

## THE IMPACT OF GOVERNMENTAL CERTIFICATIONS ON GOVERNMENT FINANCE OFFICERS' SALARIES

Richard C. Brooks and Laurence E. Johnson\*

**ABSTRACT.** Several professional certifications are available to government finance officers seeking to signal that they possess a particular body of knowledge. These certifications include the Certified Government Financial Manager (CGFM), the Certified Public Finance Officer (CPFO), and the Certified Government Finance Officer (CGFO). There currently is a void in the literature regarding the market value of these governmental certifications. This study fills that void by investigating the impact of governmental certifications on government finance officers' salaries. The study finds that governmental certifications are associated with increased personal compensation. Additional analysis reveals that the CGFM designation drives the overall results.

### INTRODUCTION

There are several certifications available to accounting professionals who wish to set themselves apart from the "rest of the pack." Professional accounting certifications signal that the holder has a particular competence in accounting/auditing. Prior research shows that professional accounting certifications such as the Certified Public --

-----  
\* *Richard C. Brooks, Ph.D., CGFM, is a Professor, Division of Accounting, West Virginia University. His teaching and research interests include governmental and not-for-profit accounting. Laurence E. Johnson, Ph.D., CPA, is an Associate Professor, Department of Accounting, Colorado State University. His teaching and research interests include governmental accounting, financial reporting and auditing.*

Copyright © 2002 by PrAcademics Press

Accountant (CPA) and Certified Management Accountant (CMA) are valued in the employment market (Schroeder & Reichardt, 1997; Reichardt & Schroeder, 2000). However, prior research has not investigated the value of newly available certifications that are particular to governmental accounting. Therefore, a void exists in the literature. The purpose of this study is to fill that void by investigating whether professional certifications that are specific to governmental accounting are valued in the local government employment market. That is, do government finance officers (GFOs) holding the Certified Government Financial Manager (CGFM), Certified Government Finance Officer (CGFO) or the Certified Public Finance Officer (CPFO) designations receive premium levels of compensation? The answer to this question is of interest to public finance professionals, the organizations that sponsor professional certifications in government accounting and finance, and to academics.

The study's results indicate that, in the aggregate, government finance officers that hold any of the above governmental certifications receive higher salaries than their non-certified counterparts. Further analysis shows that the aggregate result is driven primarily by the CGFM designation. Additionally, we find that GFOs holding the CGFM or the CGFO in conjunction with the CPA certificate also receive premium remuneration.

## BACKGROUND

As previously noted, there are numerous professional certifications available to accountants to signal their competence. Perhaps the best-known accounting credential is the CPA designation. The CPA is conferred by state boards of public accountancy to individuals who meet certain education and experience requirements and successfully complete a four-part examination. The examination is administered by the American Institute of Certified Public Accountants (AICPA) and covers (a) business law and professional responsibilities; (b) financial accounting and reporting; (c) auditing; and (d) taxation, managerial, governmental and not-for-profit accounting. The CPA designation was first offered in 1916, making it the oldest accounting certification available. The CPA is unique among accounting certifications in that it

confers upon the holder a legal privilege – the ability to render an audit opinion on financial statements issued by third parties.

The Institute of Management Accountants (IMA) confers the CMA designation to those individuals meeting certain education and experience requirements in addition to successfully completing a four part examination encompassing (a) economics, finance, and management; (b) financial accounting and reporting; (c) management reporting, analysis, and behavioral issues; and (d) decision analysis and information systems. The CMA examination was first administered in 1972. While the CMA does not confer any legal privilege to the holder, it nonetheless sends a positive signal regarding the holder's specialized knowledge.

Recently, three new certifications have become available to accountants specifically interested in government accounting and finance. In 1994 the Association of Government Accountants (AGA) began conferring the CGFM designation upon individuals demonstrating an expertise in government financial management. During 1994-96, the AGA conferred the CGFM designation upon those individuals meeting certain educational and/or experience requirements. In 1997, the AGA added an examination requirement. The examination contains three parts and covers (a) the government environment; (b) governmental accounting, financial reporting and budgeting; and (c) government financial management and control.

In 1997, the Government Finance Officers Association (GFOA) began conferring the CPFO designation to those individuals meeting certain education, and experience requirements in addition to passing a five-part examination. The CPFO examination addresses the areas of (a) governmental accounting, auditing and financial reporting; (b) cash management and investments; (c) debt management, (d) operating and capital budgeting; and (e) pensions and benefits, risk management and procurement. Also, in recent years, certain state GFOAs (e.g., Texas, Louisiana and Florida) have begun to confer the CGFO designation. The CGFO is similar in scope and nature to the CGFM and CPFO.

The next (third) section of the paper describes the theory underlying the study and presents the research hypotheses. The fourth section presents the research methodology. The fifth section reports the

results of the study. The final section provides some concluding comments.

### THEORY

The theoretical underpinning of this study is the human capital theory of income distribution, in which individual decisions to make productivity-enhancing self-investments cause salaries to differ systematically across individuals (Smith, 1977; Moore & Raisian 1991; Moore & Newman, 1991). Education and on-the-job training are two such human capital investments. The attainment of a professional certification is another type of human capital investment and a signal of professional competence.

