WORKING
PAPER

Choices and Information Needs for Workers Leaving the North Carolina State Retirement Plan

Accepting a Lump Sum Payment or Receiving an Annuity at Retirement

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QUICK TURNAROUND PROJECT

FINAL REPORT

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ABSTRACT

When a worker who is covered by a defined benefit retirement plan terminates employment prior to retirement, in many cases she may choose to either leave her money in the pension plan or accept a lump sum distribution of pension assets. This choice can have significant long run implications for future retirement income. This project examined all terminations from state and local government employment in North Carolina between 2000 and 2009 for workers who participated in either the North Carolina Teachers' or State Employees' Retirement System (TSERS) or the Local Government Employees' Retirement System (LGERS). The researchers provide evidence on which separating employees accepted a lump sum distribution. For those workers that chose to withdraw their funds, the researchers then investigate the choice of directly accepting the distribution versus having the monies deposited in another retirement account, such as an IRA. Younger workers are more likely to accept lump sums as are those with fewer years of service and lower incomes. In addition, women are more likely to leave their monies in the retirement system than men, and participants in TSERS are more likely to retain their funds in the system compared to those in the LGERS. Workers were significantly less likely to withdraw funds upon separation after a substantial change the method of delivering information was implemented in 2007. The findings of this Quick Turnaround Project provide unique and important information concerning the decisions to accept a lump sum distribution from a defined benefit plan.

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Choices and Information Needs for Workers Leaving the North Carolina State Retirement Plan: Accepting a Lump Sum Payment or Receiving an Annuity at Retirement

Executive Summary

Each year, millions of American workers leave their jobs either by choice or due to termination by their employer. Many of these job changers were participating in defined benefit pension plans at their job. As a result of the separation, these workers are often given a choice of leaving their money in the pension plan or accepting a lump sum distribution of pension assets. The default is to remain in the pension plan and to anticipate that they will receive an annuity, based on salary and service at termination, when their age and years of service qualify them for retirement benefits. In plans that offer a lump sum distribution, usually the worker is told the value of the distribution[1] and given a choice of whether she wants to roll the funds over into an IRA or to accept the cash as taxable income and also pay a tax penalty for an early withdrawal. This choice can have significant long run implications for future retirement income.

This project examines the choices made by terminating workers who participated in the North Carolina Teachers' and State Employees' Retirement System (TSERS) and those in the North Carolina Local Government Employees' Retirement System (LGERS). While these plans have separate governing boards, they are administered by the same staff and have similar, but not identical, benefits and contributions requirements. The project examined all terminations from state and local government employment in North Carolina between 2000 and 2009.

[1] In the private sector, the lump sum is typically calculated as the present value of future retirement benefits discounted back to the time of departure. Private sector plans usually do not entail employee contributions. In the North Carolina retirement system, the lump sum distribution is the equal to employee contributions and for vested participants, the accumulated interest on these contributions.

The state retirement system agreed to provide the investigators a comprehensive data file that included all relevant economic and demographic data on all individuals who left state or local employment between 2000 and 2009. The complete data file contains records on nearly 400,000 employees who terminated their service during this period. The data file allows the investigators to examine three key decisions associated with the retirement plan:

- Did the departing worker opt to accept a lump sum distribution as defined in the terms of the pension plan or did they leave their funds in the plan so as to ultimately receive a retirement annuity?
- Did the departing workers who withdrew the funds chose to directly accept the distribution or did they have the monies deposited in another retirement account such as an IRA?
- Are departing workers making different decisions after the introduction of additional financial information resources being provided to plan participants?

For this project, we have defined a lump sum distribution as individuals who accepted a lump sum distribution within one year of separation. This leaves two other categories of separating employees. First, there are those individuals that left their jobs and within a year started their pension annuity (these workers can be thought of as retired). The second group consists of workers who left their jobs and within one year had not requested a lump sum distribution. In this research, these workers are considered to have rejected the lump sum and are planning on accepting an annuity when they reach the retirement age set by the plan. One should remember that these workers can still elect a lump sum distribution at any time up until they start receiving a retirement benefit. Having decided on a lump sum distribution, the departing worker must then decide whether to directly accept the funds or roll the money over into another tax qualified

retirement plan. This choice has significant tax implications as well as influencing retirement saving and future income in retirement. If funds are rolled over and kept in retirement accounts, retirement savings will be much less affected by the job change than if these monies are accepted by the individual and possibly spent on immediate consumption.

Several patterns are clearly shown in the data and conform to economic predictions. Workers whose retirements are far off in the future or whose account balance is small will be more likely to withdraw funds. Similarly, workers that will have access to a pension at another employer or who are financially constrained at the time of separation might find it optimal to withdraw funds. On the other hand, some workers may separate from the public sector temporarily and be planning to return at a future date, so therefore chose to leave even small accounts open. Indeed, the researchers find that younger workers are more likely to accept lump sums as are those with fewer years of service and lower incomes. Women are more likely to leave their monies in the retirement system than men, perhaps due to a higher probability of the separation being only temporary. In addition, participants in TSERS are more likely to retain their funds in the system compared to those in the LGERS. The findings of this Quick Turnaround Project provide unique and important information concerning the decision to accept a lump sum distribution from a defined benefit plan.

In 2007 there were substantial improvements to the procedures for disseminating information to separating workers. The researchers find that workers that separated after 2007 were significantly less likely to withdraw their funds from the system relative to their counterparts who separated in prior years. More research is needed to understand how workers make these choices and what types of information separating workers need to make optimal decisions.

QUICK TURNAROUND PROJECT

FINAL REPORT

Choices and Information Needs for Workers Leaving the North Carolina State Retirement Plan: Accepting a Lump Sum Payment or Receiving an Annuity at Retirement

Robert Clark
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I. Introduction

Each year, millions of American workers leave their jobs either by choice or due to termination by their employer. Many of these job changers were participating in defined benefit pension plans at their job. As a result of the separation, these workers are often given a choice of leaving their money in the pension plan or accepting a lump sum distribution of pension assets. The default is to remain in the pension plan and to anticipate that they will receive an annuity, based on salary and service at termination, when their age and years of service qualify them for retirement benefits. In plans that offer a lump sum distribution, usually the worker is told the value of the distribution[2] and given a choice of whether she wants to roll the funds over into an IRA or to accept the cash as taxable income and also pay a tax penalty for an early withdrawal. This choice can have significant long run implications for future retirement income.

This QTP, funded by the Social Security Administration through the RAND Financial Literacy Center, has examined the choices made by terminating workers who participated in the North Carolina Teachers' and State Employees' Retirement System (TSERS) and those in the North Carolina Local Government Employees' Retirement System (LGERS). While these plans

[2] In the private sector, the lump sum is typically calculated as the present value of future retirement benefits discounted back to the time of departure. Private sector plans usually do not entail employee contributions. In the North Carolina retirement system, the lump sum distribution is the equal to employee contributions and for vested participants, the accumulated interest on these contributions.

have separate governing boards, they are administered by the same staff and have similar, but not identical, benefits and contributions requirements. The project examined all terminations from state and local government employment in North Carolina between 2000 and 2009.

The state retirement system agreed to provide the investigators a comprehensive data file that included all relevant economic and demographic data on all individuals who left state or local employment between 2000 and 2009. The complete data file contained records on nearly 400,000 employees who terminated their service during this period. The data file allowed the investigators to examine three key decisions associated with the retirement plan:

- Did the departing worker opt to accept a lump sum distribution as defined in the terms of the pension plan or did they leave their funds in the plan so as to ultimately receive a retirement annuity?
- Did the departing worker opt to directly accept the distribution or did they have the monies deposited in another retirement account such as an IRA?
- Are departing workers making different decisions after the introduction of additional financial information resources being provided to plan participants?

The details of the retirement plan for public sector workers in North Carolina are presented in Section II of this report. If a worker is leaving prior to being vested in the plan with 5 years of service, they are eligible to receive their own employee contributions without interest as a lump sum distribution. If the employee has more than 5 years of service, they are eligible to receive their own employee contributions plus 4 percent compounded interest on these funds. As long as the individual has not made an active election to withdraw the funds, they remain in the system and will ultimately be eligible to receive a retirement annuity based on their years of service and

final average salary. Terminated workers can request a lump sum distribution at any time after they have left the system.

For this project, we have defined a lump sum distribution as individuals who accepted a lump sum distribution within one year of separation. This leaves two other categories of separating employees. First, there are those individuals that left their jobs and within a year started their pension annuity (these workers can be thought of as retired). The second group consists of workers who left their jobs and within one year had not requested a lump sum distribution. In this research, these workers are considered to have rejected the lump sum and are planning on accepting an annuity when they reach the retirement age set by the plan. One should remember that these workers can still elect a lump sum distribution at any time up until they start receiving a retirement benefit.

Having decided on a lump sum distribution, the departing worker must then decide whether to directly accept the funds or roll the money over into another tax qualified retirement plan. This choice has significant tax implications as well as influencing retirement saving and future income in retirement. If funds are rolled-over and kept in retirement accounts, retirement savings will be much less affected by the job change than if these monies are accepted by the individual and possibly spent on immediate consumption.

Several patterns are clearly shown in the data and conform to economic expectations. For example, younger workers are more likely to accept lump sums as are those with fewer years of service and lower incomes. We also observe that women are more likely to leave their monies in the retirement system than men. In addition, participants in TSERS are more likely to retain their funds in the system compared to those in the LGERS.

The findings of this Quick Turnaround Project provide unique and important information concerning the decision to accept a lump sum distribution from a defined benefit plan. Section II of this report describes the two public retirement plans in North Carolina while Section III describes the data we received from the retirement systems. Section IV presents the empirical findings of the analysis. Section V summarizes the conclusions from the research.

II. Background on State of North Carolina Retirement Plans

The retirement system for public sector employees in North Carolina consists of the Teachers' and State Employees' Retirement System (TSERS) and the Local Government Employees' Retirement System (LGERS). These two plans are administered by separate board of trustees with the State Treasurer being the sole fiduciary of both plans. The plans are very similar but not identical. The benefit formula for TSERS is 1.82 percent times final average salary times years of service. The benefit formula for LGERS is slightly higher at 1.84 percent times final average salary times years of service. Final average salary (FAS) is defined as the highest 4 years of earnings in both plans.

Each plan requires 5 year vesting and a 6.0 percent employee contribution rate. Normal retirement ages, the age at which a person can be receiving an unreduced retirement benefit, are:

- age 65 with 5 years of service
- age 60 with 25 years of service
- 30 years of service with no age requirement

The plans also specify an early retirement age of age 50 with 20 years of service along with a schedule of age and years of service that specify the reduction in the benefit for starting prior to achieving one of the normal retirement ages. Thus, departing workers who are less than age 50

or have less than 30 years of service are not eligible to immediately begin a retirement annuity when leaving the system. These are the individuals who must decide between requesting a lump sum distribution and leaving their funds in the system to remain eligible for a retirement annuity.

Departing workers who are not vested in the plan, those with less than 5 years of service, are not eligible to receive a retirement annuity based on their current years of service. However, they can keep their account open and if they return to public employment in North Carolina, prior years of service will count toward a future retirement benefit. If they request a lump sum distribution, the amount that they will receive is the total of their employee contributions during their employment without any interest.

Separating workers who are vested (those with at least 5 years of service) have the same basic choice except that their lump sum distribution will include their own pension contributions with a compounded interest of 4 percent per year. An additional benefit of leaving their funds in the system and ultimately receiving a retirement annuity is that all retired public employees who are receiving an annuity from either TSERS or LGERS during this period were eligible to remain in the state health plan with no premium.

The choice facing departing public employees in North Carolina involves comparing an immediate cash settlement versus the value of leaving their money in the system and ultimately receiving a retirement annuity. This latter value depends on individual specific present value calculations based on their personal rate of discount. Many people find present value calculations difficult, and for a large fraction of separating workers the retirement annuity is several decades in the future.

It is important that individuals understand the consequences of the distribution choice. Since 2007, the North Carolina retirement system has maintained a useful website that includes benefit calculators and other financial information and data related to the pension system.[3]

III. Data Description

The state retirement system maintains records on current employees, terminated workers, and retirees consistent with the data needed to calculate and pay retirement benefits to plan participants. For this project, the retirement system produced a data file on all workers who became inactive between 2000 and 2009. The file includes information on the employee's date of birth, gender, salary, and the retirement plan and public employer. In addition the status of the account is included, which indicates whether the employee is currently receiving retirement benefits, whether the retiree took a lump sum distribution upon separation, or whether the separating worker has left the funds in the plan and the account is still "active."

As described in more detail below, in 2007 the state adopted a new reporting system, "ORBIT," that records much more detailed information about the workers separation. Prior to 2007 the date of separation must be imputed from earnings history for workers that have withdrawn their funds from the system. Still, the administrative records on even these earlier separations include sufficient information for empirical analysis of their distribution choice. The Data Appendix describes the data in considerable detail along with how we created the sample used in the statistical analysis.

Working closely with the state retirement system's office, we carefully reviewed the data and retained only those records with complete information. The baseline sample includes

[3] This site is accessible at: www.myncretirement.com, [accessed September 10,2010].

296,293 individuals who left the retirement systems during this period for whom we examined the distribution decisions. Of these, 81,240 retired within a year of terminating employment. This leaves a sample of 215,053 employees who left the system, were not eligible start retirement benefits, and thus had to decide whether to accept a lump sum distribution or leave their funds in the system. We further restrict our attention to separating employees that were younger than 50 years old, in order to more closely approximate a sample that is not eligible to immediately retire, N = 175,170. Using data provided by the retirement systems, we report the proportion of terminating workers who select lump sum distributions and whether they directly accept these funds for each year between 2000 and 2009.

During this period, there were no substantial changes in the state retirement plan concerning the calculation of retirement benefits, the distributional choice, or the options available to departing workers. However, the retirement system made substantial upgrades to its website and the on-line information provided to plan participants. The main difference in the information available to individuals occurred in 2007 when benefit calculators and other information were made available on-line. Thus, the research will consider all departures between 2000 and 2009 but the analysis will adjust for differences in data available to the researchers and for differences in the information available to the departing workers before and after the 2007 changes.

Table 1 presents the percentage of separating workers that retired and began receiving a retirement annuity within one year of separation. The sample is broken down by year of separation (calculated), gender, total years of service (reported), age at separation (calculated), retirement system, and account balance at separation (calculated). The patterns indicate that older workers with longer tenure are predominately retiring immediately. There is variation over

time in the fraction of separating employees moving directly into retirement, although this is non-monotonic.

Those that were not currently eligible to retire faced the choice of receiving a lump sum distribution or keeping their account active and waiting until they qualified to start receiving a retirement benefit based on their age and years of service. Table 2 focuses on separating employees who did not start a retirement annuity within one year of separation. These workers thus faced a choice of requesting a lump sum distribution or leaving their funds in the system. The entries in Table 2 show significant differences in the proportion of certain groups that selected a lump sum distribution. Workers whose retirements are far off in the future or whose account balance is small will be more likely to withdraw funds. Similarly, workers that will have access to a pension at another employer or who are financially constrained at the time of separation might find it optimal to withdraw funds. On the other hand, some workers may separate from the public sector temporarily and be planning to return at a future date, so therefore chose to leave even small accounts open. As expected, those with less than 5 years of service, and hence are not vested are more likely to accept lump sum distributions. Women are more likely to leave their funds in the system compared to men while state employees and teachers are also more likely to keep their accounts active.

Table 3 presents this same decision of whether to withdraw funds, this time separating out workers who were vested (more than 5 years of service) or not vested (less than 5 years of service) at the time of departure. For this and all subsequent tables, we further restrict the sample to workers that were less than 50 years old at the time of separation. Several differences are observed in the behavior of those vested compared to non-vested workers. First, about half of the non-vested population accepts a lump sum distribution compare to just over one third of

those who were vested prior to separation. Non-vested women are 5 percent points less likely to opt for a lump sum, and similarly, among those vested women are 9 percentage points less likely to request a lump sum distribution. Although we do observe differences in behavior by age group, in the regression analysis presented below we see this age gradient is only statistically significant for the full and non-vested sample. Vested and non-vested participants in the LGERS were more likely to desire a cash distribution, consistent with expectations. Among both groups, workers with larger account balances were more likely to leave their money in the system and to anticipate a future retirement annuity.

Table 1. All separations occurring from 2000-2009 (N = 296,293).

	Num. Obs.	Percent Retiring within 1 Year of Separation
Full Sample	296,292	27.40%
SEPARATION YEAR (CALCULATED)		
Year: 2000	13,998	29.51%
Year: 2001	17,895	36.18%
Year: 2002	21,913	31.07%
Year: 2003	29,695	24.36%
Year: 2004	31,720	23.37%
Year: 2005	34,953	21.38%
Year: 2006	33,297	21.58%
Year: 2007	37,904	34.84%
Year: 2008	37,946	27.49%
Year: 2009	36,971	29.43%
GENDER		
Men	108,304	29.74%
Women	187,988	26.08%
TOTAL YEARS OF SERVICE AT SEPARATION (REPORTED)		
Yrs Service Less Than 1	42,792	0.07%
Yrs Service 1-4	107,003	0.10%
Yrs Service 5-19	86,520	29.48%
Yrs Service 20-39	59,956	92.69%
AGE AT SEPARATION (CALCULATED)		
Age 18-24	19,359	0.01%
Age 25-49	159,820	2.51%
Age 50-59	62,939	51.04%
Age 60-61	16,402	82.56%
Age 62-64	18,748	87.11%
Age 65-69	10,951	88.87%
Age 70-79	2,744	77.51%
RETIREMENT SYSTEM		
LGERS	83,420	24.40%
TSERS	212,872	28.60%
ACCOUNT BALANCE AT SEPARATION (CALCULATED)		
Acct $0-2.49K	76,507	0.07%
Acct $2.50K - 9.99K	86,871	5.40%
Acct $10K - 24.99K	52,892	26.56%
Acct $25K - 74.99K	55,137	70.63%
Acct $75K - 99.99K	15,914	93.69%
Acct $100K or more	8,971	95.83%

Table 2: Non-retiring, separating employees' choices to withdraw/close their account within one year of separation
The percentages are by row. N = 215,053

	Num. Obs.	Percent closed/withdrawn within one year of separation
Full Sample	215,053	43.90%
SEPARATION YEAR		
Year: 2000	9,867	45.45%
Year: 2001	11,421	53.20%
Year: 2002	15,105	60.85%
Year: 2003	22,461	66.96%
Year: 2004	24,308	57.90%
Year: 2005	27,480	44.89%
Year: 2006	26,111	37.63%
Year: 2007	24,698	30.19%
Year: 2008	27,513	31.54%
Year: 2009[1]	26,089	27.74%
GENDER		
Men	76,097	48.21%
Women	138,956	41.54%
TOTAL YEARS OF SERVICE AT SEPARATION (REPORTED)		
Yrs Service Less Than 1	42,764	44.35%
Yrs Service 1-4	106,893	51.00%
Yrs Service 5-19	61,015	33.37%
Yrs Service 20-39	4,381	12.81%
AGE AT SEPARATION (CALCULATED)		
Age 18-24	19,358	45.23%
Age 25-49	155,812	44.88%
Age 50-59	30,816	36.96%
Age 60-61	2,860	43.81%
Age 62-64	2,416	50.41%
Age 65-69	1,219	59.06%
Age 70-79	617	66.77%
RETIREMENT SYSTEM		
LGERS	63,065	49.92%
TSERS	151,988	41.40%
ACCOUNT BALANCE AT SEPARATION (CALCULATED)		
Acct $0-2.49K	76,457	46.95%
Acct $2.50K - 9.99K	82,182	50.15%
Acct $10K - 24.99K	38,843	34.78%
Acct $25K - 74.99K	16,193	22.47%
Acct $75K - 99.99K	1,004	8.07%
Acct $100K or more	374	16.84%

[1]Note that workers separating after July 2009 have not been separated for a full year, so should have a lower withdrawal/closure rate by construction.

Table 3: Decision to withdraw funds within one year of separation
Sample is separating employees ages 18-49 who do not retire within one year of separation. Percent is those withdrawing their account balance within one year of separation.

	Full Sample		Not Vested (<5 Yrs)		Vested (5+ Yrs)	
	N	% Withdraw	N	% Withdraw	N	% Withdraw
Full Sample	175,170	44.92%	129,018	48.36%	46,152	35.29%
SEPARATION YEAR						
Year: 2000	8,108	49.15%	5,686	62.75%	2,422	17.22%
Year: 2001	9,434	56.81%	6,990	69.33%	2,444	20.99%
Year: 2002	12,368	63.69%	9,219	72.97%	3,149	36.52%
Year: 2003	18,450	68.47%	13,805	74.73%	4,645	49.86%
Year: 2004	19,943	59.18%	14,507	63.16%	5,436	48.58%
Year: 2005	22,709	45.27%	16,866	46.60%	5,843	41.42%
Year: 2006	21,619	37.89%	15,959	38.74%	5,660	35.51%
Year: 2007	20,068	30.15%	14,882	30.28%	5,186	29.77%
Year: 2008	22,295	30.91%	16,533	30.88%	5,762	31.01%
Year: 2009[1]	20,176	27.81%	14,571	28.28%	5,605	26.60%
GENDER						
Men	60,869	48.70%	44,597	51.50%	16,272	41.03%
Women	114,301	42.90%	84,421	46.70%	29,880	32.17%
TOTAL YEARS OF SERVICE AT SEPARATION (REPORTED)						
Yrs Service Less Than 1	36,599	43.77%	36,599	43.77%		
Yrs Service 1-4	92,419	50.18%	92,419	50.18%		
Yrs Service 5-19	44,499	35.98%			44,499	35.98%
Yrs Service 20-39	1,653	16.94%			1,653	16.94%
AGE AT SEPARATION (CALCULATED)						
Age 18-24	19,358	45.23%	19,267	45.18%	91	56.04%
Age 25-29	41,289	44.65%	36,745	45.45%	4,544	38.18%
Age 30-34	35,662	45.47%	24,792	49.78%	10,870	35.65%
Age 35-39	29,919	45.97%	19,364	50.70%	10,555	37.30%
Age 40-49	48,942	43.96%	28,850	51.39%	20,092	33.30%
RETIREMENT SYSTEM						
LGERS	51,987	50.30%	37,593	53.23%	14,394	42.65%
TSERS	123,183	42.65%	91,425	46.36%	31,758	31.96%
ACCOUNT BALANCE AT SEPARATION (CALCULATED)						
Acct $0-2.49K	66,391	46.32%	66,378	46.32%	13	38.46%
Acct $2.50K - 9.99K	69,559	50%	60,109	50.78%	9,450	45.06%
Acct $10K - 24.99K	29,257	36.37%	2,479	44.33%	26,778	35.63%
Acct $25K - 74.99K	9,681	25.46%	52	48.08%	9,629	25.34%
Acct $75K - 99.99K	216	13.89%			216	13.89%
Acct $100K or more	66	21.21%			66	21.21%

[1]Note that workers separating after July 2009 have not been separated for a full year, so should have a lower withdrawal/closure rate by construction.

IV. Statistical Analysis and Results

The primary objectives of this research are to address three questions concerning the decisions confronting workers who have withdrawn from the state and local retirement plans in North Carolina.

- Did departing worker opt to accept a lump sum distribution, as defined in the terms of the pension plan, or did they leave their funds in the plan so as to ultimately receive a retirement annuity?
- Of those workers that choose to withdraw their funds, do they opt to directly accept the distribution or did they have the monies deposited in another retirement account such as an IRA?
- Are departing workers making different decisions after the introduction of additional financial information resources being provided to plan participants?

To examine the first question, we estimated a linear probability model with the dependent variable being an indicator for whether the separating worker chose to accept the lump sum distribution from the retirement plan within one year of terminating employment. Recall that this study focuses on the pension-related decisions of workers who leave employment prior to being eligible to immediate start a pension benefit. Thus, as in Table 3, we limit the sample to individuals who were aged 18 to 49 years at the time of their departure and who did not retire within one year of separation, N = 175,170. In a sense, we are assuming that the decision to leave has been made and then the individual considers what to do with their retirement

accounts.[4] We estimate the withdrawal decision as a function of the worker's age, gender, years of service, account balance (which is a function of salary and years of service), state or local retirement plan, and year of departure.

The results of the estimated withdrawal decision for the full sample and by vesting status are shown in Table 4. The estimates indicate that men are 5.5 percentage points more likely to accept a lump sum distribution than women; however, in the vested sample, the gender difference rises to a large 9.1 percentage points (approximately 26 percent of the sample mean).

Next we consider the effects by total years of service (note that years of service may include purchased and non-contributory service). In the first two columns the omitted category is less than 1 year of service, while in the third column the coefficient is relative to having 20 or more years of service. In column 1, we see that individuals who were vested at the time of termination (at least 5 years of service) were much less likely to request a lump sum distribution, which is not surprising given the difference in means between these groups presented in Table 3. Workers with 5 to 19 years of service were 6.2 percentage points less likely to receive a lump sum distribution compared to workers with less than one year of service, while workers with 20 or more years of service were 19.9 percentage points less likely to close their retirement accounts. Interestingly, among those not vested having more years of service is associated with a higher probability of withdrawing funds, perhaps because the account balances are so small for workers with less than one year of service (although we do control for the account balance at separation). Among those vested, those with less years of service are more likely to withdraw,

[4] Access to funding and the account balance may influence the decision to leave government employment; however, we do not model this relation in this research.

again consistent with predictions that individuals with more years of service will be less likely to withdraw their account balance.

Even after controlling for years of service and account balance, we see a strong age gradient in the choice to withdraw, although this pattern is not as pronounced for those employees that were vested. In all three columns, the omitted category is separating workers age 30 to 34. We see that younger workers are less likely to withdraw and older workers are more likely to withdraw, controlling for account balance and years of service. Participants in TSERS are approximately 6.8 percentage points less likely to have requested a lump sum distribution than local government employees in the full sample.

Finally, we impute the account balance at separation. For all three columns the omitted category is separating employees with account balances between $2,500 and $9,999. We see a non-linear relationship where very small account balances are unlikely to be withdrawn (those less than $2,500) but larger balances are also less likely to be withdrawn. The largest coefficient suggests that among vested workers (column 3), those with an account balance between $75,000 and $99,999 at separation were 28.7 percentage points (81 percent) less likely to withdraw their accounts relative to those with only $2,500 - $9,999 in their account.

One might have thought that all non-vested terminated workers would accept a lump sum distribution leaving the system. If they leave their money in the system, it accrues no interest and they are not entitled to a future retirement benefit. Thus, it would seem reasonable that the best choice is an immediate lump sum distribution by all non-vested workers. However, over the sample period, only 48 percent of non-vested workers asked for a lump sum payment within one year of separation. Why are departing workers making such an odd choice? The answer is probably future employment expectations. Many of these individuals may expect to return to

public employment in a few years. Terminations based on family circumstances such as the birth of a child or relocation can result in individuals quitting current employment and having temporary periods outside the labor force. The public sector is relatively large and all public employees are covered by the same system offering considerable opportunities for future employment in either TSERS or LGERS. Plan rules allow past service to be counted toward future retirement benefits provided that the individual left their account balances in the system.

There are interesting time trends in the tendencies to accept a lump sum distribution which differ sharply by vesting status. For non-vested individuals, the probability of opting for a lump sum distribution declines rapidly during the sample period with the estimated likelihood of a lump sum distribution in 2009 being 35.2 percentage points lower than in 2000 for non-vested departures. In contrast, the likelihood of vested workers accepting a lump sum rises between 2000 and 2004 before then beginning to decline with the largest declines being after 2007; however, the probability of a lump sum distribution in 2009 is still higher than in 2000 for these workers. This puzzling time pattern is an interesting area for future research; however, it may reflect the improved access to information associated with the development of the new retirement system website.

Our second goal was to better understand the decision of whether to request a cash distribution or whether to roll over the funds into another qualified retirement account. Table 5 reports the mean values of individual that accepted a lump sum distribution by their choice of how the money was received. Departing workers overwhelmingly wanted the money with 85 percent requesting a cash distribution. The results of a linear probability model regression analysis of this choice are shown in Table 6. The estimates indicate that men were 4.2 percentage points more likely to request a cash distribution compared to women, and state

employees in TSERS were 2.3 percentage points less likely to want a cash payout. Vested individuals were more likely to want the cash; this may be due in part to the large amounts in their accounts. The tendency to want a cash distribution increased during the sample period with the probability of a cash payout being 18.4 percentage points higher in 2009 compared to 2000.

Table 4: Withdrawal choice

Dependent variable is the choice to withdraw the account balance within one year of separation.

	Full Sample (1)	Not Vested (<5 Yrs) (2)	Vested (5+ Yrs) (3)
SEPARATION YEAR			
Year: 2001	0.075 (0.007)**	0.069 (0.008)**	0.040 (0.013)**
Year: 2002	0.136 (0.007)**	0.098 (0.008)**	0.188 (0.012)**
Year: 2003	0.175 (0.006)**	0.108 (0.007)**	0.311 (0.012)**
Year: 2004	0.083 (0.006)**	-0.009 (0.007)	0.296 (0.011)**
Year: 2005	-0.052 (0.006)**	-0.168 (0.007)**	0.229 (0.011)**
Year: 2006	-0.123 (0.006)**	-0.246 (0.007)**	0.174 (0.011)**
Year: 2007	-0.199(0.006)**	-0.330 (0.007)**	0.124 (0.011)**
Year: 2008	-0.189 (0.006)**	-0.323 (0.007)**	0.145 (0.011)**
Year: 2009[1]	-0.217 (0.006)**	-0.352 (0.007)**	0.111 (0.011)**
GENDER			
Male	0.055 (0.002)**	0.043 (0.003)**	0.091 (0.005)**
TOTAL YEARS OF SERVICE AT SEPARATION (REPORTED)			
Yrs Service 1-4	0.033 (0.004)**	0.020 (0.004)**	
Yrs Service 5-19	-0.062 (0.006)**		0.071 (0.013)**
Yrs Service 20-39	-0.199 (0.014)**		
AGE AT SEPARATION (CALCULATED)			
Age 18-24	-0.016 (0.004)**	-0.014 (0.005)**	0.084 (0.049)
Age 25-29	-0.025 (0.003)**	-0.030 (0.004)**	0.010 (0.008)
Age 35-39	0.029 (0.004)**	0.026 (0.004)**	0.032 (0.006)**
Age 40-49	0.021 (0.003)**	0.031 (0.004)**	0.011 (0.006)
RETIREMENT SYSTEM			
TSERS	-0.068 (0.002)**	-0.060(0.003)**	-0.085 (0.005)**
ACCOUNT BALANCE AT SEPARATION (CALCULATED)			
Acct $0K – 2.49K	-0.029 (0.003)**	-0.039 (0.003)**	-0.074 (0.128)
Acct $10K - 24.99K	-0.065 (0.005)**	-0.041 (0.010)**	-0.100 (0.006) **
Acct $25K - 74.99K	-0.150 (0.007)**	-0.057 (0.065)	-0.197 (0.007) **
Acct $75K - 99.99K	-0.194 (0.033)**		-0.287 (0.033) **
Acct $100K or more	-0.121(0.058)*		-0.198 (0.570) **
Constant	0.558 (0.007)**	0.668 (0.008)**	0.222 (0.017) **
Observations	175,170	129,018	46,152

Notes: Coefficients are from a linear probability model with standard errors in brackets. * significant at 5%; ** significant at 1%. See Table 3 for sample description and means of the dependent variable.
[1]Note that workers separating after July 2009 have not been separated for a full year, so should have a lower withdrawal/closure rate by construction.

Table 5: Decision to take cash versus roll-over account balance among separating employees that withdraw the account within one year of separation

Percentages are those choosing a cash refund rather than rolling over.

	Num. Obs.	Percent choosing cash
Full Sample	77,423	84.51%
SEPARATION YEAR		
Year: 2000	3,948	74.75%
Year: 2001	5,315	77.93%
Year: 2002	7,756	79.55%
Year: 2003	12,463	84.45%
Year: 2004	11,633	85.17%
Year: 2005	10,180	85.59%
Year: 2006	8,129	87.11%
Year: 2007	5,884	86.79%
Year: 2008	6,703	88.93%
Year: 2009	5,412	90.04%
GENDER		
Men	29,013	87.20%
Women	48,410	82.90%
TOTAL YEARS OF SERVICE AT SEPARATION (REPORTED)		
Yrs Service Less Than 1	15,925	90.46%
Yrs Service 1-4	45,924	82.65%
Yrs Service 5-19	15,365	83.98%
Yrs Service 20-39	209	80.38%
AGE AT SEPARATION (CALCULATED)		
Age 18-24	8,706	88.24%
Age 25-29	18,326	81.20%
Age 30-34	16,095	84.13%
Age 35-39	13,547	86.23%
Age 40-49	20,749	85.05%
RETIREMENT SYSTEM		
LGERS	25,806	86.73%
TSERS	51,617	83.40%
ACCOUNT BALANCE AT SEPARATION (CALCULATED)		
Acct $0-2.49K	30,560	89.57%
Acct $2.50K - 9.99K	34,371	81.66%
Acct $10K - 24.99K	10,286	80.98%
Acct $25K - 74.99K	2,185	75.42%
Acct $75K - 99.99K	19	68.42%
Acct $100K or more	2	100%

Notes: The sample consists of individuals who were ages 18-49 at separation and who chose to withdraw their funds as a lump-sum as either cash or rollover.

Table 6: Regression analysis of cash-out choice among withdrawers

Dependent variable is the choice to withdraw the account balance as cash (versus rolling over).

	Full Sample (1)	Not Vested (<5 Yrs) (2)	Vested (5+ Yrs) (3)
SEPARATION YEAR			
Year: 2001	0.030 (0.007)**	0.031 (0.008)**	0.018 (0.024)
Year: 2002	0.051 (0.007)**	0.052 (0.007)**	0.062 (0.021)**
Year: 2003	0.105 (0.006)**	0.100 (0.007)**	0.143 (0.020)**
Year: 2004	0.115 (0.007)**	0.110 (0.007)**	0.156 (0.019)**
Year: 2005	0.121 (0.007)**	0.114 (0.007)**	0.169 (0.020)**
Year: 2006	0.139 (0.007)**	0.131 (0.007)**	0.190 (0.020)**
Year: 2007	0.137 (0.007)**	0.127 (0.008)**	0.190 (0.020)**
Year: 2008	0.161 (0.007)**	0.151 (0.008)**	0.214 (0.020)**
Year: 2009[1]	0.184 (0.007)**	0.176 (0.008)**	0.229 (0.021)**
GENDER			
Male	0.042 (0.003)**	0.045 (0.003)**	0.030 (0.006)**
TOTAL YEARS OF SERVICE AT SEPARATION (REPORTED)			
Yrs Service 1-4	-0.008 (0.004)*	-0.007 (0.004)	
Yrs Service 5-19	0.110 (0.007)**		-0.057 (0.027)*
Yrs Service 20-39	0.176 (0.027)**		
AGE AT SEPARATION (CALCULATED)			
Age 18-24	0.011 (0.005)*	0.008 (0.005)	0.000 (0.051)
Age 25-29	-0.031 (0.004)**	-0.034 (0.004)**	-0.012 (0.011)
Age 35-39	0.018 (0.004)**	0.021 (0.005)**	0.015 (0.008)
Age 40-49	0.006 (0.004)	0.001 (0.004)	0.023 (0.008)**
RETIREMENT SYSTEM			
TSERS	-0.023 (0.003)**	-0.031 (0.003)**	0.005 (0.006)
ACCOUNT BALANCE AT SEPARATION (CALCULATED)			
Acct $0K – 2.49K	0.101 (0.004)**	0.098 (0.004)**	0.074 (0.161)
Acct $10K - 24.99K	-0.119 (0.006)**	-0.192 (0.011)**	-0.087 (0.007)**
Acct $25K - 74.99K	-0.208 (0.009)**	-0.574 (0.073)**	-0.179 (0.010)**
Acct $75K - 99.99K	-0.331 (0.083)**		-0.309 (0.084)**
Acct $100K or more	0.037 (0.250)		0.061 (0.255)
Constant	0.702 (0.008)**	0.715 (0.008)**	0.784 (0.033)**
Observations	77,423	61,849	15,574

Notes: Coefficients are from a linear probability model with standard errors in brackets. * significant at 5%; ** significant at 1%. See Table 5 for sample description and means of the dependent variable.

V. Key Findings and Policy Issues

This analysis provides a detailed picture of the distribution decisions of workers who separated from public sector employment and were covered by a pension plan in North Carolina between 2000 and 2009. Upon separation, individuals must decide whether to leave their money in the retirement system or to accept a lump sum distribution of their account balance. For those persons who choose a lump sum distribution, they must decide whether they want to receive these funds directly as taxable income or roll over the monies into another tax qualified retirement plan. These two decisions have important implications for the retirement income of these workers. The investigators were given access to a data file containing information on all persons separated from the retirement plans during this time period, a sample of over 175,000 separating workers. The sample consists of individuals who left the retirement system and did not immediately start a retirement annuity and for whom we had complete economic and demographic data.

Among these workers, 45 percent requested a cash settlement within one year of separation from public employment. Significant differences were observed across individuals both when comparing the raw means in Table 3 and in a regression analysis in Table 4. Men were more likely to request a lump sum distribution than women. Even among those who were vested (five or more years of service), separating workers with fewer years of service were more likely to request a cash settlement, perhaps because the account balance was smaller or because these workers have longer (expected) tenure at other employers. Interestingly, participants in the LGERS were more likely to take the cash withdrawal than participants in the TSERS system. The TSERS plan includes teachers, and it may be the case that these workers are more likely to

be planning to return at some point in the future. As one would expect, the likelihood of leaving money in the system increased with the size of the account balance. The regression results indicate that the probability of requesting a lump sum distribution varied with age where younger workers were less likely to withdraw their funds and older workers were more likely. According to the means presented in Table 3, the non-vested participants were 13 percentage points more likely to request a lump sum compared to vested employees.

In total the regression results are consistent with the predictions of which workers would be most likely to desire a cash withdrawal. Interestingly, when the sample is divided between those who were vested and those not yet vested we see quite similar results. Unless a worker is planning to re-enter the public sector labor force, there is no benefit of a non-vested worker leaving their money in the system. On the contrary, these workers are in essence giving the State a no-interest loan. More research is necessary to understand which workers are returning to the public sector labor force and what fraction of workers leaving their funds in the system at separation ultimately re-enter the system and qualify for the full retirement benefit.

Workers choosing to withdraw their funds from the system face a second choice: how to accept their cash settlement. Among the workers leaving the North Carolina retirement plans, 85 percent wanted to receive the cash directly (see Table 5). The preference for cash increased during the sample period from 75 percent to 80 percent between 2000 and 2002 to 90 percent in 2009. Women were more likely to request that the pension distribution be rolled over into another retirement account as were participants in the TSERS. Individuals with larger account balances were more likely to roll the monies over into another retirement account.

We find that workers departing in 2007 and beyond were significantly less likely to withdraw their funds from the retirement system relative to their counterparts who separated in

earlier years. Starting in 2007 the information that was available to departing workers was expanded and access to resources was made more formal. At the same time, the records available to the managers of the pension system improved considerably. More research is needed to understand how workers make these choices and what types of information separating workers need to make optimal decisions for their retirement security.

DATA APPENDIX

The initial sample was created by taking all records that had "mem_end_date" between 2000 and 2009. For individuals that have left their money in the system, mem_end_date is the last contribution date (the separation date). For individuals that have closed/withdrawn their account, this variable is the date of withdrawal. Therefore, this will overstate the number separating, since some of the closed/withdrawn accounts correspond to employees that separated prior to 2000. The initial raw sample is N = 391,006. In this data appendix we describe how we restrict this sample to include only separations that occurred between 2000 and 2009.

Note that there is significantly more (and better) information for those whose account was "active" after the switch to the ORBIT system in 2007. Active accounts are any accounts with a balance, either for active or separated employees. Any individual that separated and withdrew the account prior to 2007 will have imputed values for the separation date and will not have a salary record in the main database.

After removing direct retirements and cleaning the data (defined below), the final analysis sample is N = 215,053. We further restrict our attention to those individuals between ages 18 and 49 at separation, since many workers are eligible to retire at age 50. Therefore, for most of the empirical results, N = 175,170.

RETIREMENTS
Following the advice of the state retirement system's office, we define direct retirements as those who claim an annuity within one year of separation. Because our project is concerned with disposition choice for those separating prior to retirement, we have chosen to remove those that retire within one year of separation from our sample (approximately 80,000 separating employees).

MULTIPLE SPELLS
We can observe multiple spells in the data for those in the ORBIT system, but do not have access to all past (or future, obviously) spells. For now we deleted all observations with multiple spells (approximately 40,969).

SEPARATION DATE
If account is active, then last_cont_date equals separation date (give or take a month or two for vacation pay, etc) no matter when the separation happened between 2000 and 2009.

If account is closed/withdrawn:
- If after 2007 then last_cont_date is separation date (give or take)
- If before 2007, we impute separation date by adding total years of service to hire date. This does not take into account purchased or non-contributory years of service, so it could overstate the separation date. It also includes years of service from prior employment spells, further inflating the separation date. For those that have an accurate separation date, the imputed date is later for 2/3 of the sample versus earlier for 1/3. For those that have an accurate separation date, only 78% have an imputed separation date within one year.

Note that the monthly salary data is not available on those closed/withdrawn before 2007.

TOTAL YEARS OF SERVICE

An individual's total years of service should be equal to the separation date minus the start date except:

- Individual can purchase years of service.
- If career is interrupted then total years of service may be greater.

We do have some limited information on whether years of service were purchased, non-contributory, or earned for a portion of the sample, but have not explored using this to improve the imputed separation date.

ACCOUNT BALANCE INFORMATION

***For active accounts*:** CURRENT_ACCOUNT_BALANCE, includes interest only if vested. 970 observations with status_code "ACTV" are missing current account balance. Apparently these are caused by an employer erroneously reporting someone as meeting the requirements to participate in the retirement system, but really the person is a contractor or part-time employee. The employer then corrects that entry a month or two later, taking back the contributions and leaving $0 in the account. The account is still ACTV because the contributions were reversed, rather than withdrawn. These observations have been dropped.

For active accounts, the interest rate used is 4% and the account balance now must be discounted at 4% to get the account balance at termination.

***For closed/withdrawn accounts*:** REFUND_AMT is the amount refunded. If not vested, the refund amount is just the individuals' contribution without interest. The account balance at separation is therefore equal to the refund amount for those not vested. For those who were vested, the account balance at separation is equal to the refund amount adjusted/discounted by the interest rate. This calculation uses a standard 4% interest rate.

REF_PAYMENT_TYPE_CODE is how this amount was received (cash refund, sent to beneficiary after death, or roll-over). This amount ranges from 0 to 240,214.40 for the 2007-2009 separations subset. Only one observation has a zero refund amount, 335 have refund amounts less than $100.

For accounts closed/retired prior to 2010 but after separation:
ACCOUNT_BALANCE_AT_RETIREMENT equals the employee contributions plus interest, i.e. the lump sum that the employee could have received immediately prior to starting the retirement annuity. This does NOT equal the annuity amount.

LAST YEAR'S SALARY

This variable ranges from 0 to 443,980.30, with 1,706 zeros in the 2007-2009 separations subset (post-ORBIT). We have monthly salary information only for those in the ORBIT system. The

variable *last_years_salary* is missing for around one-third of the sample. We therefore do not use any salary information in this analysis.

SAMPLE RESTRICTIONS

We made the following additional sample restrictions (note the number dropped will obviously depend on the order in which the "dropping" occurs, so is just a rough estimate):

- Drop all observations with multiple spells in the sample period (N = 40,969)
- Drop all observations with missing (N = 10,474) or zero (N = 180) years of service.
- Drop observations with total years of service greater than 40 (N = 1,003).
- Drop those whose status code is not active, closed/withdrawn, or closed/retired (N = 2).
- Drop those not in TSERS or LGERS (N = 446).
- Drop if missing gender information (N = 4,573)
- Drop if date of birth year is 1900 (N = 19).
- Drop if no last contribution date for active account (N = 4).
- Impute separation date as described in *separation date* section. For closed/withdrawn/retired accounts the imputed separation date should be before the account closed date. Drop observations with imputed separation dates that are more than two years after the account closed date (N = 10,596). Reset imputed separation date to be account closed date if within 730.5 days for 54,997 employees.
- Drop all observations with reported or imputed separation dates before 2000 (N = 17,940) or after 2010 (N = 5).
- Drop separations that happened in 2010 (N = 6,433).
- Drop those who were less than 18 years old at separation (N = 97) or 80 years or older (N = 1,760).
- Drop those with a missing account balance (N = 175) or zero account balance (N = 37). These are likely individuals that were never a part of the system but were erroneously entered at some point and then later removed.

N = 296,293

Next we consider only those who did not retire within one year of separation (drop N = 81,240).
N = 215,053.

Of these, 39,883 were age 50 or older at separation, so will not be part of the main empirical results.
The main sample is N = 175,170.

The final sample for Tables 5 and 6 models the choice of refund type for those closing/withdrawing their accounts within one year of separation. We consider only those that choose a cash refund (ATR or ATRFT) or a rollover (ATRL or ATRLIRA). Taking the sample from above, 78,681 choose to withdraw and 77,423 choose either a cash refund or a rollover. The other main option is to have the check mailed to the address of a beneficiary.
N = 77,423.