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Personal Earnings In The Accounting Profession: Returns For Alternative Investments

Kenneth Rosenzweig

Lawrence Hadley

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Returns For Alternative Investments

By Kenneth Rosenzweig and Lawrence Hadley

Although there is substantial information about the earnings of accountants [BLS, 1984; Robert Half, 1986], there have been relatively few analyses of the determinants of their earnings. Therefore, a study was undertaken to explore these determinants. Information was collected from members of the National Association of Accountants (NAA) via a questionnaire. Responses to the questionnaire provided data on earnings in addition to wide range of information on professional and personal characteristics.

Analysis of the data suggests some interesting patterns of returns in the accounting profession:

- The CPA credential was found to have a significantly positive impact on earnings in both industry and public accounting.
- Accountants with the same credentials and experience were found to earn significantly more in industry than in public accounting.
- A significant earnings return was found for the MBA degree in industry but not in public accounting.

These findings should assist accountants in making career decisions that will lead to professional advancement and increased earnings.

Methodology

Although economists have studied the determinants of earnings in various contexts, the dominant approach utilized has been human capital theory [Becker, 1975; Mincer, 1974]. Briefly, this theory analyzes individuals who invest in themselves by accumulating skills, most commonly through formal education, continuing education beyond formal degree programs, and training in the workplace. Although these activities are costly in both time and money, they are expected to increase a worker's productivity and, in turn, result in higher earnings per unit of time.

Database. To apply human capital theory to the accounting profession, an extensive database of variables relating to the earnings of NAA members was compiled. The general purpose was to compare the returns on investments in alternative types of human capital most commonly made by accountants. These investments include various academic degrees and professional certifications, as well as work experience in alternative types of firms and various areas of specialization.

The database was compiled by surveying 9,520 randomly selected members of the NAA. A total of 3,081 members responded to the survey for a response rate of approximately 32 percent. The NAA was selected because of the wide diversity of its members' credentials and work-histories in the accounting profession. This diversity permits a comparison of returns on many alternative types of career choices. In contrast, the other major professional association, the American Institute of Certified Public Accountants, includes only CPAs as members, and a sample of its members would have prohibited the comparison of career choices and earnings between CPAs and non-CPAs.

The questionnaire asked for information regarding an individual member's earnings in 1984; position of employment in 1984; educational, professional, employment, and family histories; and certain personal information of a demographic nature. The responses were anonymous to protect individual confidentiality. A general overview of accountants' earnings is provided by Table 6 in the appendix which presents mean earnings for various subgroups of our sample.

Data Analysis. The technique employed for analyzing the data is multiple regression. The dependent variable is the natural logarithm of earnings. This type of analysis identifies the additional earnings in percentage terms asociated with variables measuring various professional and personal characteristics, e.g., education or gender. These percentage earnings increments are reported for various groups of variables in Tables 1-5.

Multiple regression analysis isolates the percentage increment of earnings for a particular explanatory variable while controlling for the possible impact of other explanatory variables. Specifically, the percentage earnings increments reported in Tables 1-5 are the regression coefficients of the earnings equation. A specific regression coefficient represents the percentage increase in earnings associated with a unit change in the specific explanatory variable for accountants with equivalent values for all other explanatory variables (i.e., the percentage increase in earnings while holding the other explanatory variables constant).

Control for the possible interdependent effects among explanatory variables is necessary in order to isolate the effect of a specific explanatory variable on earnings. For example, gender and years of work experience are both explanatory variables in the analysis. But gender and work experience are also related to each other (on average, men have

substantially more years of work experience than women). Thus, an analysis of the effects of gender on earnings that excludes experience as a control variable overstates the portion of earnings explained by gender. The reason is that the portion of earnings explained by experience is included in the coefficient of the gender variable in addition to the portion properly attributable to gender. Thus, the omission of an explanatory variable distorts the estimated percentage increments of other related explanatory variables.

