

# How Do College Employees Select between Defined Benefit and Defined Contribution Retirement Plans?

Robert K. Toutkoushian,  
University of Georgia

Paula Sanford,  
University of Georgia

Karley A. Riffe,  
University of Georgia

Erik C. Ness,  
University of Georgia

## Introduction

Policymakers have long been interested in the level and manner by which workers are compensated. Money is a tool used by all types of organizations to attract and retain employees. In addition to salary, employees usually receive other forms of compensation such as in-kind payments for medical and dental benefits and deferred compensation through retirement benefits. These non-salary components of compensation can be substantial, totaling half or more of the total financial benefits that a person receives during their lifetime from working. As a result, these non-salary benefits can potentially influence a wide range of labor market decisions of workers.

The focus of this study is on retirement benefits. Retirement plans are classified as either a defined benefit (DB) or a defined contribution (DC) plan.<sup>1</sup> In a defined benefit plan, an employee receives income payments in retirement that are determined by a formula based on their salary and years of service. The payments last for the life of the worker (and perhaps spouse), and the sponsor assumes the risk for funding these payments. In contrast, an employee's income in retirement through a defined contribution plan is not formula driven, but rather it is an accumulation determined by the cumulative contributions made into a retirement account and the investment returns earned. The employee often bears some responsibility for how the funds are invested and incurs the risk of ensuring that they have enough money to live in retirement.

<sup>1</sup> More recently, some providers have begun to offer hybrid plans that combine aspects of a DB and DC plan (Goldhaber & Grout, 2016).

Robert Toutkoushian and Erik Ness are faculty members in the Institute of Higher Education at the University of Georgia. Karley Riffe is a doctoral candidate in the Institute of Higher Education. Paula Sanford is a public service associate in the Carl Vinson Institute of Government at the University of Georgia. We would like to thank Angela Bell and the Office of Research, Policy and Analysis at the University System of Georgia for providing access to the quantitative data used in this study. This research received grant funding from the TIAA Institute.

Any opinions expressed herein are those of the authors, and do not necessarily represent the views of TIAA, the TIAA Institute or any other organization with which the authors are affiliated.

For several reasons, much of public higher education is different from other sectors of the economy with regard to how they fund and operate their retirement plans. First, in many instances, participation in retirement plans is mandatory for college employees (i.e., faculty and staff). Second, it is often the case that academic employees are not only required to take part in an employer-sponsored retirement plan, they must also contribute a certain amount of their salary to do so (for example, see Crane, Heller & Yakoboski, 2009). Finally, roughly half of public colleges and universities give their employees the option at the time of hire between a DB and DC plan as their primary plan type (Brown & Weisbenner, 2014; Clark, Hanson & Mitchell, 2016), and they must choose one or the other. This decision can have significant implications for a person's retirement income, where they work and how long they work.

Retirement benefits for faculty and other academic employees are an important but relatively understudied topic in postsecondary education. For many reasons, planning for retirement can often be a challenging exercise for workers regardless of the industry (Costrell & Podgursky, 2009; Keim & Mitchell, 2015; Lushak & Gunderson, 2000). People do not know at the time of hire how long they will live, making it difficult to accurately estimate how much money they will need to ensure a financially comfortable retirement. Workers may have to decide how to allocate retirement contributions among multiple investment options which have uncertain payoffs. Retirement planning may also depend on a person's career trajectory, i.e., the number of jobs they will hold and the duration of each. Finally, the choice among retirement plans can be confusing due to the many details involved in how they impact a worker's retirement finances.

The goal of this research project is to examine how college employees make the decision between a defined benefit and a defined contribution plan. This study reports on the results from a mixed methods examination of how faculty and staff in the University System of Georgia (USG) made the decision between the system's defined benefit retirement plan (known as the Teachers Retirement System or TRS) and its defined

contribution retirement plan (known as the Optional Retirement Plan or ORP). The USG is a useful setting for this study because both faculty and other benefits-eligible employees are given the choice between a defined benefit and defined contribution plan at the time of hire, and all benefits-eligible employees are required to take part in one of these two plans and make financial contributions to it. Those who do not make an active choice of retirement plan are placed into the TRS by default. In addition, USG is valuable to study because the system itself is fairly large, encompassing 30 institutions and more than 40,000 employees as of 2015, and data are available on all benefits-eligible employees.

The quantitative portion of this study draws on data for the subset of benefits-eligible employees across the USG in 2015-16 who were hired between 2009 and 2015 to examine how personal and work-related characteristics are related to whether individuals participated in the USG defined benefit or defined contribution plan. Separate analyses were conducted for tenure-eligible faculty and for other benefits-eligible USG employees. In the qualitative portion of this study, in-depth personal interviews were conducted with 12 recently-hired faculty at the University of Georgia to ascertain how they made the plan type decision.

Understanding why some academic employees choose DB coverage while others choose DC coverage is important for several reasons. The two types of plans differ considerably in their costs and benefits for employees who are mobile and more likely to consider job changes in the future. For example, because DB benefits are frozen at the time someone leaves their plan's sponsoring agency, a DB plan may be less lucrative for those employees who decide to switch employers prior to retirement. Retirement plans may also vary with regard to their vesting requirements, as is the case for the USG. Workers who are enrolled in a retirement plan with a vesting requirement would have a strong financial incentive to stay with the organization at least until vesting has been achieved. DB and DC plans also differ with regard to the risks that are placed on employees and the level of financial knowledge that employees need to manage their retirement income.

Finally, the choice between DB and DC plans is important to sponsoring agencies because, in recent years, many states and sponsors with defined benefit plans for college employees have introduced defined contribution plans as an option or a replacement for their DB plans. As the age distribution of the population in the U.S. has shifted to the right, a number of states and pension sponsors have experienced added difficulty in meeting their DB obligations (Conley, 2008; Dulebohn & Murray, 2007; Goldhaber & Grout, 2016; Gustman & Steinmeier, 1992). In the spring of 2018, for example, the state of Georgia allocated an additional \$600 million to help cover projected payouts in its DB plan. If employers continue to migrate away from DB plans and toward DC plans, this shift may have implications for the types of academic employees who would be positively or negatively impacted by this change.

## Background

It is difficult to learn much about employee preferences for DB and DC plans because in most situations—especially outside of the field of education—the employer only offers one type of plan to its workers, or the DC plan is offered as a supplement to the DB plan. Therefore, one cannot isolate how plan type affects labor market decisions of workers independently of other factors such as salary, medical benefits, type of position and so on. At public colleges and universities, however, it is more common for employees to be given a choice between a DB and DC plan, and they are required to participate. For these employees, the decision is complicated because these plans are different in terms of the risk borne by the employee, the portability of benefits, length of service required for full vesting and the ultimate expected benefit accumulation (Clark & McDermed, 1988; Clark & Pitts, 1999; Chingos & West, 2015). It has been documented that within K-12 education there are significant variations in the details of DB plans sponsored by states (Toutkoushian, Bathon, & McCarthy, 2011). Vesting differences add risk that the worker will not be able to keep all benefits earned if they leave prior to vesting. Chingos and West (2015), for example, show that employees who leave a company prior to full vesting

would gain more from participation in a DC plan than a DB plan. This issue is particularly important for assistant professors who do not have tenure at the time of hire.

## Overview of retirement plans for college employees

Employers can offer workers deferred compensation in the form of either a defined benefit plan, a defined contribution plan or some combination thereof. The advantages to the worker of deferred compensation are that the financial contributions are often (but not always) taxed at a lower rate than salary, and the plan provides a mechanism to help ensure that the employee has sufficient income in retirement. From an economist's perspective, each type of retirement plan for college employees has costs and benefits associated with it. On the cost side, faculty and staff are usually required to contribute a certain amount from each paycheck to participate in the plan. This is different from the typical case for workers in non-education settings where the level of employee contribution is optional with regards to a DC plan. As shown by Toutkoushian, Bathon and McCarty (2011), the mandatory employee contributions for DB plans in the K-12 sector can be as high as 10% of a person's salary. The benefit refers to the amount of money that the employee has at his or her disposal during their years in retirement. The benefits, however, tend to be more difficult than the costs to evaluate.

To examine the financial valuations of these retirement options, consider the case of an employee who is hired at time  $t=1$  and works at the employer until time  $t=W$ . The employee then retires and lives in retirement until time  $t=T$ . In a defined contribution plan, the level of retirement benefits are determined by the contributions of the employee and/or employer over time, and the financial returns (or losses) which in turn will depend on how contributions are invested. Mathematically, the total retirement benefits may be expressed as follows:

$$(1) \quad \textit{Benefit}(DC) = \sum_{t=1}^W \sum_{j=1}^J (C_t + M_t) * a_j * (1 + r_j)^{W-t}$$

where  $C_t$  = employee contribution to the DC plan in year  $t$ ,  $M_t$  = employer contribution to the DC plan for the employee in year  $t$ ,  $a_j$  = percentage of annual contribution invested in the  $j$ -th financial asset (e.g., mutual fund, annuity) out of  $J$  options, and  $r_j$  = percentage gain or loss in the next year on the  $j$ -th asset in year  $t$ .<sup>2</sup> From equation (1), the financial benefits from the DC plan depend on the size of employee and employer contributions, how the contributions are invested, and the length of time that the investments are compounded. The ultimate retirement benefit in a DC plan is not known to the employee at the time of hire. On the cost side, although college employees are usually required to make financial contributions to the DC plan, these are best viewed as “investments” rather than “costs” because employee contributions are returned with interest in retirement.<sup>3</sup>

In a defined benefit retirement plan, a person’s income in retirement is determined by a formula set by the plan sponsor, which in higher education settings is usually the state or university system. The total retirement benefit depends on the annual payout and the length of time that payouts are made. Participants in a defined benefit plan will know their annual income upon retirement, but will not know the total lifetime benefit.<sup>4</sup> The total benefit from the defined benefit plan can be written as follows:

$$(2) \quad \text{Benefit}(DB) = \sum_{t=W+1}^{t=T} Y * E * m$$

where  $Y$  = final average salary used in the benefit calculations,  $E$  = years of service credit and  $m$  = annual multiplier set by the sponsor. The final average salary is usually set equal to the average of salaries received in the last years of employment (generally 2 to 5 years). The years of service credit represent the amount of time that a person has worked for their plan’s sponsor.<sup>5</sup> The multiplier can be thought of as the percentage of salary received in retirement for each year of service credit (generally ranging from 1.3% to 2.5% in education plans).

The total financial benefit in a defined benefit plan is affected by several factors. The first is the final average salary. As can be seen, the greater the final average salary, the larger the payouts will be in retirement. Accordingly, DB plans should be more attractive to late-career employees since they tend to be in their peak earning years. Second, larger multipliers result in greater benefit payments. A third factor is that as years of service credit rise, so will the annual retirement payout. Fourth, because the payouts are made each year that a person is in retirement, those who live longer will draw greater lifetime benefits from the plan. With regard to costs, the contributions made by a college employee to take part in a DB plan are costs that future benefits are not directly tied to how much the person pays into the plan, and they are not returned with interest upon retirement. In this sense, college employees who must make personal contributions to the plan face higher costs for participating in a DB than a DC plan, although it may not be perceived this way by employees when the contribution rates for both plans are the same, as in USG.

<sup>2</sup> Several simplifying assumptions were made to the model for the purpose of expediency. It is assumed here that employees make all financial contributions at one time each year rather than monthly or quarterly, and that the investment shares and returns on each investment are constant over time. Likewise, future dollar values are not discounted, nor are cost-of-living adjustments incorporated into the formula. Relaxing these assumptions does not fundamentally change the main results of the model.

<sup>3</sup> Of course, this assumes that there will be a positive rate of return on employee contributions. Employee contributions are not truly costless if the employee has a positive time preference for money, or could earn more money by investing the contributions in alternative ways. It should also be noted that in settings outside of education, employees often do not have to make contributions to take part in their company’s retirement plan.

<sup>4</sup> The total lifetime retirement benefits are not known with certainty unless the employee opts for an annuity payment in lieu of annual payments.

<sup>5</sup> The years of service credit can exceed the years of experience if the employee is able to transfer years of service from previous employers. Likewise, the years of service credit may be less than the years of experience if the DB plan places limits on how many years of experience can be used in the formula.

There are several complicating factors that can influence the total financial benefit from a defined benefit plan. An employer may place restrictions on the size of annual payouts in a DB plan. One way to accomplish this is to limit the number of years of service credit that can be used to calculate benefits. For example, USG employees can use up to 40 years of service credit to determine their annual pension. Or, the employer may simply impose a rule that the annual payout in retirement cannot exceed a specified percentage of the employee's final average salary (such as 75% or 100%). In Iowa, for example, the first-year pension cannot exceed 65% of a person's final average salary regardless of their years of service credit. Likewise, in some states such as Colorado, Connecticut and Ohio, the employee cannot receive Social Security benefits if they also participate in the DB plan.<sup>6</sup>

Finally, there are added complications in choosing between a DB and DC plan for workers who experience job changes before retirement. As previously noted, vesting rules may impose penalties on those employees who leave their job prior to becoming fully vested in the sponsor's retirement plan. The choice to leave a college or university may not be voluntary for assistant professors who do not have tenure. In addition, the level of retirement income from a DB plan is effectively frozen at the time that a person leaves his or her employer. This is not the case for employees who are in a DC plan because these contributions can continue to grow over time depending on how they are invested. This DB penalty can be offset in education settings where the new sponsor allows for the transfer of years of service credit from another sponsor.

## Theoretical framework—choice between DB and DC

Economic studies of worker compensation have addressed the share of compensation that is given in the form of salary versus non-salary benefits. Theory

suggests that employers should be mainly concerned with the total compensation paid as opposed to the salary-versus-benefit-distribution of compensation in terms of how much it costs to utilize a worker. However, the way in which workers are compensated can influence the type of people who are attracted to an organization and how long they stay. Non-salary benefits may be more important to workers with large families, health problems and those who are sole providers for their families. In contrast, younger and more mobile workers may be willing to forego some benefits in exchange for higher salaries.

This study draws on cost-benefit analysis to model the choice employees make with regard to their retirement benefit plan (Clark, Ghent & McDermed, 2006; Goldhaber & Grout, 2016; McCarthy, 2003). According to this framework, an employee considers the total expected benefits ( $Benefit(P)$ ) and costs ( $Costs(P)$ ) of the two types of retirement plans, and the risks associated with each retirement plan ( $\pi(P)$ ), when evaluating options at their disposal. In simple terms, the utility of each type of plan to the employee is a function of the expected benefits and costs of each plan and the risk to the employee associated with each plan:

$$(3) \quad U(P) = U(E(Benefit(P) - Cost(P)), \pi(P)), \quad P = \text{DB or DC}$$

The plan ultimately preferred by the employee ( $R$ ) is then the option with the highest expected utility. This may be expressed as a function of personal and work-related characteristics, as in:

$$(4) \quad R = U(DC) - U(DB) = X\beta + \varepsilon$$

where  $R = 1$  if prefer DC and 0 otherwise, and  $X$  = set of personal, occupational, employer, plan-specific, and other characteristics that are associated with this choice.

Although the expected utility and decision process shown in equations (3) and (4) are parsimonious, they are far from simple for most employees to calculate. Starting with the DC plan, employees do not know what the

<sup>6</sup> These lost Social Security benefits are offset somewhat by the fact that employees in these states do not contribute to Social Security, and the multiplier in the state's DB plan may be higher, as well. For more information on these and other restrictions in DB plans for K-12 education, see Toutkoushian, Bathon and McCarthy (2011).



market returns will be on the various investment options at their disposal, nor the size of their future employee and employer contributions. Similarly, employees in a DB plan do not know how long they will work for the plan's sponsor, what their final average salary will be, nor how long they will draw retirement benefits. Accordingly, workers must form expectations of these quantities when making decisions about retirement benefits. Risk therefore becomes an important factor to employees in assessing their retirement options (Clark & Pitts, 1999).

Risk in this context comes in several different forms. The first is the uncertainty in the parameters as discussed above for each plan. When an employee estimates, for example, how long they believe they will live in retirement and what the market returns will be on different investments, they also have to take into account that their expectations may prove to be incorrect. In particular, if an employee overestimates the benefits from a plan, then he or she may not have sufficient income in retirement. Other sources of risk are more unique to each plan. In a DC plan, the risk for funding retirement is borne by the employee because once the retirement funds are depleted, there are no future benefits. In contrast, the sponsor bears the risk in funding a DB plan because it is obligated to find the resources to pay employees for each year that they are in retirement. As discussed in the Introduction, this is one reason why many institutions and states are moving away from DB plans and toward DC or hybrid plans for their workers. In addition, under a DB plan, the annual payout is solely determined by the formula and thus there is no variability or risk in the size of future payouts. Although this protects employees in the event of a financial downturn that reduces the return on their investments, it also limits the gains they might realize when security markets are doing well. In contrast, employees in a DC plan can capture the higher returns in good years but take the chance of having lower returns in bad years.

Finally, risk enters into the retirement decision-making process through the vesting requirements imposed by providers. A sponsor may require an employee to stay at the institution or organization for a minimum number of years before they can keep the full retirement benefits of the plan. This process is known as vesting. Some plans have no vesting requirements and thus the employee is entitled to the full dollar benefits once they are hired. At the other extreme, some retirement plans dictate that employees must work a specific number of years to receive the benefits, or else they forego some or all of the benefits. In the USG, for example, employees who participate in the DB plan must accrue at least 10 years of service credit to become fully vested in the plan.<sup>7</sup> This adds to the risk of a plan because employees do not know at the time of hire how many years they will work for the plan's sponsoring agency.

The vesting requirements of retirement plans are particularly important for employees who are at greater risk of leaving the institution prior to vesting. This would certainly apply to faculty who are hired on tenure-track appointments at the assistant professor level because the vesting period may exceed the time at which they are required to come up for tenure. Therefore, junior faculty are at greater risk of not meeting the vesting requirement and losing the financial benefit. The employee's overall expected benefit from the DB plan is then a weighted average of the expected benefits if the vesting requirement is met and the expected benefits if the vesting requirement is not satisfied.

Vesting requirements may also affect the mobility and retention decisions of workers. Those who enroll in a plan with a vesting requirement have a financial incentive to stay with their employer at least until the requirement has been met. In this way, vesting requirements could help employers by providing more stability in the workforce and possibly reducing turnover.

<sup>7</sup> Employee contributions in the USG DB plan are fully vested in that those who leave USG prior to the 10-year window keep their employee contributions, but do not receive any portion of the sponsor contributions during this time.

## Prior studies in education

There have been a number of prior studies that have explored how employees make decisions about retirement and the role of retirement benefits in these labor market decisions (Chalmers, Johnson & Reuter, 2008; Clark-Murphy & Gerrans, 2001; Conley, 2005; Costrell & McGee, 2010; Costrell & Podgursky, 2009; Dulebohn & Murray, 2007; Fields & Mitchell, 1984; Furgeson, Strauss & Vogt, 2006; Ghent, Allen & Clark, 2001; Gustman & Mitchell, 1992; Gustman, Mitchell & Steinmeier, 1994; Gustman & Steinmeier, 1995; Pozzebon & Mitchell, 1989; Samwick, 1998; Yakoboski & Conley, 2013). This segment of the literature focused on a range of issues, such as how retirement benefits influence job mobility and the timing of retirement.

Within this broader literature on retirement benefits, some researchers have specifically considered how workers choose among different types of retirement plans (Bodie, Marcus & Merton, 1988; Brown & Weisbenner, 2009; 2014; Childs, Fore, Ott & Lilly, 2002; Clark, Hanson & Mitchell, 2016; Dulebohn, Murray & Sun, 2000; Goldhaber & Grout, 2016; Papke, 2004; Yang, 2005). Comparing studies on this topic is challenging in part due to the range of different retirement plans offered across the institutions being studied. Brown and Weisbenner (2009), for example, examined state employees in Illinois who could select between a DB plan, DC plan and a hybrid DB plan. In contrast, Goldhaber and Grout (2013) studied a system where employees could choose between a DB plan and a hybrid DB/DC plan, and several studies by Clark focused on the North Carolina system where employees had the option of a DB versus DC plan (Clark, 1999; Clark & Pitts, 1999; Clark, Ghent & McDermed, 2006). In addition, the specific parameters in the DB, DC and hybrid plans varied across these studies, making it hard to draw definitive conclusions from their collective results.

The majority of these studies found that there were distinct preferences for DB plans among certain types of employees. Overall, though, the results are fairly mixed

across studies. For example, while some researchers found that DB plans were more popular among females than males (Clark, Ghent & McDermed, 2006; Brown & Weisbenner, 2014), others concluded that males prefer DB plans (Chingos & West, 2015), or that there were no significant gender differences in plan preference (Brown & Weisbenner, 2009; Clark & Pitts, 1999). One of the more consistent findings in the literature is that employees with higher earnings were more likely to enroll in a DC plan (Brown & Weisbenner, 2009; Clark & Pitts, 1999; Clark, Hanson & Mitchell, 2016; Yang, 2005), though Clark, Ghent and McDermed (2006) found no relationship between income and preference for the DB plan in North Carolina. Another factor of interest to labor economists and policymakers is the role of age in retirement planning (Berberet, Bland, Brown & Risbey, 2005; Burkhauser, 1979; Sawchuk, 2009). DB plans may be less attractive to young workers because they tend to be more mobile at this stage of life, and less attractive to older workers because they have less time to accumulate years of service credit.

Finally, studies within this topic vary considerably in terms of the groups of employees studied. A number of studies addressed the retirement plan choices for K-12 educators (Chingos & West, 2015; Goldhaber & Grout, 2016), while other studies focused on higher education workers (Brown & Weisbenner, 2009; Clark, 1999; Clark, Ghent & McDermed, 2006; Clark & Pitts, 1999; Dulebohn & Murray, 2007) or broad groups of public employees. Within the few studies on higher education, they also differed in whether they examined all benefits-eligible workers or limited their analysis to faculty.

Finally, all of the studies reviewed were quantitative in nature, focusing on the statistical associations between worker characteristics and the plan chosen. These studies drew data from personnel databases at institutions and surveys of workers, and thus were restricted to easily measured attributes such as gender, age at time of hire, and type of position.

## Retirement options at the University System of Georgia

The setting for this mixed-methods study is the University System of Georgia (USG). At the time of hire, USG employees who are in positions that receive benefits must choose between a defined benefit plan known as the Teachers Retirement System (TRS) and a defined contribution plan known as the Optional Retirement Plan (ORP). Both tenure-eligible faculty and other employees in benefits-eligible positions at USG are given this option. Table 1 provides an overview of the two USG retirement plans. An employee must contribute six percent of his or her salary to take part in the ORP, and this is supplemented by an institution contribution of 9.24 percent. Therefore, each year, the employee has 15.24 percent of salary to invest in a menu of options provided by TIAA ranging from mutual funds to fixed rate annuities. For TRS, the employee also must contribute six percent of his or her salary to participate in the plan. Upon retirement, the employee receives 2% of their final average salary (based on last two years of employment) for each year of service credit at USG. There is a 40-year cap on the years of service credit, which effectively limits a retiree's annual payout to 80% of his or her final average salary. Unlike workers in some public sector plans, employees in the TRS are covered by Social Security and receive those benefits upon retirement. An important difference between the two USG plans is in their vesting requirements. Employees who opt for TRS must accrue at least 10 years of service credit to receive their complete retirement benefits. In contrast, both the employee and employer contributions to retirement benefits in the ORP are fully vested at the time of hire.<sup>8</sup>

## Quantitative study

### Data description

The data used in the quantitative portion of this study were obtained from the Human Resources data system for the University System of Georgia. It includes information on benefits-eligible employees who worked at one of the 30 USG institutions in the 2015-16 academic year. The dataset includes information from the HR system on the year of hire; personal characteristics including gender, race, date of birth, and citizenship; work-related characteristics such as academic position and institution employed; and, most importantly for the purpose of this study, the retirement plan in which they were enrolled. To focus on the choice between retirement options, the analysis was restricted to the subset of tenure-eligible faculty ("faculty") and all other benefits-eligible employees ("other employees") when they could select between the TRS and ORP retirement plans.<sup>9</sup> USG faculty were first allowed to choose between these plans in 1991, and other employees in USG were extended the same choice beginning in 2009. For comparability and to minimize the possible effects of employee attrition on the results, the sample was limited to individuals who were hired in the last six years (2009-15).<sup>10</sup> The final dataset consisted of 3,853 tenure-eligible faculty and 10,418 other employees.

The dependent variable in this study is whether an employee opted to enroll in the ORP (defined contribution) plan. All USG employees in benefits-eligible positions were required to enroll in either the TRS or ORP plan, and had 60 days in which to make their decision. An employee could not change his or her retirement plan after the 60-day window passed. Those who did not

<sup>8</sup> Employees in TRS who leave prior to 10 years receive a lump-sum payment of their employee contributions into the plan but no share of employer contributions. More details on the TRS plan for USG can be found at <http://trsga.com>.

<sup>9</sup> The "faculty" group only consists of tenured and tenure-track faculty at the assistant, associate or full professor ranks. The "other employees" group consists not only of administrators and professional staff, but also employees who are non-tenure-eligible faculty who can participate in the retirement plans at USG.

<sup>10</sup> Because data were not available for this study on newly-hired employees each year, it is possible that employees who were at USG in 2015 may differ from original hires by their choice of plan. This is particularly important for tenure-eligible faculty hired at the assistant professor rank due to the 7-year probationary period of employment.



make a deliberate decision within the 60-day window were enrolled in the TRS plan by default.<sup>11</sup>

A number of independent variables were created that theory and/or prior research suggested could be associated with someone's choice of retirement plan. Some of the independent variables were used in both the faculty and other employee regression models. These included controls for the employee's gender (1 if male), race/ethnicity (five categories), age at time of hire, marital status as of Fall 2015, and whether the person was a U.S. citizen.<sup>12</sup> Selected models also included control variables for the institution where the person was employed (30 variables) to account for possible differences in worker mobility across institutions. Likewise, dummy variables were added for year of hire to determine whether the preference for ORP changed over time after taking into account other variables. Because the USG data did not include salary at time of hire, this variable was estimated by deflating each person's salary in Fall 2015 by their years of employment assuming that salaries grew by an average of three percent per year. Estimated starting salaries were then converted to real dollars using the Consumer Price Index (base year = 2015).

Separate statistical models were estimated for tenure-eligible faculty and other employees in recognition of differences in the control variables that may affect their retirement plan decisions. In addition, using separate models for each group allowed for examination of whether the effects of common variables such as race and age at time of hire differed on the retirement plan choices of faculty and other employees. There were a couple of differences in the model specifications for the tenure-eligible faculty and other employee samples.

The faculty-specific regression models included added controls for each person's academic rank at time of hire. Similarly, the other employee models included control variables for their educational attainment, and primary type of position held (four categories).<sup>13</sup> The faculty models only included a control variable to denote whether the individual held managerial responsibilities in addition to their tenure-eligible position.

Table 2 presents descriptive statistics for the variables used in the tenure-eligible faculty regression models. Overall, about 37% of faculty at USG in Fall 2015 were enrolled in the TRS plan. Faculty were most frequently hired between the ages of 25-34 and 35-44. Interestingly, close to 20% of faculty were non-U.S. citizens, which could have a bearing on their understanding of and interest in the specific retirement plan options at USG. Likewise, more than three-quarters of faculty were originally hired at the assistant professor rank.

Table 3 contains similar descriptive statistics for the other benefits-eligible USG employees. In contrast to faculty, more than half (58%) of this group were enrolled in the TRS plan. Almost 9 out of 10 people in this group were U.S. citizens, and the age distribution at time of hire for other employees was slightly younger than for faculty. Roughly 21% of these workers were classified as being in non-tenure eligible teaching positions, with another 18% in managerial positions, 8% in service positions, and the largest category a catchall for all other positions (53%).

Figure 1 provides information on how the percentages of employees enrolled in ORP varied by the type of employee and year of hire. These percentages are not the same as the annual enrollment rates by cohort because the data only reflect those individuals who

<sup>11</sup> The USG personnel data could not separate those who made an active decision to select TRS from those who were enrolled in TRS by default. Brown and Weisbenner (2009) note that the default option may be distinct from a deliberate choice of retirement plan, and that many employees enroll in a plan by default (also see Clark, Hanson & Mitchell, 2016). In contrast, Clark, Ghent & McDermid (2006) did not have data on which employees were enrolled due to default, and argued that there were relatively few defaulters in their study. It is possible that some workers who were placed into TRS by default decided to not make a decision because they wanted to be enrolled in TRS and would be without taking action on their part.

<sup>12</sup> Marital status at the time of hire was not available for this study; however, marital status as of 2015 should be highly correlated with each employee's marital status when hired between 2009 and 2015. Citizenship status was included as an explanatory variable because non-U.S. citizens are likely to be more mobile than citizens, and may have less knowledge of U.S. retirement plans.

<sup>13</sup> Educational attainment variables were omitted from the faculty models because most faculty had a graduate degree.

were still employed by USG as of Fall 2015. Nonetheless, some interesting results emerge from the figure. For faculty, it can be seen that the ORP percentages declined from 2009 through 2015. At the same time, the ORP enrollment rates for other employees increased, and thus moved in the opposite direction as for faculty.

## Methods

To help understand the retirement plan choices made by USG employees, logistic regression models were specified for both faculty and other employees. The three different models for each employee group can be written in the following general form:

$$(5.1) \quad R = \alpha + P\beta + \varepsilon \quad (\text{Model 1})$$

$$(5.2) \quad R = \alpha + P\beta + O\gamma + \varepsilon \quad (\text{Model 2})$$

$$(5.3) \quad R = \alpha + P\beta + O\gamma + I\delta + T\theta + \varepsilon \quad (\text{Model 3})$$

where  $R = 1$  if employee was enrolled in ORP and 0 if enrolled in TRS,  $P$  = set of personal characteristics such as gender and race that could be related to the choice of plan,  $O$  = set of occupational characteristics including type of position,  $I$  = set of dummy variables for each USG institution, and  $T$  = set of indicator variables for year of hire at USG. Because the job characteristics and samples of faculty and other employees were substantially different in USG, findings are presented separately for each group. The first model only controlled for personal characteristics such as gender, race, U.S. citizenship, marital status and age at time of hire. The second model added occupational characteristics (position type and estimated salary at time of hire) to the first model. Finally, the third model added control variables for the institution where the person was employed and the year of hire to the second model specification. All of the coefficients are reported as marginal effects so that they can be interpreted as the impact of a one-unit change in each independent variable on the probability of an employee enrolling in ORP. Positive signs for each variable therefore indicate more preference for the ORP plan, and thus less preference for the TRS plan, due to the particular factor under consideration.

## Results

Table 4 presents the results from the logistic regression models for only tenure-eligible faculty ( $n=3,853$ ). With regard to personal characteristics, males were found to be more likely than females to enroll in ORP. Black faculty and “other race” faculty were less likely than their white counterparts to enroll in ORP. The results in the third model also showed that faculty who were U.S. citizens were less likely to enroll in ORP. Turning to age at time of hire, the models showed that those faculty who were hired midcareer (ages 45-54) were least likely to enroll in ORP. This is consistent with the notion that middle-aged faculty are less mobile than younger faculty and benefit more than older faculty from the structure of a defined benefit plan, which favors those who plan on accruing more years of service. In two of the three model specifications, married faculty were less likely than single faculty to select ORP, perhaps reflecting lower labor market mobility.

Interestingly, the results revealed that full professors were less likely than comparable associate professors to enroll in the ORP plan. The fact that there were no statistically significant differences in ORP selection for assistant and associate professors is particularly puzzling given that assistant professors on average would tend to be more mobile at this stage of their career due to the added employment uncertainty that comes with being on the tenure-track. The 10-year vesting requirement in USG therefore means that there is a fair chance that an assistant professor will not be employed at USG long enough to receive the full financial benefit from the TRS plan. However, the finding could also mean that those who were hired at the associate rank were more mobile and may be more likely to consider moving again. The models showed that holding all else constant, faculty with higher estimated starting salaries were significantly more likely to opt for the ORP plan. Finally, the time trend variables in the last model revealed that after taking the other variables into account, faculty enrollment rates in ORP decreased in the last four years. This is consistent with the descriptive information shown in Figure 1.

Table 5 contains the main results from the logistic regression models for other benefits-eligible workers within the USG. Some of the results for this group parallel what was found for faculty: males showed a preference for the ORP plan, the TRS plan was favored by black employees, and there was a positive association between estimated starting salary and enrollment in ORP. Similarly, middle-aged employees in both groups were less likely to enroll in the ORP plan. However, the results also showed that Asians who were not tenure-eligible faculty were significantly more likely to enroll in the ORP plan. In general, there was a positive relationship between a person's educational attainment and enrollment rates in the ORP plan, although the sign and significance level for the category "education: unknown" switched after controlling for year of hire and institution. Turning to position type, other employees in service positions had less preference for ORP, and those who were classified into (non-tenure eligible) teaching positions had greater preference for the ORP plan in model 3. Finally, the positive time trend in interest in ORP among other employees that was shown in Figure 1 persisted in the regression analysis even after controlling for a series of personal and work-related factors.

## Qualitative study

### Data description and methods

The second part of the research project focused on a qualitative study of faculty members' experiences with decisions between defined benefit and defined contribution retirement plans. The research team conducted in-depth interviews with 12 faculty members at the University of Georgia. The research team used random sampling to determine which faculty members to interview. Faculty members were selected from a list of recently-hired, tenure-track faculty members provided to the research team by the university. Within the sample, 11 of the 12 interviewees were hired within the last two years, and thus would have good recall of how they made their retirement plan decision at the time of hire.<sup>14</sup>

Randomly-selected faculty were invited to participate in the study by consenting to a 30-minute interview at the time and location of their choice. In exchange for their participation, faculty members were offered a \$25 gift card from Amazon.

Table 6 provides summary information on the interviewees. Eight out of 12 faculty were hired as assistant professors. The respondents were fairly evenly split with regard to sex (7 male, 5 female), with half of the faculty being employed in a social science or humanities field. Most relevant for this study's overarching purpose, 7 of the 12 interviewees enrolled in the TRS plan and the remaining 5 (all assistant professors) enrolled in ORP.

The research team followed a semi-structured interview protocol. That is, the research team followed an interview protocol with a series of questions as a starting place for the conversation with the opportunity to delve further into participants' responses or particular themes that arose during the interview (see Appendix). All of the interviews were audio recorded with the permission of the faculty member and converted to written transcription using a professional service.

Once the semi-structured interviews were transcribed, the research team used an inductive approach to analyze the interview data. First, using what Saldaña (2015) described as first cycle coding, each of the four members of the research team reviewed the interview transcripts to identify key themes and ideas introduced by the participants in response to the interview protocol. With those descriptive and process codes, the research team then moved to second cycle coding, in which one research team member reviewed the interview transcripts and refined the initial list of codes and added additional codes and subcodes as they reviewed the data to iteratively condense the participants' responses to their core meanings in relation to the study's overarching purpose (Saldaña, 2015). Using analytic memos (Merriam & Tisdell, 2016), two research team members

<sup>14</sup> The 12th faculty member was hired by the university in 2013.

reviewed the final list of codes and together organized the findings into three primary themes that emerged across participants' responses, indicating the most salient factors that influence faculty members' decision making about their retirement plans.

## Results

There were several major themes that emerged from the interviews with recently-hired faculty at the institution. The first theme (Information) relates to the type and quality of information used by faculty when deciding between the two types of retirement plans. The second theme focuses on the career plans and trajectories for faculty (Career), and how their choice was influenced by where they were in the lifecycle of their planned career. The last theme (Financial) relates to their understanding of finances and their financial situation at the time that they made the decision.

**Sufficient Information–For Most.** Overall, the faculty who were interviewed had similar and positive impressions of the availability of information that they could access to help them make an informed decision. Individuals felt comfortable using information from the Human Resources office regarding the two types of plans and how they compared to each other. As noted by one faculty member:

“I will say that I think many new employees rely on signals they receive from the HR department in making these choices, and while they are trained to say ‘It’s your choice,’ I think it is vitally important that they be well trained and knowledgeable...for us, the HR department seems to be the main source of information and guidance.”

Faculty also seemed to look to the same kinds of people for advice (colleagues, friends, neighbors) regardless of the plan they selected. Most seemed to have a pretty good understanding of how the plans worked. At the same time, however, other faculty members expressed interest in getting more support for making the retirement plan decision. One respondent described the issue as follows:

“And you just want someone to say ‘Take this one, it’s better.’ But no one says that, and then you get different feedback from different people. It’s overwhelming especially when you have four or five plans to choose from...And so because I knew about TIAA, I just selected them because I know most universities had it.”

One of the interesting findings to emerge from the interviews was the role of citizenship status on a faculty member’s familiarity with retirement plans and the type of information needed to make an informed decision. Faculty who are not U.S. citizens may not have experience with similar types of employer retirement plans, and thus may not fully understand the importance of the decision and the advantages and disadvantages of each type of plan. For several international faculty in the study, this was not an issue because their host countries had similar options and they were familiar with them prior to coming to the university. However, this was not the case with all of the international faculty, as described by the following faculty member:

“I am from Australia, I am not from around here...and so I was pretty unfamiliar with the retirement benefit plans and all that but I knew that I had 60 days to actually make a decision. So I got some information from HR and sort of weighed the pros and cons.”

Another international faculty member noted that international faculty may also face challenges due to the different terminology used in the U.S. versus their home country. The results suggest that institutions should consider giving additional information to faculty who are not U.S. citizens at the time of hire:

“I think that some international faculty moving here may need more attention than some who are domestic simply because the terms are going to be different in every country. For me, because I’m fairly financially literate, I was able to make those transitions between what a 401(k) is here and the similar plan in Canada.”

**Career/Mobility.** A second theme that emerged from the interviews was the importance of where a faculty member was in his or her career in terms of their retirement plan decision. An academic career can easily span 30 to 40 years and involve multiple moves to new institutions due to voluntary or involuntary forces (such as tenure denial). A defined benefit plan is riskier than a defined contribution plan for assistant professors on the tenure track because of the 10-year vesting requirement. The results from the quantitative section of the study showed that mid-career faculty and staff were less likely to choose ORP, which is consistent with where they were in their careers, and the lower risk of not becoming vested.

The interviews revealed that the junior faculty who opted for the defined contribution plan did so in part because they were not certain that they would still be employed at the university 10 years later. One faculty member who was hired as a tenure-track assistant professor described the decision this way:

“So for me it was pretty simple. The defined benefit plan has a 10-year vesting period...but there is uncertainty about whether or not you would actually get whatever benefits you had if you haven’t been here for 10 years. And we had some uncertainty about whether we would be here for 10 years and so once we took that uncertainty into account, it didn’t make any sense to do it [choose TRS].”

Another faculty member who was hired without tenure expressed similar concerns with the risk of not being able to get tenure and receive the full benefits:

“I think for me the decision to go with that [ORP] was just obviously that it’s quicker to be vested...combine that with the amount of uncertainty primarily with not being tenured coming in the door. I think that someone coming in the same place with tenure very well could have made a different decision.”

At the same time, there were several faculty members who said in their interviews that they selected the defined benefit plan despite the added risk. In one case, the individual had several prior years of academic experience before coming to the University of Georgia, and therefore felt more confident in their ability to receive tenure. In other cases, newly-hired faculty faced a range of decisions and the retirement choice was only one of several challenges. One faculty member described the situation as follows:

“So it’s overwhelming for a new employee. Especially if you just graduated from college and you’re going here and you’re sitting down and you’re hearing all of these [conflicting recommendations]. And it’s like which one do I choose? Then someone says, ‘Don’t do TRS Georgia,’ and I said, ‘It’s too late, I already signed up.’”

Another faculty member interviewed did not fully understand at the time of hire the importance of the retirement plan decision:

“I guess it is because I did not attend the orientation in the beginning, so I didn’t know that I needed to make this choice. I didn’t know that the decision had a deadline. So I basically totally missed it until the first deduction was shown on my paystub.”

Finally, not all faculty who are hired at the assistant professor rank face the same level of tenure risk. Some junior faculty members are hired with several years of academic experience and may have different perceived likelihoods of being able to get tenure. This point is reflected in the following quote:

“I was hired as a non-tenured associate professor, so I still had to earn my tenure. And if I don’t get tenure, that means that part of that budget is gone, but I decided to take the risk.”



**Financial Knowledge.** The final theme that was identified from the faculty interviews relates to how well individual faculty members understand financial measures and their own financial situation. Theory would suggest that defined contribution plans are more attractive to workers who have a greater understanding of how finances and investments work because they may be able to make investment decisions that would give rise to greater returns. As noted by one faculty member: “I deliberately chose the TRS plan. I prefer fixed annuities over Powerball lotteries.” Most of the faculty interviewed who had chosen the defined contribution plan, however, expressed little interest in actively managing their retirement portfolios. Their involvement often was limited to a quick review of their annual financial statement. One faculty member expressed it this way:

“I don’t know enough to play with it [investment choices]. I don’t want to chase the market because that would be stressful and I would do it wrong. We are looking for low risk and long-term growth.”

Another faculty member noted that there was not enough time to strategically manage retirement portfolios:

“I’m more conservative. I basically do not have time so I don’t want to be aggressive in the stock market and I do not want to invest any money that requires time-consuming risk. I just want to be comfortable.”

Related to this, the degree of risk aversion was another factor that theory would suggest influences the choice of a defined benefit or defined contribution retirement plan. As noted earlier, a defined benefit plan is generally less risky to the employee because the payout is guaranteed by the employer for as long as the individual is in retirement. In contrast, a defined contribution plan places the risk on employees to ensure that annual contributions grow at a sufficient rate to ensure an acceptable standard of living during retirement. The interviews revealed that most of the faculty saw themselves as being relatively risk averse. Nonetheless,

even the risk averse faculty were generally comfortable with the idea of investing funds in stocks and bonds, even without active management of these investments, and not having assurances of sufficient funding for retirement. In part, this comfort level was perhaps due to the young ages of several faculty who noted that they felt that they had sufficient time to make up any shortfall in retirement savings with decisions in the future.

Finally, a number of faculty discussed the role of economic uncertainty in evaluating their retirement plan decisions. Economic uncertainty would be more important for the ORP plan because the returns on investments will fluctuate with the state of the economy. One faculty member who chose the TRS plan noted that it was “...a more secure thing in the long run because you don’t know what the economy is going to do.” According to another faculty member in the TRS plan,

“I wanted to go with something that was a little bit less risky in that sense because the economy here has been weird over the last years so you never know.”

## Summary and discussion

Planning for retirement can be a very challenging exercise for individuals regardless of their occupation. Employees must not only process information about the ways in which retirement options work and calculate their future benefits, but also match this with their expectations for how long they want to work, whether they plan to move in the future, and their comfort level with financial risk. In many places, the retirement plan for workers is a single (and often mandatory) option, thus making it hard to distinguish how workers view the retirement plan from other work attributes such as compensation, medical benefits and so on. The University System of Georgia offers a valuable setting to examine these issues because benefits-eligible employees are given the choice between two very different types of retirement plans at the time of hire. The system is also fairly large, encompassing 30 institutions at the time of the study and employing thousands of faculty and staff.

This study offers two different methodological approaches to looking into how academic employees value defined benefit and defined contribution retirement plans. The quantitative study relied on multivariate statistical models to examine how a series of personal and work-related characteristics were related to the retirement plan chosen by tenure-eligible faculty and other benefits-eligible employees. Table 7 provides a summary of the attributes of faculty and other employees that were found to be associated with the choice of USG's defined contribution plan (ORP). Overall, it can be seen that the USG defined contribution plan tended to be favored by employees who were either male and/or white. Faculty who were U.S. citizens were less likely to prefer the defined contribution plan. In both samples, middle-aged employees showed the lowest preference for the defined contribution plan, which is consistent with when such a plan would give the maximum financial benefits to recipients.

There were also a few surprising results from the quantitative study. Assistant professors were not less likely than associate professors to opt into the USG defined contribution plan, despite the added risk that they face due to not having tenure and facing the 10-year vesting rule. Another puzzling finding is that the time trends for preference for the defined contribution plan moved in opposite directions for faculty and staff, with faculty showing a falling preference in recent years and staff having rising interest. These time trends persisted even after controlling for personal- and work-related characteristics of employees. Because the time period from 2011 onward coincides with an economic recovery and rising stock returns in U.S. financial markets, this suggests that the defined contribution plan would experience rising demand from employees, and yet the opposite was true for tenure-eligible faculty.

The qualitative component of the research project also provided important insights into the pension decision-making process of USG faculty at one institution. Uncertainty over future employment was an important factor for several of the faculty who were interviewed. The portability and no vesting period for the defined contribution plan made this an attractive option for those

faculty who came to the institution and were unsure as to how long they planned to stay. The younger faculty who took the defined benefit plan tended to have had prior experience that led them to have more security regarding their chance of receiving tenure. The interviews also highlighted that newly-hired faculty face a number of decisions, and choosing a retirement plan can sometimes be seen as less important than decisions such as which medical plan to choose, where to live, and so on, even though many of these other decisions could be corrected over time, whereas the retirement plan decision is irrevocable after the 60-day window has passed.


There are several fruitful avenues for future work in this area. On the quantitative side, having access to more complete data could yield additional insights into the decision-making process used by faculty and staff. Data that might help in this regard would include information on employees at their time of hire, such as their marital and family status, their prior work experience, and perhaps financial data on previous retirement plans and savings. Likewise, having cross-sectional data on multiple cohorts would help test whether faculty and staff attrition is influenced by their choice of retirement plan. The 10-year vesting requirement for the TRS plan in USG, for example, may entice enrollees who successfully pass through their probationary period to stay within the system until they have become vested. In this way, the long vesting requirement may lead to greater employment stability. It would also be beneficial to analyze whether the choice of retirement plan is associated with future employment outcomes for individuals such as when they retire, savings at the time of retirement and so on.

Additional qualitative work can also help to yield insights into the decision-making process of faculty and staff. For example, comparing the experiences of individuals hired at different points in time might help shed light on the different time trends revealed in the quantitative data. Expanding the interviews to include faculty and staff at different institutions would also be useful in learning why the processes used by employees varies by type of institution.

## References

- Barbezat, D. (2002). History of pay equity studies. In Toutkoushian, R. (Ed.), *Conducting salary-equity studies: Alternative approaches to research* (pp.9-39). New Directions for Institutional Research, Number 115. San Francisco: Jossey-Bass.
- Berberet, J., Bland, C., Brown, B., & Risbey, K. (2005). Late career faculty perceptions: Implications for retirement planning and policymaking. *Research Dialogue*, 84, 1-12.
- Bodie, Z., Marcus, A., & Merton, R. (1988). Defined benefit versus defined contribution pension plans: What are the real trade-offs? In Z. Bodie, J. Shoven, & D. Wise (Eds.), *Pensions in the U.S. economy* (pp. 139-162). Chicago, IL: University of Chicago Press.
- Brown, J., & Weisbenner, S. (2009). Who chooses defined benefit plans? In J. Brown, J. Liebman, & D. Wise (Eds.) *Social Security policy in a changing environment* (pp.131-166). Chicago: University of Chicago Press.
- Brown, J., & Weisbenner, S. (2014). Why do individuals choose defined contribution plans? Evidence from participants in a large public plan. *Journal of Public Economics*, 116, 35-46.
- Burkhauser, R. (1979). The pension acceptance decisions of older workers. *Journal of Human Resources*, 13, 63-75.
- Chalmers, J., Johnson, W., & Reuter, J. (2008). The effect of pension design on employer costs and employee retirement choices: Evidence from Oregon. *Review of Economics & Statistics*, 90, 253–266.
- Childs, P., Fore, D., Ott, S., & Lilly, C. (2002). *Defined benefit vs. defined contribution? Determining the optimal benefit plan choice using a real options framework*. TIAA Institute Working paper Series No. 9-060101.
- Chingos, M., & West, M. (2015). Which teachers choose a defined contribution plan? Evidence from the Florida retirement system. *Education Finance and Policy*, 10, 193-222.
- Clark, R. (1999). Faculty choice of a pension plan: Defined benefit versus defined contribution. *Industrial Relations: A Journal of Economy and Society*, 38, 18-45.
- Clark, R., & McDermed, A. (1988). Pension wealth and job changes: The effects of vesting, portability, and lump-sum distributions. *The Gerontologist*, 28, 524-532.
- Clark, R., Ghent, L., & McDermed, A. (2006). Pension plan choice among university faculty. *Southern Economic Journal*, 72, 560-577.
- Clark, R., Hanson, E., & Mitchell, O. (2016). Lessons for public pensions from Utah's move to pension choice. *Journal of Pension Economics & Finance*, 15, 285-310.
- Clark, R., & Pitts, M. (1999). Faculty choice of a pension plan: Defined benefit versus defined contribution. *Industrial Relations*, 38, 18-45.
- Clark-Murphy, M., & Gerrans, P. (2001). Choices and retirement savings: some preliminary results on superannuation fund member decisions. *Economic Papers: A Journal of Applied Economics and Policy*, 20, 29-42.
- Conley, V. (2005). Demographics and motives affecting faculty retirement. *New Directions for Higher Education*, 132, 9-30.
- Conley, V. (2008). Retirement and benefits: Shifting responsibilities. *The NEA 2008 Almanac of Higher Education*, 101-111.

- Costrell, R., & McGee, J. (2010). Teacher pension incentives, retirement behavior, and the potential for reform in Arkansas. *Education Finance and Policy*, 5, 492-518.
- Costrell, R., & Podgursky, M. (2009). Peaks, cliffs, and valleys: The peculiar incentives in teacher retirement systems and their consequences for school staffing. *Education Finance and Policy*, 4, 175-211.
- Crane, R., Heller, M., & Yakoboski, P. (2009). Defined contribution pension plans in the public sector: A benchmark analysis. In O. Mitchell & G. Anderson (Eds.), *The future of public employee retirement systems* (pp. 206-236). New York: Oxford University Press.
- Dulebohn, J., & Murray, B. (2007). Retirement savings behavior of higher education employees. *Research in Higher Education*, 48, 545-582.
- Dulebohn, J., Murray, B., & Sun, M. (2000). Selection among employer-sponsored pension plans: The role of individual differences. *Personnel Psychology*, 53, 405-432.
- Fields, G., & Mitchell, O. (1984). Economic determinants of the optimal retirement age: An empirical investigation. *Journal of Human Resources*, 19, 245-262.
- Ferguson, J., Strauss, R., & Vogt, W. (2006). The effects of defined benefit pension incentives and working conditions on teacher retirement decisions. *Education Finance and Policy*, 1, 316-348.
- Ghent, L., Allen, S., & Clark, R. (2001). The impact of a new phased retirement option on faculty retirement decisions. *Research on Aging*, 23, 671-693.
- Goldhaber, D., & Grout, C. (2016). Which plan to choose? The determinants of pension system choice for public school teachers. *Journal of Pension Economics & Finance*, 15, 30-54.
- Gustman, A., & Mitchell, O. (1992). Pensions and the US labor market. In Bodie, Z. & Munnell, A. (Eds.), *Pensions and the Economy: Sources, Uses, and Limitations of Data* (pp. 39-87). Philadelphia, PA: Univ. of Pennsylvania Press.
- Gustman, A., Mitchell, O., & Steinmeier, T. (1994). The role of pensions in the labor market. *Industrial and Labor Relations Review*, 47, 417-438.
- Gustman, A., & Steinmeier, T. (1992). The stampede towards defined contribution plans. *Industrial Relations*, 31, 361-369.
- Gustman, A., & Steinmeier, T. (1995). *Pension incentives and job mobility*. Kalamazoo: Upjohn Institute Press.
- Keim, D., & Mitchell, O. (2015). Simplifying choices in defined contribution retirement plan design. *Research Dialogue*, 118, 1-15.
- Lushak, A., & Gunderson, M. (2000). What do employees know about their pension plan? *Industrial Relations*, 39, 646-670.
- McCarthy, D. (2003). A life-cycle analysis of defined benefit pension plans. *Journal of Pension Economics and Finance*, 2, 99-126.
- Merriam, S., & Tisdell, E. (2016). *Qualitative research: A methods sourcebook*. (3rd ed.) Thousand Oaks, CA: Sage.
- Papke, L. (2004). Pension plan choice in the public sector: The case of Michigan state employees. *National Tax Journal*, 57, 329-339.
- Pozzebon, S., & Mitchell, O. (1989). Married women's retirement behavior. *Journal of Population Economics*, 2, 39-53.

- 
- Saldaña, J. (2015). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage.
- Samwick, A. (1998). New evidence on pensions, Social Security, and the timing of retirement. *Journal of Public Economics*, 70, 207-236.
- Sawchuk, S. (2009, April 12). Traditional teacher-pension plans claimed to deter young talent. *Education Week*, 28 (29), 1.
- Toutkoushian, R., Bathon, J, & McCarthy, M. (2011). A national study of the net benefits of state pension plans for educators. *Journal of Education Finance*, 37, 24-51.
- Toutkoushian, R., & Conley, V. (2005). Progress for women in academe, but inequities persist: Evidence from NSOPF:99. *Research in Higher Education*, 46, 1-28.
- Yakoboski, P., & Conley, V. (2013). Retirement plans, policies and practices in higher education. *Trends and Issues*, March, 1-13.
- Yang, T. (2005). *Understanding the defined benefits versus defined contribution choice*. Pension Research Council Working Paper no. 2005-04. Philadelphia, PA: The Wharton School, University of Pennsylvania.



## Tables and figures

**Table 1. Overview of USG retirement plans in 2015**

| Plan Attribute                           | Teachers Retirement System (TRS)                      | Optional Retirement Plan (ORP)                   |
|--|---|--|
| Type of plan                             | Defined benefit                                       | Defined contribution                             |
| Benefit at retirement                    | Based on formula:<br>Final salary x yrs service x 2%  | Based on contributions and return on investments |
| Vesting                                  | 10 years of service credit                            | Immediate  |
| Contribution rates                       | Employee: 6.00%<br>Employer: 14.27%                   | Employee: 6.00%<br>Employer: 9.24%               |
| Payout for early USG departure (<10 yrs) | Accumulated employee contributions plus interest only | All employee and employer contributions          |
| Risk to employer                         | High, must ensure adequate funding for future payouts | No risk after employer contributions are made    |

Notes: Information obtained from Human Resources, University of Georgia. Description of plans is effective July 1, 2015.

**Table 2. Descriptive statistics for USG–Tenure-eligible faculty**

| Variable                  | Mean   | Std Dev | Minimum | Maximum |
|---------------------------|--------|---------|---------|---------|
| Enrolled in TRS           | 0.373  | 0.484   | 0       | 1       |
| Enrolled in ORP           | 0.627  | 0.484   | 0       | 1       |
| Male                      | 0.569  | 0.495   | 0       | 1       |
| White                     | 0.685  | 0.464   | 0       | 1       |
| Black                     | 0.098  | 0.298   | 0       | 1       |
| Asian                     | 0.164  | 0.370   | 0       | 1       |
| Hispanic                  | 0.042  | 0.200   | 0       | 1       |
| Other Race                | 0.010  | 0.101   | 0       | 1       |
| U.S. Citizen              | 0.793  | 0.405   | 0       | 1       |
| Age Hire: 25-34           | 0.348  | 0.476   | 0       | 1       |
| Age Hire: 35-44           | 0.353  | 0.478   | 0       | 1       |
| Age Hire: 45-54           | 0.181  | 0.385   | 0       | 1       |
| Age Hire: 55-64           | 0.105  | 0.307   | 0       | 1       |
| Age Hire: 65+             | 0.013  | 0.113   | 0       | 1       |
| Married                   | 0.653  | 0.476   | 0       | 1       |
| Single                    | 0.301  | 0.459   | 0       | 1       |
| Other Marital Status      | 0.046  | 0.210   | 0       | 1       |
| Management Position       | 0.083  | 0.275   | 0       | 1       |
| Starting Salary (Log)     | 11.220 | 0.473   | 9.728   | 13.358  |
| Hired Assistant Professor | 0.774  | 0.419   | 0       | 1       |
| Hired Associate Professor | 0.116  | 0.320   | 0       | 1       |
| Hired Full Professor      | 0.110  | 0.313   | 0       | 1       |
| Hired 2009                | 0.101  | 0.302   | 0       | 1       |
| Hired 2010                | 0.105  | 0.306   | 0       | 1       |
| Hired 2011                | 0.148  | 0.355   | 0       | 1       |
| Hired 2012                | 0.153  | 0.360   | 0       | 1       |
| Hired 2013                | 0.165  | 0.371   | 0       | 1       |
| Hired 2014                | 0.164  | 0.371   | 0       | 1       |
| Hired 2015                | 0.164  | 0.370   | 0       | 1       |

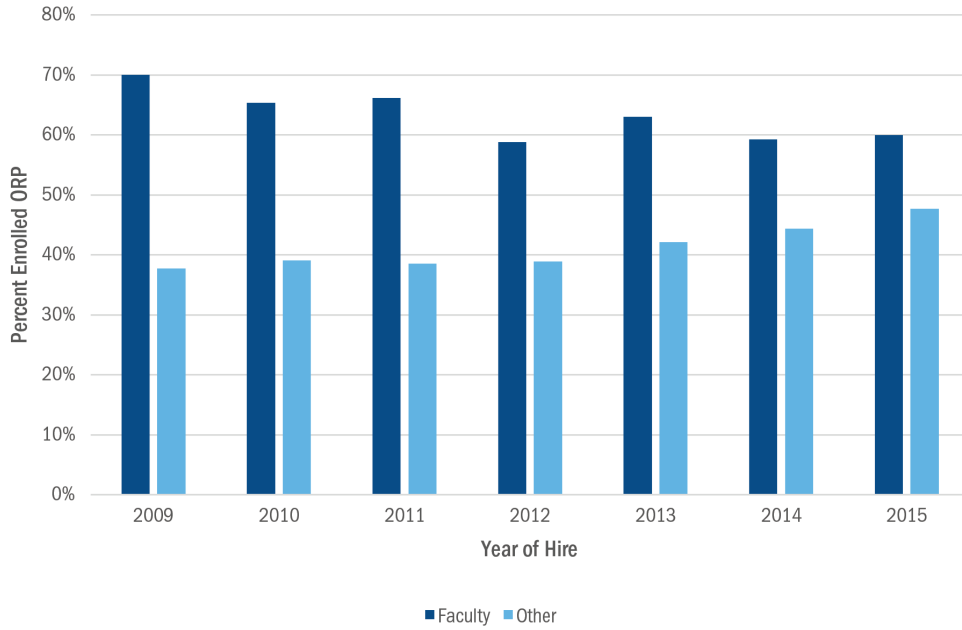
Notes: Data include all tenure-eligible faculty employed at a University System of Georgia (USG) institution in Fall 2015 and hired in years 2009 through 2015 at the assistant, associate or full professor ranks (n=3,853). Data are not shown for the 30 dichotomous variables for each institution.

**Table 3. Descriptive statistics for USG–Other employees**

| Variable                | Mean   | Std Dev | Minimum | Maximum |
|-------------------------|--------|---------|---------|---------|
| Enrolled in TRS         | 0.579  | 0.494   | 0       | 1       |
| Enrolled in ORP         | 0.421  | 0.494   | 0       | 1       |
| Male                    | 0.452  | 0.498   | 0       | 1       |
| White                   | 0.650  | 0.477   | 0       | 1       |
| Black                   | 0.203  | 0.402   | 0       | 1       |
| Asian                   | 0.084  | 0.277   | 0       | 1       |
| Hispanic                | 0.026  | 0.160   | 0       | 1       |
| Other Race              | 0.009  | 0.093   | 0       | 1       |
| U.S. Citizen            | 0.878  | 0.327   | 0       | 1       |
| Age Hire: 25-34         | 0.456  | 0.498   | 0       | 1       |
| Age Hire: 35-44         | 0.278  | 0.448   | 0       | 1       |
| Age Hire: 45-54         | 0.181  | 0.385   | 0       | 1       |
| Age Hire: 55-64         | 0.079  | 0.269   | 0       | 1       |
| Age Hire: 65+           | 0.006  | 0.080   | 0       | 1       |
| Married                 | 0.583  | 0.493   | 0       | 1       |
| Single                  | 0.383  | 0.486   | 0       | 1       |
| Other Marital Status    | 0.034  | 0.182   | 0       | 1       |
| Service Position        | 0.076  | 0.265   | 0       | 1       |
| Management Position     | 0.175  | 0.380   | 0       | 1       |
| Teaching Position       | 0.218  | 0.413   | 0       | 1       |
| All Other Positions     | 0.531  | 0.499   | 0       | 1       |
| Starting Salary (Log)   | 10.836 | 0.421   | 9.169   | 13.583  |
| Hired 2009              | 0.076  | 0.265   | 0       | 1       |
| Hired 2010              | 0.102  | 0.302   | 0       | 1       |
| Hired 2011              | 0.122  | 0.327   | 0       | 1       |
| Hired 2012              | 0.145  | 0.353   | 0       | 1       |
| Hired 2013              | 0.158  | 0.365   | 0       | 1       |
| Hired 2014              | 0.194  | 0.395   | 0       | 1       |
| Hired 2015              | 0.203  | 0.402   | 0       | 1       |
| Highest Degree Unknown  | 0.149  | 0.356   | 0       | 1       |
| Highest Degree HS       | 0.013  | 0.114   | 0       | 1       |
| Highest Degree 2-Year   | 0.049  | 0.215   | 0       | 1       |
| Highest Degree 4-Year   | 0.201  | 0.401   | 0       | 1       |
| Highest Degree Graduate | 0.526  | 0.499   | 0       | 1       |

Notes: Data include all non-faculty employed at a University System of Georgia (USG) institution in Fall 2015 and hired in years 2009 through 2015 (n=10,418). Data are not shown for the 30 dichotomous variables for each institution.

**Figure 1. USG participation rates in ORP plan by type of employee—2009 to 2015**



Notes: Data are for tenure-eligible faculty (“Faculty”) and other benefits-eligible employees (“Other”) at the University System of Georgia in Fall 2015.

**Table 4. Choosing defined contribution retirement plan—Tenure-eligible faculty**

| Variable                  | (1)<br>Model 1       | (2)<br>Model 2       | (3)<br>Model 3       |
|---------------------------|----------------------|----------------------|----------------------|
| Male                      | 0.049**<br>(0.016)   | 0.032*<br>(0.016)    | 0.022<br>(0.015)     |
| Black                     | -0.129***<br>(0.025) | -0.123***<br>(0.025) | -0.134***<br>(0.026) |
| Asian                     | 0.078***<br>(0.024)  | 0.055*<br>(0.024)    | 0.023<br>(0.024)     |
| Hispanic                  | -0.030<br>(0.038)    | -0.034<br>(0.038)    | -0.045<br>(0.037)    |
| Other Race                | -0.162*<br>(0.074)   | -0.155*<br>(0.074)   | -0.121+<br>(0.073)   |
| U.S. Citizen              | -0.007<br>(0.021)    | -0.015<br>(0.021)    | -0.057**<br>(0.022)  |
| Age Hire: 35-44           | -0.018<br>(0.019)    | -0.024<br>(0.019)    | -0.018<br>(0.018)    |
| Age Hire: 45-54           | -0.044*<br>(0.022)   | -0.070**<br>(0.024)  | -0.066**<br>(0.024)  |
| Age Hire: 55-64           | 0.066*<br>(0.028)    | 0.037<br>(0.031)     | 0.052+<br>(0.031)    |
| Age Hire: 65+             | 0.124<br>(0.076)     | 0.116<br>(0.076)     | 0.108<br>(0.075)     |
| Married                   | -0.018<br>(0.017)    | -0.034*<br>(0.017)   | -0.039*<br>(0.017)   |
| Other Marital Status      | -0.001<br>(0.039)    | 0.002<br>(0.038)     | -0.021<br>(0.038)    |
| Management Position       | -----                | 0.035<br>(0.033)     | 0.054<br>(0.033)     |
| Hired Assistant Professor | -----                | -0.033<br>(0.027)    | -0.033<br>(0.027)    |
| Hired Full Professor      | -----                | -0.083*<br>(0.037)   | -0.078*<br>(0.036)   |
| Starting Salary (Log)     | -----                | 0.130***<br>(0.021)  | 0.123***<br>(0.026)  |
| Hired 2010                | -----                | -----                | -0.049<br>(0.034)    |



|                          |          |           |           |
|--------------------------|----------|-----------|-----------|
| Hired 2011               | -----    | -----     | -0.051    |
|                          |          |           | (0.032)   |
| Hired 2012               | -----    | -----     | -0.127*** |
|                          |          |           | (0.031)   |
| Hired 2013               | -----    | -----     | -0.082**  |
|                          |          |           | (0.031)   |
| Hired 2014               | -----    | -----     | -0.108*** |
|                          |          |           | (0.031)   |
| Hired 2015               | -----    | -----     | -0.104*** |
|                          |          |           | (0.031)   |
| Control for Institution? | No       | No        | Yes       |
| Pseudo R2                | 0.02     | 0.03      | 0.08      |
| Chi-Square               | 81.15*** | 135.50*** | 383.58*** |

Notes: Data include faculty hired in 2009 or later at the rank of assistant, associate or full Professor and employed at a University System of Georgia institution in Fall 2015 (n=3,853). Coefficients are shown as marginal effects. Standard errors are shown in parentheses. Reference category for race is white. Reference category for age at time of hire is 25-34. Reference category for marital status is single. Reference category for rank at time of hire is associate professor. Reference category for year of hire is 2009. Model 3 includes 29 dummy variables for institution. + p<.10, \* p<.05, \*\* p<.01, \*\*\* p<.001.

**Table 5. Logit models for choosing defined benefit retirement plan—Other employees**

| Variable               | (1)<br>Model 1       | (2)<br>Model 2       | (3)<br>Model 3       |
|------------------------|----------------------|----------------------|----------------------|
| Male                   | 0.056***<br>(0.009)  | 0.037***<br>(0.009)  | 0.033***<br>(0.009)  |
| Black                  | -0.121***<br>(0.012) | -0.118***<br>(0.012) | -0.118***<br>(0.012) |
| Asian                  | 0.260***<br>(0.017)  | 0.214***<br>(0.017)  | 0.186***<br>(0.017)  |
| Hispanic               | 0.012<br>(0.029)     | 0.019<br>(0.028)     | 0.007<br>(0.028)     |
| Other Race             | -0.026<br>(0.051)    | -0.024<br>(0.049)    | 0.023<br>(0.049)     |
| U.S. Citizen           | 0.080***<br>(0.015)  | -0.002<br>(0.016)    | -0.008<br>(0.016)    |
| Age Hire: 35-44        | -0.041***<br>(0.011) | -0.060***<br>(0.011) | -0.047***<br>(0.011) |
| Age Hire: 45-54        | -0.070***<br>(0.013) | -0.095***<br>(0.013) | -0.082***<br>(0.013) |
| Age Hire: 55-64        | 0.124***<br>(0.018)  | 0.079***<br>(0.018)  | 0.100***<br>(0.018)  |
| Age Hire: 65+          | 0.247***<br>(0.062)  | 0.174**<br>(0.060)   | 0.197***<br>(0.059)  |
| Married                | -0.023*<br>(0.010)   | -0.034***<br>(0.010) | -0.023*<br>(0.010)   |
| Other Marital Status   | -0.011<br>(0.027)    | -0.014<br>(0.026)    | -0.010<br>(0.026)    |
| Education: Unknown     | -----<br>(0.017)     | -0.130***<br>(0.017) | 0.084**<br>(0.026)   |
| Education: High School | -----<br>(0.051)     | -0.186***<br>(0.051) | -0.168***<br>(0.050) |
| Education: Two-Year    | -----<br>(0.026)     | -0.163***<br>(0.026) | -0.161***<br>(0.026) |
| Education: Graduate    | -----<br>(0.011)     | 0.106***<br>(0.011)  | 0.102***<br>(0.011)  |
| Service Position       | -----<br>(0.020)     | -0.045*<br>(0.020)   | -0.050**<br>(0.019)  |
| Management Position    | -----<br>(0.014)     | -0.059***<br>(0.014) | -0.035*<br>(0.014)   |

|                          |           |            |            |
|--------------------------|-----------|------------|------------|
| Teaching Position        | -----     | -0.018     | 0.051***   |
|                          |           | (0.013)    | (0.014)    |
| Starting Salary (Log)    | -----     | 0.147***   | 0.126***   |
|                          |           | (0.013)    | (0.014)    |
| Hired 2010               | -----     | -----      | 0.024      |
|                          |           |            | (0.022)    |
| Hired 2011               | -----     | -----      | 0.015      |
|                          |           |            | (0.021)    |
| Hired 2012               | -----     | -----      | 0.015      |
|                          |           |            | (0.020)    |
| Hired 2013               | -----     | -----      | 0.043*     |
|                          |           |            | (0.020)    |
| Hired 2014               | -----     | -----      | 0.054**    |
|                          |           |            | (0.020)    |
| Hired 2015               | -----     | -----      | 0.092***   |
|                          |           |            | (0.019)    |
| Control for Institution? | No        | No         | Yes        |
| Pseudo R2                | 0.04      | 0.09       | 0.12       |
| Chi-Square               | 573.17*** | 1240.45*** | 1632.18*** |

Notes: Data include non-faculty hired in 2009 or later and employed at a USG institution in Fall 2015 (n=10,418). Coefficients are marginal effects. Standard errors are in parentheses. Reference category for race is white. Reference category for age at time of hire is 25-34. Reference category for marital status is single. Reference category for rank at time of hire is associate. Reference category for year of hire is 2009. Reference category for education is bachelor's degree. Reference category for position is "All Other Positions." Model 3 includes 29 dummy variables for institution. \*p<.05, \*\*p<.01, \*\*\*p<.001.

**Table 6. Overview of participants in faculty interviews**

| Retirement Plan | Academic Rank       | Field          | Gender |
|-----------------|---------------------|----------------|--------|
| ORP             | Assistant Professor | Business       | Male   |
| ORP             | Assistant Professor | Science        | Female |
| TRS             | Assistant Professor | Business       | Female |
| TRS             | Assistant Professor | Social Science | Male   |
| ORP             | Assistant Professor | Social Science | Male   |
| ORP             | Assistant Professor | Social Science | Female |
| ORP             | Assistant Professor | Business       | Male   |
| TRS             | Assistant Professor | Social Science | Female |
| TRS             | Associate Professor | Science        | Male   |
| TRS             | Associate Professor | Social Science | Male   |
| TRS             | Associate Professor | Social Science | Male   |
| TRS             | Professor           | Administration | Female |

**Table 7. Summary profile of employees choosing defined contribution plan (ORP)**

| Attribute       | Tenure-Eligible Faculty | Other Employees           |
|-----------------|-------------------------|---------------------------|
| Gender          | Male                    | Male                      |
| Race            | White                   | White, Asian              |
| Citizenship     | Non-U.S.                | No Preference             |
| Age             | Older                   | Older                     |
| Marital Status  | No Preference           | Single                    |
| Education       | N/A                     | College                   |
| Type of Job     | Full Professor          | Non-management or Service |
| Starting Salary | Higher                  | Higher                    |
| Time Trend      | Fell since 2011         | Rose since 2013           |

## Appendix


### Observation Protocol for Semi-Structured Interviews

This loosely structured general observation protocol lists a set of questions that will guide the observer/researcher during the observation. The major questions include:

1. To get us started, could you walk me through how you decided between the TRS and ORP retirement plans?
2. Now let's talk about the defined benefit (or TRS) retirement plan at the University of Georgia:
  - a. What is your understanding about how the plan works?
  - b. What are the appealing features of this plan to you?
  - c. What are the downsides or risks of this plan to you?

[Choose #3 or #4 based on the plan chosen by the faculty member, and then go to the questions regarding the plan they did not select]

3. Now let's talk about the defined contribution (or ORP) retirement plan at the University of Georgia:
  - a. What is your understanding about how the plan works?
  - b. What is your understanding of the different options for investing within ORP?
  - c. What are the appealing features of this plan to you?
  - d. What are the downsides or risks of this plan to you?
4. I see that you elected to choose the [defined benefit/defined contribution] retirement plan.
  - a. What were the reasons that led you to choose this particular plan?
  - b. Did you talk to others about the two plans, and if so, who? What did you ask?
  - c. Was choosing a retirement plan when you came to UGA difficult or easy? Why?
  - d. What information or resources did you use?
  - e. Do you have any concerns so far about (plan choice)?
  - f. Were you concerned about the amount you would need to contribute when you decided upon a plan?
  - g. How did your experience with your previous retirement plan influence your retirement plan choice at UGA, if at all?
5. How long do you see yourself staying at UGA? Within 10 years, or perhaps until retirement if things go well?
  - a. Did your expectation about how long you would stay at UGA impact your decision on choosing a retirement plan? Why or why not?
6. Do you also participate in the supplemental defined contribution plan?
  - a. If so, what kind of plan is it?
  - b. What are the reasons that you participate in the supplemental plan?
  - c. Beyond your UGA retirement, Social Security and any supplemental retirement programs, what additional sources of retirement income do you foresee having (for your entire household)?
  - d. Will these other sources be major or minor sources of income?

- 
7. Let me ask a few questions about your background:
    - a. Do you consider yourself to be fairly knowledgeable at investing and preparing for retirement?
    - b. Do you consider yourself to be financially conservative or are you willing to take some risk when it comes to investing?
    - c. Did you participate in a retirement plan prior to coming to UGA?
    - d. If so, was it a defined benefit like TRS or a defined contribution like ORP?
    - e. What is the status of this retirement plan(s) (did you vest, roll over the assets, cash out)?
    - f. Does your spouse or significant other participate in their own retirement plan? If so, what kind of plan is it?
  8. Now that you have been employed at UGA for the past year, how would you assess your choice of retirement plan? Would you make the same choice today as you did when you were hired? Why or why not?
  9. Are there any other issues about your financial planning for retirement or UGA's retirement plans that you would like to talk about?



## About the authors

**Robert K. Toutkoushian** is a professor in the Institute of Higher Education at the University of Georgia. He conducts research on a wide range of issues pertaining to the application of economic theories and methods to higher education. He is the author of more than 60 studies in academic journals and edited books. He earned his Ph.D. in economics from Indiana University. In addition to his faculty appointment, Dr. Toutkoushian serves as the editor of the journal *Research in Higher Education*.

**Paula Sanford, Ph.D.** is a Public Service and Outreach faculty member for the University of Georgia's Carl Vinson Institute of Government. She has a specialty in public budgeting and finance but her work spans a variety of local government issues such as performance measurement, comprehensive financial and organizational reviews, city-county consolidation, and retirement program reform. Prior to coming to the Institute of Government, Dr. Sanford was a faculty member at Northern Illinois University. Her previous experience also includes serving as a senior budget analyst and policy advisor for the State of Nevada. She earned her Ph.D. in Public Administration at the University of Georgia and her MPA from American University.

**Karley A. Riffe** is a doctoral candidate and research assistant within the University of Georgia's Institute of Higher Education. Her research seek to understand the interrelationships between higher education institutions, those who work within them, and the external environment as they affect institutional governance, resources, and mission fulfillment. To that end, her work examines the nature of faculty work, the changing academic profession within diverse institutional contexts, the roles of university trustees, and inequality among university staff members. Riffe has presented her work at the annual meetings of conferences such as the Association for the Study of Higher Education and the American Educational Research Association.

**Erik C. Ness** is associate professor of higher education and graduate coordinator in the Institute of Higher Education. His research and teaching focus on higher education politics and policy. His current research projects examine research utilization—the extent to which policymakers rely on research evidence to craft policy—in the adoption and implementation of various state higher education policy initiatives.