


RETIREMENT SYSTEMS DIVISION**STEVEN C. TOOLE**
EXECUTIVE DIRECTOR

November 29, 2017

TO: TSERS/LGERS Boards of Trustees

FM: Steve Toole, Executive Director 

RE: Special Meeting to Consider Proposed Rules on Contribution Based Benefit Cap

Copy of the Text of the Proposed Rules:

"20 NCAC 02B.0405 Anti-Pension Spiking Contribution-Based Benefit Cap Factor (TSERS)

The contribution-based benefit cap factor for the Teachers' and State Employees' Retirement System is 4.5."

"20 NCAC 02C.0405 Anti-Pension Spiking Contribution-Based Benefit Cap Factor (LGERS)

The contribution-based benefit cap factor for the Local Governmental Employees' Retirement System is 4.7."

Summary of the Proposed Regulations:

The Fiscal Integrity/Pension-Spiking Prevention Act, Session Law 2014-88, was enacted by the North Carolina General Assembly in 2014. The Act contained the contribution-based benefit cap (CBBC), which protects all employing public agencies participating in the Teachers' and State Employees' Retirement System (TSERS) and the Local Governmental Employees' Retirement System (LGERS) from absorbing the costs of certain unforeseen liabilities caused by compensation decisions made by other employing agencies in the systems. The law discourages the practice of "pension spiking" and also applies to liabilities caused by non-pension spiking factors such as significant late-career promotions. The law allows government entities to maintain the flexibility to set compensation and only applies to employees with an average final compensation of \$100,000 or more, adjusted annually for inflation, and is limited to no more than 0.75 percent of expected retirements in a given year. (See [Section 1 of the Act](#), codified as G.S. 128-26(y), 128-27(a3), 128-30(g)(2), 135-4(jj), 135-5(a3), and 135-8(f)(2).)

The law established a formula to be used to determine a member's CBBC, which is then compared to the amount of that member's estimated lifetime retirement benefits, calculated by using the statutory formula for calculating a retirement benefit (total years of membership service x Average Final Compensation x 1.82%). Under the CBBC law, no retirement benefit may be "capped" or reduced by application of the CBBC unless the member first entered service on or after January 1, 2015. For members who entered the systems prior to January 1, 2015, if the amount of estimated lifetime retirement benefits exceeds the member's CBBC, the employer is required to pay the systems the difference between the two amounts (i.e., the amount of the member's retirement benefit in excess of that funded by retirement contributions, according to the statutory formula) in a lump sum within 90 days of the date of retirement. In lieu of the lump-sum requirement, the General Assembly has authorized two payment plan options. For members who enter the systems on or after January 1, 2015, employers are allowed, but not required, to submit this lump-sum payment on members' behalf. If employers choose not to pay, members may elect to submit this payment or accept a pension benefit that is reduced to the amount of their benefit cap.

The General Assembly required the Boards of Trustees of the affected retirement systems to adopt a value recommended by the actuary to be used for the variable in the CBBC statutory formula called the “cap factor.” The agency interprets the statute, in accordance with [20 NCAC 02B.0202](#) and [20 NCAC 02C.0201](#), to mean that the Board shall adopt this actuarial recommendation by motion, as it does with the annual actuarial valuation. The Board must review the cap factors no less than once every five years, in conjunction with the five-year experience study as required by [G.S. 135-6\(n\)](#) and [G.S. 128-28\(o\)](#).

The Board of Trustees adopted CBBC factors based upon the recommendation of its actuary at its regular quarterly meeting in October 2014. Cap factors of 4.8 for TSERS and 5.1 for LGERS went into effect for retirements commencing on or after January 1, 2015, the effective date of the CBBC law. Subsequently, following a new actuarial recommendation based on actual experience, in October 2015, the Boards revised the factors to 4.5 for TSERS and 4.7 for LGERS. These factors went into effect for retirements commencing on or after January 1, 2016. Pursuant to these actions by the Boards of Trustees, the Retirement Systems Division (the “Division”) has been administering the CBBC law since January 1, 2015.

Following these actions by the Boards and the Division, four local school boards engaged in multiple legal actions designed to avoid paying the CBBC liabilities that have been incurred for five retirements from their school systems. These agencies have received invoices from the state totaling \$1.8 million. On May 30, 2017, on petition of the four school systems, a Wake County Superior Court judge ruled that adoption of the CBBC factor requires rulemaking under the Administrative Procedure Act. The Department of State Treasurer (the “Department”) strongly disagrees with the ruling by the Superior Court and has filed a notice of appeal in the case. Out of an abundance of caution, the Department has decided to engage in rulemaking on the topic in the unlikely event that the four school systems prevail on appeal.

The school systems who have filed the CBBC cases argue that without completed rulemaking, the Division cannot implement the CBBC law. Although the Department disputes these plaintiffs’ legal position, the Department is requesting that this rulemaking be handled as expeditiously as possible; this will mitigate any potential harm or delay in payment should the school systems be successful on appeal or in any actions the school systems may file in the future.



RETIREMENT SYSTEMS DIVISION

STEVEN C. TOOLE
EXECUTIVE DIRECTOR

Prepared by Staff of the Office of the State Treasurer
November 29, 2017

Staff recommends the following Board actions:

Teachers' and State Employees' Retirement System (TSERS) Board of Trustees

1. As the rulemaking body, the Board hereby proposes the following Rule Text in accordance with [N.C.G.S. § 150B](#):

"20 NCAC 02B .0405 Anti-Pension Spiking Contribution-Based Benefit Cap Factor (TSERS)

The contribution-based benefit cap factor for the Teachers' and State Employees' Retirement System is 4.5."

2. The Board hereby approves the fiscal note, "Fiscal Impact Analysis of Proposed Rules on the Anti-Pension Spiking Contribution-Based Benefit Cap Factor," in accordance with [N.C.G.S. § 150B-19.1\(e\)](#).

Local Governmental Employees' Retirement System (LGERS) Board of Trustees

1. As the rulemaking body, the Board hereby proposes the following Rule Text in accordance with N.C.G.S. § 150B:

"20 NCAC 02C .0405 Anti-Pension Spiking Contribution-Based Benefit Cap Factor (LGERS)

The contribution-based benefit cap factor for the Local Governmental Employees' Retirement System is 4.7."

2. The Board hereby approves the fiscal note, "Fiscal Impact Analysis of Proposed Rules on the Anti-Pension Spiking Contribution-Based Benefit Cap Factor," in accordance with N.C.G.S. § 150B-19.1(e).

Fiscal Impact Analysis of Proposed Rules on the Anti-Pension Spiking Contribution-Based Benefit Cap Factor

Names of Boards: Teachers' and State Employees' Retirement System Board of Trustees (TSERS)
Local Governmental Employees' Retirement System Board of Trustees (LGERS)

Agency: Department of State Treasurer

Proposed Rule Titles/Citations:

Anti-Pension Spiking Contribution-Based Benefit Cap Factor (TSERS)
20 NCAC 02B.0405
Authority G.S. 135-6(f)

Anti-Pension Spiking Contribution-Based Benefit Cap Factor (LGERS)
20 NCAC 02C.0405
Authority G.S. 128-28(g)

Agency Contact: Laura Rowe, Rulemaking Coordinator
Laura.Rowe@nctreasurer.com
919-814-3851

State Gov. Impact:	Yes
Local Gov. Impact:	Yes
Private Sector Impact:	Yes
Substantial Economic Impact:	Yes

Economic Impact Summary

The proposed rules set factors used in calculations. The calculations are used in a statutory process under G.S. 135-5(a3), 135-8(f)(2)(f.), 135-4(jj), 128-27(a3), 128-30(g)(2)(b.), and 128-26(y). These statutes dictate how much post-retirement pension spiking liabilities are shifted from all public employers in the state to the retiring employee's employer. The Department of State Treasurer (the "Department" or "DST") estimates spiking employers will pay \$73.6 to the Retirement Systems over 15 years in additional employer contributions as required under the Contribution-Based Benefit Cap law (the "CBBC law"), while all employers that do not incur additional contributions under the CBBC law will avoid bearing a pro-rata share in present value terms of the unforeseen liabilities that these additional contributions serve to offset.

This unforeseen pension debt would otherwise be paid as a system-wide increase in employer contributions to the Retirement Systems over 23 years. As such, the rule is economically neutral from the perspective of the Retirement Systems, as all retirement costs are ultimately paid regardless, but overall it reduces future expenditures system-wide by \$63.5 million through savings on interest payments.

The Department also expects that the CBBC law will discourage employers from giving large compensation increases near the end of employees' careers, but the savings to employers and taxpayers resulting from avoided government compensation expenditures and reduced pension liabilities are unknown. While employees first hired prior to 2015 will not be affected directly by the law, employees hired in 2015 or after may be required to submit the additional CBBC contributions incurred upon their retirement, should their employer choose not to submit the contribution on their behalf. As a result, some portion of future savings to taxpayers will be realized as costs to affected retirees, representing no more than 0.75% of retirements each year. The current rule would affect approximately 0.2% of retirements. Costs to retirees are expected in 2020 and later, after members hired on or after January 1, 2015, begin to become eligible for retirement benefits. These reduced or purchased retirement annuities will benefit taxpayers, who ultimately bear the costs of providing public employees' salary and benefits, as well as those employers who compensate their employees prudently with regard to the long-term pension liabilities associated with their employees' public service.

DST estimates administrative costs to implement this rule will amount to \$196,850 over the next 3 years.

Payments assessed on employers since 2015 are currently subject to an ongoing court case. The outcome of the case and the timing of the court's decision is unknown. At present, however, it is the opinion of the Department that the Retirement Systems cannot refund these payments to employers because it is prohibited by state law from doing so, because no refund has been ordered by the Superior Court, and because even if the relief ordered by the Superior Court went into effect, it would lead to an equal or higher amount owed by the plaintiffs to the Retirement System. Once the proposed permanent rules are codified, any further assessments will not be subject to the outcome of the case, reducing the risk to the Retirement Systems.

Source of Funds if Rule Requires Disbursement of State Funds:

Cost of administering the program are covered by receipts from retirement trust funds that flow into 1410 Retirement Administration. State and local agencies make the required payments to the Retirement System from funds available to compensate personnel.

Copy of the Text of the Proposed Rules:

“20 NCAC 02B.0405 Anti-Pension Spiking Contribution-Based Benefit Cap Factor (TSERS)”

The contribution-based benefit cap factor for the Teachers' and State Employees' Retirement System is 4.5.”

“20 NCAC 02C.0405 Anti-Pension Spiking Contribution-Based Benefits Cap Factor (LGERS)”

The contribution-based benefit cap factor for the Local Governmental Employees' Retirement System is 4.7.”

Summary of the Proposed Regulation

The Fiscal Integrity/Pension-Spiking Prevention Act, Session Law 2014-88, was enacted by the North Carolina General Assembly in 2014. The Act contained the contribution-based benefit cap (CBBC), which protects all employing public agencies participating in the Teachers' and State Employees' Retirement System (TSERS) and the Local Governmental Employees' Retirement System (LGERS) from absorbing the costs of certain unforeseen liabilities caused by compensation decisions made by other employing agencies in the systems. The law discourages the practice of “pension spiking” and also applies to liabilities caused by non-pension spiking factors such as significant late career promotions. The law allows government entities to maintain the flexibility to set compensation and only applies to employees with an average final compensation of \$100,000 or more, adjusted annually for inflation, and is limited to no more than 0.75% of expected retirements in a given

year. (See Section 1 of the Act, codified as G.S. 128-26(y), 128-27(a3), 128-30(g)(2), 135-4(jj), 135-5(a3), and 135-8(f)(2))

The law established a formula to be used to determine a member's contribution-based benefit cap. The CBBC is then compared to the amount of that member's estimated lifetime retirement benefits, calculated by using the statutory formula for calculating a retirement benefit (total years of membership service x AFC x 1.82%). Under the CBBC law, no retirement benefit may be “capped” or reduced by application of the CBBC unless the member first entered service on or after January 1, 2015. For members who entered the System prior to January 1, 2015, if the amount of estimated lifetime retirement benefits exceeds the member's CBBC, the employer is required to pay the System in a lump sum the difference between the two amounts (i.e., the amount of the member's retirement benefit in excess of that funded by retirement contributions, according to the statutory formula) within 90 days of the date of retirement. In lieu of the lump-sum requirement, the General Assembly has authorized two payment plan options. For members who enter the System on or after January 1, 2015, employers are allowed, but not required, to submit this lump sum payment on members’ behalf. If employers choose not to pay, members may elect to submit this payment or accept a pension benefit that is reduced to the amount of their benefit cap. The payment plan options are not included in the economic analysis below because they would have a *de minimus* impact.

The General Assembly required the Boards of Trustees of the affected retirement systems to adopt a value recommended by the actuary to be used for the variable in the CBBC statutory formula called the “cap factor.” The agency interprets the statute, in accordance with 20 NCAC 02B.0202 and 20 NCAC 02C.0201, to mean that the Board shall adopt this actuarial recommendation by motion, as it does with the annual actuarial valuation. The Board must review the cap factors no less than once every five years, in conjunction with the five-year experience study as required by G.S. 135-6(n) and G.S. 128-28(o).

The Board of Trustees adopted contribution-based benefit cap factors based upon the recommendation of its actuary at its regular quarterly meeting in October 2014. Cap factors of 4.8 for TSERS and 5.1 for LGERS went into effect for retirements commencing on or after January 1, 2015, the effective date of the CBBC law. Subsequently, following a new actuarial recommendation based on actual experience, in October 2015, the Boards revised the factors to 4.5 for TSERS and 4.7 for LGERS. These factors went into effect for retirements commencing on or after January 1, 2016. Pursuant to these actions by the Boards of Trustees, the Retirement Systems Division (the “Division”) has been administering the CBBC law since January 1, 2015.

Following these actions by the Boards and the Retirement Systems Division, four local school boards engaged in multiple legal actions designed to avoid paying the CBBC liabilities that have been incurred for five retirements from their school systems. These agencies have received invoices from the state totaling \$1.8 million. On May 30, 2017, on petition of the four school systems, a Wake County Superior Court judge ruled that adoption of the contribution-based cap factor requires rulemaking under the Administrative Procedure Act. The Department strongly disagrees with the ruling by the Superior Court and has filed a notice of appeal in the case. Out of an abundance of caution, the Department has decided to engage in rulemaking on the topic in the unlikely event that the four school systems prevail on appeal.

The school systems who have filed the CBBC cases argue that without completed rulemaking, the Retirement Systems cannot implement the CBBC law. Although the Department disputes these plaintiffs’ legal position, the Department is requesting that this rulemaking be handled as expeditiously as possible; this will mitigate any

potential harm or delay in payment should the school systems be successful on appeal or in any actions the school systems may file in the future.

Economic Analysis

Scope of Analysis

For purposes of this analysis, we are using a dataset developed for a report provided to the Boards of Trustees in January 2017 that encompasses all CBBC cases processed by the Retirement Systems Division during the calendar years 2015 and 2016. At the time of that report, there had been 62 retirements requiring additional CBBC contributions, with invoices to employers totaling \$6.5 million. As of September 21, 2017, there have been 118 retirements resulting in invoices totaling \$10.9 million; however, complete data for cases since January 1, 2017, have not yet been compiled and were excluded from the analysis below.

Baseline and Cost Estimates

This \$6.5 million for the two-year period roughly represents the additional contributions needed to offset the unforeseen liabilities resulting from employer compensation decisions regarding highly compensated employees that were discovered as a result of CBBC evaluations. Notably, \$4.7 million was invoiced for retirements with effective dates during calendar year 2016; this provides a representative snapshot of the amount that the Division could expect to collect from employers in future years under the cap factors that are proposed for these rules. In this analysis, retirements with effective dates during 2015 were administered by the Division using different cap factors adopted by the Boards in October 2014 that were only in effect for one year. The 2015 retirements in the data set represent \$1.8 million of the total.

We have examined the two years of data using several other criteria to provide additional context. These other criteria include average final compensation (AFC) of retirees and type of agency.

Analysis of CBBC Liabilities by Average Final Compensation of Retirees

Table 1: TSERS & LGERS CBBC Liabilities by Average Final Compensation of Retirees					
	< \$125,000	\$125,000-149,999	\$150,000-174,999	> \$175,000	TOTAL
LGERS	\$ 231,376	\$ 174,673	\$ 572,164	\$ 274,146	\$ 1,252,360
TSERS	<u>\$ 358,724</u>	<u>\$ 440,107</u>	<u>\$ 1,422,602</u>	<u>\$ 3,283,250</u>	<u>\$ 5,504,683</u>
TOTAL	\$ 590,100	\$ 614,780	\$ 1,994,766	\$ 3,557,396	\$ 6,757,043
% of \$	9%	9%	30%	53%	100%
# of Cases	18	15	16	15	64
Average	\$32,783	\$40,985	\$124,672	\$237,159	\$105,578

Table 1 illustrates that of the \$6.5 million in CBBC contributions received in 2015 and 2016, 53% of the contributions were incurred in the 15 cases involving retirees with an average final compensation exceeding \$175,000. The average amount owed to the retirement systems for cases in the highest AFC category was \$237,000, and the average owed for cases in the lowest AFC category was \$33,000.

Analysis by Type of Agency

Table 2 shows that school systems had incurred \$2.8 million by the end of 2016, or 41% of all CBBC liabilities, the largest share among agencies affected by the legislation. The smallest share, 1%, of CBBC liabilities had been incurred by state agencies, which had only yielded three cases. The Department believes that it is generally quite difficult for mainline state agencies to incur these liabilities because of the direct and effective oversight

of the Office of State Budget & Management and the Office of State Human Resources in setting and enforcing guidelines on the use of state funds for remuneration of employees.

Table 2: TSERS & LGERS Liabilities by Type of Employing Agency			
	<i># Cases</i>	<i>Amount of CBBC Contributions</i>	<i>% of CBBC Contributions</i>
School Systems	21	\$ 2,782,792	41%
UNC System	15	\$ 1,420,647	21%
Local Governments	18	\$ 1,252,360	19%
Community Colleges	7	\$ 1,200,685	18%
State Agencies	3	\$ 100,560	1%
TOTAL	64	\$ 6,757,043	100%

The Cap Factor and Its Practical Impact

The law requires the TSERS and LGERS Boards of Trustees (the “Boards”) to set the actuarial factors used for the CBBC calculation such that no more than 0.75% of retirements in a given year are affected. Since the law has been in effect, there have been approximately 31,456 retirements processed for TSERS and LGERS. The 62 retirements examined in this analysis represent 0.2% of all retirements processed since January 1, 2015, and has not exceeded 0.75% of retirements in a given year. The number of retirements affected by the law under the cap factors used thus far has consistently fallen well within the 0.75% limit set by the General Assembly, in the aggregate for all cases and for each given year.

The “cap factor” is one of the two primary actuarial factors set by the Boards to determine the cost of a CBBC liability. The cap factor is a mechanism for assigning a percentage of the value of the benefit that will be a required contribution from the member to pay for his or her pension benefit. In other words, S.L.2014-88 requires that highly compensated members first hired after January 1, 2015, must contribute “x%” of the cost of their pension benefit through a combination of member contributions and the interest earned thereupon. The law then envisions the “x%” as a figure that represents a threshold at which the benefit-to-contributions ratio is considered an outlier. The Boards are authorized in the CBBC statutes to identify this threshold at least once every five years in conjunction with the approval of the Actuarial Experience Investigation and to adopt the recommendation of the actuary. For example, if one of the Boards selects 5.1 as the cap factor, then the employee contributions must pay for 19.6% of the value of the benefit (1 divided by 5.1). Similarly, if a Board selects 4.1 as the cap factor, it requires that employee contributions pay for 24.4% (1 divided by 4.1) of the value of the benefit. Currently, the cap factor selected by the TSERS Board is 4.5 (22.22% of the value of the benefit) and the LGERS Board’s factor is 4.7 (21.28% of the value of the benefit).

The contribution deficit represents the percentage difference between the contribution required under the anti-pension spiking law and the amount actually contributed by the member and is an indicator of the degree to which the case is an outlier. Two examples of this concept are provided below in Table 5. The ranges of the deficit percentages by type of agency are illustrated in Table 4. For example, deficit percentages for School Systems ranged from 9% to 0.11%. A 9% deficit in TSERS means that the member’s contributions made up 13.2% of the value of the benefit.

Table 3: Ranges of Percentage Deficit in Required Contributions by Agency Type		
	<i>Maximum Deficit Percentage</i>	<i>Minimum Deficit Percentage</i>
School Systems	9.00%	0.11%
UNC System	4.25%	0.55%
Local Governments	3.64%	0.19%
Community Colleges	6.85%	0.37%
State Agencies	1.38%	0.07%
All Types of Agencies	9.00%	0.07%

Table 4 shows details regarding the development of the CBBC liability for a case with a large contribution deficit and a case with a large value of the benefit (“Benefit Value”).

Table 4: Calculation of CBBC Liabilities and Contribution Deficit for Two Hypothetical Cases		
<i>Calculation of Hypothetical Maximum Benefit</i>	<i>CBBC Case with a Large Contribution Deficit</i>	<i>CBBC Case with a Large Benefit Value</i>
(1) Average Final Compensation	\$ 215,000	\$ 335,000
(2) Benefit Accrual Rate	0.0182	0.0182
(3) Years of Membership Service	29.67	31.50
(4) Hypothetical Max Benefit ((1)*(2))*(3)	\$ 116,086	\$ 192,056
(5) Value of Benefit (4)* (8)	\$ 1,408,933	\$ 2,136,425
(6) