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Impact of Unfunded Accrued Pensions Liabilities on Paying the Annual Required Contribution

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Abstract

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Angel O. Chiriboga

MA, Binghamton University, 2005

BA, California State University, Long Beach 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy & Administration

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Abstract

Pension benefits are important incentives to attract public sector workforces. Los Angeles County cities have faced budgetary pressures due to increases in unfunded accrued pension liabilities (UAPL) linked to improved salaries and benefits without budget considerations. Los Angeles County cities contract with California Public Employees' Retirement System (CalPERS) to provide retirement benefits under city-specific employee retirement contracts. Complex decision-making processes to improve benefits and salaries require interaction between city councils, management, unions, and CalPERS. The purpose of this quantitative study was to determine the relationship between the ability to raise revenues and to pay for annual required contribution of cities in Los Angeles County, controlling for household income, general fund per capita revenue, and general fund per capita expenditures. Ostrom's institutional analysis development theory guided this study. Data were collected from 34 Los Angeles County cities that are CalPERS members and participate in the California employers' benefit retirement trust. A factorial analysis was conducted to test for significance of variance. Findings illustrate that salary increases had a direct effect on UAPL increases. Regardless of the cities' ability to raise revenues, general fund revenues did not play a significant role in UAPL variation; however, increases in covered payroll had a greater role increasing UAPL effects. Study findings may be used by public leaders specific to improve needed structural changes in retirement benefits, thus improving a city's fiscal sustainability and creating a sustainable approach to UAPL deficit reduction.

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Dedication

This dissertation is dedicated to my amazing family—Thalia, Aliya, and Thayel. Thank you for sacrificing many evenings so I could complete this journey. I hope my message will reach your hearts and demonstrate that education is the key to improve the lives of many in this world.

To my mom, your constant advice about studying and love for others set me on a path of constant inquisition to find ways to help others improve their condition. Without your loving example and compassion for others regardless of their condition, I would not be the person I am today. You taught me that all people always need a loving hand and an opportunity to reach high, and it is my duty to find alternatives so they can reach high.

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Reaching the end of the dissertation is the beginning of a new path. I was able to complete this dissertation thanks to the help of very professional and important people. Thank you, Dr. Shafer, for your guidance during my first steps, your support, advice, and encouragement were constructive to start the process. Thank you, Dr. Matarelli, for your discussions and guidance, which helped me believe in my statistical skills. Thank you, Dr. Dailey, for your quick and thoughtful reviews and recommendations. Thank you, Dr. Mouras, for helping me complete the dissertation journey. Thank you to my local government coworkers who helped me understand the importance of describing hope. Thank you, Dr. Chirimwami, your friendship, and advice were invaluable.

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Chapter 1: Introduction to the Study

Introduction

Pension benefits have become an important incentive for people to enter public service based on a defined benefit model, which includes the opportunity for higher levels of retirement compensation as the result of backloading (Bauer, 2018). The model also involves acceptance of investment risk with the expectation for higher returns (Bagchi, 2019; Estes & Kremling, 2018; Koedel & Xiang, 2017; Mixon, 2015). Employees who participate in a defined benefit model expect to receive a specified benefit at retirement in the form of an annuity (Shnitser, 2015; Stein, 1989). The defined benefit model allocates responsibility for program management and investment risk to the employer; the employer is responsible for delivering the promised amounts regardless of its ability to do so (Shnitser, 2015). Many pension programs are subject to restrictions under the Employee Retirement Income Security Act of 1974 (ERISA). The law requires most retirement plans in private industry to provide protection for participants in the plans, including adherence to standards of minimum investment risk (U.S. Department of Labor, 2019). Yet, since public pension programs are free from ERISA restrictions (Shnitser, 2015; Stein, 1989), local governments are free to make choices about their level of funding for long-term public pension liabilities.

Oversight of public pension programs is provided by independent and autonomous pension administrators in the form of a board of trustees that oversee the management and administration of the plans (Kilgour, 2014; Shnitser, 2015). The pension administrator manages the pension plan depending on the type of pension contract that a

city provides for its employees (Shnitser, 2015). California Public Employee Retirement System (CalPERS) has been the pension administrator of choice for cities in Los Angeles County. The composition of the CalPERS board of governance in important in the context of pension system performance since board members are selected from pension beneficiaries as well as from members of the state executive and the state legislature (Dove, Collins, & Smith 2018). Each city in Los Angeles County provides a retirement contract to employees, using a variety of retirement formulas. The compensation retirement formula is part of the estimated calculation of the annual required contribution (ARC) that each city is required to make to CalPERS to fund pension payouts for its employees. The formula to determine the ARC is based on the current unfunded accrued pension liability (UAPL) along with the discount rate, the interest rate on past unfunded accrued pension liabilities, and mortality tables (Kilgour, 2014, 2016; Shnitser, 2015; Thom & Randazzo, 2015).

Because the cost of providing benefits had been more expensive in the public sector than for the private sector, the difference in benefits results in a 10-19% higher overall compensation cost for local governments (Bagchi, 2019). Wand and Peng (2016) mentioned that the state and local public pension plans generated public attention due to investment losses during the market crash of 2008. Bagchi (2019) noted that pubic pension plans spend more than triple on retirement and savings vs. the expenditures for the same type of plan in the private sector. Thus, the issue of how public pension funds are managed has become a problematic component of state and local government finance (Peng, 2004).

The UAPL represent promised payments to city retirees for which money is not being set aside in a timely fashion by the responsible parties (Elder & Wagner, 2016). The growth in UAPL has a direct impact on state and local governments' fiscal sustainability (Elder & Wagner, 2016; Kilgour, 2014; Matkin, Chen, & Khalid, 2016; Wang & Peng, 2018). Pension payments are often in direct competition with other public programs for funding (Killian, Faulk, & Hicks, 2016). Gorina (2018) mentioned that the UAPL of the public sector pensions has increased since the economic recession of 2008, bringing the solvency, sustainability, and viability of any defined-benefit pension plan in the public sector into question. In addition, the increase in the UAPL is a direct result of the 2012 changes to the public accounting rules issued by the Government Accounting Standard Board (GASB) to ensure transparency of reporting the value of the UAPL (Clark, 2009; Weinberg & Norcross, 2017).

According to Taylor (2014), all expenses a governmental entity incurs during a given fiscal year should follow generally accepted accounting principles (GAAP), and the recognition of the expenses should occur during the fiscal year in which they are incurred. Shnitser (2015) concurred, specifying that the cost of future benefits earned by an employee should be covered through contributions from the employee and employer during the same period. Yet, cities often do not conform to this principle. The ARC that a city provides to cover the current normal pension benefit cost varies according to state law and local practices. The failure of cities and the State of California to fund retirement benefits on a current basis contributes to an increased in the UAPL (Thom & Randazzo, 2015). Pension boards operate under the direction of the California legislature, and the

executive branch of the government of California to set the standards for pension funding practices. The lack of mandates to fully fund pension programs through fiscally appropriate ARC has contributed to a growing UAPL (Thom & Randazzo, 2015).

The topic of this study refers to the ability of the cities in Los Angeles County to pay for retirement benefits without affecting their ability to provide for other public services as well. The UAPL increase is due to a combination of circumstances ranging from the purposely underfunding of the ARC (Bagchi, 2019; Kilgour, 2014; Peng, 2004; Schnitser, 2015; Stein, 1989; Thom & Randazzo, 2015) to the pension board decision regarding the amount that cities must pay toward UAPL (CALPERS, 2019; Thom & Randazzo, 2015).

The results of this study may provide important information to local government management, employee unions, and elected public officials regarding the consequences of failure to address the increase in California's UAPL. Retirement plans differ between cities in Los Angeles County since each city uses a unique formula to contract with CalPERS for its contribution to fund for retirement benefits for its employees (CalPERS, 2019). The cost of pension benefits for public sector retirees has increased in recent years, and investments that were designed to fund the pensions have failed to deliver the expected returns (Bagchi, 2019). Overall compensation cost to local governments for pension benefits has risen (Bagchi, 2019). The budgetary pressure to contribute funds for the pension benefits leads to direct competition with funds to provide for other public services (Killian et al., 2016). Practices such as the backload pension model that increase pension benefits for employees who have remained in their positions for a longer period

of time increases the risk that cities will not be able to pay their share of funding to reduce the UAPL (Bagchi, 2019; Estes & Kremling, 2018). The backload model promotes employee retention fostering longer tenure on the job with associated higher retirement benefit payouts (Bagchi, 2019). The information within this study supports a social change to advance the need for realistic pension reform to ensure that former employees of cities on Los Angeles County would receive promised pension benefits during retirement. Furthermore, my study may contribute to positive social change by providing a better understanding of the possible adverse impact of a growing UAPL on the value of real property. Lower property values would translate into lower property tax receipts limiting the ability of local government to contribute an appropriate amount to reduce the UAPL (Killian et al., 2016).

In this chapter, I provide a brief review of the literature related to the current study and describe the gap in the literature. The chapter includes a description of the social problem addressed by this study and explains the purpose of the study, connecting the research design to the social problem. After identifying the research question, hypothesis, and variables, the theoretical foundation for the study is described. The chapter concludes with a discussion of assumptions, issues of validity, and limitations.

Background

The literature related to the current study includes research regarding the authority of the CalPERS board to decide on the amount of ARC that cities in Los Angeles County must pay to fund the promises made to employees for their retirement years (Kilian et al., 2016). As pension administrator for the retirement pension plans for employees of cities

within Los Angeles County, the CalPERS board enjoys a certain level of independence. Yet, the legislature, the governor, unions, employee unions, and local governments consistently lobby the CalPERS board to adopt more favorable actuarial inputs for improving financial reports on the condition of the UAPL. Kilgour (2014) described the increased independence that the CalPERS board gains through the passage of California Proposition 162, which allowed the board to administer the retirement funds on behalf of the participating cities and beneficiaries (Ballotpedia.org, 2019).

Payments to the ARC may have a negative budgetary effect on financing for other public programs competition for available funds could intensified (Killian et al., 2016). Matkin et al. (2016) mentioned that the amounts of ARC contributions affect the outputs of the pension plans since the UAPL increased when payments to fund pension promises were inadequate.

Killian et al. (2016) predicted that chronic underfunding of pensions would bring more financial problems to local governments and for the residents of the communities involved. An increase in the local government UAPL could harm the borrowing ability of local governments as well as a negative impact on the value of a real property. For example, Killian et al. explained that there was an inverse relationship between pension obligation and property value, in which the higher the UAPL, the lower was the property value. Payment of pension obligations had been guaranteed via property taxes; yet since California voters adopted Proposition 13, capping the property tax at 1.25% of the value of the property, local governments had faced budget challenges (Coleman, 2014; Institute for Local Government, 2016). Because property taxes usually increased upon the sale of

a property, the new selling price supported new tax valuation of properties (Coleman, 2014; Institute for Local Government, 2016).

New tax valuations may not be enough to support a fiscally sustainable budget to meet the costs of the UAPL (Elder & Wagner, 2016; Wang & Peng, 2018), so it was crucial to calculate the value of the pension liability to make fiscally sustainable financial decisions (Brown & Pennacchi, 2016). However, the issue in calculating the present value of the pension liability was to determine the best discount rate (Brown & Pennacchi, 2016). The choice of the discount rate depended on the goal of the measure. For example, a local agency might want to determine the market value of the UAPL. In such a case, the discount rate was considered a risk default factor (Brown & Pennacchi, 2016). On the other hand, if the goal was to determine if the pension fund was overfunded, then a default-free discount rate would be a better choice (Brown & Pennacchi, 2016).

The present valuation process for the UAPL represents a burden to the budget process in relation to providing the appropriate funds to pay for the ARC (Chen & Matkin, 2017). Chen and Matkin (2017) concluded that the most influential actuarial assumption was the discount rate, since a lower discount rate represented a higher UAPL and a longer time for the funding ratio to return to the original value. Andonov, Bauer, and Cremers (2017) hinted that the current pension regulations allow local governments to underestimate UAPL liability, which provides a false picture of its size. Furthermore, Andonov et al. described a disconnect between the discount rate and the rate of return,

providing an opportunity for the pension administrator to allocate assets to higher-risk investments due to a search for higher return on investment in order to lower the UAPL.

Research in the area of pension liability had employed quantitative design to investigate the possible negative effects of UAPL on cities' budgets and their ability to contribute to retirement promises (Andonov et al., 2017; Chen, & Khalid, 2016; Chen & Matkin, 2017; Elder & Wagner, 2016; Kilgour, 2014; Kilgour, 2016; Matkin et al., 2016; Thom & Randazzo, 2015;Wang & Peng, 2018). These studies had focused on the macro-problem of the UAPL rather on problems at the local level since a state may have several different kinds of pension plans providing a comparable opportunity among pension plans (Bagchi, 2019). It was worth noting that since municipalities frequently contract out retirement services with a public employees' retirement system (PERS), not all retirement contracts are homogenous. The study of pension liability had limited generalization because local governments provide different types of retirement benefits (Bagchi, 2019).

Studies evaluating the outstanding pension liability had focused on actuarily evaluations, rate of return, discount rate, political will to reform the system, and economic cycles. According to the literature, in times of economic recession, local governments tend to postpone funding of the pension plans; thus, the increase in the UAPL (Kilgour, 2014; Matkin et al., 2016; Mannino & Cooperman, 2015; Thom & Randazzo, 2015). Therefore, my study included a quantitative analysis to determine whether the cities in Los Angeles County would be able to pay for the UAPL without affecting public services. It was crucial to determine if there was statistically significant ability to pay the UAPL among cities in Los Angeles County, with different revenue

production capability as well as the institutional interaction between cities, CALPERS, the state government, the legislature, and the unions. My study filled this gap by evaluating the relationship between the demands of CalPERS as pension administrator for pension funds for cities in Los Angeles County the cities' ability to pay for the UAPL.

Problem Statement

The problem that I addressed with my study was that cities in Los Angeles County face a financial problem with the increase in UAPL. The UAPL problem accelerated in 2000 when local governments in Los Angeles County made promises for new retirement benefits to employees without ensuring that financing was available to fund the promised benefits (Taylor, 2014). Cities in Los Angeles County have contracted with CalPERS to provide retirement services for employees once they reach a specified age and years of service (CalPERS, 2018). The ARC mandated payment includes a 2-year lag (CalPERS, 2018), so the current premium mandate reflects the current pension obligation combined with a portion of amortized UAPL from prior years. The institutional effect of cost of contributing to the UAPL in addition to current pension obligations raises the risk that cities may decide to stop contributing to the costs of their retirement obligations (Kilgour, 2014; Matkin et al., 2016). Shnister (2015) identified lack of funding discipline as a serious non-market related cause of increased UAPL. While the literature such as Kilgour (2014), Matkin et al. (2016) and Shnister (2015) explored the challenges related to the rapid increase of UAPL, and it did not explain the impact of unfunded accrued pension liabilities on the ability of cities in Los Angeles County to paying the mandated amounts for the ARC.

Underfunded pension plans incentivize expenditures, placing a burden on future taxpayers who must fund obligations for pension promises made in the past as well as current public services (Faulk, Hicks, & Killian, 2016). A major contributor to the increase in the UAPL is the liability discount rate used to value the present values of promised benefits (Andonov et al., 2017). The higher the discount rate, the lower ARC contribution a city was obligated to make. As such, the effect of a smaller ARC was a stronger financial position in relation to a pension plan (Andonov et al., 2017). GASB 68 required using a lower discount rate to value the present values of promised benefits, creating a rapid deterioration of the funding pension plan from around 75% to about 56% (Faulk et al. 2016). Researchers had investigated the problem of increased UAPL by analyzing return on investment (Kilgour, 2014; Matkin et al., 2016), and the increase in the cost of pension benefits (Churchill, 2017; Kilgour, 2014).

The National Association of State Retirement Administrators (NASRA; 2019) provided an overview of the challenges facing the public pension plans, and the challenges to meet projected returns on investments that were made with the aim of funding the plans. A major issue had been the decline in investment returns after the 2008 economic recession (NASRA, 2019). A second challenge regarding pension funds is the slow growth in payrolls, as cities in Los Angeles County engaged in stagnant hiring practices to keep costs low, causing low salary growth. However, salary increases are subject to cost-of-living adjustment (COLA) and higher required costs for ARC; updated mortality tables reflecting longer life expectancy among retirees with associated higher costs overall as retirees live long, and plan maturity (NASRA, 2019).

The increase in the UAPL presents a policy and budgetary challenge for cities in Los Angeles County; therefore, my study provided a detailed assessment of the UAPL in relation to the ability to cities to pay for contracted retirement services. This study may contribute to development of solutions to the UAPL, which represents a social problem as retirees expect to receive promised benefits even as other public programs also compete for limited city resources.

Purpose Statement

The purpose of this quantitative study was to determine the relationship between the ability to raise revenues and the ability to pay for ARC of cities in Los Angeles County, controlling for household income, general fund per capita revenue, and general fund per capita expenditures. My study contributed to understanding the effects of the UAPL on the cities' ability to pay for the ARC without affecting the deliverance of public services. Evaluation of the budget documents, Comprehensive Financial Reports, CALPERS valuation, and the discount rate provided a better picture of the cities' ability to pay for the ARC.

The GASB defines the ARC as the amount of contribution needed every year to pay for the cost of benefits accrued in the current year and pay for any unfunded accrued pension liability in no more than thirty years (GASB, 2019; Munnell, Aubry, & Cafarelli, 2015; Shnitser, 2015; Stein, 1989; Taylor, 2014). The greatest challenge for a city in times of economic stress is failure to satisfy the CalPERS demand to contribute a designated amount of ARC (CalPERS, 2018). Failing to provide the corresponding ARC

increases the UAPL and may restrict the ability of the city to fund other public services later (Kilgour, 2014).

Research Question and Hypothesis

The following research question and hypotheses guided this study:

RQ: Did city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) significantly contribute to the percentage change in R^2 variance of UAPL (DV) when controlling for household income, general fund per capita revenue, and general fund per capita expenditures?

H_O: The city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) did not significantly contribute to the percentage change in R^2 controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

H_1: The city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) significantly contributed to the percentage change in R^2 controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

Theoretical Framework

The theoretical framework for this study was the institutional development and analysis (IAD) developed by Ostrom to explain the behavior that actors pursue during the

decision-making process in an institutional setting (Ostrom, 2006). An institutional setting is a set of rules used by individuals to decide (a) who and what is included, (b) how to provide the information, (c) the sequence of actions, and (d) how the aggregate efforts of individuals will contribute to collective decisions (Ostrom, 2006; Schlager & Cox, 2014). Humans develop collective habits and norms known as institutions, and the prevalence of habits of thought influences the functions of an individual or organization (Kingston & Caballero, 2008).

According to Ostrom (2006), the set of rules was subject to three filters to create relationships: (a) a constitutional filter, (b) a collective choice, and (c) an operational decision (Ostrom, 2006). The three filters are tools at the disposition of people to resolve collective action dilemmas (Schlager & Cox, 2014). An institution statement involves six characteristics, starting with (a) the attribute which is charged with performing an action; (b) object or the receiver of the action; (c) deontic, which is the justification of the need for the action; (d) the aim or the action itself; (e) the condition referring to the procedures to execute the action; and (f) the punishment for not complying, such as failure to make a mandated payment (Carter, Weible, Siddiki, & Basurto, 2016).

In Chapter 2, Ostrom's (2006) IAD model is used to describe the decision-making process for how cities could raise revenues to pay for the ARC without shrinking funding of other public services. The CalPERS board calculates the respective ARC for each participating city, including the payment for the UAPL from prior years. The IAD theoretical framework was used to explain the interaction among the city manager, city council, and the pension administrator to find ways to fund the UAPL. My study focused

on the ability of cities in Los Angeles County to pay for the UAPL since not all cities have the revenue base or the ability to raise revenues via taxes since there are 2/3 rules for voters to approve any increase in taxes. The existing studies had focused on the aggregate problem of the UAPL; however, the major focus should be on the ability of individual cities to meet their respective obligations to pay for the ARC. Thus, the dynamics of social institutions between an instrumental and a ceremonial value base is an institutional core base and most relevant for socioeconomic research (Elsner, 2012).

Nature of the Study

The nature of this study was a quantitative method to measure the ability of cities to pay for the UAPL without lessening the quality of public services. Multiple linear regression (MLR) analysis was initially used to determine if there was a predictive relationship between the ability of cities to raise revenues and their ability to pay for the UAPL, since there are two types of city (charter or general law) as well as contract or full services city types. A full-service city assumes responsibility for delivering most or all of its own essential services (Heitmann, 2014), while a contract city may contract to receive some or all services from outside providers. For instance, a contract city may receive water and power service from a district, police and fire from the county, and parks and recreation services from a special district (Heitmann, 2014). An MLR analysis involves two or more regressors allowing for a more detailed investigation (Hansen, 2019). A regression model involving the UAPL as the DV expressed in dollars, taking the form of a linear function in relation to one or more other variables known as explanatory or IV (Gujarati, 1978).

The MLR provided understanding of the statistical significance between the predictive ability to raise revenues and the capacity of a city to pay for the ARC (O'Sullivan, Rassel, Berner, & Taliaferro, 2017). Los Angeles County contains 88 cities, the study population consisted of 35 member cities in Los Angeles County in relation to CalPERS participating in the California Employer's Retiree Benefits Trust (CERBT) based on relative revenues, ARC, and UAPL in relation to city revenue, and financial reserves in the city's general fund that can be dedicated to operational expenditures.

Secondary data from the 35 cities, CalPERS, Census Bureau, National Association of State Retirement Administrators, The League of California Cities, and the Center of Retirement Research at Boston College was used for my proposed study. The independent variables (IVs) consisted of the city constitution classification, expenditures to general fund, revenues to general fund, Pension percentage contribution of payroll required by CalPERS, and available reserves (Gorina, 2018; Munnell, Aubry, & Cafarelli, 2015; Ring, 2014). The dependent variable (DV) was the UAPL when controlling for per capital household income, general fund per capita revenue, and general fund per capita expenditures. The UAPL and the ARC were different for each city, depending on the economic environment consisting of the annual revenue change accounting for the constitutional constraint of a balanced budget, as well as the ratio of pension assets to pension liabilities for the contracted pension plan (Thom & Randazzo, 2015).

Table 1

Research Variables

IV	DV	Covariates
City constitution classification (Nominal)	UAPL (total UAPL since fiscal year 2014 to 2018 per capita) (Scale)	Median Household Income (Scale)
		General fund per capita revenue (Scale)
General fund expenditures (Scale)		General fund per capita expenditures (Scale)
General fund revenues (Scale)		
Covered Payroll (Scale)		
Available reserves (Scale)		

Definitions

Actuarial inputs: Assumptions and methods used by actuaries to value pension liabilities and contribution requirements (Chen & Matkin, 2017).

Annual required contribution (ARC): The amount of pension expense calculated by the actuary for funding purposes - the sum of the plan's normal costs and a portion of the plan's unfunded liabilities (Gauthier, 2012; Kilgour, 2014).

Backload pension plan: Pension plan formula in which benefit accruals increase the longer the employee continues to work, for instance, 1% of pay for the first ten years of service and 2% of pay from that point on (Bauer, 2018).

CalPERS: The institution that is responsible for administering the pension plans for all cities in the State of California (Gauthier, 2012).

California Employers' Retiree Benefit Trust (CERBT) Fund: Section 115 with the goal to prefund other post-employment benefits (OPEB) for member cities contributing to the funds (CalPERS, 2019).

Charter city: Type of government structure that provides flexibility on different forms of governance (Heitmann, 2014).

Contract city: A city that receives water and wastewater service from a district, police and fire services from the county, and parks and recreation services from a special district. The city may contract for some of all these services (Heitmann, 2014).

Default-free discount rate: An informative interest rate for participants wanting to know the amount of money a pension plan is committed to pay for promised benefits (Brown & Pennacchi, 2016).

Defined benefit pension plan: A benefit program where employees will receive a specified benefit in the form of an annuity at retirement (Gauthier, 2012; Shnister, 2015; Stein, 1989). It is defined as a function of employee's age, years of services, and earnings history (Ortega, 2007).

Discount rate: Used to calculate the present value of future liabilities (Matkin, et al., 2019).

Full-service city: A city that assumes responsibility for delivering most or all of its own essential services (Heitmann, 2014).

Government Accounting Standards Board (GASB): Organization that sets standards for US state and local government pension plans (Brown & Pennacchi, 2016; Gauthier, 2012; Government Accounting Standards Board, 2019).

Institution: A shared concept used by humans in repetitive situations organized by rules, norms, and strategies (Ostrom, 2006).

Pension benefit: Retirement income and any other benefit that is part of a defined benefit pension plan (Fawcett, 2006; Gauthier, 2012).

Pension liabilities: Present value of future benefits payments earned by employees (Chen & Matkin, 2017).

Risk default rate: Rate used to measure the market value of pension liabilities (Brown & Pennacchi, 2016).

Unfunded Accrued Pension Liability: The actuarial value of plan assets/actuarial plan liability for individual plan (Rich & Zang, 2015).

Assumptions

It was assumed that cities in Los Angeles County experience different financial challenges in paying for the ARC, and that cities cannot fail to fund the pension obligations without penalties. It was assumed that the cities are fiscally sustainable, and that the information that was used for the proposed study accurate and readily available. The UAPL was a function of different components, and each city uses a similar discount rate to estimate the amount of its responsibility for the UAPL. Furthermore, it was assumed that communication between the cities and CalPERS board was multidirectional and each participant had a vote in the setting of the ARC. Finally, it was assumed that that each city acts independently to increase revenues via different avenues to pay for the UAPL. The assumptions were necessary since it was difficult to measure the ability of each city in Los Angeles County to pay its obligations for the ARC, and UAPL.

I made methodological assumptions when applying MLR Analysis to the data. I assumed the information was continued with the UAPL as the DV, several IVs with two or more categorical groups such as city constitution, expenditures to general fund, revenues to general fund, and percentage contribution of payroll, and three covariates defined as household income, general fund per capita revenue, and general fund per capita expenditures (Gorina, 2018; Munnell et al., 2015; Ring, 2014; Thom & Randazzo, 2015). It was assumed that the covariate might be linearly related to the dependent variable, and there was a normal distribution; these assumptions were tested and a report on the analysis is provided in Chapter 4. The hypothesis for my study was that the UAPL did not significantly contribute to the percentage change in R^2 accounted in the ability to raise revenues to pay for the ARC controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

Scope and Delimitations

Cities in Los Angeles County face budgetary challenges due to increased UAPL in relation to the increased cost of the retirement pension that competes with other public services for general fund monies (Bagchi, 2019; Kilgour, 2014; Killian et al., 2016; Peng, 2016; Thom & Randazzo, 2015). I focused on the ability of cities to pay for the UAPL, and their ability to raise the necessary revenues to satisfy the need to provide public services. Other researchers had focused on the aggregate effect of the UAPL on the state and local economies (Bagchi, 2019; Brown & Pennacchi, 2016; Kilgour, 2016; Matkin et al., 2019; Thom & Randazzo, 2015), and on the institutionalization of the UAPL as means to effect change in policies governing pension benefits (Bang, 2018).

Ostrom (2006) defined the institution as a shared concept used by humans in repetitive situations organized by rules, norms, and strategies. Lav (2014) mentioned that institutions, in this case, local governments, had been slow to adapt to new realities such as the loss of population, loss of businesses, and other causes of lost revenues, making it difficult to achieve fiscal sustainability. Under such circumstances, the growing UAPL exercises budget pressure on the finances of a city, opening the possibility of the city to seek bankruptcy protection (Lav, 2014).

The increase in the UAPL was a consequence of various events. Ring (2014) indicated that the aggregate UAPL equals $3.6 trillion for all pension systems. Ring (2014) suggested that the application of lower rate-of-returns assumptions will increase the total UAPL. However, the health of a city's financial position depends on its ability to raise revenues, maintain property values, and be fiscally responsible. The city should actively participate in the decision-making process of the pension administrator since the CalPERS board actively seeks better returns to the investment by taking higher investment risks (Osorio, 2013). Munnell, Aubry, and Cafarelli (2015) said that in addition to investment returns, the actuarial composition includes contributions, deviations from actuarial assumptions, benefit changes, and assumption changes as an integral part of the increase of UAPL. In the literature review in Chapter 2, I further explore the UAPL as a major policy issue because it had a negative impact in the ability of city governments to be fiscally sustainable (Elder & Wagner, 2016; Kilgour, 2014; Matkin et al., 2016; Wang & Peng, 2018). Data analyses included controlling for these

issues to maintain internal validity of the comparison among different types of cities and the type of governance.

The scope of my study was limited to 35 cities located in the greater Los Angeles County that are CalPERS members and participate in the CERBT (CalPERS, 2019). The results of my study could be generalized to other cities having contracted retirement services with a specific pension plan.

Limitations

Because the role of the researcher included representation of the results without bias, the researcher should have no identifiable voice in the process of data collection and data analysis (Mieskes, 2017). I have been employed in a governmental position in California for 15 years, specifically in the revenue department of a city in Los Angeles County. I have general knowledge of city revenues, but I am not responsible for determining the amount of ARC that the city pays. I also disclose here that I am an active member of a union organization with the aim of trying to protect coworkers and to negotiate the best possible memorandum of understanding (MOU) regarding union members' salaries and benefits. The focus of my study was the current total UAPL rather than the effects of pension reform in California that occurred in the early 2010s because better salaries for city workers will translate into better retirement based on current retirement formulas (Mannino & Cooperman, 2015).

The study did not include the effect of other pension benefits (OPEB) on the ability of cities to pay for UAPL because such benefits were not relevant once a person has retired. The use of quantitative analysis provided the minimization of bias protecting

the integrity of the study. The careful planning of statistical procedures to analyze secondary information collected by the pension administrator and the cities in Los Angeles County provided important insights into the ability of many cities to pay for UAPL while preserving their ability to provide for public services as well.

Significance

My study was necessary to fill the gap in the current literature about the UAPL in relation to individual cities by providing a better understanding of how UAPL obligations affect the ability of cities to pay for the ARC and UAPL, while still funding public programs (Killian et al., 2016; Thom & Randazzo, 2015). Local government policymakers and administrators may benefit from the study since local governments are limited in their ability to raise revenues by the California State Constitution, voter-approved measures, and the state legislature.

Public policy makers may benefit from understanding the process of UAPL, the ARC, and the pension administrator, and the efforts cities, unions, state government, and the legislature make to affect a more favorable valuation (Chen & Matkin, 2017). Understanding interconnected relationships among the different actors may produce a new institutional arrangement to better align the different interests involved (Schlager & Cox, 2014). Because the CalPERS valuation process includes a 2-year lag in estimating the ARC, it is crucial for the policy maker to fully comprehend the effect of change on any of the actuarial assumptions in setting the ARC (Chen & Matkin, 2017).

Property values may be negatively affected by the increase in the UAPL when using more conservative actuarial assumptions, so the elected official may seek

alternatives to improve the ratio of revenues to liabilities (Chen & Matkin, 2017). My current study may contribute to the positive social change by explaining the possible negative effects of an increase in UAPL on property values. It is strategic to understand a city's revenue structure since the most stable source of local revenues come from property values, lower property values will translate into lower revenues that can be used to fund public services (Coleman, 2014; Institute for Local Government, 2016).

My study is unique in that it addressed the gap in the literature regarding the ability of cities in Los Angeles County to fund the UAPL while maintaining financial integrity to continue providing public services (Killian et al., 2016). The residents of each community keep demanding that cities improve services such as public safety, aging in place, affordable housing, and other similar services, but cities may find financial challenges to do so because the UAPL will compete directly with limited general funds revenues.