Indeed, signaling one's competence is important in the GFO labor market as a means of achieving salary increases and/or upward job mobility (Evans & Patton, 1983; 1987a; 1987b). For example, Evans and Patton (1983; 1987a; 1987b) argue that GFOs will direct their governments to participate in the Government Finance Officers Association Certificate of Achievement for Excellence in Financial Reporting program to signal their financial expertise to the labor market. Further, Evans and Patton (1987a; 1987b) show that GFO salaries are positively associated with cities that participate in the GFOA Certificate of Achievement Program.

Prior research also suggests that the attainment of individual professional accounting certifications serve as productivity-enhancing self-investments in that these certifications are positively associated with salaries. Specifically, Reichardt and Schroeder (2000) find that holding a professional certification such as the CPA or CMA is worth, on average, an additional \$7,807 in annual salary. Peterson and Reider (1998) report that the annual salary of a CPA who is also a CMA is, on average, \$4,967 per year higher than a CPA that does not also hold the CMA credential. Similarly, the annual salary of a CPA who is also a CMA is, on average, \$5,808 higher than a CMA that does not also hold the CPA credential. Taken together, these findings indicate that each of these credentials has incremental value above and beyond the other. However, it appears that the CPA is worth slightly more in the general accounting employment marketplace than the CMA.

In summary, government finance officers that hold certifications particular to government accounting and finance have made self-investments that are presumed to enhance their workplace productivity. Moreover, these individuals have an incentive to signal that they have made such self-investments. Accordingly, it is reasonable to expect public sector employers to pay salary premia to holders of such certifications.

### Hypotheses

To determine if professional governmental certifications enhance holders' personal earnings, we test the following research hypotheses:<sup>1</sup>

- H<sub>1</sub>: *Ceteris paribus*, government finance officers that hold a governmental finance professional certification command higher salaries than government finance officers that do not hold such a certification.
- H<sub>2</sub>: *Ceteris paribus*, government finance officers that hold the CPA and a governmental finance professional certification command higher salaries than government finance officers that do not hold such certifications.
- H<sub>3</sub>: *Ceteris paribus*, government finance officers that hold the Certified Government Financial Manager (CGFM) designation command higher salaries than government finance officers that do not hold the CGFM designation.
- H<sub>4</sub>: *Ceteris paribus*, government finance officers that hold the Certified Government Finance Officer (CGFO) designation command higher salaries than government finance officers that do not hold the CGFO designation.
- H<sub>5</sub>: *Ceteris paribus*, government finance officers that hold both the CGFM and the CGFO designations command higher salaries than government finance officers that do not hold both of these designations.
- H<sub>6</sub>: *Ceteris paribus*, government finance officers that hold both the CPA and the CGFM designations command higher salaries than government finance officers that do not hold both of these designations.

H<sub>7</sub>: *Ceteris paribus*, government finance officers that hold both the CPA and the CGFO designations command higher salaries than government finance officers that do not hold both of these designations.

## RESEARCH METHOD

To test the hypotheses, we develop two regression models of salaries (logarithmically transformed) that incorporate identifiable influences, including professional certifications, on salaries. Initially, we pool all responses for which subjects hold any governmental certification to test for overall significance (the basic model). The second (expanded) model controls for governmental certifications individually and in combination with the CPA or other governmental certifications. The models' control variables are population of the employing government, government type (city or county), respondents' organizational level, academic degrees earned, years of government accounting experience, gender, geographic region, and whether the respondent is a CPA. The variables included in the models are discussed below.

### Control Variables

**Population.** We expect population to exert a considerable positive influence on salaries. Moulder (2000, p. 59) states:

Population influences local government salaries in part because larger populations usually mean larger budgets, more services to meet the needs of a heterogeneous citizenry, and more employees to be managed. The complexity of managing cities [and counties] with larger populations requires a level of expertise and experience that requires a salary commensurate with the demands of the job.

Moreover, larger governments may be associated with increased costs of living, thus making it necessary to offer higher salaries to their employees. Hence, we include a logarithmically transformed variable for population in the models to control government size, the coefficient of which we predict to be positive.

**Government Type.** There is body of existing research that compares employee compensation between the private and public sectors (e.g.,

Smith, 1977; Moore & Newman, 1991; Moore & Raisian, 1991, Belman & Heywood, 1995). Studies of this nature typically consider the government sector to be comprised of three levels, federal, state, and local. However, qualitative differences exist between cities and counties (i.e., local governments). For example, the organization of municipal governments generally is such that all departments report to a single chief executive, (i.e., the mayor or city manager). In contrast, county functions often are administered by separately elected and relatively independent officials (e.g., sheriff, treasurer, clerk of the court, tax assessor). In this regard, Stedman (1976, p. 87) notes: "Generally, county administration may best be viewed as a collection of relatively independent agencies which are rarely coordinated in their operations."

Stedman's observation is consistent with the conventional wisdom that, in general, counties are less progressive than are cities, which implies in turn that county pay scales may lag those of cities. Indeed, an annual salary survey conducted under the auspices of the International City/County Management Association (ICMA) differentiates between the two types of governments. The 1999 ICMA survey finds that the mean salary for city finance officers, \$59,085, exceeds that for their county counterparts, \$54,644 (Moulder, 2000). Based on these factors, the regression models include an indicator variable (CITY) set to one (zero) when the employing government is a city (county). We predict a positive coefficient for CITY.