The important explanatory variables that the regression analysis controls for include the type of firm which employs the accountant (public accounting firm, industrial firm, government, or non-profit firm); years of work experience (both overall and with the current employer); level of job responsibility; weeks per year spent at work, weeks of sickness, and weeks of unemployment; professional certifications; educational degrees and undergraduate grade point average; the population of the urban area where employed; and personal characteristics including sex, race, marital status, and number of dependents. The percentage earnings increments are reported in Tables 1-5 only in cases where there is at least a 90 percent confidence level that the increments are significantly different from zero.

A significant earnings return was found for the MBA degree in industry but not in public accounting.

Means for various subgroups of the sample are also reported in Tables 1-5. Differences between means may be the direct effect of the variables themselves, or they may be explained by other control variables. The percentage earnings increments (and not the means) reported in the tables isolate the impact of the explanatory variables on earnings while controlling for the impact of other independent variables. Thus, they are the correct bases for identifying the impact of specific variables on earnings.

It should be noted that ultimately the analysis can only identify statistical relationships. One must be careful in drawing conclusions about cause and effect. Although it is plausible to maintain that education, credentials, work experience, and the personal attributes included in the analysis do determine earnings, the analysis does not prove a causal relationship. It should also be noted that this is a common limitation of most empirical research where laboratory-controlled experimentation is not possible.

Table 1
Earnings by Type of Firm[a]

	Mean	% Earnings Increment
All	$47,100 (3,077)	
Public accounting firms	$51,600 (511)	-11.2 **
Industry	$47,600 (2,264)	11.8 ***
Government	$34,000 (136)	-13.0 **
Nonprofit firms	$36,100 (166)	-11.7 *

[a]The following symbols are used throughout Tables 1-5 to designate the statistical confidence that the reported earnings increments are different from zero:

NS Less than 90 percent confident.
* At least 90 percent confident,
** At least 95 percent confident, and
*** At least 99 percent confident.

Also, the number of accountants in various subgroups of our sample are reported in parentheses beneath mean earnings throughout Tables 1-6.

Earnings by Type of Firm

The data distinguish four types of firms, identified in Table 1: public accounting firms, industrial firms, governments, and nonprofit firms. Although the means in column 1 create the impression that earnings are higher in public accounting firms, the earnings increments reported in column 2 show that after introducing appropriate controls, there is a significant earnings differential in favor of industrial accountants.

Each earnings increment reported in Table 1 is the percentage earnings differential for accountants employed by that particular type of firm in comparison to all other accountants in our sample. The use of control variables implies that the comparison is between accountants with equivalent education, credentials, and work experience. The results show that accountants in industry earn 11.8 percent more than all other accountants in our sample, and public accountants earn 11.2 percent less than all the others. Therefore, for accountants with equivalent work histories and credentials, there is approximately an 11 to 12 percent earnings differential in favor of industrial accountants.

The inconsistency between the means and the earnings increments in Table 1 is explained by a different mix of credentials and educational achievements for the typical respondents in industrial and public accounting firms. The most dramatic difference relates to the CPA credential. In our sample, 73 percent of accountants in public accounting firms have the CPA, while in industry, the comparable figure was only 25 percent. The second important

difference is that employees in public accounting firms had a mean college grade point average (GPA) of 3.3 (on a scale of A=4.0), while employees in industry had a mean GPA of 3.0. (This difference is statistically significant with 99 percent confidence.) Both CPA credential and college GPA are significantly positive determinants of earnings. Thus, the higher mean earnings for all public accountants is explained by the larger proportion of CPAs and their higher GPAs. After controlling for these two factors, industrial accountants earn more. In other words, industrial accountants with CPAs generally earn more than CPAs with similar undergraduate GPAs in public practice.

Finally, the impact of firm size on earnings is worth mentioning. Firm size is defined as the number of accountants employed in the organization on a worldwide basis. Analysis shows that after controlling for other factors, earnings increase one tenth of one percent for every additional 100 accountants in the firm. (This result is statistically significant with 99 percent confidence.)

Areas of Job Specialization

For accountants employed in industry, the data identify three functional areas of specialization: accounting fields such as cost and financial reporting, finance and related fields, and non-accounting fields such as marketing and general management. Mean earnings and earnings increments are reported in Table 2 for these three specializations.