Summary

The increase in the UAPL places financial and budgetary pressures to the cities in Los Angeles County to provide essential public services because the UAPL competes for limited financial resources (Gorina, 2018; Kilgour, 2013). Public pension benefit plans favored a backload model which functions as an incentive for people to enter public service and remain for long periods (Bagchi, 2019; Estes & Kremling, 2018; Koedel & Xiang, 2017; Mixon 2015)

In this chapter, I provided a brief overview of the study and the IAD framework developed by Ostrom (2006). The IAD was introduced as the theoretical framework for

understanding the complex relationship among different actors in the UAPL problem since each actor is an institution governed by a set of rules and habits that determine who and what type of information is provided (Ostrom, 2006; Ostrom, Schlager, & Cox, 2014). The aggregate of norms and habits reflects a function of an individual or organization in the community (Kingston & Caballero, 2008). My study focused on the cities of Los Angeles County since that group of cities represents a diverse group of cities reflecting the current situation of similar cities in the United States affected by similar problems. The chapter included identification of the different variables to understand the ability of cities to pay for the UAPL under current conditions. Also included was a rationale for the specific focus of the study, identification of the boundaries, explanation of the limitations and potential for researcher bias as well as considering the ways that the study will support positive social change.

Chapter 2 provides a more detailed explanation of the literature and identifies the gap in the field addressed by the study. In Chapter 2, a detailed explanation of the theoretical framework for the study is provided, as well as a review of the prior applications of the IAD (Ostrom, 2006). The chapter also includes an explanation of the complex relationship between the CalPERS board, unions, cities, the state government, and the legislature to determine a favorable actuarial valuation to determine a low ARC, which translates into better pension plan funding.

Chapter 2: Literature Review

Introduction

The UAPL became a significant policy issue for local governments in the Los Angeles County area after the economic recession of 2008, when cities in California including Vallejo, Stockton, and San Bernardino filed for bankruptcy, partly to avoid payment of pension obligations (Kilgour, 2013). The growing UAPL has had a negative impact on the fiscal sustainability of cities throughout California (Elder & Wagner, 2016; Kilgour, 2014; Matkin et al., 2016; Wang & Peng, 2018) because payments for the UAPL involves direct competition with other public programs for funding (Killian et al., 2016). Gorina (2018) reported that the UAPL has increased since the economic recession of 2008, bringing the solvency, sustainability, and viability of defined-benefit pension plans into question. Furthermore, the increase in UAPL is a direct result in changes to the public accounting rules issued by the GASB (Clark, 2009).

The purpose of this study was to investigate the ability of cities in Los Angeles County to make payments toward the UAPL while still funding essential city services. There are three different ways to define pension liabilities: (a) accrued-to-date liabilities, current workers; (b) pensioner' liabilities; and (c) open-system liability (Zhao, Bai, Liu, & Hao, 2017). The lack of pension funding at the city level may be the result of a direct relationship between a city's revenue structure and the solvency of the sponsoring organization (Gorina, 2018). Kilgour (2013) and Gorina (2018) said that the UAPL represents a challenge for local governments since it reflects severe pension plan underfunding as the result of poor investment performance and lower pension

contributions by plan sponsors. The problem that cities face is that the current pension model favors backload retirement compensation combined with acceptance of increased investment risk to fund higher payments for backload pension promises (Bagchi, 2019; Estes Kremling, 2018).

The current status of the UAPL was a result of the various institutional arrangements for establishing the rules governing the current pension system, and they comprise complex policies affecting the financial situation of the city's position to pay for UAPL (Heikkila & Andersson, 2018). The 88 cities in Los Angeles County are facing the challenge of finding ways to pay for the UAPL; however, many cities may not be able to pay their share of the UAPL as designated by CalPERS. The UAPL may put pressure on the city budgets since it competes directly with other essential services for funds. The Institute for Local Government (2016) explained that the composition of services and responsibilities of a city affects the composition of revenues. There is a limited amount of revenue categorized as general revenues that can be used help to pay for any legitimate public purpose. General revenues usually represent 36% of the total funds that a city can raise from taxes (Institute for Local Government, 2016).

In this chapter, I provide a review of the literature pertaining to the topic of the study. I begin by describing the literature search strategy; then proceeded to the theoretical foundation, connecting Ostrom's (2006) IAD to the current problem of the UAPL. The chapter also includes a review of previous research approaches related to the IAD, the related key variables for the increase in the UAPL, the role of CalPERS in the

UAPL, the ability of cities to pay for the UAPL, and the methodology to explain the ability to make the required contributions to pay for UAPL.

Literature Search Strategy

In this section, I explain the process of research to locate the relevant literature relating to the UAPL, CalPERS, and the city government's financial capacity to pay for the UAPL. The literature search started with a global search on pension funds to uncover the level of interest in the pension system. Exploring some of the findings allowed generation of a combination of research interest using Boolean operators. Search terms included *unfunded pension accrued liability, pension funds, CalPERS, pension funds and budgets, pension funds and governance, unfunded liability, and legislature*. Other combinations of terms included *unfunded pension liability and local budgets, institutional change, institutional analysis and development, and pension plans, budget and unfunded liabilities, annual required contribution, policy, and unfunded liabilities. The research was expanded to include search terms including defined-benefits, California pensions, California pension reform, pension liability, and discount rate, pension valuation methods, local revenues and pension liabilities, GASB 67 and 68, accounting for pension liabilities, pension sustainability, Quantitative research and pension funds, and history of pension plans.*

Various sources were used to locate relevant information regarding unfunded accrued pension liability. The articles were retrieved from peer-reviewed journals, as well as databases included EBSCO, Political Science, Business Source Complete, Taylor and Francis, SAGE Journals, and Google Scholar. Research on the issue of pension liabilities

extending back to the 1930s to have an understanding of development of the issue in a historical context; however, I reviewed the literature on pension funds since 1989 to 2019, with most articles dating from the period after the eruption of the Great Recession. The Great Recession triggered urgent concern about pension funding since investment returns from that period and after failed to meet expectations. Further evidence on the UAPL problem from other sources such as the California Policy Center, CalPERS, US Census Bureau, the League of California Cities, the California Legislature, and books was also included.

Theoretical Framework

The theory underlying this study was IAD (Ostrom, 2006). Ostrom developed the IAD to explain the behavior that actors pursue during the decision-making process. An institutional arrangement is a set of rules used by individuals in the decision-making process to determine who and what is included, how information is provided, which actions should happen in sequence, and how aggregated individual efforts will form collective decisions (Ostrom, 2006; Schlager, & Cox, 2014). The set of rules is subject to three filters that create relations among them: (a) a constitutional filter, (b) a collective choice, and (c) an operational decision (Ostrom, 2006). The filters are tools at the disposition of people to resolve collective action dilemmas (Schlager, & Cox, 2014). The IAD framework is about institutions; the problems among different actors may have a different rationale ranging from a mismatch between physical and material conditions to institutions, and the solutions to the issues may be to adopt new institutional

arrangements better aligning the interest different interest between individuals and interest groups (Schlager, & Cox, 2014).

The decision-making process is subject to an accepted set of agreements between participating institutions. Ostrom (2006) explained that a change in decision rule does not necessarily have an immediate and direct effect on the physical distribution of things. The institutional change affects the shared understanding of decision-makers within the decision situation that is influenced by the rules (Ostrom, 2006). In relation to cities in Los Angeles County and their pension obligations, the process of making choices about pension liability involves the active participation of several institutions represented by unions, government plan sponsors, the board of directors of the pension funds, and rating financial agencies as well as the public. Members of the CalPERS board of governance are drawn from pension beneficiaries as well as from the state legislature (Dove et al., 2018).

The IAD identified two crucial aspects of an actor's behavior in the decision-making process (Ostrom, 2006). The first aspect involves recognition of the relationship between constitutional, collective choice, and operational decisions while the second aspect deals with the fundamental elements used in the analysis of outcomes and the evaluation of any one of the three-tier decision-making process (Ostrom, 2006). The institutional problem may occur at any of the three tiers as actors interact to reach durable agreements. For instance, the problem could be operational, where actors cooperate considering opportunities to generate outcomes that will design a policy to minimize the adverse impact of policy (Ostrom, 2006). A collection-choice or policy tier problem

represents the constraints that decision-makers face within a set of rules affecting the structures of arenas, where operational decision-making happens, impacting the physical world (Ostrom, 2006). Finally, the problem could be one of constitutionality where the consideration of who can participate in the decision-making process and regarding the rules in adopting policymaking (Ostrom, 2006).

A crucial first step in analysis of a policy problem is to identify a conceptual unit or action arena that can be used to analyze, predict, and explain behavior within the institutional arrangement (Ostrom, 2006). An action situation is composed of seven different types of variables, which are participants, positions, outcomes, action-outcomes, the control exercised by the participants, information, and cost and benefits in relation to results (Ostrom, 2006). An action arena refers to a complex structure containing a set of variables referred to as action situation and the second set of variables called an actor (Ostrom, 2006).

The IAD proposed a delicate interrelationship between the different actors in the process of describing the action situation, which in this case, pertains to decisions about how to fund the UAPL. An action situation involves one or more collective action dilemmas characterized by one or more individuals facing a set of potential actions (Schlager & Cox, 2014). The IAD's focus is one of problem-solving orientation, explaining how people use institutional arrangements to find solutions to share problems under the current institutional arrangements (Schlager & Cox, 2014). It is then when the development of informed proposals becomes possible for improving institutional performance (Schlager, & Cox, 2014). The state government, the legislature, local

governments, and public employees' unions actively try to influence the CalPERS board to adopt more favorable actuarial inputs improving the outcomes; in this case, the condition of the unfunded liabilities. Figure 1 illustrates the complexity of the institutional arrangements and interactions among actors and the outcome of the UAPL.

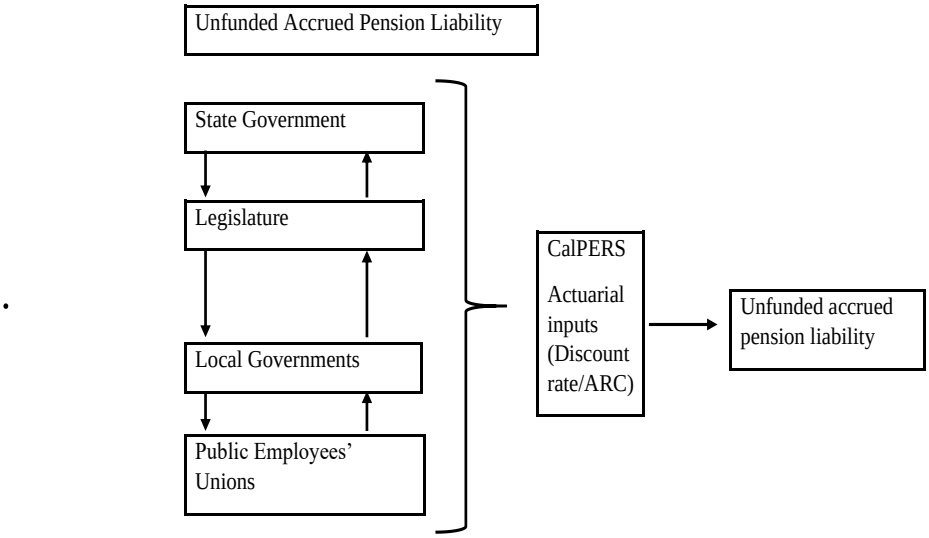

Figure 1. Outcome: UAPL.

The action represents the behavior presented by an acting individual gives a subjective and instrumental concept (Ostrom, 2006). The challenge for the analyst is to make assumptions regarding how and what participants value, what resources, information, beliefs, abilities to process information, and what strategies are available to reach a decision (Ostrom, 2006). The decision-making process may be challenging since different decision makers will have varying perceptions about costs and benefits as well as the obligation to keep previous promises made to group participants (Ostrom, 2006). Since the decision-makers may make errors, the actors can be viewed as fallible learners in relation to the recipients of the benefit involved (Ostrom, 2006).

The IAD provided a framework to explore the relationship between the different institutional arrangements used by the individual actors in managing common-pool resources giving various incentives and opportunities to learn (Ostrom, 2006). Since the institutional arrangements produced specific outcomes, the outcomes were a function of individual sequences of actions as well as the level of control that each actor exerts over a choice (Schlager & Cox, 2014).

An actor is at the center of each action situation, so they have a direct impact on each action producing an outcome (Schlager & Cox, 2014). Furthermore, the actors must make assumptions regarding what and how participants value, what is their information-processing capabilities, and what internal mechanisms actors use to decide upon strategies (Schlager & Cox, 2014). How and what participants value refers to participants expectations and preferences involving utility maximization behavior (Schlager & Cox, 2014).

The main actor in the issue of the UAPL is the interaction of CalPERS with the state, the legislature, local agencies, and unions to determine the appropriate ARC contribution to pay for the UAPL (Kilgour, 2013). However, the legislature provided independence oversight to the CalPERS board (Kilgour, 2014), so the CalPERS determines the ARC based on different valuation methods (Thom & Randazzo, 2015). Cities choose whether to meet the mandated ARC via their budget process or other available mechanisms and must also decide upon strategies to contribute towards the amount of UAPL mandated for them by CalPERS (see Schlager & Cox, 2014). The ARC may not meet the demand from the pension administrator since the amount of ARC that a

city is required to contribute is determined by the state and local law (Kass, Reynolds, Kowalski, & Smith, 2017). Hence, if the financial contribution did not meet the demand of CalPERS, a deficit in the pension contribution exists, creating the UAPL. The increase in the UAPL has a direct impact on a city's financial position since it is possible that available revenues must be used to pay for the UAPL rather than for city services (Oakerson & Parks, 2011; Theesfeld et al., 2017). The purpose of my quantitative study was to determine the predictive relationship between the ability to raise revenues and the ability to pay for ARC controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

Prior Application of the IAD Theory

Ostrom's (2006) IAD framework had been used in different policy arenas, including environmental economics, military intelligence, and public policy analysis (Carter et al., 2016). Capturing how individuals use rules to determine who and what are part in a decision situation and the structure of information to produce a desirable outcome form a potential set of choices (Bang, 2018; McGinnis, 2000). McGinnis (2000) and Bang (2018) argued that the institutions influenced most aspects of daily interactions, and Bang (2018) said that institutions are the social representations to organize repetitive interactions. The interactions consist of a set of rules to guide the decision-making process among individuals and institutions (Bang, 2018; McGinnis, 2000. Bang (2018) provided an overview regarding the decision-making process within a group of individuals and institution or institutions given a set of rules or mechanisms providing practical alternatives to complex problems. Furthermore, Bang (2018) said that the

different set of rules or tools governing individuals and institutions affect the patterns used in the decision-making process in which actors interact as one set of behaviors rather than various alternatives known as the rules of the game.

Bang (2018) used the concept of institution as a unit used in repetitive circumstances by humans organized by rules, norms, and strategies, and the institution became the primary unit of analysis since it regulates most aspects of daily interaction (Bang, 2018). The multidisciplinary language of the IAD sustains a focus on rules, norms, and its adaptability to the empirical finding of the research goal (Bang, 2018). The concept of institution provides a predefined pattern channeling the actor towards one set of behaviors, so the IAD offers the opportunity to adjust the rules, norms, and strategies to the decision-making process (Bang, 2018). Bang (2018) mentioned that a critical characteristic in the decision-making process is the attribution of the community since the attributions are set of variables helping to build the structure of the action situation (Bang, 2018). The IAD analysis of the decision-making process captures the characteristics of the community's social and cultural aspects which are shared among the individuals (Bang, 2018). The sharing of such features influenced social groups, providing a physical environment where the institution captures the possible actions and possible outcomes (Bang, 2018).

Community involvement affects the decision-making process, resulting in outcomes reflecting a structural change and the acceptance of new elements (Neuman, 2012). Neuman (2012) proposed that change as a process helps to create new institutions through regular habits, activities, and routines imbued with commitments and values.

Furthermore, the institutions encode and imprint meaning and behavior on individuals, reflecting the reciprocal duality of institutional ontology (Neuman, 2012). The field of urban planning builds on the concept of institutions developed by Ostrom (2006), highlighting the incrementalism and self-transforming nature of institutional change (Neuman, 2012). The IAD explains how to establish and enforce uniform standards among the different institutions or individuals within a physical environment (Carter, Weible, Siddiki, & Basurto, 2016). For instance, an organization known as the National Organic Program regulates organic food labeling, requiring members of the organizations to adhere to a set of rules for producing organic food (Carter et al., 2016). The producers that do not abide by the rules are subject to fines and disfranchisement from the organization, which can cause loss of market share for their products. The members of the organization are subject to a decision-making process to determine an outcome that may be contrary to their economic interest. Furthermore, Carter et al. (2016) said that the IAD considers rules and how rules operate across settings where an action situation represents the focal unit of analysis to understand collective action, as well as how rules interact in the shaping of outputs and outcomes.

A desirable action may have two different results when the decision takes the form of compliance or noncompliance to institutional rules (Carter et al., 2016; Neuman, 2012). The analysis and interactions operate in the social space in which individuals coexist and anticipate outputs and outcomes (Carter et al., 2016). The institutional actions affect day-to-day behaviors, so the IAD offers a conceptual understanding of adaptation via hierarchical linkages known as levels of decision-making (Carter et al., 2016). The

IAD also provides the necessary concepts to explain the systematic analysis of policy design enabling a micro-scale focus on how a collection of actions situations link into sequences and chains of inputs and outputs (Carter et al., 2016).

Oakerson and Parks (2011) explored the IAD usefulness in the policy design process, providing an extension to the study of policy in public economics. The policy design process included the inter-organizational arrangements providing the tools to understand more complex problems at the organizational level (Oakerson & Parks, 2011). Furthermore, Oakerson and Parks (2011) said that the governmental structure provides a new perspective on challenging problems, and the intergovernmental arrangements may influence the financial performance of local public economies. The public economy produces goods and services shaping the role of the government within the community, and the provision of goods and services may be separated from the arrangements of their productivity (Oakerson & Parks, 2011). The governmental unit participates in a policy design process to decide the types of public goods and services to offer, and it depends on the level of participation of the administrative body and the community (Oakerson & Parks, 2011; Theesfeld et al., 2017). Furthermore, the production of public services referred to the means of transforming input resources into services (Oakerson & Parks, 2011). As part of the policy design, the government unit does not need to produce the public service, allowing the governmental unit to contract out the provision of services from private or other public organizations (Oakerson & Parks, 2011; Theesfeld et al., 2017).

The policy design could consider functional fragmentation with the creation of special districts producing a distinct service for all citizens, yet the provisions and productions may be differentiated geographically and functionally (Oakerson & Parks, 2011). The success of the policy design depends on public opinion to provide support for both the public and public officials to create the necessary organizational arrangements (Oakerson & Parks, 2011). The organizational arrangements are the rules that bound the local governments; thus, the fiscal rules will provide the means for the local government to receive revenues (Oakerson & Parks, 2011). Furthermore, there are three levels of rules affecting the actions to develop the selected projects: operational rules, collective-choice rules, and constitutional rules (Theesfeld et al., 2017). Therefore, all revenues and expenses a local government incurs are subject to the State constitution, and the revenues will come in direct competition with a choice to provide public services or pay for the UAPL (Oakerson & Parks, 2011; Theesfeld et al., 2017).

Gorina (2018) provided an analysis of the way that cities make decisions about funding retirement obligations when such funding conflicts with paying for current operational needs. Gorina (2018) noted that assessment of a city's financial position included total revenues per capita, percent of expenditures from the general fund, general fund balance, and long-term debt per capita, including retirement obligations. Kim and Warner (2016) noted that since the Great Recession of 2008, cities are practicing "pragmatic municipalism" to maintain city services and public safety (Kim, 2019). Retirement obligations are not considered an urgent a need as city services and safety in this context (Kim & Warner, 2016).

The local government is an autonomous unit, yet it is subject to state law to promulgate laws and regulations. The state bounds the ability of local governments to tax residents and businesses to raise revenues. The adaptability of the IAD provides for a way to understand government jurisdiction since local governments are vertically distinguished (Oakerson & Parks, 2011). The local government relies on citizens' voices as the catalyst for cooperation between the community and local officials to design an appropriate organizational arrangement (Oakerson & Parks, 2011). In that manner, the government unit acts as the initiator of change for the community, and other subsequent changes will come directly from the community (Triana, 2013). The government needs to experience change internally to remain relevant to serve the community (Triana, 2013), and the act of governing provides the allocation of citizens choices bounded by rules via a process known as polycentricity (Oakerson & Parks, 2011).

A polycentric process is a decision-making exercise where various independent actors interact to produce an outcome that is commonly valued (Oakerson & Parks, 2011). The issue with the UAPL comprises different actors interacting among each other to arrive at a common solution to the need to pay down the UAPL. The polycentric describes a process of governance where there are multiple independent centers of authorities, such as in the case of the UAPL pension administrator in California. The primary characteristic of polycentricity is the lack of dominance among centers of authority (Oakerson & Park, 2011). The participating governmental organizations are the independent center of authority. Nevertheless, the local agencies do not have a significant influence on the setting of the ARC.

The utilization of polycentrism may provide for a more open government structure to include more significant civic space to offer greater opportunities for non-governmental actors to enter productively into the bureaucratic process to provide general benefits to the community (Oakerson & Park, 2011). The analysis of the polycentrism focusing in the local public economies considers the decisions of individuals in action situations, so in essence, it enlists the IAD to study the micro-level (Oakerson & Park, 2011). The IAD can be used to explore how communities organize to effectively govern the management of common-pool resources, in the case of CalPERS, how the actors provide input in the management of the pension fund (Oakerson & Park, 2011). Kilgour (2013) mentioned that CalPERS is an autonomous entity with an independent board; however, the state, legislature, contract cities, and unions try to influence the process of pension management via the appointees and elected board members to represent their party's interest.

Furnari (2016) mentioned that these two perspectives provide the basis to understand why institutions change. Parto (2008) added that the institutional change promotes responses to changes in the market dominated by a form of capitalism. Parto (2008) added that economic activity happens in the open market, and it is not an isolated exercise. The economic activity assumes greater importance when institutions are included in the analysis. Parto (2008) said that institutional analysis is a structuring phenomenon manifesting at a different level of inter-relation, scales of governance, and in varying levels of political economy. The interaction among pension administrator and the cities in Los Angeles County requires a continuum of measures to be pursued jointly

by the different governance arrangements and the appropriate territorially defined levels of government (Parto, 2008).

An institution is a social arena where individuals and organizations assume a common meaning by interacting with one another than with actors outside the field (Furnari, 2016), so the IAD provides the analytic tools to describe the complex interactions among different actors. Institutions have common structures and boundaries, sharing common meaning systems (Furnari, 2016). A characteristic of the studies on institutional change is the development of ideas regarding collective efficiency from which two perspectives for institutional change need consideration (Parto, 2008). One is exogenous sources of change, considering societal values and regulations (Furnari, 2016). The second perspective refers to endogenous sources of change, such as institutional contradictions or positions occupied by actors in the field (Furnari, 2016). The contradictions reflect the different ideologist of the various actors redirecting the focus on how the institutional shape reflects the influences of human agency (Furnari, 2016).

Rationale for Using IAD

The purpose of this study was to determine whether cities would be able to pay for the UAPL while continuing to provide essential city services. There is a close relationship between cities and CalPERS, economic circumstances, and other unique yet joint decisions regarding the ARC and UAPL debt. The study of the UAPL using the IAD as framework for the proposed study will contribute to understanding the complex interaction among the various actors who are trying to influence or preserve the status quo of the pension system. The focus of the IAD is one of problem-solving orientation,

allowing to exploration and explanation of how people use institutional arrangements to analyze current share problems (Schlager & Cox, 2014). The IAD deals with the differences between individual and the group since difficulties between the two create long-lasting issues; therefore, institutional arrangements are one of the many tools to align them (Schlager & Cox, 2014).

Institutions and institutional design are essential to shaping policy outcomes since institutions will affect the behavior of actors when setting policy (Baldwin, Chen, & Cole, 2018). The institutional analysis provides a set of approaches to understanding the different ways in which formal laws and informal social or organizational norms shape policy actor's behavior (Baldwin et al., 2018). Baldwin et al. (2018) reflected on the reality that public managers face a challenge in trying to coordinate or collaborate with other state and non-state organizations to design and provide for public services. The IAD provides meta-theoretical approach to natural resource governance, yet it competes with different theories and models that could help explain the policy process along with empirically ground theory in a diverse range of policy contexts (Baldwin et al., 2018). Baldwin et al. (2018) mentioned that the IAD provided a basis for institutional analysis, yet the empirical applications have remained limited to areas such as environmental or municipal governance.

The relationship between the cities in Los Angeles County and CalPERS provided the scenario to explore the dynamic interaction between two institutions in a market to purchase retirement services. The CalPERS board set the discount rate setting up a tense relationship among citizens and public officials. The institutional demand for payment of

retirement contributions put economic and political pressures in the cities to come up with creative alternatives to pay for UAPL. The mode of governance will vary in the degree of equity, depending on what interest the institution is benefiting (Parto, 2008). Institutions are dynamic since they include different actors and action arenas, so actors will bring different beliefs that interdependence of individuals in the markets, networks, and hierarchies (Parto, 2008). The IAD framework helps the analyst to build the action arena, a social space where individuals interact, exchange goods and services, solve problems, dominate one another, or argue (Theesfeld et al., 2017).

The IAD framework allowed me to differentiate between norms and rules since rules are not as flexible as norms and strategies (Theesfeld et al., 2017). The distinction between rules and norms does not provide a path to distinguish between formal and informal institutions (Theesfeld et al., 2017). The norms and rules are not easy to detect (Theesfeld et al., 2017), and they may be stipulated in the contract at the time of contracting for services. Parto (2008) mentioned that the act of governance arrangement requires a continuum of measures to be pursued jointly along with the appropriate territoriality defined levels of government. The IAD provided the tools to describe the role of good governance in the interaction between two or more governments, agencies, organizations, local, state, or federal governments (Triana, 2013).

The relationship between the state, city governments, and the pension administrator (CalPERS) is unique in the sense that CalPERS is an autonomous institution with the ability to create and implement policies if policies do not breach existing contractual obligations. The policy diffusion may not help to answer the research

question in this case because CalPERS is the institution that sets the desirable annual required contribution to pay for future retirement services. Because the CalPERS board has the autonomy to set up the discount rate so that it can create budgetary constraints for many local governments, yet the state, legislature, local governments, and unions may exert some influence over the pension administrator (Kilgour, 2013).

The IAD, in this sense, was a better framework since it analyzed the interaction among these actors to reach consensus and agreement to fulfill the future pension obligation. The high level of political involvement needed to implement political reform makes the IAD the preferred method of analysis (Wang et al., 2018). The possibility of the existence of political opportunism to manipulate the rate of return assumption guaranty that the IAD framework provided the proper system of analysis to capture the delicate interaction between the different actors (Wang et al., 2018).

Literature Review Related to Key Variables

In this section, I explain the role of CalPERS as pension administrator and the distributor of pension benefits. The next section examines the condition for the UAPL, and the last part includes an exploration of the different factors in explaining the UAPL.

California Public Employee Retirement System

The economic recession of the 1930s paved the way to the creation of the State Employees' Retirement System (SERS) in California in 1932 (CalPERS, 2019). The SERS implemented a model of restraint and caution regarding investment of pension funds (Osorio, 2013). The SERS investment model was restricted to Federal Treasury bonds and state municipal bonds to reduce risk of loss of pension funds (Osorio, 2013).

Osorio (2013) mentioned that during the late 1960s, unionization among public servants experienced rapid growth, and labor unions gained the power to demand increased pension benefits. In 1968, the California legislature added a cost-of-living adjustment to public pension plans, increasing the cost of the plans (Kilgour, 2013; Osorio, 2013). The incentives increased during the 1970s when the retirement formula changed from 1.43% to 2.00% of the average final salary, and the retirement age decreased from 65 to 60 (Osorio, 2013). In 1966, a shift in the approach to investing pension funds, with the adoption of Proposition 1, allowing CalPERS to invest 25% of public pension funds in stocks (Osorio, 2013, Kilgour, 2014). The legislature changed the structure of the CalPERS system to provide more autonomy and less government oversight, allowing the CalPERS board of directors' greater authority to invest the funds that public pension beneficiaries contributed (Kilgour, 2014; Mixon, 2015).

Cities offered a defined-benefit retirement plan to public employees, and this comprised an incentive for many people to seek public employment. Mixon (2015) mentioned that a defined-benefit pension plan pays retirement annuities to public employees. The focus of the defined-benefit public pension plan is the financial security of the retiree focusing on inputs from the employer to fund future output to the employee upon retirement (Gauthier, 2012). Gorina (2018) and Kilgour (2014) noted that the funding for a pension plan derives from plan investment earnings, employer contributions, and employee contributions. The level of funding of the pension plan should provide for the annual required contribution which was defined as the sum of the plan's normal cost and a portion of the plan's UAPL (Kilgour, 2014). Gauthier (2012)

and Mixon (2015) clarified that the defined-benefit model had a built-in equity component regarding annuity as an attempt to equate benefits for employees higher at different ages. However, employees must go through a vesting process before they can enjoy the benefits of participating in the defined-benefit pension plan even though contributions into the plan started from the first day of employment (Mitchel & Hustead, 2001).

The vesting time was a waiting period where cities may expect to realize some savings only when employees did not complete the required time. Cities must account for pension expenses during the budget cycle, and cities must account for the cost of living adjustments and other pension costs. Peng (2004) and Kriz and Chen (2017) said the pension liabilities were an integral part of the budget process since cities must meet a predetermined annual required contribution. The budget process required for the state and local governments to incorporate the current pension cost in their annual comprehensive report reflecting the state of funding of the pension plan (Clark, 2009). Gauthier (2012), Mixon (2015), Koedel and Xiang (2017), and Estes and Kremling (2018) said that the challenge facing the cities is that the defined-benefit pension model favored a backload retirement compensation having a higher investment risk, lower retirement age, and different actuarily approaches to determine future rate of return to determine the pension funding needs. The funding status of the pension plan depended on city's economic position, ability to raise revenues, and overall community income (Gorina, 2018), thus it created a challenge for city managers and public officials to find a balance between pension expenses and city programs. Stein (1989) and Peng (2004) said that public

pension was a relevant field of public finance, budgeting, and tax policy. Furthermore, Stein (1989) noted that the challenge increased for cities to fully fund their pension plan obligations since the Internal Revenue Service Code required cities to fund define-benefits promises before the date of maturity. Thus, while the aggregate level of the UAPL did not harm the funding level, the UAPL at the city level represented a significant problem for city budgets (Clark, 2009).

Cities participate in the state pension fund via association with CalPERS, and the participating city governments sent their ARC to CalPERS. The nature of the public sector defined benefit pension plans was contributory, and employers and employees contribute a fixed percentage of their salary to the pension plan (Gorina, 2018; Kilgour, 2013; Wang & Peng, 2018). The CalPERS board set the ARC rate, and the board provided funded status reports regarding the funding status of each participant (Mixon, 2015).

In its role as pension administrator, CalPERS maintained an adequate return on investment, requiring constant communication between the CalPERS board and professional investors (Peng, 2004; Kilgour, 2014; Wang & Peng, 2018). Khalid (2019), Gorina (2018), Kilgour (2013), and Matkin et al. (2019) said that the pension administrator relied on actuary methods to estimate the corresponding benefit obligation and obtained a return on investment. Data used for actuary assumptions included demographic information, such as age and seniority of current participants, turnover rates, average retirement age, and age-specific life expectancies of participants and spouses, inflating the accumulated liabilities of the plan sponsor (Gorina, 2018; Kilgour,

2013). The pension administrator made economic assumptions, including forecasted price inflation, wage, and salary increases and promotions, and return on investment (Kilgour, 2013). Consequently, Chen and Matkin (2017) and Matkin et al. (2019) said that the sensitivity of the actuaries' assumptions was crucial to maintaining a sustainable pension plan. Yet the actuarial process was always uncertain since pension sponsors must speculate about rates of return on investments in relation to the costs of future pension plan obligations.

Each participating city must make their ARC, and it varied depending on the funding status of the pension plan (Kilgour, 2013). Kilgour (2013) said that the pension administrator could use one of two methods to value the assets either the actuarial value assets or the market value assets, including smoothing of the assets price variation. The market value assets measured the value of the pension plan assets to the measurement or valuation date, and the actuarial value asset involved a smoothing to reduce the year to year price variation (Kilgour, 2013).

A crucial component of the valuation method was the discount rate that was used to estimate the current value of the pension liabilities. Kilgour (2013) pointed out that the higher the discount rate to calculate the projected benefit obligation, the lower the current liability the local government faced. The main question regarding the discount rate focused on which type of interest rate would better reflect the present value of the pension liability. The choices for the discount rate depended on preferences from using the current historical investment returns or choose the actuarial discount rate to reflect the certainty of future payments (Chen & Matkin, 2017). The issue with the discount rate was

the difficulty in choosing which type of discount rate to use since the discount rate may have a different effect in the present value of the UAPL of each city in the Los Angeles area. Other valuation methods considered a default-free discount rate as the starting point, depending on the objective of the valuation (Brown & Pennacchi, 2016; Wang & Peng, 2018).

Brown and Pennacchi (2016) proposed that the most appropriate valuation rate should be the default-risk discount rate to measure the market value of the pension liabilities. The property of the default-free discount rate was one that provides information to participants wanting to know the financial status of the plan and the ability to pay future benefits (Brown & Pennacchi, 2016). The information provided was of value in case the defined benefit plan decided to transfer the assets to an insurance company, which in turn would provide an annuity payment to employee's (Brown & Pennacchi, 2016).

GASB had established rules regarding the discount rate to the expected return on pension assets, and the rules had been the guidance for several actuaries and pension plan sponsors (Brown & Pennacchi, 2016; GASB, 2019; Peng, 2004). A good reference point for choosing a discount rate was the ability to reflect the risk of the liabilities, so the discount rate should indicate the appropriate measure of the level of funding status and the market value (Brown & Pennacchi, 2016; Peng, 2004). Therefore, the most appropriate valuation rate should be the default-risk discount rate to measure the market value of the pension liabilities (Brown & Pennacchi, 2016; Wang & Peng, 2018).

Deciphering Cities Ability to Pay for the UAPL

In this section, I explore the different findings in the literature regarding the condition of the UAPL. Thom and Randazzo (2015) explained the level of state funding depends on the fiscal and institutional characteristics, with little partisan influence from state or legislatures. Furthermore, Thom and Randazzo (2015) suggested that since institutional traits affect the level of contributions, states with more professional legislatures had a negative level of participation. The lack of pension contributions has become a political problem since the party in charge determined the budget spending priority between the UAPL and other government expenses.

The failure of the political system to address the growing UAPL had increased UAPL, reflecting the inability of some states to appropriate the right amount of ARC funding (Thom & Randazzo, 2015). Thus, the insufficient funding of ARC was the outcome of widespread failure of state and local governments to mandate full funding of ARC (Thom & Randazzo, 2015). Thom and Randazzo (2015) concluded that an essential condition for the level of the UAPL was the willingness of elected bodies to prohibit UAPL by insisting that the state pension board or boards under the direction of the legislature and executive branches set the standards for pension funding practices.

Munnell, Haverstick, Aubry, and Golub-Sass (2008) reported that the variation in funding status came from the ratio of the actuarial accrued liability defined as the difference between the present value of future benefits earned, not cover by normal pension cost payments, and the future standard costs of the pension benefit. The funding status of the pension plan was in direct proportion the amount of time the government

contributes to the pension fund, the actuarial methods to estimate pension benefits (Munnell et al., 2008). The last consideration was whether the local government has made the ARC. The next contributor was the composition of the pension board since the presence of retirees or employees may influence the plan' actuarial method and investment policy affecting funding status.

Munnell et al. (2018) concluded that the effect of the funding level had an inverse relationship with the time a retirement plan was funded. Furthermore, Munnell et al. (2008) concluded that the funding ratios vary substantially among plans along with pension contributions. State and local governments had different retirement plans, so both governments faced a challenge to fund pension contributions under the current conditions (Munnell, Aubry, & Quinby, 2010). Moreover, the effects of the 2008 economic crisis reduced the value of pension investments creating a budget problem for cities with limited revenues (Munnell et al., 2010). Munnell et al. (2010) argued that the state and local government had a limitation in their ability to raise revenues through taxation to pay for the UAPL and to fund the cost of essential city services at the same time. Munnell et al. (2010) and Taylor (2014) argued that the limitation relied on the constitutional restrictions on the authority of cities and states to impose new taxes that were enacted by voters. For instance, in California, the restriction on levying new taxes depended on a super-majority of voters, and the passing of Proposition 13 limited property tax increases only on the date of sale (Kilgour, 2013; Taylor, 2014; & The California City Leagues, 2014).

The limited ability of cities to raise revenues via taxation, and the practice of recording and contributing less than the desired amount of ARC, had increased the UAPL (Munnell et al., 2010). Thus, Munnell et al. (2010) stated that accounting practices and the valuation methods used to calculate the UAPL provided a sense of what could represent an appropriate level of pension funding since full funding may not be optimal. The complexity of the UAPL implied that the outstanding UAPL accrues interest, and that contributions from cities served to reduce the UAPL (Munnell, Aubry, & Cafarelli, 2015). Therefore, Munnell et al. (2015) said that a short payment of the ARC would increase the UAPL, so actuarial estimations were another factor in the positive or negative fluctuations of the UAPL.

Methodological Considerations for Analyzing UAPL

In this section, I explore factors for explaining the UAPL, and the different variables used to provide a sound understanding of the UAPL concern. The increase in the UAPL of the public sector was a consequence of the decision to provide better benefits to state and local government employees during the mid-2000s (Kilgour, 2013). Thom and Randazzo (2015); Gorina (2018); and Matkin et al. (2019) agreed that the variation in pension obligation resulted from lack of a stricter rule requiring policymakers and public officials to fully fund the ARC. However, the flexibility provided by the CalPERS to meet the current obligations had led to an accumulation of the UAPL as well to increasing competition for general funds to either provide public services or pay for UAPL (Thom & Randazzo, 2015). Thom and Randazzo (2015) and Gorina (2018) hinted that the capacity of a city to fund the ARC depended on the ability to raise revenues,

since revenues fluctuated according to economic conditions and policymakers seek alternatives to fund city budgets. Furthermore, in times of financial crisis, the pension funds may be funded at lower levels due to lower returns on investments, lower employer contributions, and contribution holidays that cities may take to improve their current economic position (CalPERS, 2018; Gorina, 2018).

The statistical analysis used in seeking to answer if the UAPL affects a city's ability to pay, so the statistical methods included OLS (Thom & Randazzo, 2015), simple regression equations (Munnell et al., 2008), and probit regression (Munnell et al., 2014). Further, pension funding was in direct proportion to the amount of time the government contributes to the pension plan and the actuarial methods used to estimate the pension benefits (Gorina, 2018; Munnell et al., 2008; Thom & Randazzo, 2015). The characteristic of the institution would affect the relationship between the level of contributions and the level of professionalism in the legislature (Thom & Randazzo, 2015). The research sought to determine the effect of UAPL on the city's ability to provide for public services, as well as the probability of being signal as a problem city depending on the size of the UAPL.

The institutional effect of the ARC may harm cities' ability to fund pension promises since the contribution may be less than the pension administrator expects (Thom & Randazzo, 2015). There may be an adverse effect of the institutionalization of the ARC on cities' ability to pay for current retirement benefits. The institutional effect would cause an increase in the UAPL, causing direct competition for between pension contributions and public services for city funds (Killian et al., 2016). In the current study,

I employed a MLR model to measure the effect of the ARC on a city's ability to pay for the pension benefits (Thom & Randazzo, 2015). This approach was consistent with studies conducted by Munnell et al. (2008), and Thom and Randazzo (2015). The literature connecting UAPL to the ability of cities to pay for pension benefits was limited; however, the research linking the increase in UAPL having a negative impact at the State level provided an indicator of the economic implications for future generations (Elder & Wagner, 2016; Kilgour, 2014; Matkin et al., 2016; & Wang & Peng, 2018).

Key Variables

The key variables to analyze the UAPL were divided into two groups where the independent variables include the city constitution classification, general fund expenditures, general fund revenues, covered payroll, and available reserves. The dependent variable consisted of the total UAPL a city must pay to cover for the pension benefits.

Independent variables. Gorina (2018), Ring (2014), Munnell, Aubry, and Cafarelli (2015) explained that the key independent variable consists of the city constitution classification, general fund expenditures, general fund revenues, covered, and available reserves. Furthermore, Gorina (2018) stated that the institutional analysis of local retirement pension plans consisted of three variables such as the use of an entry age normal (EAN) for participants of a city’s pension plan, the number of locally administered retirement plans, and an indicator variable for the cities with limits on local contributions. Financial variables included per capita revenues, per capita expenditures, and long-term debt per capita (Thom & Randazzo, 2015; Gorina, 2018). The ARC

commitments depended on the fiscal environment, which may be a ratio of the annual revenue change accounting for the constitutional constraint of a balanced budget, and the ratio of pension assets to pension liabilities for the state-manage pension plan (Thom & Randazzo, 2015).

Dependent variable. The amount of ARC a city contributed towards the UAPL represented the actual contribution determined by the state and local laws, so the ARC did not necessarily meet the demand from the pension administrator (Kass, Reynolds, Kowalski, & Smith, 2017). Thom and Randazzo (2015) and Matkin et al. (2019) said that the political culture or institutional factors in the state represented an independent variable since the state's constitution may grant pension protections in the form of specific guarantees to public sector employees.

Gorina (2018) and Matkin et al. (2018) described the dependent variable as the total unfunded liability per capita in all city's plan calculated as the total UAPL of a city divided by the population. Furthermore, the per capita unfunded liability was presented in dollars, so it could be aggregated across plans to offer a better estimate of the total UAPL (Gorina, 2018). Matkin et al. (2019) said that a crucial consideration in the UAPL was the benefits policy since changes to the benefits would translate into increases or decreases in the UAPL as well as the ARC. The analysis of the available variables would provide the basis to understand the challenges facing the different local governments in Los Angeles County to pay for the UAPL. The ability to raise revenues may reflect the state of the economy since slower economic growth would reflect a fiscal problem to meet the demands of the pension administrator.

Summary and Conclusion

The review of the literature presented themes regarding institutional concepts, rules, norms, and strategies influencing how institutions affect the interaction among individuals. Bang (2018), Carter et al. (2016), McGinnis (2000), Neuman (2012), Ostrom (2006); and Wang and Peng (2018) pointed out to the complexity of factors inter-related in estimating the UAPL and the ability of cities to pay for it without diminishing their ability to provide for public services. The institutional rules and norms dictated the manner how decision-making happens, and it must meet three filters for norms and rules to stand (Bang, 2018; Gorina, 2018). The constitutional rule sets the guidelines to determine who participates in the decision-making process, the dissemination of information, the sequence of each action, and how aggregated individual efforts would form collective decisions (Ostrom, 2006; Schlager & Cox, 2018).

The second aspect of the literature review referred to outcomes of the decision-making process since the outcomes may be the result of structural change as part of a process to accept new elements (Newman, 2012). Change may be a process of creating new institutions from the consideration of regular habits, activities, and routines imbued with commitments and values (Newman, 2012). The new institutions would encode and imprint meaning and behavior on individuals reflecting a reciprocal duality of institutional ontology (Neuman, 2012).

The third theme related to the process of policy design for the application and enforcement of uniform standards to produce goods and services (Carter et al., 2016). The IAD would consider rules, and how rules operate in different setting across settings;

furthermore, it would define the action situation since it was the focal unit of analysis for understanding collective action as well as how rules interacted in the shaping of outcomes (Carter et al., 2016). All the interaction would take place in a social space where individuals coexist to anticipate outputs and outcomes (Carter et al., 2016). Furthermore, the IAD provided the avenues to explain the systematic analysis of policy design enabling a micro-scale focus on how a collection of action situations link into sequences and chains of inputs and outputs (Carter et al., 2016). The policy design inter-organizational arrangements made it possible to understand more difficult problems at the individual organization linking governmental organizations to address issues in metropolitan areas (Oakerson & Park, 2011). Therefore, the IAD provided a way to explain how a system organization operated to provide services to urban residents as well as how public entities operated within the local pubic economy (Oakerson & Park, 2011).

The pension liabilities studies focused on the aggregate effect of the UAPL in the fiscal health of the State, noting that the increase in UAPL would become a significant policy issue (Kilgour, 2013). The concerned of a growing UAPL rested in the direct impact on state and local governments' fiscal sustainability (Elder & Wagner, 2016; Kilgour, 2014; Matkin et al., 2016; Wang & Peng, 2018) as well as the direct competition for funding with other public programs (Killian et al., 2016). Furthermore, the increased in the UAPL reflected the changes in institutional rules to reflect the current state of the public pension liability (Clark, 2009). The IAD focused on the decision-making process capturing the use of rules to determine who and what were part in a decision situation and

the structure of information to produce a desirable outcome from a potential set of choices (Bang, 2018; McGinnis, 2000).

Thom and Randazzo (2015) argued that the contribution level toward the UAPL depends on the fiscal and institutional characteristics with little partisan influence from state governors and legislatures. The institutional traits affected the level of contribution, so States with more legislative professionalism had an adverse level of funded contributions (Thom & Randazzo, 2015). Thom and Randazzo (2015) stated that that elected bodies were not responsible for creating UAPL, rather the state pension boards under the guidance of the legislature and executive branches set the standards for pension funding practices. Much of the studies in this literature review presented a general understanding of the effects of the UAPL at the macro level. The current research focused on the micro level looking at the impact of the UAPL on cities in relation to only one pension board, which was CalPERS.

In Chapter 3, I present the methodology and the reason for choosing a quantitative analysis of the effects of the UAPL at the local level. The chapter includes elaboration on the IAD, as it was used to identify the complex interaction between cities and CalPERS and the increase in the UAPL. The methodology includes a discussion of the data for the population of the target cities in Los Angeles County, sampling procedures, information gathering, ethical considerations, and the operational definition of variables.

Chapter 3: Research Method

Introduction

The problem that I addressed in my study was that cities in Los Angeles County were facing a financial problem with the increase in UAPL. The purpose of this quantitative study was to determine the relationship between the ability to raise revenues and the ability to pay for ARC controlling for household income, general fund per capita revenue, and general fund per capita expenditures. The United States Internal Revenue Service had recently updated the mortality tables reflecting the related age-specific life expectancies, showing that retirees were living longer than ever before (Kilgour, 2016). Kilgour (2016) added that the actuarial calculations in a defined-benefit pension plan were crucial for long-term benefit payments. The ratio between assets to liabilities provided the funded status of the pension plan upon with the sponsor's minimum required contribution is based (Kilgour, 2016). Researchers had examined the effects of the UAPL at the macro level, yet the studies had not provided the necessary analysis at the local level to present a better alternative to city policymakers. Furthermore, researchers had not proposed effective policy alternatives to reduce the weight of the UAPL on city budgets.

Even though state and local governments were seeking alternatives to reform the pension plans with the aim of limiting escalation of UAPL, it was politically difficult to reach an agreement about reducing the UAPL. The increase in the UAPL was due to a number of variables ranging from a discount rate that was higher advisable, lower funding, lower returns on investments, the composition of the pension board, and the role

of the legislature, making it challenging to enforce the UAPL reduction plans provided by the pension administrator (Bunch, 2010; Peng, 2018). The composition of the governance board at CalPERS had influenced the performance of the pension system since board members were selected from pension beneficiaries and elected members of the state executive branch and the legislature (Dove et al., 2018).

In this chapter, the research design is described, as well as the rationale for its use. The research plan includes the methodology, study participants, procedures, analysis method, and consideration of threats to internal and external validity, as well as ethical concerns. The nature of the study was quantitative because it measured the ability of cities to pay for the ARC without affecting the delivery of public services.

Research Question and Hypothesis

The purpose of this quantitative study was to determine the relationship between the city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and covered payroll and the ability to pay for the UAPL controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

The following research questions and hypothesis guided this study:

RQ: Did city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and covered payroll (IVs) significantly contribute to the percentage change in R^2 variance of UAPL (DV) when controlling for household income, general fund per capita revenue, and general fund per capita expenditures?

H_O: The city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and covered payroll (IVs) did not significantly contribute to the percentage change in R^2 controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

H_1: The city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and covered payroll (IVs) significantly contributed to the percentage change in R^2 controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

Research Design and Rationale

Because cities in Los Angeles County operate under different models of authority, the affordability of pension benefits also varies. The ability to raise revenues would depend on the demographic distribution of the city and its revenue structure (Malm & Kant, 2013; Institute for Local Government, 2016). For instance, a city with a vibrant nightlife would have an advantage in raising revenues from commercial establishments, compared to a suburban city that relies entirely on raising revenues through property taxation.

Variables

The complexity of the pension retirement system involved a variety of independent and one dependent variable that influenced the ability of the cities to pay for the UAPL. The independent variables consisted of the cities' constitution classification, general fund expenditures, general fund revenues, covered payroll, and available reserves (Cafarelli, 2015; Gorina, 2018; Munnell, Aubry, & Cafarelli, 2015; Ring, 2014). The

independent variables were categorical variables at the nominal level and independent except the city classification constitution, which is nominal. The dependent variable consisted of the amount of UAPL a city had accumulated due to unpaid pension benefits or changes in the valuation methods (Gorina, 2018; Munnell, Aubry, & Cafarelli, 2015; Munnell, Aubry, Hurwitz, & Cafarelli, 2014; Thom & Randazzo, 2015). The amount of ARC a city contributed towards the UAPL represented the actual contribution determined by the state and local laws, so the ARC did not necessarily meet the demand from the pension administrator (Kass, Reynolds, Kowalski, & Smith, 2017). Thom and Randazzo (2015) and Matkin et al. (2019) said that the political culture or institutional factors in each state represented independent variables, including the likelihood that a state's constitution may grant pension protection guarantees to public sector employees.

The interrelationship among each variable will affect the size of the UAPL and the ability of cities in Los Angeles County to pay for the ARC, as well as to provide essential public services. The covariates or control variables were defined as household income, general fund per capita revenue, and general fund per capita expenditures because the UAPL burden would depend on the wealth of each city and the ability to raise revenues (Gorina, 2018). Therefore, the information for this study consisted of public information from fiscal year 2014 to fiscal year 2018.

Research Design

This study required a quantitative, non-experimental, posttest only research design using secondary data analysis to determine the impact of the ARC among cities in Los Angeles County as members of CalPERS. Quantitative research was a means for

testing various theories by examining the relationship among variables (Creswell, 2009). Quantitative analysis helped to explain social phenomena using numerical values employing statistical methods as a means of determining whether the theory explained the problem (Yilmaz, 2013).

The method statistical analysis used in seeking to answer if the ARC would affect a city's ability to pay was MLR. An MLR had two or more predictors allowing for a more detailed investigation (Hansen, 2019). The MLR was a system of regression equations used for instrumental variable estimation, vector autoregression, and demand systems (Hansen, 2019). In an MLR model, it was common to treat observations as independent across observations but correlates across variables (Hansen, 2019). Thus, the ARC would be determined by two or more explanatory variables such general fund revenues, a ratio of expenditure to general fund, socioeconomic variables that could be a ratio of revenues to city's population, expenditures to population, and other unobservable factors contained in μ (Wooldridge, 2013). CalPERS determined the ARC for each city depending on the retirement service contract for retirement services and the actuarily inputs (CalPERS, 2019). The focus of my research study was the ability of the cities to pay for the UAPL since the higher the UAPL the higher the ARC given the discount rate or the amortization period (CalPERS, 2019).

The pension funding was in direct proportion to the amount of time the city government had contributed to the pension plan and the actuarial methods used to estimate the pension benefits (Gorina, 2018; Thom & Randazzo, 2015; Munnell et al., 2008). The characteristics of the institution would affect the relationship between the

level of contributions and the level of professionalism in the legislature (Thom & Randazzo, 2015). Through this study, I sought to determine the effect of UAPL on the city's ability to provide for public services as well as the probability of being categorized as a problem city in relation to payment for the UAPL.

The MLR provided a better response to ceteris paribus analysis by allowing the researcher to control for factors that would simultaneously affect the dependent variable (Wooldridge, 2013). The analysis process was important since it helped to evaluate policy effects when relying on non-experimental data (Wooldridge, 2013). The MLR accommodated different explanatory variables that may be correlated to a limited degree, so the researcher could infer correlation in cases where simple regression analysis may be misleading (Wooldridge, 2013). The MLR allowed consideration of more factors that would help to explain the DV and explain the greater variation in the DV (Wooldridge, 2013).

Studies by Gorina (2018) and Matkin et al. (2018) described the dependent variable as the total UAPL per capita in a city, which was calculated as the total UAPL of a city divided by the population. Furthermore, the per capita unfunded liability was presented in dollars, so it could be aggregated across plans to offer a better estimate of the total UAPL (Gorina, 2018). Matkin et al. (2019) said that a crucial consideration in the UAPL was the benefits policy since changes to the benefits would translate into increases or decreases in the UAPL as well as the ARC.

Because the UAPL and the variables that affect could vary from one year to the next, depending on economic conditions and valuation methods used to determine the

ARC, the design was nonexperimental hence the lack of control group or groups to compare the results. A weakness with a nonexperimental design was that potential independent variables may be correlated or cofounded with other independent variables, and it may be challenging to identify if variables have a causal impact on the dependent variables (Warner, 2013). The nonexperimental design did not consider control groups or randomness, and while it did not provide control for threats to internal validity, yet the model did have some degree of external validity (Frankfort-Nachmias & Leon-Guerrero, 2015; O'Sullivan, et al., 2017).

The study of the UAPL faced a time constraint related to the two-year lag contribution toward the retirement benefit as well as the vesting period during which an employee must wait before qualifying to receive retirement benefits (Mitchel & Hustead, 2001). The constraints benefited the contributor since high employee turnover within the first 5 years reduces the contribution obligation a local government must pay. However, city governments paid the ARC with current revenues based on the two-year lag (Mitchel & Hustead, 2001).

Because the UAPL had become a policy problem of concern for local governments, so it was essential to focus on the tools local officials and city management had available to make decisions regarding UAPL. My quantitative study might help to determine which policy choice in the current arena a local government should follow. Researchers had focused on the effect of the UAPL at the macro level, but there was the need for studies focusing more at the city level with specific pension providers since the consequences may be different at the city level versus the impact at the macro-level

(Gorina, 2018; Gouveia, 2017). Brown, Clark, and Rauh (2011) said that it was more difficult to solve the funding problem facing state and local governments. This study fills the gap in the literature by increasing the understanding of the effects of the UAPL at the city level, and the complicated institutional relationship between local governments, state legislature, and the pension administrator to pay for the ARC.

Methodology

Population

The population for this study consisted of the 35 CalPERS member cities in Los Angeles County participating in the California Employee Retirement Benefit Trust (CERBT). The CalPERS member cities were of two types, which may contribute to the increase in UAPL. The cities were classified as either General Law cities or Charter cities (Los Angeles County, 2019). There were fundamental differences between the decision-making process in the two types of cities (League of California Cities, 2019). A Charter city could accommodate any structure of government, including government by a strong mayor, or by a city manager (League of California Cities, 2019).

A Charter city has more flexibility for governance and may establish procedures to approve ordinances or resolutions with greater flexibility than a general law city (League of California Cities, 2019). A general law city is less flexible since it must follow more strict rules to pass ordinances or regulations unless they were considered urgent in nature (League of California Cities, 2019). Therefore, there may be delays in the adoption of resolutions or ordinances to address the UAPL effectively.

Sample size. Cities in Los Angeles County must be members of CalPERS and participants in the California Employee Benefit Trust Fund (CERBT) in order to be eligible for inclusion in the study sample. Not all the 88 cities in the Los Angeles County are members of CalPERS, and not all CalPERS member cities participated in the CERBT. Among the participating cities in CalPERS and the CERBT, there was at least one city that was non-comparable to the other cities; therefore, it was excluded. The number of cities was applied to get a 95% confidence interval, showing that at least 31 cities were required for the sample (O'Sullivan et al., 2017; Raosoft, 2004). However, I include all 35 cities that are CalPERS members and participate in the CERBT.

Data Collection

Secondary data was used to analyze the problem of the ability of cities in Los Angeles County to pay for the UAPL. Sources of the data included cities' Comprehensive Financial Reports (CAFR), the United States Census Bureau, CalPERS, League of California Cities, the Center for Retirement Research at Boston College (CRR), and the National Association of State Retirement Association (NASRA).

CalPERS provided public information regarding discount rate, rate of return, ARC, and contribution rates for each member agency. O'Sullivan et al. (2017) said that organizations collected and stored data for different purposes, so there was much needed secondary information to create a sound study of the state of the UAPL in each member of CalPERS. The availability of secondary information made viable the present study since collecting and organizing the data could prove extremely challenging otherwise. O'Sullivan et al. (2017) said that the use of secondary data reduces the cost for a

researcher to obtain the needed information. In addition, O'Sullivan et al. (2017) noted that without the existence of secondary data, many studies might not be feasible to conduct. The availability of secondary information provides an opportunity for researchers and the public to scrutinize the results, so the findings could be refuted, refined, or accepted (O'Sullivan et al., 2017).

The advantage of studying UAPL was that cities must publish a CAFR at the end of the year, and the CAFR was a document certified by an independent Certified Public Accountant (CPA). The information reflected in the CAFR was reliable and updated from the prior fiscal year. Thus, the secondary data was a necessary component for open science, and it allowed the public and researchers to scrutinize the financial statements of a city (O'Sullivan et al., 2017). All cities are required to produce a CAFR under guidance from the GASB board so that the information would provide the current condition of the UAPL. Since the CAFR must follow GASB 67 and 68, the financial statements would reflect the state of the UAPL.

All cities must comply with the requirement to maintain a balanced budget (Kilgour, 2014; Thom & Randazzo, 2015), so the challenge for cities was to create a budget that provides for public services and pays for the UAPL. The role of CalPERS as the enforcer of the commitments for pension benefits was supported by the police powers granted to it by the legislature (Thom & Randazzo, 2015). CalPERS may impose financial penalties on cities that fail to meet the ARC, and for a city, it may be difficult to stop being a CalPERS member. Cities must consider all the possible adverse effects before deciding not to contribute to or withdraw from membership in CalPERS.

The retirement benefits were promises from cities to public servants via CalPERS administration, providing a secure stream of income retirement based on a retirement formula. Since CalPERS permits a two-year lag in calculating the respective ARC, financial information for the last five publicly available fiscal years were used to create an overview of the development in the increase of the UAPL concerning the growth of revenues for the different cities in Los Angeles County. The variables came from the CAFRs of each city as well as from the pension administrator or CalPERS since the information was publicly available.

Operational Variables

My study intended to examine all variables related to the ability of cities to pay for the ARC without affecting their ability to provide for other public services. The various variables provided a clear understanding of the fiscal sustainability of each city to pay for the ARC as mandated by the pension administrator or CalPERS. The relevant variables were: (a) city constitution classification, general fund expenditures, general fund revenues, covered payroll, interest paid on current UAPL, and the available reserves; (b) household income, general fund per capita revenue, and general fund per capita expenditures control variables; (c) outstanding UAPL, the contribution percent demanded by CalPERS per year. The variables were measure continuous variables expressed in dollar terms except city constitution classification, which is nominal, so the study plan was to compute ratios to avoid big fluctuations in the measurements.

Independent Variables

There was more than one independent variable in my proposed study to determine whether a city can pay for the ARC. The current policy required for each city to contribute the ARC annually; otherwise, cities may be penalized for not contributing the required amount to pay for the normal costs and the UAPL. The variables came from the CAFRs of each city as well as for the pension administrator or CalPERS since the information was publicly available. The time frame of the study extended from FY2013-14 to FY2017-18 since the most recent public information available was for the fiscal year ending on June 30, 2018.

The independent variables were defined as the city constitution classification, general fund expenditures, general fund revenues, covered payroll, and available reserves as continues scale measurement. I analyzed the impact of the independent variable in the ability of cities to make the ARC contribution without affecting other public services. The greater the UAPL, the greater the adverse budgetary impact on a city that must still fund essential public services.

Control Variable

The control variables were household income, general fund per capita revenue, and general fund per capita expenditures since the greater the reported income per household, the more tax revenue a city may be eligible to collect, so the city may be better able to pay for the ARC in the long-term.

Dependent Variable

The dependent variable for my study was defined as the UAPL in any given year. The ARC represented the contribution amount determined by the state and local laws, so it may not necessarily meet the demand contribution form the pension administrator. All cities in Los Angeles County are required by contract to contribute the ARC but may contribute according to the availability of general funds.

The state constitution limits the ability of cities to levy taxes, and cities may have to create new methods to raise revenues to pay for essential city services as well as contributing to public pension funds. The ARC calculation depended on different valuation methods, and an important component of the valuation was the discount rate. Each city was responsible for calculating the present value of the UAPL as required by the Governmental Standard Board (GASB) since fiscal year 2015.

Data Analysis Plan

This section includes an explanation of the plan for data analysis. Data was organized in Microsoft Excel and then transferred to IBM SPSS version 25 for analysis. Analyses was performed using MLR with more than one independent variable affecting the outcome (Hansen, 2019; O'Sullivan et al., 2017; Wooldridge, 2013). The advantage of the MLR analysis was the capacity for evaluation of difference in patterns of means for different outcomes variables (Hansen, 2019; Wooldridge, 2013). Wooldridge (2013) explained that the focus of the researcher in the *F* tests to identify which groups differ significantly from one another.

The general linear model was the basis for MLR in the SPSS system (Warner, 2013; Wooldridge, 2013). The MLR allowed the researcher to include multiple predictors as well as numerous outcome variables in the analysis, so the relationship among quantitative variables was linear (Warner, 2013). The advantage of the procedure was that the analysis was linear, and regression methods can be applied to the current study (Warner, 2013). There were several assumptions about the nature of the data when using MLR analysis, including multivariate normality, equal covariances matrices across groups, and uncorrelated model errors (Finch, 2016). The standard hypothesis tests under the MLR assumption relied on considerations with the data, including multivariate normality, equal group covariance, and independence of the model of errors (Finch, 2016). If the assumptions were violated, then the standard MLR would yield an inflated Type I error rate diminishing the statistical power for detecting differences (Finch, 2016).

Threats to Validity

The goal of my research was to let the data demonstrate the ability of cities to pay for the UAPL and provide for public services. Threats to validity were essential aspects of the interaction among variables to reflect concise and clear conclusions.

Internal Validity

Internal validity indicates that specific independent variable, such as policy or action, can cause a change in an observed dependent variable (Gao & Wu, 2019; O'Sullivan et al., 2017). Furthermore, Warner (2013) mentioned that a study that satisfies the conditions for causality is said to have internal validity. Therefore, internal validity

suggested whether the variables in the research behave as the research suggests, or it provided an alternative explanation to the variations in the relationship.

A threat to internal validity is history, and it arises when events or policies other than the independent variable cannot be ruled out as a source of changes in the dependent variable (O'Sullivan et al., 2017). The events or policies occur outside of the study and at the same time as the independent variable (O'Sullivan et al., 2017). A second problem is a selection where the lack of randomization where the group of cases in the independent variable condition could be systematically different from the comparison cases (O'Sullivan et al., 2017). Other threats to internal validity involve maturation, statistical regression since social problem show similar patterns, experimental mortality, testing effects happens when initial measurement changes the value of the dependent variable, instrumentation, and design contamination (O'Sullivan et al., 2017).

A way to control for internal validity to ensure the quality of information. The data for my study came from CAFRs, which are certified by an independent CPA auditor. Dunbar-Jacob (2019) referred to history of the information as a threat to internal validity since it related to external events that happen during the study. Since I used secondary information from financial statements that have been audited there are minimal threats for changes in the information.

External Validity

External validity refers to the ability to generalize the findings to a group beyond the initial group involved in the study (O'Sullivan et al., 2017; Warner, 2013). These data will pertain to all the participating agencies in Los Angeles County contracting retirement

services with CalPERS to minimize all threats to validity. Thus, I focused on the cities of Los Angeles County as members of CalPERS as the pension administrator, and the use of the IAD to frame the policy decision-making may help other local government to adopt better policies after a more focus analysis of the UAPL. The problem to external validity rests upon the unique features of the study subject, the effects of selection, the effects of setting, history, testing, reactive effects and a combination of the prior mentioned problems (O'Sullivan et al., 2017).

It is important to note that the strength of internal or external validity will depend on the nature of the study rather than the type of statistical analysis applied to the data (Warner, 2013). Therefore, the challenge of the researcher was to let the data tell the story that could be generalized to other local governments facing similar challenges (O'Sullivan et al., 2017; Warner, 2013).

Ethical Procedures

My study conformed to the ethical requirements of Walden University. The study commenced after obtaining approval of the Institutional Review Board so that collection of data began. The use of secondary information poses little risk to human subjects, so all collection of data was done in accordance with Walden IRB approval number 03-27-20-0520721. Because all data was obtained from public sources it was not necessary to obtain consent to access the data. The advantage of using secondary information was that no human subjects to minimize the intrusion component of the study. All information will be stored in a password-protected folder for the next five years after completing the study, and then it will be deleted from all storage units according to the retention policy

of Walden University. The data will be erased using BitLocker for Windows software program that encrypts and overwrites stored data.

Summary and Conclusions

In this chapter, I presented the methodology used for my study. The aim of my study was to examine the effects of the UAPL on the ability of cities to continue to provide public services. The design was quantitative design using data about the participating CalPERS cities in Los Angeles County. The independent variables consisted of the city constitution classification, general fund expenditures, general fund revenues, covered payroll, and available reserves.

The dependent variable consisted of the UAPL a city must pay for pension benefits; however, the actual contribution for the UAPL depended on state and local laws. Furthermore, the cities may not meet the UAPL contribution demands of the pension administrator. The data came from different public sources such as city CAFRs, the Center for Retirement Research, U.S. Census, CalPERS reports, the League of California Cities, and NASRA. In Chapter 4, more detail is presented on how the study was conducted.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to determine whether the cities in Los Angeles County would be able to pay for the UAPL, controlling for household income, general fund per capita revenue, and general fund per capita expenditures. The research question for this study was, "Do city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) significantly contribute to the percentage change in R^2 variance of UAPL (DV), when controlling for household income, general fund per capita revenue, and general fund per capita expenditures?" The null hypothesis stated that the city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) do not significantly contribute to the percentage change in R^2 controlling for household income, general fund per capita revenue, and general fund per capita expenditures. The alternative hypothesis was that the city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) significantly contribute to the percentage change in R^2 controlling for household income, general fund per capita revenue, and general fund per capita expenditures.

In this chapter, I describe the data collection process, the target population, and I justify the need to change statistical analysis methodology, the remodeled research questions, the remodeled null hypothesis, and the remodeled alternative hypothesis. I

report the descriptive statistics and findings of the statistical analysis. The chapter concludes with an interpretation summary of the results.

Data Collection

For this study, I collected secondary information from 35 cities located in Los Angeles County that are members of CalPERS and participating in the California Employer's Retiree Benefits Trust (CERBT), CalPERS, and the United States Census Bureau. These data were readily available for the 34 of the 35 cities in Los Angeles County identified in the population. One city was dropped off from the population study since the information was not readily available.

Independent Variables

The group of IVs consisted of the city's constitution classification, revenues to the general fund, expenditures to the general fund, covered payroll, and available reserves. The information collected came from the Comprehensive Financial Reports (CAFR) of each to the 35 cities located in the Los Angeles County (County of Los Angeles, 2019).

Cities in Los Angeles County publish their CAFRs on a fiscal year basis. Hence, the period of the available information corresponded to the period of the Fiscal Year 2013–2014 to the Fiscal Year 2017–2018. The focus of the information collected was the portion of the general fund revenues, expenditures, and the covered payroll. I reached out to the California City League Association to obtain information on whether cities were either full service or contract cities, and information regarding the city constitution was obtained from the Los Angeles County.

The study's preliminary assumptions were that the quantitative variables were normally distributed, so I conducted an initial frequency test to evaluate these data normality assumptions. The frequency distribution output demonstrated data violations for normality assumptions. These data demonstrated right shifted skew and significant kurtosis for general fund revenues, general fund expenditures, covered payroll, per capita revenue, and per capita expenditures (IVs; Warner, 2013). The data frequencies also illustrated significantly influencing outliers like owing to full-service cities with higher population, thus greater general fund revenues, and general fund expenditures. One city reported negative reserves and lower general fund revenues compared to expenses. Based on these frequency distribution assessments, a lack of homogeneity from the selected cities was evident resulting in additional regression assumption violations. The MLR resulted with an $R^2 = .914$ and $p = .000$ confirming a strong multicollinearity in the data.

To address these identified data assumption violations, a data log-transformation was conducted. One city was removed from the testing sample as public information related testing variables were not readily available. Evaluation of log transformed data did not demonstrate improvements in assumption violations; another statistical approach was needed.

The VIF values demonstrated the presence of multicollinearity in five out of the seven IVs. An additional assumption violation was present throughout the IV data; that of multicollinearity (see Table 2).

Table 2

Coefficients

Model		Collinearity statistics	
		Tolerance	VIF
1	5-year Average General Fund Revenue	0.00	230.93
	5-year Average Gen Fund Expenditures	0.00	276.62
	5-year Average Reserves	0.32	3.11
	5-year Average Covered Payroll	0.05	18.47
	5-year Average Median Household Income	0.89	1.12
	5-year Average Per Capita Revenue	0.01	74.72
	5-year average Per Capita Expenditures	0.01	75.50

Note. Dependent Variable: 5-year Average UAPL.

Further data collinearity analyses showed a strong multicollinearity presence; therefore, the application of MLR was not possible (see Table 3).

Table 3

Collinearity Diagnostics

			Variance proportions							
Model	Eigenvalue	Cond[1] Index	Const[2]	5-year Avrg[3] General Fund Rev[4]	5-year Avrg[3] Gen Fund Exp[5]	5-year Avrg[3] Rsrvs[6]	5-year Avrg[3] Covered Payroll	5-year Avrg[3] Median Household Income	5-year Avrg[3] Per Capita Rev[2]	5-year Avrg[3] Per Capita Exp[5]
1	4.745	1.000	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2	2.031	1.529	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
3	0.908	2.286	0.04	0.00	0.00	0.00	0.01	0.06	0.00	0.00
4	0.198	4.896	0.03	0.00	0.00	0.83	0.01	0.00	0.00	0.00
5	0.078	7.779	0.53	0.00	0.00	0.10	0.05	0.82	0.00	0.00
6	0.032	12.129	0.32	0.02	0.01	0.01	0.61	0.08	0.01	0.01
7	0.006	27.773	0.01	0.00	0.00	0.01	0.14	0.00	0.98	0.97
8	0.001	64.929	0.07	0.98	0.99	0.04	0.18	0.02	0.01	0.02

Dependent Variable: 5-year Average UAPL

Cond[1] = Condition

Const[2] = Constant

Avrg[3] = Average

Rev[4] = Revenues

Exp[5] = Expenditures

Rsrvs[6] = Reserves

To address this assumption, violation cities were recoded into ordinal values based on mean cut points from 0% to 33.33% (small), 33.34% to 66.66% (medium), and 66.67% to 100% (large). This revised classification method allowed additional statistical analysis possibilities.

Upon completion of the city recoding and log transformations, data collinearity was again evaluated city by city. Detail analyses revealed that collinearity was primarily stemming from city's CAFR values. CAFR values represent a city's balance sheet financial health at the end of any given fiscal year. In a city's operational budget general

fund revenues incorporate cash reserves, and general fund expenditures contain covered payroll expenses. This was determined to be a multicollinearity source. Therefore, general fund expenditures as a total amount and cash reserves were removed from analyses as IVs. Furthermore, city's constitution classification was eliminated as an IV as it no longer was believed to be a relevant predictor given the balanced budget mandate from the State of California.

Based on these tested assumptions, I needed recoding, and removal of variables, and the final retained IV for statistical analyses were general fund revenues and covered payroll. These selected two IVs are independent of each other as they reside on different sides of city's operating budget of the balance sheet; general fund revenues classified as assets, and the covered payroll classified as liabilities.

Dependent Variable

The study's DV is the UAPL representing the total outstanding pension benefit a city entrusted CalPERS to pay for retirement benefits. The UAPL was obtained from CalPERS through a public records request for fiscal year 2013-2014 to fiscal year 2017-2018 for each of the 35 cities comprising the study sample (CalPERS, 2019).

When examining descriptive frequencies for UAPL the output demonstrated violations of normality assumptions, in addition to significant skew and kurtosis. To address these data assumption violations a log transformation was conducted with a resulting decrease in assumption violations. A significant issue remained in that cities with higher cover payroll had higher UAPL; hence creating outliers affecting normal distribution. The sampled city's UAPL served as the sole DV; the higher the UAPL the

fewer financial resources available for cities to provide social services with a presumption that the converse was equally true.

Covariates

The study's covariates were identified as (a) median household income; (b) general fund per capita revenues, and (c) general fund per capita expenditures. The preliminary analyses of these data demonstrated the persistence of collinearity, skewness, and positive kurtosis (see Tables 2 and 3). To address the assumption violations data were recoded into the previously described three main groups and correlations were computed to assess for collinearity between the covariates and UAPL. After further covariate analysis it was concluded their predictive role in the DV outcome may not be linear and the covariates could not be conclusively argued to contribute to city revenues (League of California Cities, 2014). For example, people may choose to rent a house rather than purchase, may save a greater proportion of their income rather than spend, may live considerably below their means, and may consume taxable goods and services in cities different from their residential area thus diminishing a local economy's computed contribution base and artificially inflating another.

Statistical Method Modification

Given the described data assumption violations, the MLR analysis was determined to no longer be an appropriate statistical approach. This presented an opportunity to reassess my statistical analysis approach using a remodeled research question and testable hypotheses. The chosen statistical method was Factorial ANOVA using recoded data and shifting focus to examine differences between group means rather

than prediction was selected. Factorial ANOVA focuses specifically on how multiple influencing factors affect an outcome variable through examination of separate effects of two independent variables on the outcome (Abbott, 2016). Factorial ANOVA provides an interaction effect analysis, where an interaction is present, when the relationship between a predictor and outcome variable changes at differing levels between predictors (Abbott, 2016).

The remodeled research question and hypothesis were:

RQ_1: Is there a significant difference in the UAPL (DV) based on general funds revenues, and covered payroll contributions required by CalPERS (IVs).

H_O: There is no significant difference in the UAPL based on general funds revenues, and covered payroll contributions required by CalPERS.

H_1: There is a significant difference in the UAPL based on general funds revenues and covered payroll contributions required by CalPERS.

RQ_2: Is there a significant interaction effect between the general fund revenues and covered payroll contribution required by CalPERS on UAPL.

H_O: There is no significant interaction effect between the general fund revenue and covered payroll contribution required by CalPERS on UAPL.

H_1: There is a significant interaction effect between the general fund revenues and covered payroll contribution required by CalPERS on UAPL.

Results

I tested the research questions using Factorial ANOVA, applying the generalized linear model (GLM) procedure. Similar to regression modeling, factorial ANOVA

requires assumptions of normality, homoscedasticity, and no multicollinearity (Mendes & Yigit, 2013); however, factorial ANOVA is fairly robust to assumption violations of normality and homogeneity of variance (Warner, 2013). Mendes and Yigit (2013) offered that information transformation was recommended as an alternative when the normality assumption is not met. Since continuous violations of normality assumptions remained, factorial ANOVA was selected as a better alternative for data analyses. Factorial ANOVA requires a continuous level DV and categorical level IVs, all of which remain in my usable data set.

Factorial ANOVA Results

Factorial ANOVA was performed to determine the significance of differences of means; however, Levene's test indicated that the assumption of homogeneity has been met with significant $p > .05$ (see Table 4)

Table 4

Levene's Test of Equality of Error Variances

		Levene Statistic	df1	df2	Sig.
log_UAPL	Based on Mean	1.02	4	27	0.42
	Based on Median	0.88	4	27	0.49
	Based on Median and with adjusted df	0.88	4	17.68	0.50
	Based on trimmed mean	1.02	4	27	0.42

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
Dependent variable: log_UAPL
Design: Intercept + GFRev + CovPayRoll + GFRev * CovPayRoll
Values greater than two decimal point were rounding using standard rounding convention.

Factorial ANOVA revealed that the main-effects-only suggested the independent effects of each variable in the UAPL. The results demonstrated that the general fund revenues do not have a significant effect in the UAPL, $F(2, 34) = 3.24$, $p = .56$, and $\eta_p^2 = .192$. On the other hand, the covered payroll had a significant effect in the UAPL, $F(2, 34) = 4.401$, $p = .022$, and $\eta_p^2 = .246$ (Table 5). Therefore, I rejected the null hypothesis in favor of the alternative hypothesis. There was no significant effect of the general fund revenues over the UAPL. However, there was a significant effect of the covered payroll over the UAPL.

Table 5

Tests of Between-Subjects Effects

Dependent Variable:

Source	Type III Sum of Squares	df	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	11.21	6	1.87	11.06	0.00	0.71	66.36	1.00
Intercept	1001.99	1	1001.99	5930.01	0.00	1.00	5930.01	1.00
GFRev	1.09	2	0.54	3.21	0.06	0.19	6.43	0.57
CovPayRoll	1.49	2	0.74	4.40	0.02	0.25	8.80	0.71
GFRev * CovPayRoll	0.15	2	0.07	0.44	0.65	0.03	0.87	0.11
Error	4.56	27	0.17					
Total	1919.07	34						
Corrected Total	15.78	33						

a. R^2 = .711 (Adjusted R^2 = .647)

b. Computed using alpha = .05

Values greater than two decimal point were rounding using standard rounding convention.

Removing the general fund revenue outliers from the data may have provided a different impact on the UAPL. The outliers may have contributed to the information be positively skewed, and two cities did not report covered payroll for any of the five-year periods in consideration.

Summary

The study's research question initially considered whether city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) significantly contribute to the percentage change in R^2 variance of UAPL (DV) when controlling for household income, general fund per capita revenue, and general fund per capita expenditures. However, normality tests reflected that the data violated all assumptions for multiple linear regression analysis. These data were recoded to address the presence of

collinearity and multiple assumption violations. In the final statistical analyses general fund revenues and covered payroll were retained as IVs to test for a significant effect on UAPL using a factorial ANOVA approach.

Using factorial ANOVA, the general fund revenues did not have a significant interaction with the UAPL. However, the covered payroll had a significant interaction with the UAPL amount in all the sample cities. Chapter 5 provides an interpretation of my study's findings and how these results contribute to the literature gap of the effects of the UAPL on city budgets. I include a discussion of study limitations, provide recommendations for further research, and describe the implications for positive social change.

Chapter 5: Discussion

Introduction

The economic collapse of 2008 contributed to an increase in the UAPL of the public sector bringing the solvency, sustainability, and viability of the defined benefit pension plan into question (Gorina, 2018). As such, the growth in UAPL has had a direct impact on state and local governments' fiscal sustainability goals (Elder &Wagner, 2016; Kilgour, 2014; Matkin et al., 2016; Wang & Peng, 2018). The increase in the UAPL has been a consequence of a combination of circumstances ranging from underfunding the pension obligation to changes in the accounting reporting principles (Bagchi, 2019; Kilgour, 2014; Peng, 2004; Shnitser, 2015, Stein, 1989; Thom & Randazzo, 2015). The increase in the UAPL may have an adverse impact on city's ability to produce sustainable budgets to maintain an acceptable level of public services (Killian et al., 2016).

The purpose of this quantitative study was to determine the impact of the UAPL on the ability of cities in Los Angeles County to pay for retirement benefits without affecting their ability to provide public services. The current defined benefit pension model is an essential attractive incentive instrument to compete for human talent in the labor market, so the defined benefit model includes the opportunity of higher levels of retirement compensation as the result of backloading (Bauer, 2018). The employees participating in a defined benefit program expect to receive the retirement benefits in the form of an annuity at retirement (Shnitser, 2015; Stein, 1989). Shnitser (2015) affirmed that the responsibility of the pension benefit program management and investment risk falls on the employer; therefore, the employer is responsible for delivering the promised

benefits regardless of the ability to pay. Bagchi (2019) argued that the cost of providing the defined pension benefits represent 10 to 19% higher to the overall compensation cost to the local governments.

The current study filled a gap in the literature concerning UAPL in relation to individual cities by providing a better understanding of how UAPL obligations affect the ability of cities to pay for pension obligations while maintaining financial integrity to provide public services (Killian et al., 2016; Thom & Randazzo, 2015). The current study addressed this literature gap regarding the ability of cities to pay for pension benefits at the local level since residents of each community would demand public services while complying with state fiscal sustainability demands. The UAPL was affected by the complex interaction between several actors, and Ostrom's (2006) IAD framework described the complexity of the interaction in the decision-making process that may affect the organization or public policy.

Using publicly available data from CalPERS, local governments, and the U.S. Census Bureau, I conducted a factorial ANOVA of the data from 34 of the 35 cities located in Los Angeles County. The results showed that the current defined benefit pension plan represents a fiscal sustainability challenge to the cities in Los Angeles County. I hope to an alternative approach to the UAPL dilemma under the current circumstances facing the cities in Los Angeles County. In this chapter, I provide an interpretation of the findings, limitations of the study, recommendations for future research, and the implications for positive social change.

Findings

This study used secondary data from CalPERS, 34 cities in Los Angeles County, and the Census Bureau from the fiscal year 2013–2014 to the fiscal year 2017–2018. During the mid-2000s, local governments provided better benefits to their employees (Kilgour, 2013). The literature review offered some guidance in the process of selecting the different IVs to determine its influence in the DV.

The research question guiding the study was: "Did city constitution classification, types of city services, expenditures to the city's general fund, general funds revenues, and percentage of payroll contribution required by CalPERS (IVs) significantly contributed to the percentage change in R^2 variance of UAPL (DV) when controlling for household income, general fund per capita revenue, and general fund per capita expenditures?"

The challenge with the research question came clear with the data analysis because the data presented multiple assumption violations. The application of the MLR analysis was not feasible, so two remodeled research questions were elaborated.

The first modified research question, "Was there a significant difference in the UAPL (DV) based on general funds revenues, and covered payroll contributions required by CalPERS (IVs)?," was designed to find out whether there was a difference in mean scores of UAPL (DV) based on general funds revenues and covered payroll contributions required by CalPERS (IVs). A statistically significant factorial ANOVA served to reject the null hypothesis of no difference in means (see Tables 4 and 5) in favor of the alternative hypothesis of difference in means. The results revealed that the general fund revenues had little or no influence in the UAPL a city must contribute towards pension

benefits. The second variable, covered payroll, demonstrated it has a direct effect in the UAPL, implying that the increase in corporate payroll would have a negative impact on the UAPL.

The second modified research question, "Was there a significant interaction effect between the general fund revenues and covered payroll contribution required by CalPERS on UAPL?," was meant to identify a significant interaction effect between the general fund revenues and covered payroll contribution required by CalPERS on UAPL. The results confirmed that the general fund revenues did not play a significant role in the variation of UAPL, $F(2, 34) = 3.24$, $p = .56$, and $\eta_p^2 = .192$; however, covered payroll had a statistically significant effect in the UAPL, $F(2, 34) = 4.401$, $p = .022$, and $\eta_p^2 = .246$ (Table 5). The statistically significant effect served to reject the second null hypothesis in favor of the alternative of the significant interaction effect.

The literature review showed that economic activity would have a determinant effect on the UAPL (Munnell et al., 2010). The limitation of local governments to raise revenues via taxation to pay for UAPL and public services was by constitutional design (Munnell et al., 2010; Taylor, 2014). Therefore, the capacity of cities to raise revenue fluctuated with economic conditions and policymaker seeking alternatives to fund city budgets (Gorina, 2018; Thom & Randazzo, 2015). However, one of the most stable revenue resources a city relies on is property tax, so regardless of the economic situation, property taxes do not vary from year-to-year (Kilgour, 2013; Taylor, 2014; & California City Leagues, 2014).

The results of the analysis revealed that covered payroll had a more significant impact in the UAPL, and it had a greater competition for financial resources to pay for the UAPL or provide public services (see Thom & Randazzo, 2015). The results contradict the assumptions of the literature review that economic activity may have a determinant effect in the UAPL. Instead, my research illustrated the amount of covered payroll has a more significant adverse effect on the ability of cities to pay for the UAPL.

The ability of cities to pay for the UAPL has become a policy issue since it harms the financial health of the local government when not properly planned (Elder & Wagner, 2016; Kilgour, 2014; Matkin et al., 2016; Wang & Peng, 2018). I provided evidence in my research to point out the effect in the increase in the UAPL was due to the rapid rise in covered payroll, it was essential to understand the role of the different parties involved in a public contract negotiation. Ostrom (2006) explained that the IAD would help to explain the behavior that different actors pursue during the decision-making process. The increased in the UAPL was a means of contract negotiations among different actors within the local government, and it would involve the pension administrator who would provide the new pension liability. The process became an institutional arrangement involving a sequence of events culminating with an aggregated individual effort to improve current salaries, and it may affect the current UAPL (see Ostrom, 2006; Schlager, & Cox, 2014).

The delicate interrelationship in the process between different actors about decisions on how the increase in covered payroll will impact the UAPL, so the IAD provides the opportunity to focus on a problem-solving orientation to seek alternatives to

the current defined benefit pension model (Schlager, & Cox, 2014). Figure 1 provides an overview of the complexity of the institutional arrangements and interactions between actors and the increase in the UAPL. The promises offered to public employees require an opportunity to explore current institutional arrangements among the different actors involved in the increase of the UAPL (see Ostrom, 2006).

Limitations of the Study

The limitations of this quantitative study were described in Chapter 1, and other limitations are described throughout this chapter. As a researcher, the results should have no identifiable voice in the process of data collection and analysis. I have maintained employment in a governmental position in California for the past 15 years, specifically in the revenue department of a city in Los Angeles County. Even though I have general knowledge of city revenues, the responsibility in determining the amount of financial resources set aside to pay for the UAPL is the responsibility of the City Council and the City Management Team. Additionally, I had a vested role in this research, as I am an active member of a union organization seeking to improve and protect coworkers working conditions by negotiating the best possible MOU focusing on benefits and salaries.

As in any statistical research, there are limitations to both design and methodology. Henceforth, this study was limited in nature and by the available data set. The study used secondary information collected from 35 cities in Los Angeles County, participating in the CERBT and members of CalPERS, from the Census Bureau, and CalPERS via the public records request. The study was focused on exploring if the cities

in Los Angeles County would be able to pay for the UAPL (DV) yet be able to provide for social services. This study was limited to a comparison of the UAPL between groups. Previous research has studied the effects of the UAPL on the pension system (Bagchi, 2019; Gorina 2018; Kilgour, 2013; Thom & Randazzo, 2015) rather than the challenges the UAPL will present at the individual cities.

The selection of IVs tried to measure the financial health of each city to pay for the UAPL. The IVs came from CAFRs of the sample population, which were audited by an independent third party per the state of California. The UAPL (DV) was obtained from CalPERS from all the cities, ensuring the trustworthiness of the information. The study may have benefited from a more extensive data set from more homogenous cities with a similar population, services, revenues, and expenses.

Initially, data appeared to be independent and normally distributed; however, normality tests revealed the contrary. The data, as intended for analysis, reflected high collinearity (see Table 2; Warner, 2013). Due to multiple assumption violations, the data were put through different types of transformations to reduce the effect of multi collinearity. Further data analyses helped to realize the origin of the collinearity. Given that my source data originated from city financial statements, it was discovered that certain IVs I intended to evaluate where derivatives of other anticipated IVs. For instance, a city's reserves were part of the general fund revenues since reserves may be determined to be a certain percentage of the general fund revenues over general fund expenditures. A second example limiting the ability to do MLR was that covered payroll was part of the general fund expenditures; hence, the result was a high degree of

collinearity. Given these unanticipated, yet high degree of IV multicollinearity, a new statistical approach was needed. The final statistical analyses were constructed using IVs of general fund reserves and covered payroll. As reported in Chapter 4, the selection of factorial ANOVA to test for significance of means and significance interaction provided a perspective where covered payroll had a significant impact on the UAPL. Abbot (2016) said that factorial ANOVA provides an interaction effect analysis, where interaction was present when the relationship between a predictor and outcome variable changes at differing levels between predictors.

The theoretical foundation for this study aligned with much of the reviewed literature, so the IAD provided the framework to analyze the interaction among different individual inputs impacting the UAPL. This current study provided an overview of the effects of the increase in UAPL by the complex negotiation during the process of salary negotiations among City Council, City Management team, union representation, and CalPERS (see Figure 1; see Ostrom, 2006). Ring (2014) suggested that local governments may take longer to adapt to economic circumstances. Unions acted to benefit the public employee's salaries, and City Council, along with the management team, improved wages in the mid-2000s without proper financial support (Kilgour, 2013).

Recommendations

For this study, information was collected from 35 cities located In Los Angeles County using their CAFRs, information form CalPERS, and U.S. Census Bureau. The study aimed to examine the ability of municipalities to pay for the UAPL and offer public services. The effect of the UAPL on city budgets may increase at different proportions

with the growth in covered payroll. This aligns with Bagchi (2019) who offered that the public retirement costs were, on average, costlier than in the private sector, and Wang and Peng (2016) shared that the financial performance of the local government brings more attention from the public during economic downturns.

My study findings demonstrated that an increase in covered payroll might have negative consequences on the ability of municipalities to provide for pension payments and public services. The ability of cities to raise revenues did not have a statistical significance in the cities' ability to pay for either program.

The current defined benefit pension model allocates responsibility for program management and investment risk to the employer; the employer is responsible for delivering the promised amounts regardless of its ability to do so (Shnitser, 2015). In contrast, private sector retirements plans need to provide protections for participants in such plans, including adherence to standards of minimum investment risk (U.S. Department of Labor, 2019). My study did not consider the impact of the other pension benefits, given that the employer bears all the risks. The cost of providing pension benefits to the employer may provide an opportunity to changing the pension benefit scheme from a defined benefit to a defined contribution retirement plan, so the local government could minimize their investment risk exposure.

These options may provide policymakers with an opportunity to create more sustainable pension funds since the current pension plans may create more financial stress to cities due to unmet investment returns within the pension plans themselves (Kilgour, 2014; Matkin et al., 2016). NASRA (2019) mentioned that the pension problem was due

to the slow growth in covered payroll; however, my study demonstrated that covered payroll is a significant contributor to the UAPL increase. Therefore, future research may look at the benefits of switching pension schemes from the current defined benefit to a less risky pension system such as a defined contribution plan. Future studies could examine the ability of cities to pay for UAPL and provide for public services simultaneously while transitioning to new pension plan programs.

Implications

This study contributes to a growing body of literature that offers insight into city balance sheets in relation to their obligations and consequences of the ever-increasing UAPL. Local government policymakers may benefit from my study findings through obtaining new information related to relationships found with increased future salaries and benefits, promotions, and the perils of future organizational restructuring that lacks proper financial support (see Killian et al., 2016; Thom & Randazzo, 2015). The public policymaker could reconsider its role in the process of organizational restructuring and salary modifications, and it may have a more science-based approach to the impact of the UAPL increase in the fiscal sustainability or the local community (see Chen & Matkin, 2017).

The public policymaker may redefine the delicate interrelationship with a city management team, union organizations, and the pension administrator to create a new institutional arrangement to minimize the increase of the UAPL in line with IAD constructs (see Schlager, & Cox, 2014).

Previous pension plan research had focused on areas such as the discount rate (Andonov et al., 2017) as the main factor driving the UAPL either up or down; however, my results illustrated that the pension administrator established the discount rate for all the CalPERS participants. Hence, the discount rate would not be a significant determinant in the fluctuations of the UAPL. The discount rate bears no influence on a cities' ability to pay for the UAPL. Through my study, I was able to provide an alternative option to examine pension benefits and the effects of the covered payroll on the ability to pay for pension benefits or affordability to offer public service sustainably.

A challenging encounter during my data collection was the realization that a few cities did not have their financial information readily available, or there was incomplete information available. Consequently, one city from my sample was dropped as no CAFRs data were published in the study's bounded timeframe. The second challenge materialized within the data itself as some of the variables were embedded within multiple balance sheet figures creating high collinearity and multiple assumption violations. The final analysis consisted of applying factorial ANOVA, and the IVs of general fund revenues and covered payroll to measure the effects on the UAPL.

The overall study objective was to create positive social change by providing different actors, in line with Ostrom's IAD framework, a different approach to examine how the UAPL may have an impact on a city's budgetary fiscal sustainability in order to sustainably provide for UAPL and public services simultaneously. I provided evidence-based research alternatives to the existing body of knowledge on pension benefits. Chen and Matkin (2017) opined that pension benefits may be guaranteed by property values,

however not always in a positive light. A high UAPL may have a negative impact on property values forcing policymakers may seek alternatives to improve the ratio of revenues to liabilities. Property values, therefore, may exhibit an inverse relationship within the fiscal health of a local government when trying to fund public services and pay for the UAPL (see Coleman, 2014; Institute for Local Government, 2016).

Finally, I have offered an alternative approach to the problem of pension benefits by providing evidence that a more conservative approach to public pension benefits may provide a more fiscally sustainable option to the issue of the growing UAPL. Through the information provided with my study findings, public policymakers, local city governments specifically, may have a better understanding of the role that currently instituted defined benefit pension systems have on UAPL funding and the need to be more fiscally conservative when negotiating new pension benefits going forward.

Conclusion

Kilgour (2013) found ever-increasing evidence that UAPL has become an important political issue since the 2008 economic crisis as evidenced by UAPL potentially push cities into bankruptcy. Given that UAPL payment directly compete with other public services for funding (Killian et al., 2016), the increase in UAPL has had a negative impact on the fiscal sustainability of cities in the Los Angeles County and throughout California (Elder & Wagner, 2016; Kilgour, 2014; Matkin et al., 2016; Wang & Peng, 2018). These recent studies have focused on the impact of the discount rate being the main factor in UAPL increases. However, the more significant factor in a

UAPL funding problem appears to be a city's covered payroll expenses given the positive association of higher payroll resulting in higher UAPL funding amounts.

The implications of UAPL revealed the complicated relationship between different institutions within an organization. Ostrom's et al. (2014) IAD framework provided the tools to explain the decision-making process regarding contract and benefit negotiations. My study provided evidence that covered payroll significantly increased the UAPL funding problem and the ability to raise revenues had no statistical significance in relation to UAPL challenges. Public policymakers should consider a new approach to salary and benefits negotiation to minimize the impact of further salary increases in the UAPL. My study also provided an overall view of the possible consequences of a higher UAPL in the value of the real estate, and the probable consequences of a lower return from property tax revenue. Public policymakers may choose a fiscally sustainable policy regarding salaries and pension benefits to ensure the UAPL did not have an adverse effect on the real estate values, however further study is needed. Finally, my study offered an alternative to consider rather than relying solely on defined benefit pension plans and public policymakers may need to consider switching to a less restrictive pension model, such as a defined contribution model in order to achieve a sustainable funding future considering other city budget challenges. This change in pension funding may reduce an employer's investment risk through shared employee risk transfers offered by other pension fund models.

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