 2 percent to 5 percent with no discernable trend. However, a sharply rising trend seen in Table 1 began in 1975 and continued unabated for the rest of the sample period. The trend is so large that women increased their relative numbers by more than four-fold over the brief nine-year interval, 1975 to 1984. The relative number of women attending law school had to increase greatly to provoke such a shift in the composition of practitioners. The numbers in Figure 1 are a major part of that story, but there is more to it, because women accounted for an increasing fraction of baccalaureate degrees during the 1970s (and overtook the number of males by the late 1980s). It was also made possible by sustained growth in demand for legal services which stimulated entry.

The rate of convergence of male and female entry rates in law has slowed down lately; 42 percent of graduates today are women, compared to 40 percent in 1986. However, the proportion of new female entrants far exceeds their proportion in the lawyer population, so their average representation among practitioners will continue rising for a long time. In many ways the story of the legal profession in the 1970s and 1980s is the entry of women, and similarly for medical practice: The huge increase in women in both professions together represents one of the largest demographic changes ever observed in American professions.

In contrast, there has been very little change in the proportion of lawyers who are nonwhite. When total numbers are small, as they are for nonwhite representation in the U.S. legal population, year-to-year sampling variation makes numerical trends difficult to detect. There is only a slight hint of trend in these data. The percentage nonwhite rises from an average of about 2 percent in 1967-75 to slightly less than 3 percent thereafter.

Both direct and indirect indicators point to a sharp reduction in the age of the average lawyer over the period. This is inevitable in a profession that was growing as rapidly as law, with entry confined to early stages of the work life-cycle.

One indirect indicator is the trend in reported years of schooling among lawyers. In the late 1960s close to 18 percent of CPS lawyers reported less than 18 years of school. However, this proportion fell sharply over time, showing a trend line value of less than 4 percent by 1987. Variation around the trend line is large and probably is increased by measurement error. Nonetheless, the downward movement is genuine. It partly reflects long-term changes in the technology of legal education. Lawyers who received their education in law schools without prior baccalaureate degree requirements have less than 18 years of school, and they are more heavily represented among older practitioners, whose weight diminished over the sample period. Increasing fractions of lawyers in successive cohorts entered law school after receiving a bachelor's degree.

Marital status of lawyers is another indirect indicator of age composition. Of course this has changed markedly for lawyers, as it has for the general population. In 1967-68 less than 10 percent of lawyers were unmarried. By 1973-74 the proportion of unmarried lawyers increased to more than 12 percent, and by the late 1970s it was up to

25 percent. The large increase during the latter half of the 1970s is due to the large flow of young new entrants in those years, most of whom weren't married. The changing age composition toward youth is especially important for women. After 1975, when the number of women lawyers began to take off, their average age was much younger than men and less than 50 percent of them were married. This may still be the case.

Actually the economics suggests more complex linkage, in which the changing structure of families and marital instability, declining fertility, increasing labor force participation, and professional commitments of women are all interrelated. The traditional household was characterized by greater division of labor than is true now. Traditional specialization found women in household (nonmarket) production and men in market work. Those professions, such as law and medicine, demanding full time commitment to market production were more attractive to men and less attractive to women, because expected future household activities associated with raising children reduced the return to intensive market oriented investments. The decline in fertility in the U.S. and the increase in labor force participation of women are generally related in this way, though it is not always so clear what is cause and what is effect.

The high work intensity of legal and medical careers has proven to be no barrier to entry for women in recent cohorts, whose fertility and perhaps marital expectations were different than those of young women in earlier eras. Still, the rather abrupt and rapid change in female entry suggests reverse causation, a partly spontaneous and exogenous "opening up" of the profession to women, though no significant clue about why the threshold began when it did has manifested itself. And the fact that the timing differs for

other professions, such as engineering, accounting, and even medicine, where relative entry of women has followed a slower pace, suggests that no simple, easily identified factor is at work.

The marked shift in age composition over the period is directly revealed by an enormous decline in average years of experience, from more than 25 years in the late 1960s to between 13 and 14 years in 1977-78.¹⁴ Mean experience increased slightly through the 1980s as the large entry cohorts of the 1970s gained experience and worked their way through the system. The shift is also clearly seen in the proportion of lawyers with 5 years of experience or less, which rose from a mere 7.5 percent in 1967 to a huge 25 percent by 1975. It fell thereafter to less than 15 percent by 1987. The proportion of lawyers with 25 years of experience or more fell by more than half, starting from about 35 percent in the late 1960s and ending at less than 15 percent by 1987. The proportion of lawyers not directly employed in law firms (the legal services sector) is quite stable over the period. Perhaps there is a small downward trend, but sampling variation obscures it. The high proportion in law firms makes it difficult to identify any specific sector of the economy as instigating the lawyer explosion on the demand side. For example, there is no marked change in the proportion of lawyers employed in the government sector (defined here as any level of government). Somewhat more than 19 percent of lawyers are employed by governments in 1967-68. This may have risen to slightly less than 21 percent by 1974-77, but sampling error is too large to be sure. By

¹⁴ Experience is measured in the usual way, as age minus education minus six. Measurement errors are likely to be more important for older women, but there are few of them in the sample.

the end of the period it had fallen below 18 percent, more or less back to where it started.

If the composition of lawyer employment within and without the legal services sector has not materially changed, the same cannot be said of the form of practice. The CPS does not quite make the three traditional distinctions among sole practitioners, partners, and wage and salary employees. However, it and complementary evidence suggests a relative decline of the solo practitioner and a rise in the relative importance of partnerships. Three different measures of self-employment in the CPS, while not entirely consistent, point in the same direction. First the survey asks respondents whether their major activity is in self-employment or not. Those responding in the affirmative represented 55 percent of sample lawyers at the beginning of the period and 47 percent at the end. This question is somewhat ambiguous as to whether self-employment status is full or part-time, and it is unclear how a partner would respond. The CPS also asks respondents to classify earnings in self-employment and wage-and-salary categories, which partially addresses time allocation ambiguities. Lawyers reporting nonzero self-employment earnings (however small) irrespective of other sources fell from 65 percent at the beginning of the period to 35 percent at the end. Finally, lawyers reporting nonzero self-employment earnings and zero wage and salary earnings fell from 50 percent at the beginning to 25 percent at the end. All three trends are evenly distributed throughout the period.

Evidence from IRS business tax returns excludes wage and salary lawyers, but corroborates the decline of solo practice and suggests that partnerships grew substantially

over the period. Between 1950 and 1987 the number of solo practice returns increased 86 percent, from 122,000 to 227,000, whereas the number of partnership returns increased by 145 percent, from 58,000 to 142,000. In 1960 there were 2.1 solo practice returns per partnership return, in 1987 the ratio was 1.6. The IRS data show that the average number of partners per firm is rather small, but grew substantially over the period, from 2.9 per firm in 1960 to 4.75 per firm in 1987. This conceals the well known fact that legal business is disproportionately distributed by firm size: with large firms accounting for a very large share of total billings. The increasing importance of partnerships undoubtedly is tied up with an increasing share of legal claims against the business sector.¹⁵

B. THE STRUCTURE OF EARNINGS AND HOURS IN LAW

Table 2 presents regression evidence on how lawyer's earnings and hours vary with personal characteristics and how they changed over time. Earnings in each year have been deflated by the Consumer Price Index and expressed in 1987 dollars. All regressions contain calendar year (time) effects. Some experimentation revealed that a third degree polynomial (cubic) in calendar time fit the data quite well. The functionally free alternative of 21 time dummies for each year produces similar results, so cubic regressions are presented for economy of presentation. The time path of earnings is of considerable interest and is discussed in greater detail below. For now, think of the time effects simply as controls necessary to isolate the effects of personal characteristics.

¹⁵ Data on the growth of partnerships and a very interesting perspective on them is presented in Marc Galanter and Thomas M. Palay, Tournament of Lawyers, Chicago: University of Chicago Press, 1991.

The first column presents regression coefficients (absolute t-statistics are in parentheses in all columns) from a conventional person-by-person log earnings regression using pooled data with no time interactions. They estimate average contributions of the measured characteristics to annual earnings in approximate percentage terms. Current Population Survey data never identify the more fundamental reasons, such as differences in talent and legal specialty, that sustain the estimated earnings differences, and the temptation to "over interpret" some of these estimates must be resisted.

The positive effect of experience and the negative effect of its square show that lawyers' earnings follow a systematic life-cycle pattern in which earnings rise with experience, but at a decreasing rate. The estimates imply that earnings among lawyers of different experience in a typical calendar year attain a peak at 27 years of experience and decline slightly thereafter. The pattern seen for lawyers is typical of almost all occupations. In fact, a log earnings regression using CPS data on individual white male college graduates yields similarly signed regression coefficients for experience and its square: Though earnings of each experience level are smaller for college graduates, the relative shape of the profile is similar to that of lawyers.

The next three variables show the effects of sex, marital status, and race. On average, women earned substantially less per year than men over the period. Single men earned significantly less than married men, an effect found in all earnings data. On the other hand, in regressions not reported here, no significant earnings differences were found between married and unmarried women. The average estimated difference in earnings of white and nonwhite lawyers is 5 percent, but the estimate is imprecise and

not statistically significant. The small numbers of nonwhites in this sample means that it contains little information on that question.

A "country lawyer" effect is found in those reporting residence outside metropolitan areas, who earn 20 percent less than their city cousins. Lawyers who report less than 18 years of school are paid much less than those who report more. The large difference of 35 percent may signal errors of misclassifying some nonlawyer respondents into the lawyer category. However, the other results are largely unaffected by whether those reporting less than 18 years of schooling are included in the sample. Lawyers employed by governments earn about 18 percent less than those working in the legal services sector, whereas those employed in nongovernment positions outside the formal legal sector (e.g., corporate legal offices) earn the same as those in the sector. Lawyers reporting nonzero self-employment earnings have the same total earnings as others.

The second column of Table 2 gives evidence on how these effects changed with time. Here the level effects in the upper part estimate how each characteristic was valued at the beginning of the period: the interaction terms below estimate the average annual rate of change in these wage differentials over the period. Thus, the positive interaction on X and the negative one on X^2 imply that experience-earnings profiles became steeper at younger ages and more arched as time went by. The economics is consistent with the change in composition if young and old practitioners are imperfect substitutes: increased supplies of young lawyers drove down their relative wages.

The male-female wage difference in the 1960s in Column 2 was much greater than its average 1967-87 value in Column 1, but the interaction shows that male and female

wages were converging at the rate of 1.5 percent per year. This is a natural consequence of the underlying forces discussed above that changed female participation in the legal profession. More detailed estimates showed large year-to-year sampling fluctuations in these differences. Given that qualification, Column 2 implies that more than two-thirds of the 1967 earnings gap between men and women was eliminated by 1987. Still, more than a 20 percent earnings differential remained. The marriage premium for men was eliminated at the rate of 1 percent per year in these data. Though not shown here, other experiments with time interactions revealed a small marriage discount for women in the 1960s, which also eroded over time. Both are consistent with the economics sketched above.

Remaining time interaction effects reveal that certification became more valuable over the period: the discount for less than 18 years of school increased over time, more than doubling its 20 percent base at the beginning of the period, and provoking a substantial decline of sample lawyers with schooling-years deficits over time. These data show no trend in relative earnings of lawyers outside the legal sector, but earnings of those employed by governments have lagged behind others at an average of more than 1 percent per year. The negative average effect in Column 1 for government lawyers results from a gradual worsening of their relative position over time, starting from essential parity with other lawyers in 1967. Replication of this well known fact (at least at the federal level) lends credence to the regression overall. Finally, significant worsening of the relative position of self-employed lawyers over time is revealed in these

data, from a premium in the '60s to a deficit in 1987. This result is unaltered when the other definitions of self-employment are used.

The third column shows how weekly hours of work of year-round (full-time) lawyers vary with measured characteristics. Most time interaction effects for hours were imprecisely estimated and sensitive to specification. They were too unreliable to be reported. The regressand in Column 3 is the arithmetic value of hours per week, not the logarithm, so the regression coefficients are in units of hours per week. Prior to 1975, the March survey only inquired about hours worked in the week prior to the survey week, but legal business has a positive spring seasonal component, so its use would be misleading. A more appropriate question asking hours in a typical week last year was only included in the March survey beginning in 1975. For this reason the sample period in Column 3 covers 1975-87.

Hours per week show a qualitatively similar work-life-cycle pattern as earnings, rising with experience and then falling. However, the quantitative effects are much different. Weekly hours rise and fall in a very narrow band of less than one hour, about 2 percent of the life-cycle average; whereas annual earnings rise and fall in a much wider band, by a factor of two or more. In these data lawyers with 27 years of experience on average earn more than twice as much as new entrants. Thus the major source of life-cycle earnings variation is changes in the price of time with experience.

Women worked 2.5 fewer hours per week than men (with no differences by marital status), or about 5 percent less than married men. Single men work 1.4 less weekly hours than married men. Both effects go in the same direction as relative earnings

differences, but are of much smaller magnitude in percentage terms. The same can be said of government attorneys and those reporting less than 18 years of schooling.

Government lawyers work 2 fewer hours per week, or 4.3 percent, compared to an earnings difference of 18 percent. The less educated work 1.3 fewer hours (3 percent) compared to an earnings difference of vastly greater proportions.

The main cause of earnings differences across almost all of these categories is a lower price of time. Since higher time prices are associated with greater hours, perhaps we are seeing a labor supply effect. Reverse causation is also possible: Those working in positions requiring longer hours may to some extent be compensated for it. These subtle matters cannot be sorted out here. However, the evidence suggests that those nongovernment lawyers outside the legal industry sector have a slightly higher price of time, but work fewer hours and maintain the same annual earnings as those in law firms.

IV. LAWYER PRODUCTION

Lawyers do so many different things and have such a wide variety of skills that there was a time when attending law school served as a kind of generalized graduate education for many college graduates. Law degree recipients often left the practice of law for business and other pursuits, if they ever took it up at all. This is probably much less true today. The rapid growth in lawyer numbers and the dramatic changes in their composition in the past two decades required correspondingly large changes in net entry. This could have come either from retreads (lawyers who previously left the profession but decided to try again), or from newly minted law school graduates.

The economics suggests that new graduates would be the dominant source. In the legal profession, like all skilled professions, talent, skill, and personal reputation are the important keys to success. Much human capital investment is required to build up the specific skills, a client base, and the reputation to attract new business. Furthermore, such investments are stretched out over long periods of time and depreciate rapidly if not maintained. The continuity of commitment, the lengthy expected horizon needed to make them pay off, and licensure requirements all favor fresh entrants.

No existing data source identifies re-entrants. However, data on law schools and their students bear out the importance of recent graduates. Figure 2 shows law school graduate numbers and its composition by sex over the years. Notice the huge increase in law school output in the 1970s, when the number of conferred degrees doubled in the six year period 1970-76. Figure 3 shows bachelor's degrees conferred for purposes of comparison. Baccalaureate degrees grew by a factor 3 from the 1950s to the 1980s. Law degrees grew 3.75 times. However, Figures 1 and 2 show that most of the growth in participation and in law school output were completed by 1977.

Evidently the demand by young people for law school admission created the places for demand to be realized. The capacity of the legal education system expanded very rapidly to accommodate the crush of students in the 1970s, and the manner in which it did is economically interesting. Both the number of law schools and their rate of utilization grew, but the latter was more important.

The number of ABA approved law schools began growing in 1967, with growth continuing until 1987, rising by some 30 percent from 135 ABA approved schools in the

mid-1960s to a peak of 175 schools in the mid-1980s. The number of schools follows an ogive (S-shaped) pattern over time, growing at the rate of 2.35 percent per year during 1967-75 and slowing to .64 percent per year thereafter. On the other hand, the size of each school grew by 75 percent. Thus school size contributed more than twice as much to overall output growth than growth in school numbers contributed. It is remarkable that most of the growth in graduates per school occurred in a five-year period in the early 1970s and most of that was further compressed in a two or three-year period: see Figure 4.¹⁶ Comparing the time-series on first year enrollments and degrees conferred reveals that a significantly larger percentage of first year students earned degrees as time went by, and an ever increasing fraction passed the Bar exam. The resulting gain in law school "efficiency" is attributable to fewer part-time students, a marked decline in drop-out rates, and to higher ability students.

Old-fashioned economists call the number of schools the extensive margin and the size of each school the intensive margin. The economic concept of adjustment costs easily accounts for why expansion at the extensive margin would be more diffused over time, with the intensive margin bearing the brunt of short-run adjustments. After all, the planning and capital construction required for a new school, as well as recruiting faculty, assembling a library, and building a reputation among potential students all take a lot of time. Changing the utilization of existing facilities can be accomplished with greater dispatch and is the efficient means by which short-run changes in demand are met.

¹⁶ These numbers are derived from those reported by the American Bar Association, *op. cit.*

The familiar economic concept of U-shaped average cost curves (the inverted umbrella) implies that most of the long-run response would come at the extensive margin, with expansion in numbers allowing capital utilization and the size of each school to fall gradually back toward their efficient, long-run level; yet Figure 4 indicates that these long-run effects haven't occurred as yet: the large enrollments per school that were established in response to demand for admissions in the mid to late 1970s have remained intact for 15 years.

Signs of slack capacity in the legal education sector in the 1980s support this theory. First, the rate at which law schools accepted student applications for admission increased in the latter 1980s. By 1987 it was larger than at any time since the 1960s. Second, growth in school size in Figure 4 was itself composed of two elements. Full-time teaching staff grew from 17 full-time teachers per school in 1967 to 28 in 1987, for a 65 percent change overall. Part-time staff behaved similarly. The student-teacher ratio behaved differently, climbing by 15-to-20 percent from 1967 to 1975 and falling thereafter. The decline in the student-teacher ratio per school was so substantial that by 1987 it was smaller than in any previous year.

Teachers and class size stand in the same relationship for a school as school numbers and capacity per school do for the system as a whole. Class size is more easily adjusted than teaching staff, and responded quickly to the 1970s enrollment boom. It fell back later as teaching staff continued its growth over the entire period. If, as Figure 2 suggests, student demand has finally leveled off, the standard model predicts that more adjustments are to come. School size should gradually decrease over the next two

decades, and the student-teacher ratio in each school should rise back to its pre-explosion level. Uncertainty about the state of demand growth will retard these adjustments.¹⁷

The time pattern of real earnings in law bears on how perspective entrants perceive future demand growth. We turn to that evidence next.

V. EARNINGS OF LAWYERS OVER TIME

Average earnings of lawyers exhibit a fascinating wave-like pattern over the 1967-87 period: see Figure A1. Real earnings rose in the 1960s, attained a peak in 1970-2, and fell until 1981-2. They increased from that point on, recovering more than one-half of the 1970s losses by 1987. Sampling variation in CPS lawyer earnings data makes it difficult to date turning points precisely and that difficulty is compounded by the sensitivity of lawyers' real earnings to business cycles, especially to recessions, where real earnings drop substantially.

Independent evidence for partners and solo practitioners from IRS earnings data confirms "the wave," as it will be labeled here. Both sources are consistent in timing and magnitude, but the peak and trough are more clearly defined in IRS data as occurring in 1972 and 1982 respectively (see appendix). Furthermore, the effects are large: the peak to trough movement during the decade long decline is 28 percent in CPS data and 36

¹⁷ For instance, the 1987 decline of the financial sector may have increased applications to law schools after the period of study. Of course, this discussion ignores quality variations among law schools and changes in law school tuition over time. There is some evidence that tuition increased at a faster pace than starting salaries in the 1980s. On these matters see Ronald G. Ehrenberg, "An Economic Analysis of the Market for Law School Students," Journal of Legal Education, Vol. 5, 1989.

percent in IRS data. Real earnings of lawyers in IRS data exhibit a sustained upward trend from 1950 to 1970, so the wave is a most unusual episode.

Index number problems imply that more work is necessary to establish that the wave in average earnings reflects a true wave in the real price of legal services. The rapidly changing demographic composition of lawyers could itself change their average earnings even if the real price of lawyers' time remained unchanged. The great entry of very young lawyers and of women almost guarantees a declining mean during the 1970s, because young and female practitioners typically earn less than their older and male counterparts. Earnings regressions in Table 2 are a convenient way of parceling out these composition effects. Allowing for direct effects of experience, sex, and other variables in the regression eliminates possibilities of their contaminating the time coefficients (to the first-order).

The cubic effects of time in Table 2 are statistically significant and their alternating sign pattern supports the finding that there exists a true wave in the price of time. Still, demographic factors have a large effect on the observed pattern of average earnings of lawyers. The dashed line in the upper panel of Figure 5 plots arithmetic average real earnings of CPS lawyers over time, expressing the average as an index (ratio x 100) to mean earnings over the entire 1967-87 period. The pure time effects (independent of composition changes) were estimated with functionally free-form year dummy variables in the regression of Table 2 rather than the more restrictive cubic pattern. These time effects (with demographic variables, but not their time interactions, in the regression) are

graphed in the solid line in the same panel of Figure 5, also expressed in index form relative to the standardized 1967-87 mean.

Comparing the two we see that changes in composition account for most of the decline in mean earnings in the 1970s. The standardized mean may have a small downward trend in the 1970s, but the unadjusted mean has a marked decline attributable to demographic shifts. The standardized averages reveal that the decline in the real price of lawyers' time was largely concentrated on a two or three-year period in the late 1970s and early 1980s. However, they agree in showing a sustained increase in the real price of time from 1981 onward.¹⁸ Finally, the amplitude of fluctuation in the standardized average is about two-thirds as large as that of the raw averages, so demographic changes account for about one-third of mean variation.

Apart from the 1979-81 decline in earnings, the upper panel in Figure 5 suggests that high demand sustained the price of lawyers' services in the face of huge entry during the 1970s and that demand for legal services continued to grow during the 1980s. The underlying causes of growth in demand for legal services have proven difficult to identify, but the evidence is compelling that demand was increasing over the period. An increasing propensity to litigate is seen in the rapid growth of civil cases before Federal District Courts. The volume of such cases takes off in 1975 and almost doubles by 1987. Increasing litigiousness also is indexed by explosive growth in cases before the Federal

¹⁸ Time effects in the hours regression of Table 2 reveal that hours per week declined from 1975 to 1982 and rose from 1982 to 1987. This implies that the real price of time of lawyers in the 1980s might have increased even more than Figure 5 shows, but the effect is not large.

Appeals Courts. These cases double between 1960 and 1967, double again between 1967 and 1974, and double yet again between 1974 and 1985. There is reason to believe that growth in demand was greater in the 1980s than in the 1970s. Legal services accounted for only .6 percent of Gross Domestic Product (GDP) in 1960, and steadily increased at the rate of 1.86 percent per year to account for .87 percent of GDP by 1980. That year marks a clear break in trend. From 1980 on the GDP share grows at the remarkable rate of 6.69 percent per year (more than 3.5 times greater than the earlier rate), reaching a 1.39 percent share of GDP by 1987.

Other evidence suggests that making inferences only on the basis of earnings and entry of lawyers may be misleading. The fact is that the same wave-like pattern characterizes real earnings in virtually all the professions in the U.S. over this period, yet relative demand shifts and entry certainly differed greatly among them. In fact the wave characterizes real earnings of all college educated workers as a group. The second panel in Figure 5 repeats the exercise of the first panel for white male college graduates. Unadjusted average real earnings are shown by the dashed line and follow virtually the same pattern as that of lawyers, though with slightly smaller amplitude.

The regression standardized index of the real price of time of college graduates is shown by the solid line. College entry cohorts in the 1970s were so large that they had to be widely distributed across all markets for skilled labor. Figure 5 shows that this had much the same effects on their unadjusted mean as for lawyers: the real price of time did not fall as much as mean earnings, and the true price decline is more focused on a brief period in the late '70s and early '80s. Again demographics reduce wave amplitude,

here accounting for about 40 percent of the gross decline in the 1970s. There is little systematic movement in the wages of lawyers relative to college graduates between 1971 and 1979.¹⁹

Substantial differences between lawyers and college graduates emerge in the late 1970s and persist through 1987. They also possibly appear in the 1960s. Real wages in law fell by more than for college graduates in the late '70s. However, lawyers' relative earnings made a much more pronounced and sustained recovery throughout the 1980s. As for the beginning of the period, if 1969 CPS outlier observations are ignored, it seems likely that the wage of lawyers relative to college graduates increased from the late 1960s to the early 1970s. Piecing all these parts together gives the following picture: earnings in law improved its position relative to college graduates from the late 1960s to 1972 and remained high, but unchanged through 1978/9. Relative earnings in law dropped precipitously during 1979-81, but showed a sustained recovery through 1987.

The wave in earnings of college graduates bears on the rate of return to college education. Skill differentials narrowed in the 1970s, but widened substantially in the 1980s, making the rate of return to college decline in the 1970s and increase in the

¹⁹ The college regression for Figure 5 is based on 120,000 records of full-time male workers with at least 16 years of schooling. Women were excluded because their experience is subject to serious mismeasurement: female labor force participation changed so much over the period that no reliable inferences about life cycle earnings of younger women can be inferred from the experience of older women. Inferences based on male records are likely to be more valid for assessing their prospects in law over the period. The problem is comprehensively discussed by Claudia Goldin, Understanding the Gender Gap, New York: Oxford University Press, 1990.

1980s.²⁰ As in law, the full underlying causes of these important changes have not been clearly identified. Whatever the source, empirical connections between entry and earnings expectations bear on the supply elasticity of lawyers.

VI. EARNINGS EXPECTATIONS AND ENTRY

The economics of occupational choice focuses on career earnings prospects as an important determinant of career choice. Two aspects of earnings expectations must be distinguished. One is a prospective entrant's beliefs about future personal career success in the occupation compared to others who choose it. Those who are more optimistic or otherwise have better than average assessments about their career chances in law are more likely to enter.²¹

The other is expectations about future general wage and employment conditions in law compared to other fields. A larger proportion of potential entrants choose law if the average person expects favorable long-term future demand conditions to prevail. The first factor probably dominates choice at the individual level, but the second one dominates aggregate time-series analysis: for if the distribution of beliefs about personal

²⁰ For more details see Marvin Kusters, "Wages and Demographics," in M. Kusters (ed.) Workers and Their Wages Washington: American Enterprise Institution Press, 1991, and Kevin M. Murphy and Finis Welch, "The Role of International Trade in Wage Differentials" in ibid.

²¹ Smith cited the "overweening conceit" of young people's opinions of their own talents and implied that over-optimistic self assessments result in excessive entry in some fields, including law. See Adam Smith, The Wealth of Nations, New York: Modern Library (Cannan) Edition, 1937, Book I, Chapter 10, p. 107. Smith's sharp observations are without peer, but no definitive evidence has ever been marshalled on this interesting point. Evidently those with optimistic assessments of their prospects would tend to be drawn to the profession and pessimists would tend to be repelled.

prospects are approximately independent across successive generations of entrants, changing expectations about future market conditions are necessary to change the proportions choosing law.

Capital asset prices play a crucial information role for investment decisions in a market economy. Capital investment in an activity is an increasing function of the difference between its market price and cost of production. The principle is general and holds also for human capital investment, but is harder to apply in practice because human capital values are not directly observed. Instead, they must be imputed by discounting earnings projections over a career at the entry point. But, in spite of the fact that all modern economic research on occupational choice recognizes the important role of future earnings expectations, no accepted empirical formulation of this problem currently exists. Two polar opposites are briefly examined here. One is based on the concept of "static" or "cobweb" expectations, and the other on "rational" expectations.

With static expectations, prospective entrants are postulated to act as if the life-earnings structure currently observed among older practitioners in law and alternative occupations will remain unchanged in the future. Its empirical counterpart is the cross-section internal rate of return to a legal career: the rate of interest that equates the present values of the delayed experience-earning profile of lawyers to that of college graduates in each CPS survey. My computations assume that choice is made at the time of college graduation and that law school lasts for three years. Work lives of 40 and 37 years are assumed for college graduates and lawyers respectively.

The calculations are presented in Figure 6. Cross-section rates of return to law vary greatly from year to year because there is substantial sampling variation in the yearly regression on which they are based, due to relatively small samples in law. Obviously, these numbers can't be informative about short-run participation rates. The lower frequency movements follow a step-like pattern, with a lower step during 1967-77 and higher one during 1979-87. This is not dissimilar to the pattern of relative wages between lawyers and college graduates. These numbers cannot explain the general decline in male participation in Figure 1. While more consistent for women, it is notable that the largest increases in female participation occurred prior to 1977, before the rate of return increased. Sustained growth in female participation independent of the path of relative wages in Figure 5 or of rates of return in Figure 6 suggests the interpretation that law somehow "opened up" to women.

A kind of band wagon effect may also have been instrumental to the sustained growth in women's participation. Entry into law school would have appeared increasingly feasible and attractive to women as the number of successful prior entrants increased. This force gives women's entry a certain momentum independent of current and future wages. Entry of talented women also would have increased effective entry costs for men through increased competition for places in high quality law schools. The point is complicated by growth and expansion of the total legal education system, but may help account for the downward trend in male participation in the early and mid-1980s that cannot be explained by relative wage prospects.

A much different concept is based on realized earnings-experience profiles of each entry cohort over the period spanned by CPS records. For both law and college graduates, cohort earnings profiles are constructed by following each crop of graduates as they age through successive surveys. Internal rates of return were calculated on the timing assumptions above, using experience profiles estimated from log earnings regressions over the entire period, with time (dummy) effects and no time interactions. These calculations go to the opposite pole of static expectations, because they assume a kind of clairvoyance and perfect foresight. As such, they are an extreme and overly strong form of rational expectations.

Data covering entire careers are necessary to carry the far-sighted calculation to its limits. Since CPS data span 21 years or about half a legal career, the calculations require some additional assumptions about future earnings trajectories after 1987. Three alternatives were examined. One extrapolated zero growth in real earnings-experience profiles for both lawyers and college graduates beyond 1987. This is roughly consistent with the average experience observed over 1967-87 (see Figure 5). The others assume 1 and 2 percent annual growth in the real price of time in both alternatives after 1987.²²

These results also appear in Figure 6. The rate of return assuming no-growth past 1987 is relatively flat over 1967-77 and increases only from 1977 onward, similar to the

²² All rational models must imply that relative earnings in law ultimately achieve a stable relationship to the alternative at the long run supply price. The point at which this occurs cannot be ascertained without a formal econometric model. For want of a better alternative, the calculations here merely assume that relative earnings past 1987 are maintained at their observed averages during 1985-87. Judging from Figure 5 this is probably generous to law.

myopic case, but with much smaller variation. The reason is the same as before: wages of lawyers and college graduates remained fairly constant relative to each other until 1979, even though both moved around quite a bit in absolute terms. The increase in the rate of return to law later on reflects rising relative earnings of lawyers during the 1980s. The rate of return levels off toward the end because law and college graduate earnings have been assumed to stand in stable relation to each other for all time past 1987 at their 1985-87 averages. Calculations using the one or two percent growth rate assumptions after 1987 impart some upward drift to the 1967-77 period due to the forward looking aspect of this calculation, though the larger rate of increase past 1977 remains. Since the two calculations share their essential time-series movements it hardly can be said that the empirical evidence tips the balance toward one expectations hypothesis or the other: neither does very well.

Stepping back from the year-by-year comparisons, other factors slightly favor the far-sighted view. The static calculations assume that every disturbance is "permanent". They admit virtually no transitory variations in relative wages, including even those that are attributable to business cycles and known to entrants as such, never mind the longer, but still transitory wave in relative earnings uncovered here. In contrast, the far-sighted calculation weighs transitory and permanent components of variation in proportion to their true incidence. Furthermore, its moving average quality smooths and reduces the range of variation in rates of return and capital values over time.

For example, assuming zero growth in earnings profiles post 1987 and a 15 percent interest rate, the capital value of earnings upon entry of a typical cohort into legal

practice is about \$425,000 over the period. Its time pattern across cohorts reflects that of wages in Figure 5; rising until 1969, falling steadily from 1969 to 1980, and rising thereafter. But the range of variation is quite small. The peak to trough difference is only \$30,000 or 7 percent of the mean. Discounted college earnings behave similarly. Consequently, changes in the difference in capital values between law and college graduates across cohorts are also small relative to the capital values themselves: \$15,000 separates the minimum and maximum difference over the entire period. The same thing shows up in another way in the relatively small differences in the forward-looking rates of return between the two decades, compared to the cross-section numbers. Both types of variation would be even smaller if account were taken of increasing uncertainty of estimation for later cohorts due to shorter earnings records.

The point is that any reasonable basis for rational entry decisions into a profession must allow for transitory deviations and the "return to normalcy" implicit in ex post or far-sighted rate of return calculations. This has an important implication. For in limiting differences in capital values, forward-looking expectations imply more elastic supplies of new entrants. This is broadly consistent with the vast changes in entry observed in law, and relatively little changes in realized rates of return. Difficult details remain unresolved. For instance, forward looking returns in Figure 7 don't cycle even though real wages cycle. Therefore, the forward concept surely cannot explain the curious pre-1970

cycles in male participation of Figure 1 when wages didn't cycle at all. A more complex model is required for that.²³

VII. CONCLUSION

It seems fair to conclude that relatively simple economic ideas are useful for understanding the basic economic structure of the legal profession and the way it has changed in the past two decades. There is, however, room for improvement. Undoubtedly, rising demand for legal services caused such high entry rates, but we are less successful in identifying specific indexes of career earnings that can account for their year-to-year variation. Interpreted broadly, the data suggest that supply of new entrants to law is fairly elastic with respect to career prospects, even though the present value calculations here leave much to be desired.

Other economic factors, in addition to average career earnings expectations, play a role in entry decisions into law. Some evidence suggests that changes in the organization of practice--the growth of large partnerships, more frequent use of contingent fees, class action suits-- have resulted in extremely large earnings among a relatively small, elite group of lawyers. This "star quality" among legal practitioners hardly is new, but its size and frequency may have become more important than in the past. Such concentration in

²³ In work of great originality, Pierce, op. cit. proposed a model based on imperfect substitution between less and more experienced lawyers, which can generate cycles even with rational expectations. Freeman, "Legal Cobwebs..," op.cit. was led to a myopic model on empirical grounds. He found that the best fitting supply function for new entrants depended only on current earnings of young lawyers. Both would have difficulty in accounting for the total absence of cycles in law participation among college women and for their disappearance in the 1970s for men.

earnings is the natural outcome of the economically efficient assignment of large legal claims to the most talented practitioners. Furthermore, increasing litigiousness and demand for legal services might have increased scarce ability rents in law, at least in the short-run. In this chance or lottery aspect, law has something in common with writers, artists, and rock musicians. And the option value of choosing law is much greater, because even middling success pays well. The "starving artist" has few counterparts in the legal profession.²⁴

Available data constrain serious investigation of this problem. By definition, stars are not encountered very often, and there are not enough lawyers in the CPS surveys to reliably identify their frequency. Furthermore, top-coding and imputation problems in CPS earnings records (see appendix) make it difficult, if not impossible, to recognize such persons when they are seen. Even with all of the qualifications, these data aren't encouraging for the lottery hypothesis. The coefficient of variation in lawyers' earnings, using either total or residual variation from regressions, is 7 to 10 percent larger than for all college graduates. But to account for the entry boom, the hypothesis requires increasing relative variation over the period. There is scant evidence for that. Relative earnings dispersion among CPS lawyers followed the same wave-like pattern as the mean.

²⁴ Smith considered this problem too, specifically in the context of inns of the court in his day: *op. cit.*, p. 107. A scale economy is necessary to support "stars" in the legal profession, in the sense that purchased inputs do not rise proportionately with the size of claims. For the general argument see Sherwin Rosen, "The Economics of Superstars," American Economic Review, 71(5), Dec., 1981: 845-58.

Are there too many lawyers? Certainly not, so far as passing the market test is concerned. Had the extraordinary entry of the past two decades saturated the market, there would have been a systematic decline in relative earnings. This has not occurred.

Another frequently voiced complaint is more difficult to assess. Does the social product of lawyers' services exceed their private product? Economic efficiency in a market system based on private property requires an orderly way of resolving differences in what property rights are in specific cases. The legal profession is easy to pick on because virtually all civil disputes and litigation merely transfer resources from one party to another. These *ex post* transfers among parties are inherent in legal work. Viewed only in that way, resources used up in the transfer process appear to be similar to rent seeking and are a social waste. And many blatant examples of waste in litigation can be found: a fairly persuasive case can be made that changes in the structure of American law and higher court decisions relaxed earlier constraints on law suits and increased the demand for lawyers in the past two decades.²⁵ To answer the normative question, we must assess whether the *ex ante* effects of prospective disputes promote efficient economic and social behavior that otherwise would not occur. That is what makes the *ex post* costs worth bearing. On that there is likely to be disagreement for many years to come.

²⁵ See the interesting popular book by Walter K. Olson, The Litigation Explosion, New York: Dutton, 1991.

APPENDIX

The CPS reports an open ended interval for all (nominal) earnings responses above a certain level. These "top codes" were \$50,000 or more for the 1967-80 surveys, \$75,000 or more during 1981-85, and \$100,000 or more after 1985, and must be replaced by their conditional expectations to calculate sample moments. In occupations such as law where mean earnings are high, the treatment of top codes can be important. 11.6 percent of CPS lawyers are top coded. These are split about equally between self-employment and wage-and-salary earnings records. The proportions that are top coded vary greatly from year-to-year, as top codes are fixed in nominal amounts and inflation bites into them over time. The proportion of top coded observations is practically zero in some years and over 20 percent in a few others.

Experimentation with fitting pareto distributions to the upper tails of annual earnings distributions was unsatisfactory because imputations were very unstable. A log normal distribution proved to be a better alternative. In each year a truncated upper limit Tobit regression was estimated and conditional expectations (given the demographic regressors discussed in the text) were assigned to each limit observation.²⁶ The estimated means replaced the top codes and were thereafter treated as ordinary data; for example, in the pooled regressions in Table 2 and Figure 5.

²⁶ The tobit was estimated on total earnings. Top coding of either self-employment or wage and salary earnings were treated as a limit observation. In a few records, one form of earnings was top coded and the other was not: these were infrequent and were simply treated as ordinary limit observations, and the extra information contained in them was ignored.

Data on lawyers' earnings from IRS business returns provide an important independent check on this procedure. The comparison between means (after Tobit imputation) is shown in Figure A1.²⁷ IRS data exclude wage and salary earners and may differ from the CPS because various costs of business are netted out. CPS earnings are somewhat larger than IRS earnings in Figure A1. However, the two averages track each other remarkably well over time, and certainly well within normal sampling variation. Notice that replication was hardly guaranteed: using the identical procedure for CPS doctors resulted in a CPS and IRS comparison of means that differed greatly over time, so much so that CPS earnings data for doctors are unusable.

The CPS also imputes earnings for non-respondents. The number of imputed observations is nontrivial, but their proportions have a downward trend. For wage and salary earnings, about 21 percent are imputed before 1980 and about 16 percent after. For self-employment earnings, the numbers are 23 percent and 12 percent respectively. CPS imputation methods have been criticized by economists, but the sample would not be random if imputed observations were deleted. All observations are retained here for that reason. But since the large number of imputed observations signals a possible problem, dummy variable indicators for them were included in all regressions. These were crossed with time whenever interactions were specified. Experimentation with imputation dummies before and after 1975 (when the imputation method was changed) plus their time interactions revealed that the estimates were not sensitive to any of these

²⁷ These data are drawn from Internal Revenue Service, Statistics of Income Bulletin, Washington, D.C.: U.S. Government Printing Office, Various Issues.

alternatives. Note also that the means in Figure A1 include CPS imputations and still closely follow IRS means.

TABLE 1
CPS SUMMARY STATISTICS

NUMBERS			PROPORTIONS									MEAN
Year	Sample Size	Pop ^a /1000	Female	Non White	Ed <18	Not Married	Exp≤5	Exp >25	Not Legal Indust.	Govt	Exp	
1967	155	240.6	.032	.013	.168	.090	.077	.316	.310	.194	20.2	
1968	166	253.1	.024	.024	.187	.084	.090	.367	.299	.193	20.4	
1969	162	250.6	.043	.012	.086	.117	.154	.389	.198	.130	19.2	
1970	171	287.1	.047	.018	.111	.135	.117	.322	.210	.105	18.8	
1971	160	308.0	.031	.019	.156	.100	.138	.261	.231	.144	18.2	
1972	160	340.9	.031	.025	.193	.113	.138	.275	.281	.169	18.0	
1973	156	333.9	.032	.019	.160	.147	.205	.250	.295	.173	16.9	
1974	179	381.9	.022	.022	.117	.117	.251	.196	.346	.223	14.7	
1975	169	374.1	.030	.018	.059	.148	.254	.206	.302	.201	14.7	
1976	226	423.2	.057	.022	.053	.164	.230	.177	.283	.168	14.1	
1977	241	480.9	.050	.008	.066	.195	.216	.190	.336	.216	14.6	
1978	258	509.8	.124	.027	.124	.252	.198	.150	.306	.205	13.7	
1979	305	500.0	.098	.033	.052	.269	.210	.170	.285	.193	13.9	
1980	320	529.6	.109	.034	.088	.238	.219	.150	.269	.194	13.7	
1981	316	638.1	.120	.022	.069	.215	.165	.158	.297	.196	14.4	
1982	316	646.7	.136	.032	.038	.266	.165	.159	.275	.152	14.4	
1983	302	602.0	.119	.026	.050	.245	.179	.192	.301	.195	15.1	
1984	354	686.7	.155	.028	.082	.274	.153	.186	.325	.209	15.4	
1985	328	631.7	.161	.027	.034	.265	.162	.180	.302	.204	14.8	
1986	350	694.0	.160	.046	.049	.237	.166	.131	.266	.166	14.2	
1987	389	741.7	.162	.010	.113	.280	.136	.145	.285	.180	15.1	

a. Lawyer population extrapolated for full and part-time lawyers.

TABLE 2
REGRESSION COEFFICIENTS,^a EARNINGS AND HOURS

INDEPEND. VARIABLES ^{b,c}	DEPENDENT VARIABLES		
	LOG EARNINGS		USUAL HOURS
DEMOG. VBLS.			
X	.0545 (19.6)	.0432 (6.7)	.0630 (1.3)
X ²	-.0010 (15.2)	-.0008 (5.6)	-.0029 (2.4)
FEMALE	-.3743 (12.9)	-.5793 (6.5)	-2.5213 (3.7)
SINGLE MALE	-.1806 (8.3)	-.3316 (5.6)	-1.4227 (4.0)
NONWHITE	-.0492 (0.9)	-.1789 (1.3)	-.7065 (0.9)
ED _{≤18}	-.3095 (11.1)	-.1970 (3.5)	-1.3460 (2.6)
OUTSIDE SMA	-.1835 (10.1)	-.1421 (3.0)	-.4846 (1.5)
OUTSIDE LEGAL SECTOR	.0206 (0.7)	.0667 (1.0)	-2.5169 (6.0)
GOVERNMENT	-.1666 (5.9)	-.0306 (0.4)	-2.0044 (4.2)
SELF-EMP.	.0302 (1.4)	.2529 (4.9)	-.1440 (0.4)
<u>TIME EFFECTS</u>			
T	.0859 (5.4)	.0921 (5.5)	-.7022 (4.4)
T ²	-.0042 (5.9)	-.0093 (5.8)	.0488 (4.6)
T ³	.0003 (5.9)	.0003 (5.7)	---
<u>TIME INTERACTIONS</u>			
T·X		.0010 (2.0)	
T·X ²		-.0000 (1.4)	
T·FEM		.0151 (2.7)	
T·SINGLE Male		.0112 (2.8)	
T·NONWHITE		.0095 (1.0)	
T·ED _{≤18}		-.0102 (2.4)	
T·OUT SMA		-.0040 (1.2)	
T·OUT OF LEG SEC		-.0033 (0.7)	
T·GOV		-.0106 (2.1)	
T·SE		-.0172 (4.7)	
Adj. R ²	.2360	.2424	.0742
DATA PERIOD ^d	1967-1987	1967-1987	1975-1987

NOTES

^a Absolute t-statistics in Parentheses.

^b Definitions: X = Years of experience, estimated as age minus schooling (in years) minus six. ED_{≤18}: Qualitative variable = 1 if reported education is less than 19 years; = 0 otherwise. OUTSIDE SMA = 1 if person resides outside metropolitan area, and = 0 otherwise; OUTSIDE LEGAL SECTOR = 1 if person is not classified in the legal service industry and = 0 otherwise; S.E. = SELF. EMP. = 1 if person reports nonzero earnings from self-employment irrespective of other sources and = 0 otherwise; T = Calendar year, with 1967 = 1, 1968 = 2, etc.

^c Controls for whether a person's earnings were imputed by the Census Bureau are included in all regressions, but are not reported. See appendix.

^d Earnings regressions estimated on pooled time-series of 21 cross-sections covering entire period. Sample size is 5182. Hours regressions estimated on time-series of 13 cross-sections covering 1975-87. Sample size is 3873.

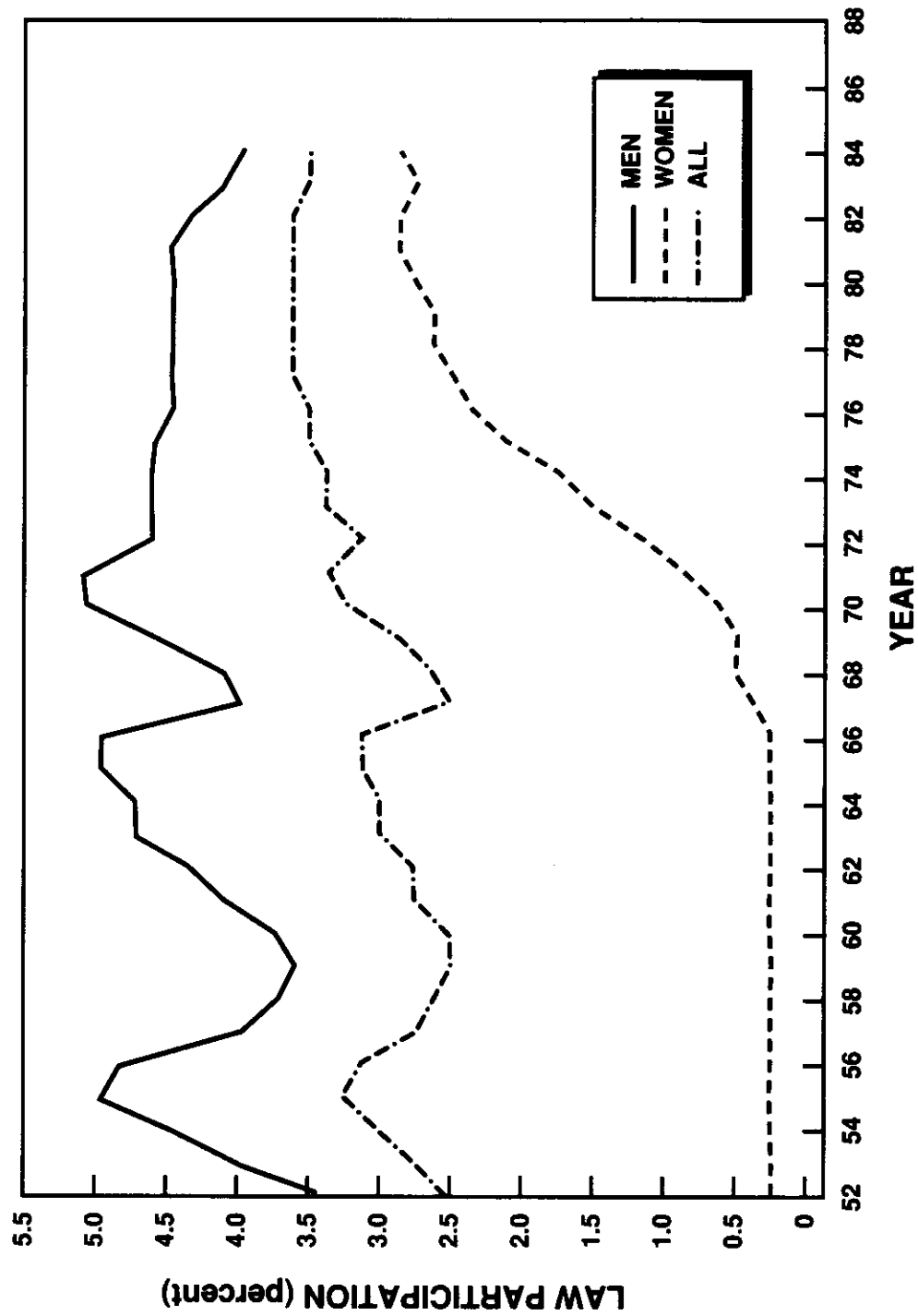


Figure 1

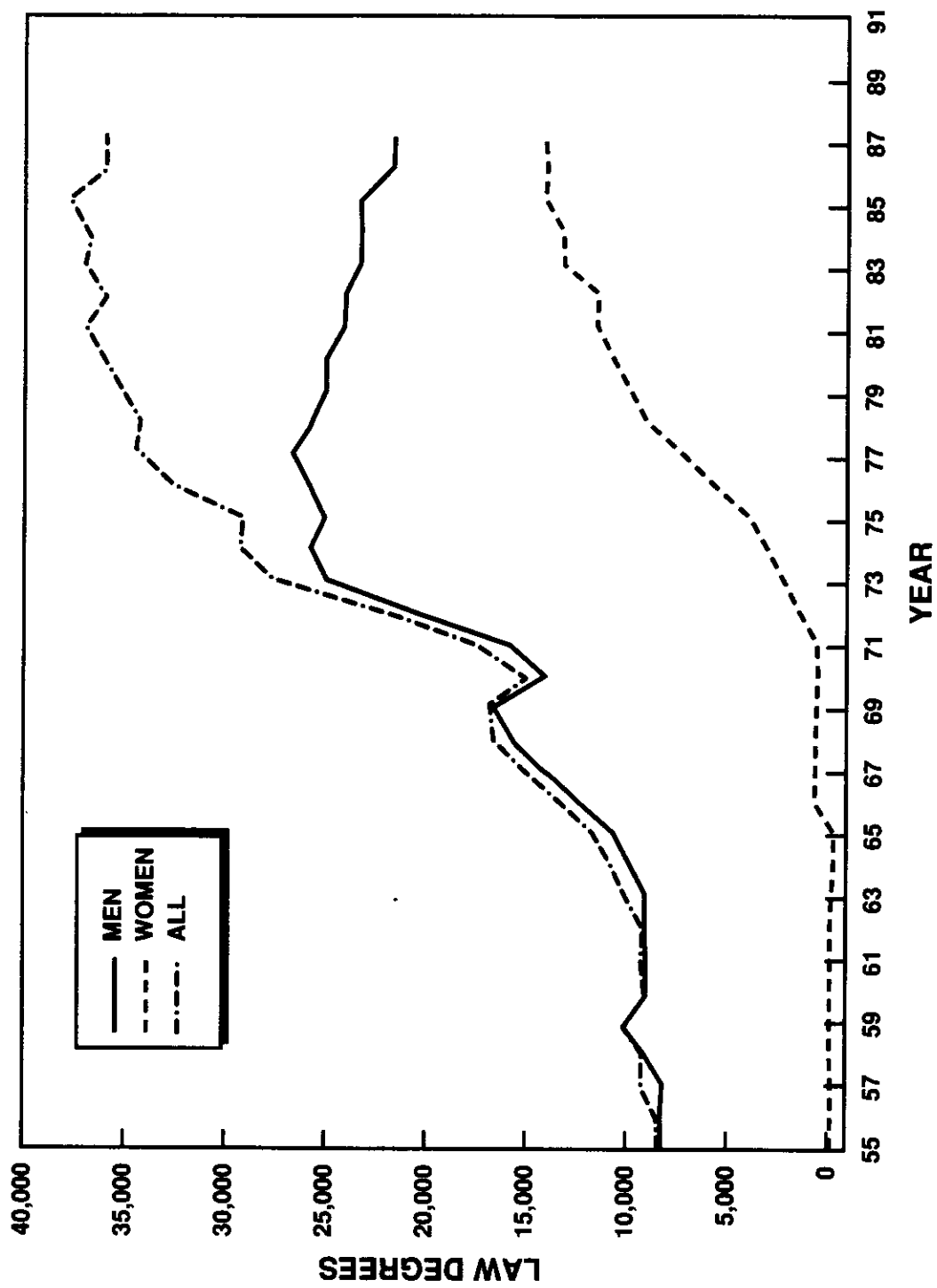


Figure 2

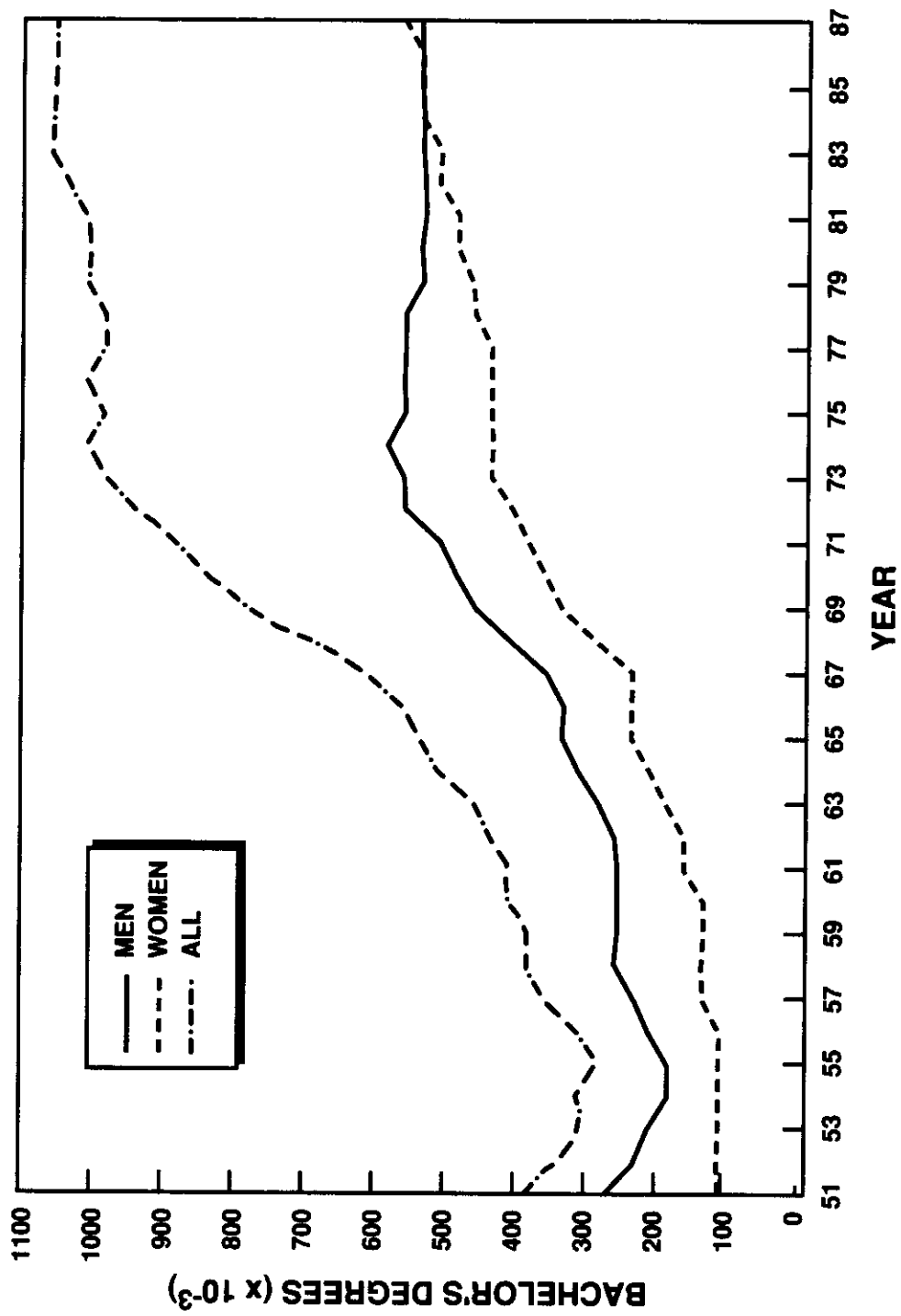


Figure 3

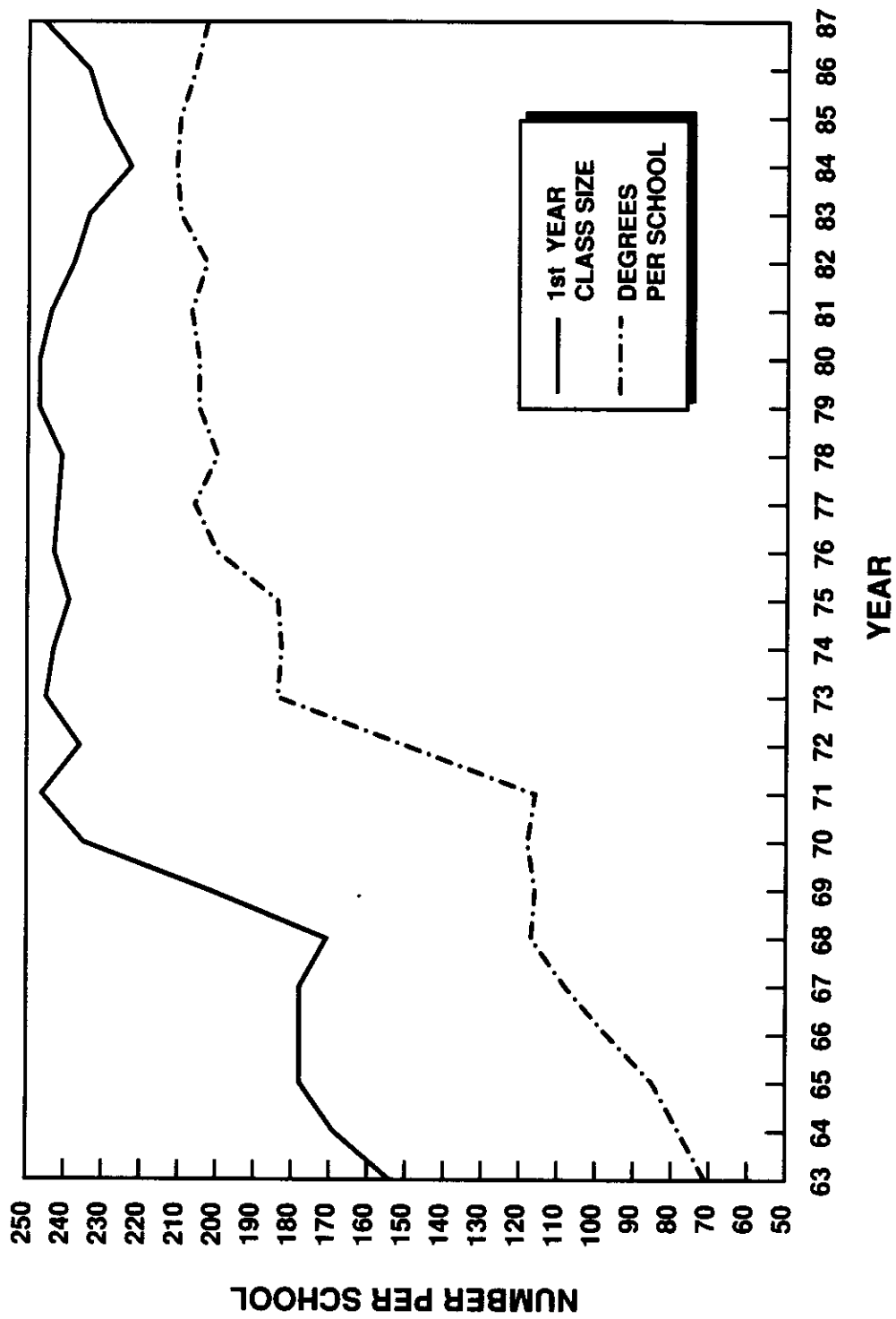


Figure 4

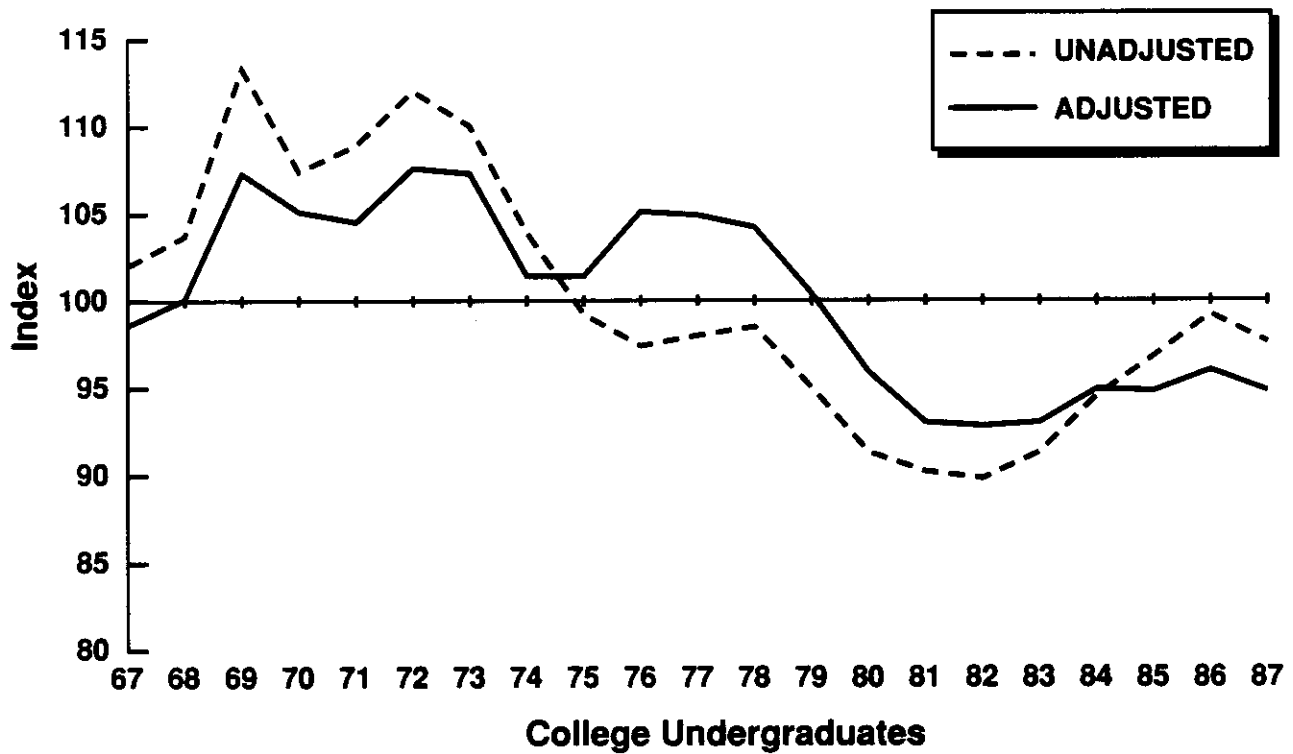
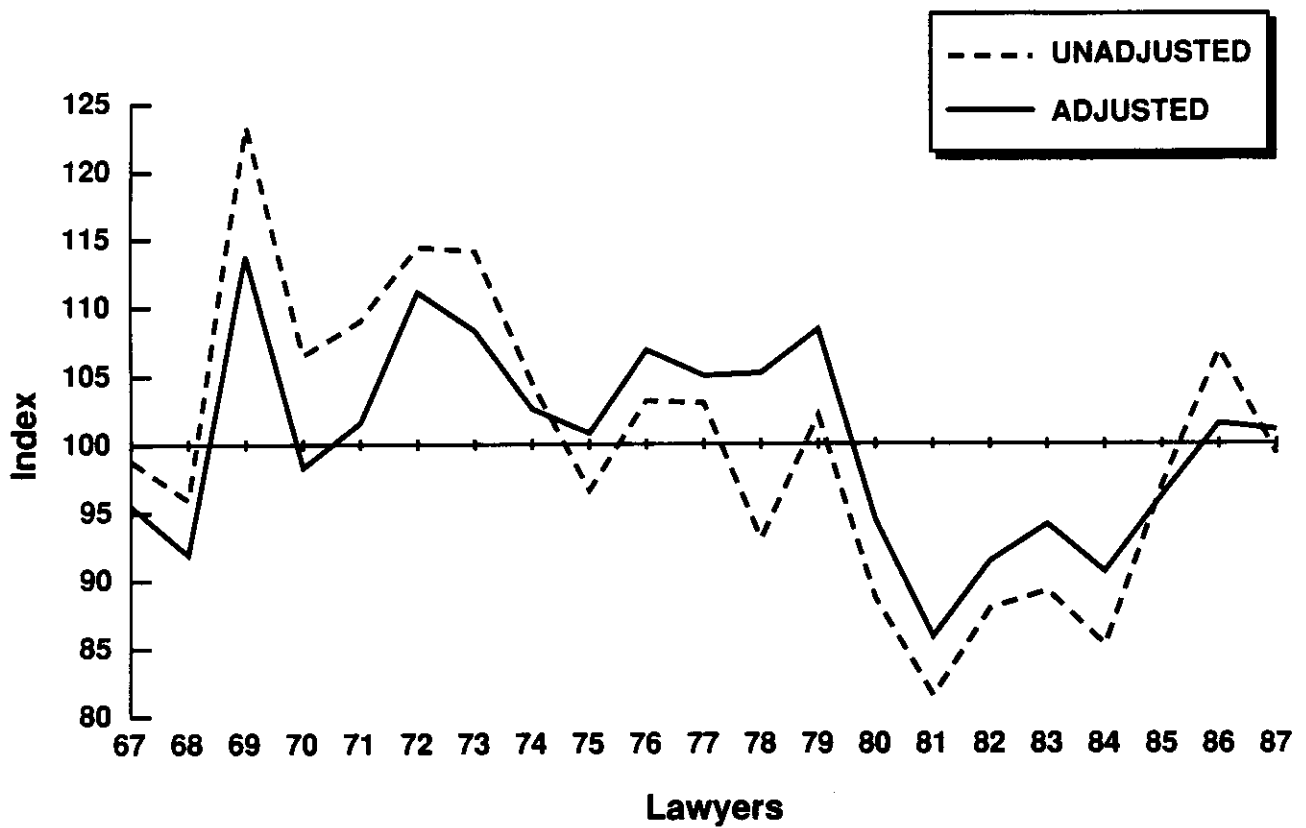


Figure 5

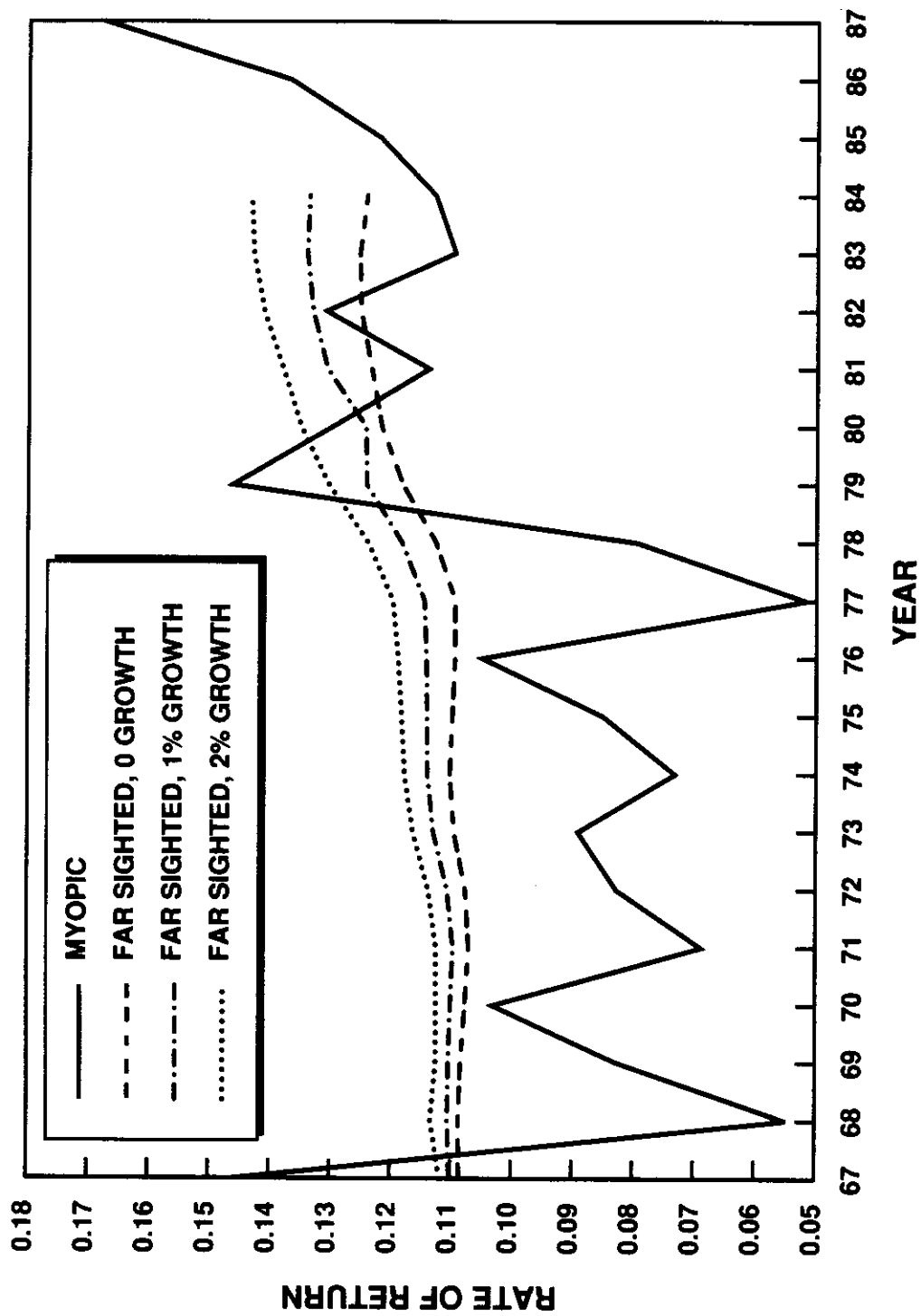


Figure 6

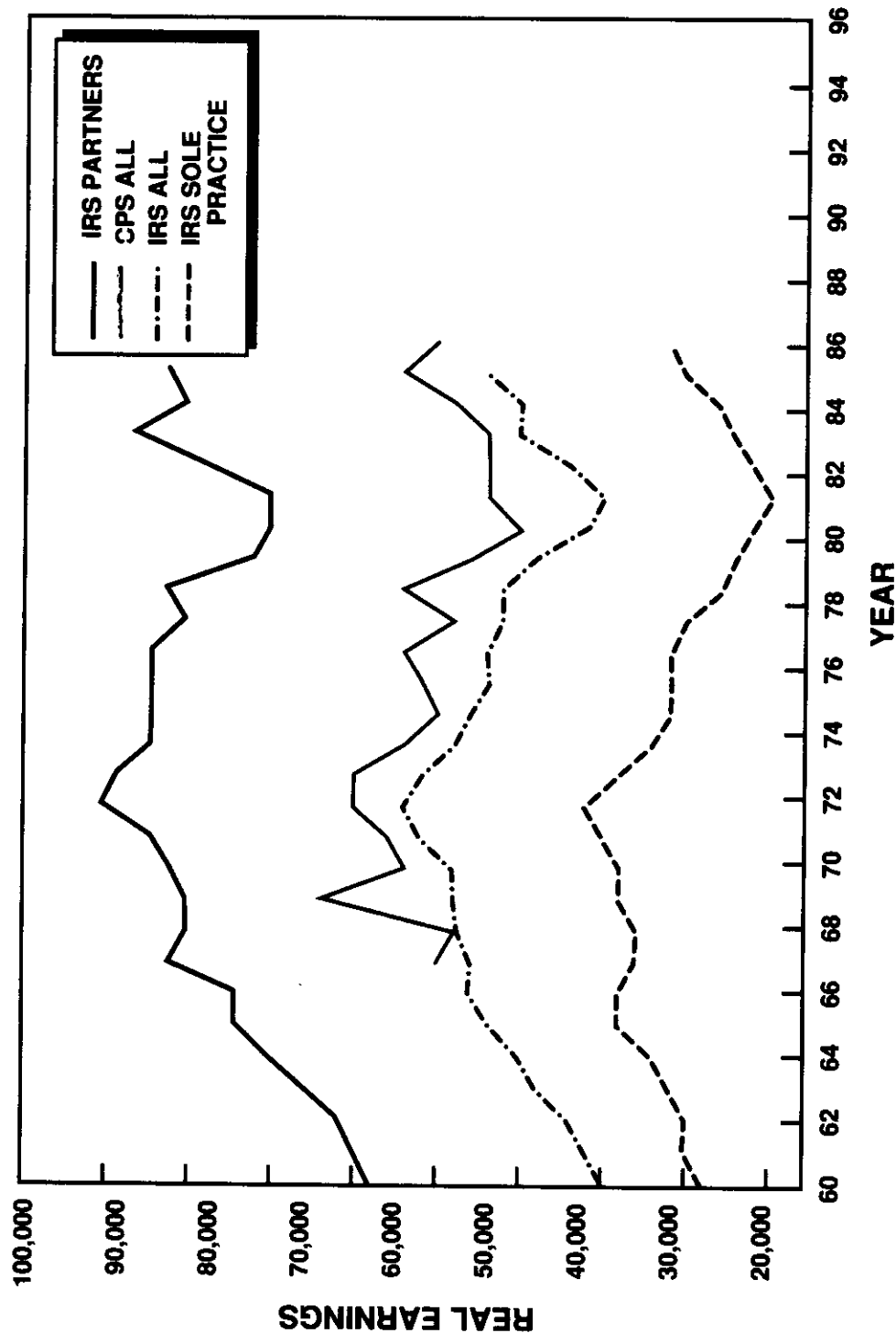


Figure A1