**Organizational Level.** The reporting relationship of the GFO has ramifications for salary. A finance officer who reports directly to the government's chief executive officer (CEO) should be considered a member of "top management" and compensated accordingly. In contrast, a finance officer reporting to a subordinate of the CEO (e.g., a director of administrative services) does not appear to enjoy top management status. Thus, we include the indicator variable ORGLEVEL in the models. This variable equals one when the GFO reports directly to the government CEO, and zero otherwise. We expect a positive coefficient for ORGLEVEL.

**Academic Degrees Earned.** As noted previously, education (and on-the-job training, further discussed below) are viewed as self-investments in the human capital theory of income distribution.



Accordingly, the regression models control for the level of formal education. Some prior studies (e.g., Smith, 1977; Belman & Heywood, 1995) use a discrete variable, years of education. We control for the effects of education using categorical variables for academic degrees earned because we believe that such variables are more interpretable. In our models, the variable NODEGREE is set to one for subjects having no college degree, zero otherwise. The variable ADVDEGREE is set to one for subjects holding a graduate degree, and zero otherwise. Thus, in the models, the educational level of bachelor's degree (only) is indicated when both NODEGREE and ADVDEGREE equal zero. We predict a negative coefficient for NODEGREE and a positive coefficient for ADVDEGREE.

**Government Accounting Experience.** We view an individual's level of government accounting experience as a proxy for on-the-job training (a self-investment). Therefore, the models include a variable (GOVEXP) to control for subjects' government accounting experience in years. The *a priori* expectation is that the coefficient for this variable will be positive.

**Gender.** Our models include an indicator variable (GENDER) equal to one when the subject is female, zero otherwise. Prior accounting salary research in the private sector (Schroeder and Reichardt 1997, Reichardt and Schroeder 2000) suggests that men command a higher salary than women. However, the Reichardt and Schroeder (2000) study does not hold other factors constant. That is, men may command a higher salary because they have more experience, certifications, or academic degrees. On the other hand, governments tend to be leaders in adopting equal-opportunity employment policies. Thus, it is unclear whether male GFOs are paid more than women GFOs when all other factors are held constant. Accordingly, we do not predict the sign of the coefficient for GENDER.

**Geographic Region.** Different geographic regions of the country are subject to different economic forces, therefore differences in salary may be partially determined by geographic region. The ICMA partitions its annual salary survey data according to U.S. Bureau of the Census regional definitions. We also use the Census Bureau regional definitions, such that the models include indicator control variables for three of the four following regions: northeast, north central, south, and



west. The regional variable representing the largest number of responses will be assigned to the constant term in estimating the regression models to minimize collinearity. We do not predict the sign of any of these variables. (Appendix 1 lists the states comprising each region).

**CPA.** In view of the longevity of the CPA credential and the respect accorded to it, both generally and in terms of its documented effect on personal compensation, (Schroeder & Reichardt, 1997; Reichardt & Schroeder, 2000), it is appropriate that the salary models control for the effect of subjects holding the CPA alone. Accordingly the indicator variable CPA is set equal to one if the subject holds only the CPA certificate, zero otherwise. We expect this variable to have a positive coefficient.

### Research Variables

The research variables of initial interest are the indicators GOVCERTONLY and CPAGOV. GOVCERTONLY is assigned the value of one if a subject holds any governmental certification(s) but no other professional certifications, zero otherwise. Similarly, CPAGOV is an interaction variable set equal to one if a subject holds the CPA and any governmental certification, zero otherwise. These variables appear in the basic salary model (in which all governmental certifications are pooled) as follows:

$$\begin{aligned} \text{LSAL} = & \text{constant} + b_1\text{LPOP} + b_2\text{CITY} + b_3\text{ORGLLEVEL} + b_4\text{NODEGREE} \\ & + b_5\text{ADVDEGREE} + b_6\text{GOVEXP} + b_7\text{GENDER} + b_{8-10}\text{REGION} \\ & + b_{11}\text{CPA} + b_{12}\text{GOVCERTONLY} + b_{13}\text{CPAGOV} + e \end{aligned} \quad (1)$$

Assuming that GOVCERTONLY and CPAGOV are significant in the basic model (eq. 1), we will investigate the effects of specific government certifications and combinations thereof using an expanded salary model. In the expanded model, the GOVCERTONLY variable is dropped and the variable CPAGOV is replaced by variables indicating whether a subject holds a particular governmental certification (only) or specific combinations of certifications. Each indicator is identified by the acronym(s) of the certificate(s) it represents (e.g., CGFM is set to one if a subject holds only the Certified Government Financial Manager designation, zero otherwise; CPACGFM is set to one if a subject holds

both the CPA and the CGFM designations, zero otherwise). The expanded salary model (in which specific government certifications are separately accounted for) is:

$$\begin{aligned}
 \text{LSAL} = & \text{constant} + b_1\text{LPOP} + b_2\text{CITY} + b_3\text{ORGLLEVEL} + \\
 & b_4\text{NODEGREE} + b_5\text{ADVDEGREE} + b_6\text{GOVEXP} + \\
 & b_7\text{GENDER} + b_{8-10}\text{REGION} + b_{11}\text{CPA} + b_{12}\text{CGFM} + \\
 & b_{13}\text{CGFO} + b_{14}\text{CGFMCGFO} + b_{15}\text{CPACGFM} + \\
 & b_{16}\text{CPACGFO} + e
 \end{aligned}
 \tag{2}$$

Table 1 describes the variables in Equations 1 and 2 included in the study.

**TABLE 1**  
**Description of Variables**

- LSAL = The natural logarithm of the salary of the chief government finance officer. We take the log of population because the relationship between salaries and government size is not expected to be linear.
- LPOP = The natural logarithm of the population of the government entity. As with salary, we take the log of population because the relationship between salaries and population is not expected to be linear. Expected sign is positive.
- CITY = A dummy variable coded 1 for city and 0 for county. Expected sign is positive.
- ORGLLEVEL = A dummy variable coded 1 if the subject reports directly to the chief executive officer of the governmental entity; and 0 otherwise. Expected sign is positive.
- NODEGREE = A dummy variable coded 1 if the subject holds no college degree; and 0 otherwise. Expected sign is negative.
- ADVDEGREE = A dummy variable coded 1 if the subject holds an advanced academic degree (i.e., master’s or law); and 0 otherwise. Expected sign is positive. (When both NODEGREE and ADVDEGREE are set to zero, subjects holding only a bachelor’s degree are indicated).
- GOVEXP = The subjects' number of years of government accounting experience. Expected sign is positive.
- GENDER = A dummy variable coded 1 for female and 0 for male. Sign is not predicted.



**TABLE 1 (Continued)**

REGION = A series of dummy variables to control for differences in the cost of living in different areas of the county. States are assigned to one of four regions (Northeast, North Central, South, West) according to the United States Census Bureau's regional definitions. Signs are not predicted. Appendix 1 shows the states included in each region.

CPA = A dummy variable coded 1 if the CPA is the only professional certification held by the subject; and 0 otherwise. Expected sign is positive.

GOVCERTONLY = A dummy variable coded 1 if the subject holds any government certification(s) but no other professional certifications, and 0 otherwise. Expected sign is positive.

CPAGOV = A dummy variable coded 1 if the subject holds both the CPA and any governmental certification(s), and 0 otherwise. Expected sign is positive.

CGFM = A dummy variable coded 1 if the CGFM is the only professional certification held by the subject; and 0 otherwise. Expected sign is positive.

CGFO = A dummy variable coded 1 if the CGFO is the only professional certification held by the subject; and 0 otherwise. Expected sign is positive.

CGFMCGFO, CPACGFM, CPACGFO = A series of dummy interaction variables representing multiple professional certifications\* as indicated by certification acronyms. The variables are coded 1 if a subject holds the indicated professional certifications; and 0 otherwise. Expected signs are positive.

\* Note: The data contain no observations representing the combinations of CPA and CPFO or CGFO and CPFO. Two respondents have the CPFO designation alone and two more respondents have the CGFM and CPFO combination. However, because of the small number of respondents having these particular designations, they (i.e., CPFO and CGFMCFO) are not included as variables.

### Data Collection

Five-hundred-twenty government chief financial officers from local governments with populations of 25,000 and above were randomly

selected from *Carroll's Municipal/County Directory* to participate in the study. We mailed a "blind" one-page survey instrument to each of the 520 government chief financial officers. The instrument requested subjects to provide information concerning their employment circumstances as of 1999. Information requested included the type of employing government (city vs. county), government population, state in which located, years of government accounting experience, whether subjects report directly to the CEO, professional certifications held, academic degrees held, gender, and salary. Useable responses were received from 267 subjects, resulting in a 52 percent useable response rate. Based on the success of the initial mailing and the inability to identify non-respondents (due to the blind nature of the survey instrument), we did not conduct a second mailing.

## RESULTS

Table 2 presents the distribution of professional certifications in the data. This table shows that the CPA is the most common certification, which is not surprising. The CGFM is the most frequent government designation (13 single and 22 more in conjunction with another certification, for a total of 35). The next most frequent government designation is the CGFO (11 single and 19 more in conjunction with another certification, for a total of 30). Four respondents indicated that they hold the CPFO designation (two single and two more in conjunction with the CGFM designation). Thus, in the aggregate, the data include 69 individuals holding a governmental certification either alone or in combination with another professional certification. Few subjects reported that they hold the CMA or Certified Internal Auditor (CIA) designation.<sup>2</sup> Accordingly, we exclude the CMA and CIA designations from further analysis. In contrast, although the data include only four CPFOS, we include them in the analysis since they are highly germane to the study.<sup>3</sup>

Table 3 displays descriptive statistics for the data. The overall average salary is \$79,203; the mean population is 168,195. On average, the subjects had 16 years of government accounting experience. Two hundred eleven (79%) of the responses were from GFOs in municipalities while 56 (21%) of the responses represent



**TABLE 2**  
**Distribution of Professional Certifications in the Data**  
**(N=267)**

	No or single Certification	Additional Certifications				
		CPA	CMA	CGFM	CGFO	CPFO
None	124					
CPA	74	--				
CMA	2	2	--			
CGFM	13	18	--	--		
CGFO	11	17	--	2	--	
CPFO	<u>2</u>	--	--	2	--	--
<b>Total</b>	<b><u>226</u></b>	<b><u>37</u></b>	<b>--</b>	<b><u>4</u></b>	<b>--</b>	<b>--</b>

Reconciliation of total certifications in the data with total subjects\*

CPA	111
CMA	4
CGFM	35
CGFO	30
CPFO	<u>4</u>
Subtotal	184
Less multiple certifications	41
Subtotal	143
Subjects with no certifications	<u>124</u>
Total subjects	<u>267</u>

Note: \* Totals for each certification are equal to the sum of the row and column elements for that certification.

GFOs employed by county governments. Our data replicate the ICMA survey finding that salaries tend to be higher in cities than counties (Moulder, 2000). However, the average salaries in our data (city, \$82,222; county, \$67,829) exceed those reported in the previously-cited ICMA survey (city, \$59,085; county, \$54,664). This discrepancy may be explained by the size of the governments included in the two studies. The present study includes governments with populations of 25,000 and above whereas the ICMA survey also includes governments with populations of less than 25,000.

Table 3 also shows that two-hundred (75%) of the subjects report directly to the Chief Executive Officer of their respective government entity; their average salary, \$80,636, exceeds the \$74,925 for the 67 GFOs who do not report directly to their governments' chief executive. We note that the mean population of governments for which ORGLEVEL = 0 is significantly higher than that of governments for which ORGLEVEL = 1 ( $t=2.16$ ,  $p = .032$ ). This is reasonable since larger governments are more likely to have an intermediate level of management (e.g., director of administrative services) between the finance officer and the CEO.

Concerning education, ten subjects (4%) have no college degree, 149 (56%) hold a bachelor's degree (only), and 108 (40%) have advanced degrees. As expected, the mean salary bears a direct relationship with the level of formal education. The mean salary for GFOs with no degree is \$57,977; a bachelor's degree results in an almost \$20,000 "bump," to an average of \$77,541 (not reported in Table 3). In turn, table 3 shows that the mean salary of subjects with advanced degrees is \$83,461.

Table 3 indicates that 85 subjects (32%) are female and earn an average salary of \$77,047. Males constitute 182 subjects (68%) and report salaries averaging \$80,210. A  $t$ -test indicates that the difference in salaries is not significant ( $t = 1.28$ ,  $p = .203$ ), implying that, for government chief finance officers, gender equity essentially exists in the local government employment marketplace.

With regard to geographic regions, Table 3 shows that the largest number of responses come from the north central region. Thus, the dummy variable representing the north central region is omitted from the regression model, effectively assigning those responses to the constant term in the regression models. The mean salaries are highest in the west region (\$86,306) and lowest in the north central region (\$73,974). Our observation that the highest salaries are associated with the west region is consistent with results reported in the ICMA salary survey (Moulder, 2000).

Regarding certifications, Table 3 reveals that individuals holding the CPA alone or any one of the three governmental certifications are

**TABLE 3**  
**Descriptive Statistics for Untransformed Variables**  
**(N=267)**

Continuous Variables	Mean	SD	Minimum	Maximum	
Salary (\$)	79,203	18,891	27,200	150,000	
Population	168,195	493,428	30,468	7,500,000	
Government Experience (yrs)	16	8	1	40	
Indicator Variable	# of Responses	Population		Salary (\$)	
		Mean	SD	Mean	SD
CITY=1	211	161,065	548,904	82,222	17,745
CITY=0	56	195,060	161,808	67,829	18,896
ORGLLEVEL=1	200	135,434	216,165	80,636	18,153
ORGLLEVEL=0	67	265,989	909,621	74,925	20,492
NODGREE=1	10	109,369	79,643	57,977	12,838
NODGREE=0	257	170,484	502,611	80,029	18,621
ADVDEGREE=1	108	132,703	136,598	83,461	16,800
ADVDEGREE=0	159	192,302	629,136	76,311	19,720
GENDER=1	85	122,728	98,384	77,047	18,674
GENDER=0	182	189,429	593,205	80,210	18,959
<b>REGION</b>					
Northeast	26	381,578	1,453,000	78,562	20,386
North Central	91	138,988	287,123	73,974	15,300
South	85	150,242	145,065	79,566	19,938
West	65	147,209	153,396	86,306	19,482
<b>CERTIFICATIONS</b>					
None	124	128,349	131,078	76,009	20,324
CPA only	74	263,635	913,465	80,449	17,840
CGFM only	13	125,188	77,971	82,001	11,953
CGFO only	11	119,303	87,103	83,039	15,302
<b>INTERACTIONS</b>					
CPACGFM	18	160,196	152,795	82,994	22,461
CPACGFO	17	150,970	104,703	89,746	15,159
CGFMCFO	2	140,300	138,786	77,508	5,826



all associated with higher mean salaries than the salaries of individuals holding no professional certifications. It is interesting to note that the mean for CPA (only) is slightly less than the means associated with holding any one of the three governmental certifications. This finding suggests that the government employment marketplace pays a premium for certifications that specifically signal knowledge of governmental accounting. Government employment marketplace pays a premium for certifications that specifically signal knowledge of governmental accounting. Also, the mean salaries of holders of multiple certifications are higher when one such certification is the CPA. This finding suggests that the government employment marketplace is willing to pay a premium for additional credentials if those credentials signal a separate and distinct knowledge set. Conversely, public sector employers do not appear to pay a premium for additional credentials that signal the same knowledge set. That is, the CGFM and CGFO credentials signal the same basic knowledge set; therefore there is no incremental salary paid for holding both. However, the CPA credential signals a different knowledge set than a governmental certification, therefore public sector employers are willing to pay a premium for this additional knowledge.

Table 4 reports the bivariate correlation coefficients among the independent variables (excluding the interaction terms.) The table shows that correlations in excess of .30 occur only between variables representing geographic regions (where higher correlations are expected). Thus, we expect no problems in the regression analysis due to collinearity.

### **Basic Model Results**

Table 5 presents the estimation of the basic salary model (eq. 1). All control variables except GENDER and two CENSUS REGION variables are significant at conventional levels (two-tailed tests) and have the expected signs (as applicable). As noted previously, the model is constructed to include the effects of the north central geographic region in the intercept; thus, the model includes independent variables indicating the northeast, south, and west regions.

Table 5 shows that salaries are significantly higher in the western region compared with the remainder of the U.S. (again, consistent with

**TABLE 4**  
**Bivariate Correlations Among Independent Variables**  
**(N = 267)**

	LPOP	CITY	OL	ND	AD	GE	G
CITY	<b>-0.2509</b>						
ORGLLEVEL	<b>-0.1469</b>	0.0201					
NODEGREE	-0.0339	<b>-0.2375</b>	<b>-0.1133</b>				
ADVDEGREE	-0.0347	0.0684	0.0370	<b>-0.1626</b>			
GOVEXP	0.0388	0.0307	0.0690	0.0928	-0.0771		
GENDER	-0.0501	-0.0034	<b>-0.1237</b>	0.1193	-0.0554	-0.0939	
NE Region	0.0040	<b>0.1072</b>	0.0444	-0.0648	0.0897	-0.0388	-0.0618
NC Region	<b>-0.1269</b>	-0.0177	-0.0212	-0.0170	-0.0130	-0.0734	-0.0504
South Region	0.0862	-0.0824	0.0247	0.0346	<b>-0.1537</b>	0.0237	-0.0010
West Region	0.0438	0.0350	-0.0340	0.0260	<b>0.1193</b>	0.0821	0.0994
CPA	0.0515	<b>0.1340</b>	-0.0469	<b>-0.1221</b>	<b>-0.1864</b>	<b>-0.1974</b>	0.0439
CGFM	0.0059	-0.0544	-0.0296	0.0470	0.0618	0.0128	0.0322
CGFO	-0.014	-0.0321	0.0765	0.0584	0.0211	<b>0.1306</b>	-0.0203
	Region				CPA	CGFM	
	NE	NC	South	West			
NC Region	<b>-0.2362</b>						
South Region	<b>-0.2245</b>	<b>-0.4914</b>					
West Region	<b>-0.1863</b>	<b>-0.4079</b>	<b>-0.3877</b>				
CPA	-0.0340	<b>0.1020</b>	-0.0639	-0.0198			
CGFM	-0.0743	0.0209	0.0322	-0.0067	<b>-0.1401</b>		
CGFO	0.0590	<b>-0.1491</b>	0.0606	0.0581	<b>-0.1284</b>	-0.0469	

Coefficients in boldface are significant at  $\alpha < .10$

Note: OL = ORGLLEVEL; ND = NODEGREE; AD = ADVDEGREE; GE = GOVEXP; G = GENDER.

the ICMA salary survey's finding). The coefficient of GOVCERTONLY is positive and significant, providing support for  $H_1$ . Likewise, the significant, positive coefficient of CPAGOV supports  $H_2$ . The adjusted  $R^2$  of this model is .466. Diagnostic tests indicate that the model's coefficients are not influenced by collinearity (no variance inflation factor [VIF] exceeds 1.4) nor does the model exhibit evidence of omitted variables; the residuals are essentially normally distributed (Wilk-Shapiro statistic = .988).

**TABLE 5**  
**Ordinary Least Squares Estimate of the Basic Salary Model**  
**(N = 267)**

Variable (name)	Expected Sign	Coefficient Estimate	Standard Error	<i>t</i> -statistic	<i>p</i> -value <sup>a</sup>
Constant	+/-	9.2123	0.2074	44.41	0.000
LPOP	+	0.1302	0.0170	7.66	0.000
CITY	+	0.2324	0.0304	7.63	0.000
ORGLLEVEL	+	0.0899	0.0270	3.33	0.001
NODEGREE	-	-0.1268	0.0644	-1.97	0.050
ADVDEGREE	+	0.1064	0.0246	4.32	0.000
GOVEXP	+	0.0098	0.0015	6.61	0.000
GENDER	+/-	-0.0010	0.0250	-0.04	0.966
REGION <sup>b</sup>					
Northeast	+/-	-0.0205	0.0419	-0.49	0.624
South	+/-	0.0254	0.0290	0.88	0.380
West	+/-	0.0908	0.0307	2.95	0.003
CPA	+	0.0850	0.0288	2.95	0.003
GOVCERTONLY	+	0.1047	0.0399	2.62	0.009
CPAGOV	+	0.1360	0.0368	3.70	0.000
Model F-statistic	18.87				
Prob (F-statistic)	<0.001				
Adjusted R <sup>2</sup>	0.466				

Notes: a Two-tailed tests; b The effect of the North Central region is captured in the constant term.

### Expanded Model Results

The coefficients of the basic model which includes the aggregated governmental certification variables, GOVCERTONLY and CPAGOV, are significant (Table 5). Accordingly, we next estimated the expanded regression model (eq. 2) to consider the effects of the governmental certifications individually and in combination with each other and with the CPA. This estimation appears in Table 6. The results for control variables are consistent with the basic model presented in Table 5. As with the preceding basic regression model, diagnostic procedures indicate that the coefficient estimates are not influenced by collinearity (no VIF exceeds 1.5), nor does the model produce non-normally distributed residuals. (Wilk-Shapiro statistic = .989).

**TABLE 6**  
**Ordinary Least Squares Estimate of the Expanded Salary Model**  
**(N=267)**

Variable (name)	Expected Sign	Coefficient Estimate	Standard Error	t-statistic	p-value <sup>a</sup>
Constant	+/-	9.2331	0.2081	44.37	0.000
LPOP	+	0.1285	0.0171	7.53	0.000
CITY	+	0.2255	0.0306	7.36	0.000
ORLEVEL	+	0.0934	0.0271	3.45	0.000
NODEGREE	-	-0.1225	0.0648	-1.89	0.059
ADVDEGREE	+	0.1096	0.0248	4.42	0.000
GOVEXP	+	0.0100	0.0015	6.66	0.000
GENDER	+/-	-0.0071	0.0252	-0.28	0.777
REGION <sup>b</sup>					
Northeast	+/-	-0.0115	0.0423	-0.27	0.785
South	+/-	0.0194	0.0296	0.66	0.511
West	+/-	0.0949	0.0310	3.06	0.002
CERTIFICATIONS					
CPA	+	0.0862	0.0290	2.97	0.003
CGFM	+	0.1153	0.0543	2.12	0.034
CGFO	+	0.0530	0.0593	0.89	0.371
INTERACTIONS					
CGFMCFO	+	0.0868	0.1114	0.78	0.436
CPACGFM	+	0.0831	0.0473	1.76	0.080
CPACGFO	+	0.1960	0.0506	3.87	0.000
Model F-statistic		15.35			
Prob (F-statistic)		<0.001			
Adjusted R <sup>2</sup>		0.463			

Notes: a Two-tailed tests; b The effect of the North Central region is captured in the constant term.

The results presented in Table 6 indicate that two of the three certification variables are significant (i.e., CPA and CGFM). The results provide support for  $H_3$  (CGFM) but not for  $H_4$  (CGFO). That is, having either the CPA or the CGFM credential alone tends to enhance the salary of government chief finance officers. The results suggest that holding the CGFO alone does not produce a statistically significant increase in salary. This may be due to the fact that the



CGFO is only available in a handful of states (e.g., Texas, Louisiana, Florida).

Of the coefficients for the interaction terms, CPACGFM and CPACGFO are significant at conventional levels and thus support  $H_6$  and  $H_7$ . The coefficient for the other interaction term, CGFMCGFO, is not significant, providing no support for  $H_5$ . Overall, these results suggest that once an individual has one governmental certification, a second governmental certification will not produce incremental earnings. Interestingly, the results are mixed concerning the combined effect of the CPA and a governmental certificate: The coefficient of CPACGFM (.0831) is less than that of CPA (.0862) but the coefficient of CPACGFO (.1960) substantially exceeds that of CPA.

### Salary Predictions

To complete the analysis, we compared (a) predicted salary values for non-certified finance officers with predicted values for finance officers holding the CPA, CGFM, CGFO, and combinations thereof and (b) the related salary increments. Predicted values were calculated using the mean values of the independent variables and the statistically-significant coefficient estimates (only) from equation 2 (Table 6). The predicted values appear in Table 7, Panel A; Panel B presents the predicted salary increments associated with certifications.

Table 7 Panel B shows that, for government finance officers, the CPA designation is associated with a \$6,834 annual salary increment, about \$1,000 less than the \$7,807 incremental value of the CPA in the general accounting employment market reported by Reichardt and Schroeder (2000). Regarding the CGFM, Panel B shows that the CGFM alone is associated with a predicted \$9,068 salary premium, while government finance officers having both the CPA and the CGFM are predicted to earn \$6,571 more than their non-certified peers. One interpretation of the latter observation is that, when combined with the CPA, the CGFM has no incremental remunerative value. Given the predicted value of the CGFM alone, this appears to be an anomaly.

In contrast, Panel B suggests that the CGFO designation has incremental value to government finance officers who are also CPAs:

**TABLE 7**  
**Predicted Salary Values by Professional Certification(s)**  
**(N=267)**

Panel A. Total Salaries		Additional Certifications		
	No or single Certification	CPA	CGFM	CGFO
None	\$72,787			
CPA	79,621	--		
CGFM	81,855	\$79,358	--	
CGFO	NS	88,644	NS	--
Panel B. Predicted Salary Increments by Professional Certification(s)		Additional Certifications		
	No or single Certification	CPA	CGFM	CGFO
None	--			
CPA	\$6,834	--		
CGFM	9,068	\$ 6,571	--	
CGFO	NS	15,857	NS	

Notes: The amounts in Panel A are calculated using the regression coefficients from Table 6 and the mean values of the independent variables. The amounts in Panel B are the Panel A amounts less the upper-left element in Panel A.

