Chapter 20

ORGANIZATIONAL AND INDIVIDUAL DRIVERS OF COMPENSATION OF PUBLIC SECTOR BUYERS

Mohamad G. Alkadry and N. Bhargava*

INTRODUCTION

In the last two decades, Government has been expected to operate more like the private sector with orientation toward efficiency and performance (Risher, 1997). An expectation of high quality of work and responsibility from public employees leads to a need to recruit quality workers, which in turn emphasizes the need for competitive wages and rewards offered by public agencies. Therefore, a successful compensation plan is key to success in this environment (Lowe, Milliman, Cieri, & Dowling, 2002). Establishing the right wage for the right employee becomes critical to an agency's ability to recruit and retain good employees.

Wages are affected by many factors (Holzer, 1990). One of the key organizational factors determining the salary structure is whether an agency is a public or a private one. Disparities are expected in the private sector more than they are in the public sector. In public organizations, pay-equity is a key factor in deciding the pay structures and in many cases salaries of individuals are subject to public disclosure rules (Pfeffer, & Davis-Blake, 1990).

The expectation of employees that they be appropriately compensated is self-evident. There is also a need for research to establish what drives salaries in the public sector. This article focuses on compensation of buyers working in public agencies. Buyers are employees who handle most of the purchasing done by their organizations.

The purpose of this article is to study the effects of gender, budget size, supervisory responsibilities, experience, authority level, education, certification, age, cost of living, and labor marker competition on the compensation of buyers and senior buyers. After reviewing the literature

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related to each of the determinants mentioned above, the article uses multiple linear regression to analyze the data gathered from 304 buyers working in public procurement organizations. Finally, it discusses the results and limitations of the study.

LITERATURE REVIEW

Salaries of buyers in relatively similar positions vary depending on whether employees are operating in private, public, or nonprofit organizations. Many scholars suggest that managers in the public sector should be rewarded based only on their level of performance (Kellough & Selden, 1997; Campbell, Kathleen & Chia, 1998). This would motivate individuals to strive for results-oriented work, but labor market conditions and labor qualifications vary immensely and are weighted differently by different organizations. Within each setting, public or private, there are numerous factors that affect employee compensation positively or negatively.

The focus of this article is a study of the factors that affect compensation variance for buyers in the public sector. Several studies have been conducted to determine the drivers of compensation in different occupational settings. Largely, researchers have focused on gender, age, performance, education, experience, and labor market competitiveness. In the following paragraphs, the article examines the literature on the various drivers of compensation of buyers in the public sector. It particularly focuses on two sets of drivers: organizational and individual. The organizational drivers or factors are outside the control of individuals and relate to the organization or environment in which they work. The individual drivers or factors include things that are specific to the employee: his or her education for instance.

Organizational Factors

There are many factors that affect compensation of employees but are outside their control. Such organizational factors include the size of the organization, annual procurement volume, cost of living, and labor market conditions in the geographic area of the organization.

Larger organizations tend to compensate their employees at higher levels than smaller ones. The starting pay is higher in larger organizations and the average pay of employees in large companies increases more rapidly than those of employees in small companies (Fitzgerald, 1998). Employees find more lucrative jobs with better compensation plans in bigger

organizations. This leads to significant challenges for small organizations to retain their staff (Nau, 1999). In 1998, the difference between the annual average salary increases of large companies and smaller companies was 11% (Fitzgerald, 1998). Several other studies positively correlate the size of the organization with the level of compensation of its employees (Langer 2000; Santere & Thomas, 1993). Specifically for buyers, the size of the organization could have a larger effect on the nature and amount of work they conduct.

In a purchasing environment, the amount of work performed by buyers is related to the procurement volume for which buyers are responsible. If compensation is related to amount of work, and if the amount of work is related to the budget size of the organization, then consequently the compensation level is expected to fluctuate with the annual procurement volume. Previous research shows that the annual procurement volume affects the level of compensation of employees (Morgan, 1997; Fitzgerald, 1998; Longer, 2000; Santere & Thomas, 1993). In a study of 448 heads of public procurement units and 414 supervisors and materials managers in the public sector the annual procurement volume had a statistically significant positive effect on compensation of both sets of employees (Alkadry, 2004). In another study of senior procurement officials in the private sectors, the amount of spending done by procurement units also has a statistically significant positive effect on compensation of employees (Ogden, Zsidisin, & Hendrick, 2002).

Geographic salary differences are greatly affected by cost of living and housing. For instance, a higher cost of housing results in a higher salary offered to employees. According to the American Compensation Association's 1995-96 salary budgets survey, one of the factors affecting increases in annual salary was cost of living (Argon, 1996). Similarly, one would expect the labor market competitiveness to affect the compensation of employees. The compensation of employees in the immediate geographic setting of a particular organization would, at least in theory, have some influence on the compensation of existing and incoming employees to that organization (Alkadry, 2004). The fact that employers are having difficulty finding eligible qualified candidates results in applicants' demanding higher salaries (Porter, 2000). In the academic labor market, Formby and Hoover (2002) believe that at entry level, a tenure-track employment pays a large and highly significant premium. Inability to offer more-competitive salaries leaves many public universities with the problem of having important employees, such as top professors, connect with other better paying private or public institutions (Schmidt, 1999).

Individual Factors

Some factors that affect the compensation of employees are individual, as compared to organizational, in nature. Such individual characteristics include controllable factors such as supervisory responsibilities, experience, education, and certification. Individual factors also include such non-controllable factors as age and gender.

Responsibility equals pay and compensation grows with responsibility (Staff, 2001). Higher supervisory responsibilities lead to more responsibility and in turn to a greater compensation potential. While research on the effect of supervisory responsibilities on compensation of buyers is not well-developed, there are some indications that supervisory responsibilities of chief purchasing officers affect their compensation in the private sector (Ogden, Zsidisin, & Hendrick, 2002). Langer (2000) also found some positive correlation between the number of subordinates and compensation of chief financial officers of large firms. Alkadry (2004) found that the number of subordinates of heads of purchasing units in the public sector had the largest positive effect size on their compensation levels. While the buyer position by nature is not a supervisory position, sometimes buyers supervise lower level purchasing staff such as junior buyers, assistant buyers, or other employees. In the survey of 304 buyers undertaken in this current study, only half of the buyers reported having no subordinates. Therefore, supervisory responsibilities remain important for studying drivers of buyer compensation.

While research clearly points to a link between age and compensation, there is little evidence to suggest that older employees will make more money only because of their age (Staff, 2001). Rewards grow with a blend of age and experience of buyers. Longevity strengthens average salaries of employees in purchasing and non-purchasing professions. Average purchasing salary increases in line with span of service. Additionally officials earn more than average after ten years of professional experience (Staff, 2001). Salaries of buyers increase at a faster pace than lower level professionals because of their experience and skills. Especially in the public sector where collective bargaining is increasingly becoming more prevalent, seniority is a major factor for getting higher salaries and bonuses (Fitzgerald, 1998). For example, in a study on the effect of collective bargaining on teachers' salaries, Zwerling & Thomason (1995) argue that unionization becomes more effective when teachers are more experienced.

Holzer (1990) argues that previous experience and tenure in the present profession have considerable positive influence on remuneration of purchasing professionals. Loyalty to one employer becomes a factor in

achieving higher salaries in the long run. Professionals who stay with a single employer for an extended duration of time tend to get better compensation packages (Trommer, 1995). While arguing for pay based on performance, Swope (1998) argues that in the government sector an inviolable rule is that seniority translates into more pay.

According to the 2001 Purchasing annual report, America's purchasing professionals are very well qualified with 75% of them having a college degree and almost 10% having an engineering degree or some form of technical degree. This is a substantial improvement from 1982 when only 58% of buyers had college degrees (Staff, 2001). Agron (1996) and Zwerling (1995) argue that for teachers' compensation, collective bargaining, in combination with higher levels of education and experience, is positively related to higher salaries.

The significance of certification has increased gradually in the last few years especially with the advancing of new purchasing-specific certificate programs. It seems logical for one to argue that having a certificate results in higher salaries for purchasing professionals. Morgan (1997) found a significant relationship between certification and higher salaries of purchasing staff. Fitzgerald (1998) found a similar relationship. However, it seems that research on the effect of certification on salaries of purchasing managers is not as definitive as that of general purchasing staff. A salary survey of purchasing professionals (2001) shows an annual 3% increase in the gap between salaries of certified purchasing managers and non-certified purchasing managers (Staff, 2001). On the other hand, Ogden, Zsidisin, and Hendrick (2002) and Alkadry (2004) found no significant difference in pay of certified and non-certified public purchasing executives and managers.

Formal schooling and professional certification have a very important role in the career progression of any professional. However, importance of formal schooling and professional certification declines in later career stages when work experience becomes more important. Fitzgerald (1998) found that employees who work for the largest companies, and who are offered higher positions, more purchasing responsibilities, and consequently higher salaries are mostly college graduates (also see Hardy, 1984). In his study of purchasing executives and managers, Alkadry (2004) found that education had the largest effect on compensation of purchasing supervisors and materials managers and the second-largest effect on compensation of heads of purchasing units. On the other hand, the studies did not find a relationship between pay and education of 165 chief purchasing officers from Fortune 500 companies.

In the early eighties, women in professions like purchasing had less education, more moderate experience, and relatively fewer supervisory responsibilities than men. Women's lower compensation has been traditionally explained by these lesser skills (Fitzgerald, 1998). With women acquiring the same levels of education and experience as men and taking up equally important positions, one would expect this wage gap to shrink away. However, the gap seems to persist between men and women – even among those who hold similar positions (Staff, 2001; Alkadry et. al., 2002). In his study of purchasing managers and executives, Alkadry (2004) found that:

> On average, male heads of purchasing units make $70,741 (186 respondents) and female heads of purchasing units make $61,164 (100 respondents). This $9,577 difference in annual salary is significant at the 0.0005 and better level. On average, male supervisors and materials managers make $58,994 (128 respondents) and female supervisors and materials managers make $51,466 (130 respondents). This $7,528 difference in annual salary is also significant at the 0.0005 and better level (p. 14).

In essence, no matter how many more hours women put into work, bear more work responsibilities, or receive better performance appraisals than men, they have been discriminated against, paid less, and promoted at a lower rate. Even though productivity growth and current productive levels are somewhat higher for females, their salaries are considerably less than men (Holzer, 1990). Some scholars fear that it has become a social norm to pay less to women than their men counterparts (Ferree, 1998).

CURRENT STUDY

Using an electronic survey distributed to all members of the National Institute of Public Procurement in November 2002, compensation and demographic information was gathered from 304 buyers from 40 different states within the U.S. Of these 304 buyers, 23% work for the state governments, 20% work for county/regional governments, 31% work for municipal governments, 11% work for the school systems, 7% work for college and universities, 3% work for utility companies, and 5% work for special authorities or districts. Thirty-seven percent of respondents were male and 63% were female. Almost 61% of respondents were educated in business fields while 16% were educated in liberal arts. Almost half of respondents held no certification. On average, respondents worked 10 years with their current employer, worked 12 years in purchasing, spent 26 years

in the workforce, had one subordinate, were 46 years old, and earned $41,653 in September 2002. Table 1 presents some key descriptive statistics.

Responses were analyzed using multiple linear regression. The dependent variable is the respondent's self-reported 2002 salary including bonuses. Organizational factors that were included in the regression model are: (1) organizational size operationalized through the number of staff in the purchasing unit and the number of staff in the entire jurisdiction, (2) annual procurement volume, (3) cost of living operationalized through the use of the median household income in the respondents' counties, and (4) labor market competitiveness operationalized through the use of median household income in the respondents' counties. Individual factors that were included in the regression model are: (1) supervisory responsibilities operationalized through the number of subordinates reporting to the respondents, (2) age of the respondents, (3) work experience operationalized through total years with the current employer and total years of experience in purchasing, (4) education operationalized through the number of years of education completed. Certification (certified: yes or no) and gender (female: yes or no) are two additional individual factors that were included as dummy variables because they are not interval level variables. In total,

TABLE 1
Descriptive Statistics

	Valid Cases	Missing C	Mean	Median	Standard Deviation
Total Years with Current Employer	301	3	9.88	7.00	8.30
Total Years of Experience in Purchasing	300	4	12.36	11.00	8.04
Total Years in Workforce	299	5	25.91	26.00	9.06
Number of Subordinates	272	32	1.11	0.00	2.94
Number of Years of Education	287	17	14.46	14.00	1.85
Annual Procurement Volume ($000s)	211	93	530,081	24,000	3,711,118
Number of Staff in Purchasing Unit	281	23	9.85	7.00	10.80
Number of Staff in Jurisdiction	266	38	3449	900	9565
2001 Salary Incl. Bonuses	287	17	39,566	38,240	11,009
2002 Salary Incl. Bonuses	263	41	41,653	40,000	11,504
Percent salary Raise 2001-2002	304	0	4.68	3.56	5.42
Age	299	5	46.07	47.00	8.45

twelve independent variables and one dependent variable were included in the model.

All assumptions of linearity, normality, and homoscedasticity were met. The level of determination of the model (r-squared) is 0.537 (Table 2). This means that these twelve independent variables together are able to explain 54% of the variance in the salary of respondents. Organizational size (size of procurement section and size of jurisdiction), annual procurement volume, and labor market competitiveness (median income in county) were not statistically significant. Median housing value (representing cost of living) is the only organizational factor that was statistically significant. All the individual factors, including the number of subordinates, total years with current employer, total years of experience in purchasing, number of years of education, certification and gender except age were statistically significant at the 0.05 level or better. Table 2 presents the standardized coefficients (betas) and the level of statistical significance for each of the variables included in the regression model.

TABLE 2
Results of Multiple Regression

	R^2 : 0.537 **Adjusted R^2 : 0.503**	
	Beta	**Significance**
Number of staff in purchasing unit	-0.076	0.186=
Number of staff in jurisdiction	-0.003	0.952=
Annual procurement volume	0.018	0.741=
Median housing value	0.387	0.000**
Median household income	0.095	0.246=
Number of subordinates	0.191	0.001**
Age	-0.013	0.830=
Total years with current employer	0.270	0.000**
Total years of experience in purchasing	0.254	0.000**
Number of years of education	0.229	0.000**
Certified Yes/No	0.123	0.029**
Female Yes/No	-0.146	0.013**

Notes: ** Statistically significant at the 0.05 level or better
= Not Statistically significant.

Table 3 presents the effect sizes only for the statistically significant variables sorted from the largest effect to the smallest. Median housing value representing the regional cost of living has the largest effect, followed by experience (with current employer and in the field of purchasing), education, supervisory responsibilities (number of subordinates), gender and certification.

TABLE 3
Effect Sizes Sorted Highest to Lowest (effect sizes)

Variable	Beta
1. Median housing value	0.387
2. Total years with current employer	0.270
3. Total years of experience in purchasing	0.254
4. Number of years of education	0.229
5. Number of subordinates	0.191
6. Female Yes/No	-0.146
7. Certified Yes/No	0.123

DISCUSSION

The literature on salary drivers points to different directions. In this section, it is important to situate the findings of this current study in the general literature on drivers of salaries. Table 4 lists the hypotheses generated from the literature and this study's decision on each of these hypotheses. The most striking finding of this study is the marginalization of organizational factors in determining the salaries of buyers. According to the findings of this current study, the only organizational factor to have a statistically significant affect on salaries was cost of living.

In the literature discussed earlier, larger organizations were more likely to compensate their employees at higher levels than smaller ones (Fitzgerald, 1998; Nau, 1999; Longer 2000; Santere and Thomas, 1993). However, this was not the case for the sample of buyers surveyed in this current study. Alkadry (2004) and Ogden, Zsidisin, and Hendrick (2002) found a significant relationship between compensation of purchasing executives and managers compared to procurement volume. Again, this was not found to be the case in the current study. The theorized relationship between compensation and cost of living (Argon, 1996) was statistically

TABLE 4
Hypotheses and Decisions Table

Hypothesis	**Decision**
H_1: As the number of staff in purchasing unit increases, the compensation of buyers in the purchasing unit also increases	Fail to Reject H_0
H_2: As the number of staff in jurisdiction increases, the compensation of buyers in the purchasing unit also increases	Fail to Reject H_0
H_3: As annual procurement volume increases, the compensation of buyers in the purchasing unit also increases	Fail to Reject H_0
H_4: Higher Median Housing Value in an area translates into higher salaries	Reject H_0
H_5: Higher Median Income in an area translates into higher salaries	Fail to Reject H_0
H_6: As the number of subordinates increases, the compensation of buyers also increases	Reject H_0
H_7: Older buyers earn more money	Fail to Reject H_0
H_8: As the number of years of experience with current employer increases, the salary of buyers also increases	Reject H_0
H_9: As the number of years of experience increases, the salary of buyers also increases	Reject H_0
H_{10}: Higher education translates into higher salaries	Reject H_0
H_{11}: Buyers with certification earn more money than buyers without certification	Reject H_0
H_{12}: Male buyers earn more money than female buyers	Reject H_0

significant in the current study. And finally, labor market competitiveness did not have a significant effect on buyer compensation in the current study. Alkadry (2004) found that labor market competitiveness was a significant driver of the compensation of public purchasing executives and managers.

Unlike organizational factors, individual factors have more significant effect sizes on compensation of buyers in the sample. Individual factors include controllable factors such as supervisory responsibilities, experience, education, and certification. Individual factors also include such non-controllable factors such as age and gender. With the exception of age, all of these individual factors have some significant effect size on the compensation of buyers in the sample.

Ogden, Zsidisin, and Hendrick (2002), Langer (2000) and Alkadry (2004) have all suggested that higher supervisory responsibilities lead to a greater compensation potential. This was consistent for buyers in the current study. Holzer (1990), Trommer (1995) and Swope (1998) found that

experience ultimately leads to higher pay. Such a relationship was consistent with the current study. Similarly, the relationship between education and compensation levels of buyers in this study is also consistent (a statistically significant positive standardized coefficient) with the literature explored earlier in this article (Staff, 2001; Agron, 1996; Zwerling, 1995).

Certification has a positive effect on the compensation of buyers in the current study. Those with certification on average ($44,082) earn more than those without certification ($38,478). This is consistent with the literature on certification and pay for non-management and non-executive purchasing professionals. Education is an important factor in establishing one's compensation level (Fitzgerald, 1998; Hardy, 1984). This is also true in the current study where the effect size of education was only second to cost of living and work experience.

Finally, the effect of gender on compensation levels of buyers is one of the most significant findings of this study. Gender has an effect on the compensation of buyers even when the model controls the organization size, procurement volume, cost of living, labor market competitiveness, supervisory responsibilities, age, experience, education, and certification. On average, male buyers earn $45,262 and female buyers earn $39,474. This gap is a clear indication that gender pay disparities continue to be a problem among buyers.

LIMITATIONS AND CONCLUSION

The most important limitation of this study is a potential under-coverage of the sample. The sample used in this article includes only buyers working for member-organizations of the National Institute of Public Procurement (NIGP). Another restriction of the survey is that it was sent electronically to members. This means that only members who have valid e-mail addresses on the NIGP electronic list were able to receive the survey. However, these sampling coverage issues were inevitable. NIGP is the largest membership organization for public sector procurement officials and in the absence of another more comprehensive sampling frame, this remains the best outlet for the research undertaken in this article.

The importance of this study is that it is the only one that deals specifically with the compensation of buyers in the public sector. Other studies have dealt with different professions or positions. This article also points to some key findings in the area of driving factors in the salary of buyers in the public sector. The result is that all theorized personal drivers except age were confirmed to have some effect on compensation of buyers.

All theorized organizational drivers except cost of living were confirmed to have no effect on compensation of buyers.

This article also points to several areas for future research. The model explains only half of the variance in the compensation variable. Other variables, such as performance or starting salary, could help explain more of the variance in the dependent variable. Another area for future research is a study that attempts to explain the gender pay disparity that was obvious in this study. Pfeffer, & Davis-Blake (1990) argue that such disparities are less prevalent in the public sector than they are in the private sector because of the public disclosure of salaries in the public sector.. This leads to the conclusion that the pay gap could be worse in the private sector.

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