The analyses indicate an earnings decrement of 8 percent in accounting related fields and a 13 percent increment in financial fields. It is important to note that these negative and positive increments are significant at job levels of higher responsibility. Entry level positions exhibit no significant difference although there are very few accountants in financial fields at the entry level. It is also interesting to note that the mean earnings for the generalists (non-accounting fields) are higher despite the absence of a signficant controlled earnings increment.

The fact that the percentage earnings increment is not signficant for generalists is explained by the large correlation between being a generalist and having a high job level, such as manager or executive. In other words, the high mean earnings of generalists is due to the fact that they are almost all employed at the highest levels of responsibility. After controlling for the level of responsibility, there is no independent return in this area.

The results in Table 2 suggest a career path that is commonly followed by highly paid industrial accountants. This path begins with

initial experience in accounting areas and progresses to positions of higher responsibility and salary in finance and possibly general management.

The data also identify areas of specialization for public accountants, and mean earnings for the two largest areas (tax and auditing) are reported in the Appendix. However, regression analysis indicates no significant earnings differentials between the areas of specialization in public accounting firms; therefore, no increments are reported.

Earnings and Education

The human capital theory that demonstrates the relationship between earnings and education was developed by Mincer [1974]. Since many young accountants ponder the value of education beyond the baccalaureate, Table 3 has been organized to focus upon the pecuniary returns for the two most commonly pursued master's degrees as well as the baccalaureate. The percentage earnings increment can correctly be identified as the rate of return to the corresponding increment of education. The results indicate an 11.7 percent return to the bachelor's degree, and an 8.8 percent additional return to the MBA degree. The returns to education in industry are consistent with the overall pattern of returns. The analysis did not identify any additional return to the Master of Accountancy degree

Table 2
Earnings by Specialization in Industrial Firms

	Accounting		Finance		Generalist	
	Mean	% Earnings Increment	Mean	% Earnings Increment	Mean	% Earnings Increment
All	$43,200 (1,545)	- 8.0 **	$57,200 (476)	13.0 ***	$71,200 (126)	NS
Entry Level	$17,600 (75)	NS	$16,800 (11)	NS	(0)	NS
Senior accountant	$28,600 (253)	- 7.8 **	$30,900 (77)	NS	$50,800 (9)	NS
Manager, partner or executive	$47,800 (1,217)	-13.2 ***	$63,600 (388)	17.7 ***	$72,800 (117)	NS

Table 3
Earnings by Type of Degree

	Highest Degree Attained					
	Any Bachelor's		MBA		Master of Accountancy	
	Mean	% Earnings Increment	Mean	% Earnings Increment	Mean	% Earnings Increment
All	$44,900 (1,972)	11.7 ***	$55,700 (616)	8.8 **	$50,700 (67)	NS
Public accounting	$48,900 (354)	NS	$66,000 (72)	NS	$46,100 (28)	NS
Industry	$45,300 (1,455)	13.6 **	$56,600 (473)	8.7 **	$60,500 (31)	NS

over that of a bachelor's degree.

The surprising result shown in Table 3 is the lack of evidence of a return to any type of higher education in public accounting firms. Yet the mean earnings indicate substantially positive earnings increments for both the bachelor's and MBA degrees. Certain interdependencies with other explanatory variables account for this inconsistency.

For the bachelor's degree, the inconsistency seems to be explained by the interrelationship between education and the CPA credential. In public accounting firms, 76 percent of accountants with a bachelor's also have a CPA. In industry, the corresponding figure is only 27 percent. Since a bachelor's is almost a universal prerequisite for a CPA, there exists a large element of redundancy in the data (multicollinearity) between a bachelor's degree and a CPA credential. As reported below, the analysis identifies a large positive earnings increment for CPAs in public accounting firms, and it is difficult to identify the portion that is completely independent of the bachelor's degree.

For public accountants with an MBA degree, the explanation of the lack of a significant earnings increment is somewhat different. Among public accountants, there is a strong relationship between holding the MBA degree and years of work experience. Persons holding the MBA degree are generally older (average age 44) than persons having only the bachelor's (average age 37); they have more years of work experience (18 average years vs. 11 years for bachelor's holders); and a higher proportion are male (90 percent vs. 75 percent for bachelor's holders). Since the MBA degree is strongly associated with the work experience and sex variables, controlling for them explains the insignificant return to the MBA.

In contrast, among industrial accountants, there is relatively little correlation between holding the MBA degree and either years of work experience or sex. The average years of age and work experience of MBAs and baccalaureates are the same — 41 years of age and 16 years of work experience. Also, there is little difference in the sex of MBAs and baccalaureates — 90% of the MBAs are male vs. 84% of the holders of the bachelor's. Since work experience and gender are not associated with holding an MBA degree, the positive difference in mean earnings between the MBA degree and the bachelor's is not explained by those variables. Consequently, the difference in mean earnings results in a significant earnings increment to the MBA.

In other words, public accountants at an advanced stage in their careers tend to document their senior status with an MBA degree. The additional degree does not seem to increase their income more than would be expected based on their seniority. In contrast, younger industrial accountants seem to be able to boost their income immediately with an MBA degree without having to wait to acquire a lot of job experience.

Earnings and Professional Certifications

Like higher education, professional certification involves a significant commitment of time. Thus, the monetary returns to alternative certifications is of great interest to young accountants. Table 4 presents means and earnings increments in public accounting and industry for the two most commonly pursued certifications for accountants: the Certified Public Accountant (CPA) and the Certified Management Accountant (CMA).

It is clear from the table that the CPA credential has a strong positive effect upon earnings. Overall, the CPA credential brings 10.9 percent higher earnings. However, these returns vary between public accounting and industrial firms. In industry, a CPA adds 10.5 percent to earnings while in public accounting the corresponding increment is 27.5 percent.

It is not as clear that the CMA has a positive impact on earnings. Mean earnings for accountants with CMAs are marginally higher than accountants without either credential, but regression analysis fails to identify any statistically significant returns

Table 4
Earnings by Certification

	No CMA or CPA	CMA		CPA	
	Mean	Mean	% Earnings Increment	Mean	% Earnings Increment
All	$42,600 (1,933)	$45,400 (164)	NS	$55,800 (1,032)	10.9 ***
Public accounting	$29,800 (128)	$42,500 (20)	NS	$59,200 (378)	27.5 ***
Industry	$44,800 (1,612)	$46,700 (121)	NS	$56,400 (559)	10.5 ***

Table 5
Earnings by Sex

	Males	Females	
	Mean	Mean	% Earnings Increment
All	$51,000 (2,348)	$28,800 (543)	-12.3 ***
Public accounting	$60,200 (368)	$23,200 (118)	-34.9 ***
Industry	$50,900 (1,754)	$30,500 (360)	NS
Entry level	$18,600 (82)	$15,900 (100)	NS
Senior accountant	$30,000 (346)	$25,800 (164)	- 7.8 ***
Manager, partner or executive	$56,200 (543)	$35,200 (279)	-18.3 ***

to the CMA in this sample.

Earnings and Personal Attributes

In addition to data on career-related attributes, data on personal-attribute variables was also compiled. Gender is the most important of these variables because of its statistically significant impact upon earnings. Despite a large difference in mean earnings, regression analysis indicates that, overall, women earn just 12 percent less than men in the sample, after controlling for revelant variables, such as age, experience, and education. Thus, a large part of the difference in mean earnings between men and women is explained by differences in the control variables, the most important being work experience. Females typically have many fewer years of work experience both in total and with their current employers.

Table 5 summarizes the sex differential for various groups of accountants. The most striking aspect of the table is the unevenness of the sex differential both by type of firm and by job level. It is difficult to understand the reason that the significant sex differential is concentrated in public accounting firms. Certainly, the means for males and females indicate a sex differential for both types of firms. However, in industry, the difference between the means can be explained by the control variables, while in public accounting firms, it cannot.

It is not surprising that the sex differential gets worse at higher job levels since it is well known that the labor market is more competitive at the entry level. The finding on this point thus corroborates the work of Olson and Frieze [1986]. This finding is attributed primarily to the greater mobility of young workers. A young female who discovers her salary to be below market level is much more likely to change employers without great cost. In contrast, job changes are typically more costly for older workers, and, therefore, salaries become partially insulated from competitive market forces.

It is also interesting to briefly note some of the personal attribute variables which are not significant determinants of earnings. Foremost is race. Though minority groups constitute only about two percent of the sample, after controlling for relevant variables, analysis shows that the earnings of minority groups are not significantly different from whites. Other variables that have insignificant impact on earnings include marital status and weeks of work missed for sickness.

Conclusions

The results illustrate some interesting patterns of returns in the accounting profession. While there are a few surprises, the findings confirm and document prior expectations. The inability to identify statistically significant returns to the CMA, the Master of Accountancy, and the MBA in public accounting firms was somewhat surprising. Also, the finding of higher earnings in industry than in public accounting for accountants with equivalent work histories and credentials is important.

The results have implications for young accountants planning their careers. For those looking to industry for a career, the results suggest that the CPA and/or the MBA are worthwhile investments. Furthermore, career advancement should eventually be expected in areas outside of the traditional accounting fields. For those looking to a career in public accounting, the CPA is the single most important credential. Ω

REFERENCES

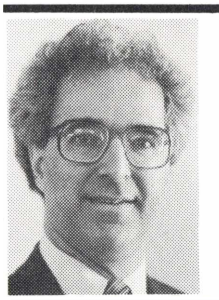
Becker, G., *Human Capital* (National Bureau of Economic Research, 1964, 1975 second edition).

Bureau of Labor Statistics, *National Survey of Professional, Administrative, Technical, and Clerical Pay, March, 1984* (Bulletin #2208).

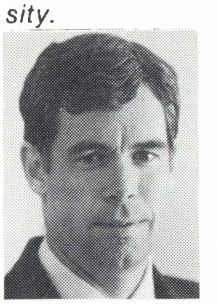
Mincer, J., *Schooling, Experience, and Earnings* (National Bureau of Economic Research, 1974).

Olson, J. and I. Frieze, "Women Accountants — Do They Earn as Much as Men?," *Management Accounting* (June, 1986), pp. 27-31.

Robert Half and Associates, *Prevailing Financial and Data Processing Starting Salaries 1986 (Robert Half International, Inc., 1986).*



Kenneth Rosenzweig *is an associate professor of accounting at the University of Dayton. He has a Ph.D. degree from Michigan State University.*



Lawrence Hadley *is an associate professor of economics at the University of Dayton. He has a Ph.D. degree from the University of Connecticut.*

Appendix

The results presented in Table 6 (below) are raw means for various subgroups of the accountants in our sample. These means are disaggregated into cells on the basis of type of firm and job specialty across the columns. The disaggregation down the rows is on the basis of job level, professional credential, and earned master's degree.

The appropriate use of these means is the comparison of an individual accountant's own earnings with the mean reported in the cell that best describes that individual. It would not be valid to use these means for comparisons between cells nor for determining the returns to type of firm, job level, education, or certification since the means have not been adjusted to control for possible interdependencies with other variables.

TABLE 6
Profile of the Earnings of Accountants

	ALL	INDUSTRY				PUBLIC ACCOUNTING FIRM			GOVT. OR NONPROF.
		All	Account-ing	Finance	General	All	Tax	Audit	
Average	47,000	47,600	43,200	57,200	71,200	51,600	42,200	57,100	35,100
	(3,081)	(2,264)	(1,545)	(476)	(126)	(511)	(153)	(245)	(302)
Entry level	17,000	17,300	17,600	16,800	*	17,000	16,400	17,200	15,100
	(189)	(92)	(75)	(11)		(80)	(23)	(43)	(16)
No master's	16,700	16,800	17,100	16,200	*	16,900	15,500	17,000	15,200
	(172)	(82)	(67)	(10)		(63)	(19)	(38)	(11)
Neither	16,200	16,700	16,900	16,200	*	15,900	14,600	16,100	14,500
	(134)	(80)	(65)	(10)		(43)	(17)	(18)	(10)
CPA	19,700	24,000	24,000	*	*	19,200	22,500	18,800	22,000
	(23)	(2)	(2)			(20)	(2)	(16)	(1)
CMA	21,000	*	*	*	*	21,000	*	21,000	*
	(1)					(1)		(1)	
Master's D.	18,400	22,000	22,000	*	*	18,300	21,700	19,200	15,000
	(16)	(2)	(2)			(12)	(3)	(5)	(2)
Neither	16,900	18,000	18,000	*	*	17,500	21,000	15,500	15,000
	(7)	(1)	(1)			(4)	(1)	(2)	(2)
CPA	18,100	*	*	*	*	18,100	22,000	21,700	*
	(7)					(7)	(2)	(3)	*
CMA	24,000	26,000	26,000	*	*	23,000	*	23,000	*
	(3)	(1)	(1)			(2)		(1)	
Senior acct.	28,600	29,700	28,600	30,900	50,800	24,400	24,900	24,700	29,100
	(546)	(361)	(253)	(77)	(9)	(103)	(34)	(53)	(81)
No master's	27,300	28,600	28,100	29,600	36,700	23,700	23,300	24,700	26,100
	(367)	(250)	(175)	(50)	(7)	(80)	(23)	(44)	(36)
Neither	27,700	28,600	28,100	30,600	33,000	23,200	23,600	24,400	25,500
	(247)	(196)	(136)	(45)	(5)	(23)	(11)	(10)	(27)
CPA	26,500	29,600	29,200	24,500	46,000	23,900	22,900	24,800	27,800
	(110)	(44)	(30)	(8)	(2)	(57)	(12)	(34)	(9)
CMA	26,300	25,600	25,500	26,000	*	30,500	*	30,500	*
	(19)	(12)	(11)	(1)		(2)		(2)	
Master's D.	31,900	32,900	30,300	33,400	112,000	24,700	23,800	23,000	32,100
	(115)	(67)	(43)	(22)	(1)	(11)	(4)	(5)	(37)
Neither	31,100	31,900	28,300	32,500	112,000	22,000	22,000	*	29,300
	(66)	(49)	(31)	(16)	(1)	(1)	(1)		(16)
CPA	32,800	35,500	35,300	35,700	*	25,000	24,300	23,000	35,100
	(41)	(13)	(7)	(6)		(10)	(3)	(5)	(18)
CMA	36,400	36,200	36,200	*	*	*	*	*	36,500
	(11)	(5)	(5)						(6)
Mgr., executive	53,800	52,700	47,800	63,600	72,800	68,700	54,400	80,200	39,100
or partner	(2,346)	(1,811)	(1,217)	(388)	(117)	(328)	(96)	(149)	(205)
No master's	51,900	50,300	46,000	61,800	65,600	69,100	56,100	76,700	37,100
	(1,479)	(1,164)	(810)	(236)	(66)	(206)	(54)	(102)	(108)
Neither	47,100	47,900	44,800	57,500	60,900	51,100	44,000	28,700	37,300
	(919)	(814)	(575)	(153)	(46)	(27)	(9)	(3)	(77)
CPA	60,900	57,200	49,700	70,900	82,100	72,000	58,900	78,100	36,500
	(529)	(320)	(212)	(80)	(17)	(178)	(44)	(99)	(31)
CMA	46,100	46,300	44,300	56,000	51,800	45,300	40,000	39,000	*
	(52)	(47)	(38)	(4)	(4)	(4)	(1)	(1)	
Master's D.	60,200	61,100	55,700	70,600	83,600	69,700	50,000	92,600	43,400
	(645)	(471)	(289)	(119)	(36)	(93)	(31)	(36)	(80)
Neither	55,800	58,800	54,700	66,400	81,700	38,000	28,700	44,000	39,900
	(354)	(298)	(188)	(75)	(18)	(14)	(6)	(2)	(41)
CPA	66,800	66,400	56,900	80,100	95,900	76,700	55,200	95,400	46,500
	(253)	(143)	(84)	(38)	(14)	(76)	(25)	(34)	(34)
CMA	52,300	54,900	54,200	52,900	56,000	50,000	82,500	40,500	44,900
	(73)	(49)	(25)	(12)	(8)	(10)	(2)	(2)	(14)

*No respondents for these categories.