

Does Collective Bargaining Influence the Pay Satisfaction of Elementary School Teachers?

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Abstract

The purpose of this study is to determine the impact of collective bargaining on teacher pay satisfaction and offer knowledge of the factors contributing to the pay satisfaction of public elementary school teachers. The study focuses on how human capital, occupational characteristics, and job related characteristics impact the pay satisfaction of teachers. The results of our regression analysis suggest that teachers represented by a labor union have higher levels of pay satisfaction than teachers who are not ($b=.32$, $p=.02$, $p < 0.05$). This study's unique contribution is that we focus not only on the public K-12 school industry, but also we examine the relationship between the presence of collective bargaining and teacher pay satisfaction in school districts across two states.

Key Words

labor unions, pay satisfaction, collective bargaining, decision modeling, teacher pay

Introduction

The presence of unions in public education is a highly contentious issue. Critics have “accused these unions of simultaneously raising the cost and lowering the quality of American public schools” (Coulson, 2010, p. 155). They note that rigid union-established salary schedules stymie education pay reform endeavors such as performance pay. Critics also argue that unions are against such reforms.

While unions have been found to encourage teacher bonuses based on additional duties, for the most part, they do not support bonuses based on improvement of student test scores, which they feel are not valid proxies for teacher performance (West & Mykerezi, 2011). In fact, the largest teacher union in the nation, the National Association of Education (NEA), states in their 2014-15 resolution that they believe “performance pay schedules, such as merit pay or any other system of compensation based on an evaluation of an education employee’s performance, are inappropriate” (National Education Association, 2014, p. 64).

Notwithstanding criticisms, one of the widely accepted benefits of being part of a union is the ability to raise salaries for union members. For instance, West and Mykerezi (2011) found that collective bargaining has a significant positive impact on salary schedules. Likewise, Coxby (1996) found that collective bargaining raises public school districts’ spending, which were primarily reserved for smaller classes (i.e., more teachers) and higher salaries.

However, not everyone agrees that unions have an additive effect on pay. Some researchers have found no relationship between the presence of unions and teacher wages in public school districts (Lovenheim, 2009; Kasper, 1970). Despite these findings, the

general “ingrained” perception is that unions are beneficial for wages (Mitchell, 1978) and consequently, individuals in unions may feel more satisfied with their pay. This affective reaction to pay (pay satisfaction) may represent a benefit of unions irrespective of any salary gains (or lack thereof).

In spite of the potential impact of unions on teachers’ pay satisfaction, there has been surprisingly little research that has been conducted on the topic. Consequently, this study was conducted to examine the relationship between the presence of a union and the pay satisfaction of teachers. We control for other predictors of pay satisfaction that have been previously identified, including salary.

Salary Determination Process

In an environment without collective bargaining, a single authority, such as the school board, determines fixed-pay teacher salaries; whereas in a collective bargaining environment, salaries are determined through negotiations, where teachers are represented by a bargaining agent (Tran & Young, 2013).

When pay is collectively bargained, “actual dollar amounts allocated within fixed-rate teacher salary schedule are a fundamental mandatory item of bargaining in all public sector laws” (p. 143). As a result, school boards and union representatives must meet in agreement on the actual dollar amount before a final fixed-rate salary schedule is determined for teachers.

Union Membership and Pay Satisfaction

Even with the general perception that unions increase employee wages and benefits, researchers have found that unionization reduces job satisfaction (Bryson, Cappellari & Lucifora, 2004; Hammer & Avar, 2005).

Bryson et al. studied the effect of union membership on job satisfaction and satisfaction with pay. This study found union members reported lower satisfaction levels than non-union members. When comparing pay satisfaction to other forms of job facets, union members' levels of dissatisfaction with their job were not statistically significant for pay.

However, there is also evidence indicating unionization has a strong positive effect on pay satisfaction (Evans & Ondrack, 1990; Nelson, Stone, Frye, & Chown, 2008). Evans and Ondrack (1990) found this relationship in a blue collar setting. Similarly, Currall, Towler, Judge, and Kohn (2005) found that satisfaction with unions was positively related to pay satisfaction; however, their study was limited because they did not compare unionized school districts to nonunionized school districts.

Given that Nelson, Stone, Frye, and Chown's (2008) review of the literature found mixed results for the effects of union membership on pay satisfaction, this suggests that we do not have a complete understanding of the topic and that much work is still needed.

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Gomez-Mejia and Balkin (1984) examined the relationship between the presence and absence of university faculty union membership and their pay satisfaction.

The study consisted of faculty members listed as either liberal arts or business administration at a unionized university system (Minnesota) and a nonunionized university system (Wisconsin).

Similar to the results of the Currall et al. (2005) study, Gomez-Mejia and Balkin (1984) found that unions were positively related to pay satisfaction.

Theoretical Framework

This study is based on the framework established by Freeman and Medoff's (1979) Collective Voice/Exit theory. Bryson, et al., (2004) to interpret their findings concerning higher pay satisfaction in collective bargaining environments, used this theory.

According to the theory, employee's dissatisfaction can be reduced when they have a voice in the organizational decision making process. Voice refers to the communication used by employees in an effort to receive their desired work conditions. In the collective bargaining environment, unions are typically the vocal representatives of the employees.

In addition, the reduction of satisfaction is theorized to decrease turnover. Similarly, in our study, we posit that collective bargaining results in higher pay satisfaction, which in turn has been found to be related to lower turnover intentions (Tran, 2015) and those intentions have been found to predict actual turnover (Lee & Mowday, 1978).

Significance and Purpose

The purpose of this study is to contribute to the body of literature concerning the potential impacts of the presence of collective bargaining on teacher pay satisfaction. This study differs from prior studies in that we not only focus on the public K-12 school industry, but we explore the relationship between the presence of collective bargaining and teacher pay satisfaction in multiple school districts across two states. Thus, the following research question guided the present study:

Does the presence of collective bargaining influence pay satisfaction of elementary school teachers?

In the following section, the survey method used to answer this research question is presented.

Methodology

The population of interest for this study is all traditional (non-charter) elementary public school teachers (grades K-5) in the states of Ohio and South Carolina. Data from the Ohio Department of Education (ODE) and the South Carolina Department of Education (SCDE) were used to define a population of teachers from public non-charter schools and obtain school district salary schedules for each participant. MCH Strategic Data (MCH), a sales and marketing company, provided contact information for all of the teachers.

To identify the teachers of different labor forces (i.e., union vs. non-union), the states of Ohio and South Carolina were chosen for comparison purposes.

Ohio was chosen because it is a unionized state and uses union representatives to bargain personnel concerns in a bilateral decision making system.

In contrast, South Carolina was chosen because it is a non-collective bargaining state and practices Right-to-Work laws in a unilateral decision making system. In this study, Ohio and South Carolina respectively represent proxies for collective bargaining and its absence in the decision making process.

In order to accurately represent the decision making process, both Ohio and South Carolina should be closely matched in characteristics other than the presence of collective bargaining. Using 2013 U.S. Census

data, we found that while Ohio's overall population is larger than South Carolina (e.g., OH- 11.5 million; SC- 4.7 million), which translates into a larger number of teachers (OH- 80,705; SC- 53,328), the percentage of the total population that are teachers for both states are similar (OH- .07%; SC -1%; ODE, 2013; SC, 2013).

The two states were also comparable in per capita income (OH- \$25,857; SC- \$23,906), high school graduation rates (OH- 88.2%; SC- 84%), unemployment rates (OH- 6.2%; SC- 6.8%) and geographic size (OH- 40,860 mi²; SC- 30,060 mi²) (U.S. Census Bureau, 2013). High comparability between the states on factors other than the presence of collective bargaining provides further confidence that differences in outcomes between the states are likely contributable to their decision making model.

Procedure

We collected personal and occupational characteristics, as well as pay satisfaction information from respondents via survey. Cohen's (1988) power analysis was used to identify the sample size needed to detect any potential effects of collective bargaining.

This study involved 11 covariates, one independent and one dependent variable, a medium effect size ($f^2=.13$), an alpha level of .05, and a specific power of .80. Based on these parameters, the power analysis recommended a sample size of 149. Our achieved sample was 244 and therefore the requirement was met. Districts' per pupil expenditure and class size were obtained from each of the state's corresponding state department of education.

Variables

Covariates. We controlled for the following variables in our study: a) education level, b) teaching experience, c) sex, d) race, e) age, f)

contractual work days, g) region adjusted base salary, h) supplementary income, i) loan debt, j) district student teacher ratio, k) officer of a professional organization, and l) district per pupil expenditure, based on research that suggests their potential influence on pay satisfaction (Castetter and Young, 2000; Klein & Maher, 1966; Lawler, 1971; Penzer, 1969; Tang & Tang, 2012; Tran & Young, 2013; Young, 1999).

To illustrate the importance of some of these variables, we provide a rationale for their inclusion. Specifically, researchers identified the following as relevant human capital endowments that may potentially influence pay satisfaction: a) education level (Klein & Maher, 1966; Penzer, 1969) and b) Years of Experience (Tang and Tang, 2012).

As it relates to the relationship between education and pay satisfaction, Klein and Maher (1966) found that higher education level produced higher levels of pay dissatisfaction after accounting for actual pay, and they posit that this was due to individuals with higher levels of education having elevated perceptions of self-worth and therefore may feel less positively about their pay.

In addition, teacher education level in school systems is often used as a determinant of teacher pay in public school systems. School district fixed salary schedules offer increases in teacher pay status by attaining higher education levels.

Because of the highly qualified teacher requirements of NCLB (2001), certified teachers salary education requirements generally begin with a bachelor's degree, and pay increases occur at the master's, master's + 30 credit hours, and doctorate levels (education requirements differ in certain school districts).

In this study, highest degree is defined by the aforementioned degree categories, and they were each dummy coded, with bachelor's degree serving as the reference in our analysis.

Experience based on the number of years serving as a teacher is another determinant of teacher pay in public school systems. Tang and Tang (2012) found that years of experience produced higher levels of pay satisfaction when studying educators.

In addition, the fixed based teacher salary schedule provided by the school district provides teachers step increases in pay as determined by each year of service. Teachers are provided incremental increases in pay each year until they reach the maximum compensable number of years of service allowed by the school district for their particular educational level.

In our study, teaching experience is defined as the reported number of years the respondents served as teachers.

Occupational characteristics may also impact pay satisfaction. These features are typically found within the employee contract and provide details pertaining to their pay. Important occupational characteristic that were accounted for in this study are: a) contractual work days and b) annual base salary.

Teachers are typically contracted for 180 days in Ohio (ODE), 190 days in South Carolina (SCDE), and teaching position with longer contracts are paid more. In addition, salaries of teachers with labor union memberships have been found to be higher than salaries of teachers with no labor union membership (Bryson, Cappellari, & Lucifora, 2004; Evans & Ondrack, 1990; Gomez-Mejia & Balkin, 1984; Nelson et al., 2008) and

research has identified that changes in pay level significantly predicts how satisfied individuals are with their income (Berkowitz, Fraser, Treasure, & Cochran, 1987).

However, past findings have suggested that relative pay (e.g., teacher's pay relative to their peers) may be more important than absolute dollar amount when it comes to how individuals feel about their pay (Baker, Punswick & Belt, 2010).

Indeed, past research has found that educator's pay satisfaction are influenced by the pay of relevant others (Young, Young, Okhremtchouk, & Castaneda, 2009; Tran, 2015). Consequently, we control for relative pay by dividing teacher's reported salary by their regional comparable wage index (CWI) (Taylor, 2006). The CWI takes into consideration the fact that different regions exert different amount of financial pressure for salary levels. For instance, an area with a high cost of living or a lack of amenities may require higher absolute salary levels to attract employees and accounting for this allows absolute dollar amounts to be adjusted for appropriate comparisons across regions.

Because the 2014 CWI has not been made available at the time of our analysis, we estimated the 2014 CWI with the average

comparable cost index for the previous four years (i.e., 2013, 2012, 2011, 2010). Near perfect correlations between the four comparable cost indexes ($r \geq .99$, $p < .0001$) provides further evidence that the four year average was an appropriate substitute for the 2014 CWI as the variation in wage pressure between districts remained mostly consistent across time.

In addition to the aforementioned variables, we also accounted for teacher's racial background (coded as white or not white), age, whether the teacher worked in a professional organization, and district average student teacher ratios.

Student teacher ratios were incorporated because Adams's Equity theory (1963) would suggest that pay satisfaction is influenced by the balance of employee's input and outcome (e.g., pay) and larger class sizes may serve as increased input (more work).

Most of our respondents operated in environments that did not have collective bargaining (65.92%), held Master's degrees (41.34%) and were white (88.83%) and female (62.57%). Further descriptive statistics for the sample used in our analysis (i.e., those with complete data) are provided in Table 1.

Table 1

Descriptive Statistics (n=179)

Variable	Mean	Std. Dev.	Min	Max
Pay Satisfaction	2.41	0.69	0.5	4.36842
Teaching Experience	13.15	9.53	0	42
Age	42.27	11.14	24	68
Contractual Workdays	304.12	1415.13	80	190.56
Region Adjusted Base Salary	36,409.4	10,228.2	28,69.22	64,979.8
District Student Teacher Ratio	20.46	3.31	4.4	26.8
District Per Pupil Expenditure	97,47.61	17,00.04	7,765.86	20,669.3

Independent variable.

The independent variable manipulated in the study is the presence of collective bargaining. Collective bargaining may increase pay satisfaction because labor unions can negotiate higher pay for teachers and a lack of collective bargaining does not provide opportunities for

teachers or their representatives to negotiate teacher pay. Consequently, in this study, we seek to identify if there is a difference in pay satisfaction among elementary teachers operating in a collective bargaining environment as compared to their counterparts in a non-collective environment.

Dependent variable. The dependent variable for this study is pay satisfaction as assessed by the Pay Satisfaction Questionnaire (PSQ). Participants were asked to complete the PSQ, which provided a composite pay satisfaction score used for analysis. Heneman and Schwabs's (1985) PSQ includes 18 items describing various facets of one's pay (pay level, pay benefits, pay raises and pay administration/structure).

Some example of these items included questions inquiring about respondents' degree of content with current salary, fringe benefits package, recent pay and the amount of control that the supervisor has over respondents' pay (Heneman & Schwab, 1985).

The items are rated on a five-point, Likert-type scale ranging from *Very Dissatisfied* to *Very Satisfied*. Higher ratings on the scale signify more positive reactions to a particular facet in the form of satisfaction, while, lower ratings signify a more negative response to the particular facet in the form of dissatisfaction.

This study used the PSQ because it is one of the main surveys for measuring the constructs of pay satisfaction and has been found to have high levels of reliability and validity (Judge & Welbourne, 1994; Lievens, Anseel, Harris & Eisenberg, 2007; Mulvey, Miceli & Near, 1991).

In terms of reliability, Fields (2002) reviewed the psychometric properties of numerous administrations of the PSQ and reported that the coefficient alpha for the composite measure of pay satisfaction varied from .77 to .88. Similarly, we conducted an internal reliability assessment for the PSQ with our sample and found support of its reliability ($\alpha=.93$).

Judge (1993) provided validation evidence of the PSQ via factor analysis. Researchers Judge (1993) and DeConinck, Stilwell & Brock (1996) found when utilizing Confirmatory Factor Analysis, the overall fit of the PSQ supported the four dimensional model (i.e., pay levels, benefits, pay raises and pay structure/administration) as they loaded on the hypothesized dimensions. In sum, the PSQ is grounded with strong psychometric properties.

Analysis

We begin our analysis by carefully reviewing the data. We obtained complete data for 73% of the respondents. Missing data were examined for patterns that could potentially bias results and none were readily identifiable.

To further address the issue of missing data and the lack of balance of respondents between states, we conducted a regression analysis using a Maximum Likelihood (ML) estimation process.

Furthermore, we compared this model to a hierarchical linear model that takes into account groupings based on districts and state. According to the results of the likelihood-ratio test, $\chi^2 (df=2) = .63, p=0.73$, groupings were not needed.

We then compared the ML estimated model (without nesting) to an ordinary least squares (OLS) model with robust standard errors clustered at the district level. Standard errors were clustered by district to account for potential correlation in errors between districts (e.g., district specific pay practices that may influence the pay satisfaction of teachers).

There was no practical difference between the results of the two models (i.e., coefficients were of course identical, and p-values did not substantively differ).

Consequently, for the sake of parsimony, we report results from the OLS model. According to our results, the presence of collective bargaining was a significant predictor of pay satisfaction ($b=.32$, $p=.02$).

This provides support for the argument that one of the benefits of unions that collectively bargain on behalf of their employees, is the increased satisfaction of their constituents as it relates to their pay. This association is beyond the association found

between absolute dollar amount, as regional adjusted salaries were controlled for in the model ($b=.0000165$, $p=.037$).

Beyond the pay related variables, teacher experience and districts' per pupil expenditure (see Table 2) were also found to be related to pay satisfaction scores; however there is an increased likelihood that these findings were a result of chance ($p=.073$ and $p=.093$ respectively).

Table 2

Regression Results for the Determinants of Pay Satisfaction Under Collective Bargaining

<i>Variables</i>	<i>b</i>
Collective Bargaining	0.320* (2.37) ^a
Teaching Experience	-0.021 (1.81)
Master's degree	-0.135 (1.15)
Master's + 30 degree	0.012 (0.09)
Doctorate degree	-0.105 (0.32)
Male	-0.009 (0.10)
Nonwhite	-0.110 (0.54)
Age	-0.005 (0.62)
Contractual Workdays	-0.000 (0.11)
Region Adjusted Base salary	0.000* (2.12)
Supplementary Income	0.001 (0.01)
Loan Debt Amount	-0.000 (0.58)
District Student Teacher Ratio	-0.015 (1.13)
Officer at Professional Org	-0.225 (1.15)
District Per Pupil Expenditure	0.000 (1.70)
Constant	2.071** (3.76)
<i>R</i> ²	0.22
<i>N</i>	179

^aRobust standard errors (clustered at the district level) appear in parentheses.

* $p < 0.05$;

** $p < 0.01$

Conclusion

Findings from this study align with past research that has suggested that the presence of labor unions is related to a higher level of pay satisfaction for employees (Bryson et al., 2004; Currall et al., 2005; Evans & Ondrack, 1990; Gomez-Mejia & Balkin, 1984).

Given this, one advantage of collective bargaining may be to positively impact how employees feel about their compensation. Because we accounted for salary in our study, our findings that employees reported more positive perceptions of pay when collective bargaining is present than when it is absent are beyond the influence of salary amount. This may be a result of teacher (or teacher representative) input opportunities provided by collective bargaining in the salary determination process, regardless of absolute dollar amount relative to salaries offered by peer districts.

Advocates who seek to remove unions must attend to the loss of employee voice via union representation if collective bargaining is to be eliminated from public education. Otherwise, the pay satisfaction of employees may suffer, which may result in negative consequences including high turnover (Tran, 2015) as suggested by Collective Voice/Exit theory (Freeman & Medoff, 1979).

Limitations

There are many avenues of potential future research on the topic explored in this study. For instance, instead of using composite PSQ scores as an outcome, future researchers may

examine collective bargaining's impact on individual facets of pay satisfaction.

One limitation of this study is that we used district averaged (and not school/classroom) class size and per pupil-expenditure due to data unavailability. We addressed this concern statistically by both clustering standard errors by districts and comparing our results to one using a multi-level model framework to account for district level errors and found comparable findings. This provides greater confidence in our results, and can be compared to those from future studies examining these variables from the classroom or school level.

In sum, our findings suggest that collective bargaining impacts teachers' financial being beyond salary increases in dollar amounts, after adjusting for the influence of the regional labor market on pay. This is in line with Freeman and Medoff's (1979) voice theory, which suggests that having a voice in the administrative decision making process reduces dissatisfaction.

Future research should examine other potential benefits of collective bargaining in order to fully understand the contributions to teacher welfare. This understanding would be beneficial to both supporters (because they can further justify their contributions) and detractors of unions (because they have to address the union contributions if they plan to recommend an alternative) and will better facilitate a thoughtful and informed discussion between the two.

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References

- Adams, J. S. (1963). Towards an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67, 422-436.
- Bryson, A., Cappellari, L., & Lucifora, C. (2004). Does union membership really reduce job satisfaction. *British Journal of Industrial Relations*, 42(3), 439-459.
- Castetter, W. B., & Young, I. P. (2000). *The human resource function in educational administration*. Columbus, OH: Merrill.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum.
- Coulson, A. (2010). The effects of teachers unions on american education. *Cato Journal*, 30(1), Retrieved from <http://www.cato.org/pubs/journal/cj30n1/cj30n1-8.pdf>
- Coxby, C.M. (1996). How teachers' unions affect education production. *The Quarterly Journal of Economics* 111(3), 671-718.
- Currall, S. C., Towler, A. J., Judge, T. A., & Kohn, L. (2005). Pay satisfaction and organizational outcomes. *Personnel Psychology*, 58(3), 613-640.
- Deconinck, J. B., Stilwell, C. D., & Brock, B. A. (1996). A construct validity analysis of scores on measures of distributive justice and pay satisfaction. *Educational and Psychological Measurement*, 56(6), 1026-1036.
- Evans, M. G., & Ondrack, D. A. (1990). The role of job outcomes and values in understanding the union's impact on job satisfaction: A replication. *Human Relations*, 43(5), 401-418.
- Fields, D. L. (2002). *Taking the Measure of Work*. Sage Publications, Inc. CA.
- Freeman, R.B., & Medoff, J.L. (1979). The two faces of unionism. *Public Interest*, 57, 69-93.
- Gomez-Mejia, L. R., & Balkin, D. B. (1984). Faculty satisfaction with pay and other job dimensions under union and nonunion conditions. *Academy of Management Journal*, 27(3), 591-602.
- Hammer, T. H., & Avgar, A. (2005). The impact of unions on job satisfaction, organizational commitment, and turnover. *Journal of Labor Research*, 26(2), 241-266.
- Heneman, H. G., III, & Schwab, D. P. (1985). Pay satisfaction: Its multidimensional nature and measurement. *International Journal of Psychology*, 20, 129-141.
- Judge, T. A. (1993). Validity of the dimensions of the Pay Satisfaction Questionnaire: Evidence of differential predictions. *Personnel Psychology*, 46, 331-355.

- Kasper, H. (1970). The effects of collective bargaining on public school teachers' salaries. *Industrial and Labor Relations Review*, 24(1), 57-72.
- Klein, S. M., & Maher, J. R. (1966). Education level and satisfaction with pay. *Personnel Psychology*, 19(2), 195-208.
- Lawler, E. E. (1971). *Pay and organizational effectiveness: A psychological view*. New York: McGraw-Hill.
- Lee, T.W. & Mowday, R.T. (1987). Voluntarily leaving an organization: An empirical investigation of Steers and Mowday's model of turnover. *Academic of Management Journal*, 30 (4), 721-743
- Lievens, F., Anseel, F., Harris, M. M., & Eisenberg, J. (2007). Measurement invariance of the Pay Satisfaction Questionnaire across three countries. *Educational and Psychological Measurement*, 67(6), 1042-1051.
- Lovenheim, M.F. (2009). The effect of teachers' unions on education production: Evidence from union election certifications in three Midwestern states. Stanford Institute for Economic Policy and Research, Stanford University.
- Miceli, M. P., & Lane, M. C. (1990). Antecedents of pay satisfaction: A review and extension. In G. Ferris & K. M. Rowland (Eds.), *Research in personnel and human resources* (Vol. 9, pp. 235-309). Columbus, OH: College of Business, Ohio State University.
- Mitchell, D. (1978). The impact of collective bargaining on compensation in the public sector. In Aaron, B., Grodin, J., & Stern, J.L. (Eds.), *Public sector bargaining*. Madison, Wis.: Industrial Relations Research Association, 118-149.
- Mulvey, P. W., Miceli, M. P., & Near, J. P. (1992). The Pay Satisfaction Questionnaire: A confirmatory factor analysis. *The Journal of Social Psychology*, 132(1), 139-141.
- National Education Association. 2014. 2014-2015 NEA Resolution. Retrieved from <http://www.nea.org/assets/docs/nea-resolutions-2014-15.pdf>
- Nelson, M. F., Stone, T. H., Frye, C. M., & Chown, D. W. (2008). Pay me more: What companies need to know about employee pay satisfaction. *Compensation & Benefits Review*, 40(2), 35-42.
- Penzer, W. N. (1969). Education level and satisfaction with pay: An attempted replication. *Personnel Psychology*, 22(2), 185-199.
- Tang, T. L., & Tang, T. L. (2012). The love of money, pay satisfaction and academic tenure: Professors in a public institution of higher education. *Public Personnel Management*, 41(1), 97-126.

- Taylor, L. (2006). Comparable wages, inflation and school finance equity. *Education Finance Policy*, 1 (3), 349-371
- ran, H. (2015). The Impact of pay satisfaction and school achievement on high school principals' turnover intentions. Unpublished manuscript.
- Tran, H. (2015). The impact of pay satisfaction and school achievement on high school principals' pay satisfaction. Unpublished manuscript.
- Tran, H., & Young, I. P. (2013). An efficiency assessment among empirically defined labor markets for determining pay for teachers. *Journal of School Public Relations*, 34, 139-161.
- U.S. Census Bureau. (2013). *Quick facts from the US census bureau*: Retrieved September 10, 2014, from <http://quickfacts.census.gov/qdf/states/45000.html>
- West, K.L., & Mykerezzi, E. (2011). Unions and compensation: The impact of collective bargaining on salary schedules and performance pay schemes. *Economics of Education Review*, 30(1), 99-108.
- Young, I. P. (1999). Salary discrimination: A test of the Paradoxical Female Hypothesis. *Educational Administration Quarterly*, 35(3), 379-397. doi: 10.1177/0013161X99353004
- Young, I. P., Young, K. H., Okhremtchouk, I., & Castaneda, J. M. (2009). An examination of pay facets and referent groups for assessing pay satisfaction of male elementary school principals. *Journal of School Public Relations*, 30, 260-280.