NS = not significantly different from the no-certification value.

whereas the CGFO alone does not appear to command a salary premium vis-a-vis no certification, finance officers who are CPAs and also hold the CGFO earn substantially more, \$15,857, than do their non-certified counterparts.

### CONCLUSION

The principal finding of this research is that in the market for public sector accountants, credentials that speak to one's knowledge of public sector accounting and finance appear to impact salary positively. This study suggests that these *relatively new* certifications have been accepted by the marketplace and public sector employers are willing to pay a premium for holders of those credentials.

In particular, we observe that the CPA and CGFM designations are valued in the employment market for government finance officers while the CGFO by itself does not impact salary levels. However, when the CGFO is combined with the CPA, it appears that there is incremental value added to the CPA credential. Further, holding multiple governmental certifications (e.g., CGFM and CGFO) does not seem to provide incremental value beyond holding only one governmental certification.

Our results must be considered in light of the study limitations, the most important of which is that we rely on self-reported data. Our subjects were promised (and receive) individual anonymity as incentive to participate in the study; nonetheless, we have no assurance that our subjects provided the requested information truthfully. Finally, our salary models are able to explain only about one-half of the variability in the reported salaries.

Additional research is needed to further our understanding of the factors that determine GFO salaries and thereby refine our knowledge concerning the value in the employment marketplace of professional certifications specific to government accounting and finance. Moreover, future research necessarily will allow the government certifications to become more “seasoned” and perhaps more widely held. Thus, a replication of this study should provide firmer estimates of the relative market values of the various professional governmental accounting/finance designations.

### ACKNOWLEDGMENTS

The authors appreciate the helpful comments on earlier versions of this paper from Kathryn Jervis, Roger Williams University, and Stephen Davies, Colorado State University. We also appreciate the research assistance of Katherine Eckhart, Colorado State University. The Division of Accounting at West Virginia University provided financial support for this research.

### NOTES

1. A hypothesis to test for the impact of holding the CPFO designation is not tested because of the small number of respondents holding



that particular designation (i.e., two). Similarly, an interaction hypothesis (CGFMC PFO) is not tested because of the small number of respondents (i.e., two) having this particular combination. Another two potential interaction hypotheses (CPACPFO and CPFOCGFO) are not tested because none of the respondents have those particular combinations.

2. Two individuals hold the CMA alone, two more hold the CMA in conjunction with another certification. Two subjects hold the CIA in addition to another certification; none holds only the CIA.
3. The four respondents holding the CPFO designation (i.e., two holding the CPFO alone; two holding the CPFO in combination with the CGFM) are incorporated in the GOVCERTONLY variable included in the basic salary model (i.e., Table 5). However, because of the small number of CPFOs, we do not included CPFO and CGFMC PFO as separate variables in the expanded model (i.e., Table 6).

#### REFERENCES

- Belman, D., & Heywood, J. (1995). "State and Local Government Wage Differentials: An Intrastate Analysis." Journal of Labor Research, 16 (2), 187-202.
- Carroll Publishing Company. (1995). Carroll's Municipal/County Directory. Washington, DC: Author.
- Evans, J. III, & Patton, J. (1983). "An Economic Analysis of Participation in the Municipal Finance Officers Association Certificate of Conformance Program." Journal of Accounting and Economics, 5(2), 151-175.
- Evans, J. III, & Patton, J. (1987a). "An Analysis of Participation in the GFOA Certificate of Achievement for Excellence in Financial Reporting Program." Government Finance Review, 3(1), 23-26.
- Evans, J. III, & Patton, J. (1987b). "Signaling and Monitoring in Public-Sector Accounting" Journal of Accounting Research, 25 (Supplement), 130-158.

- Moore, W., & Newman, R. (1991). "Government Wage Differentials in a Municipal Labor Market: The Case of Houston Metropolitan Transit Workers." Industrial & Labor Relations Review, 45(1), 145-154.
- Moore, W., & Raisian, J. (1991). "Government Wage Differentials Revisited." Journal of Labor Research, 12(1): 13-34.
- Moulder, E. (2000). "Salaries of Municipal Officials, 1999." In International City/County Management Association (Ed). The Municipal Yearbook 2000. Washington, DC: International City/County Management Association
- Peterson, B., & Reider, B. (1998). "Is Multiple Certification Worth your While? CPAs' Thoughts on their CMA Credential." Ohio CPA Journal, 5 (3), 46-50.
- Reichardt, K., & Schroeder, D.( 2000, June). "IMA 1999 Salary Guide." Strategic Finance, 28-41.
- Schroeder, D., & Reichardt, K. (1997). "Salaries 1996." Management Accounting, 78(12), 20-29.
- Smith, S. (1977). "Government Wage Differentials." Journal of Urban Economics, 4, 248-271.
- Stedman, M. (1976). State and Local Governments. Cambridge, MA: Winthrop Publishers, Inc.

### APPENDIX 1

#### Geographic Regions as Defined by the United States Census Bureau

Region	States comprising the region
Northeast	Connecticut, Massachusetts, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
North Central	Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin
South	Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia
West	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming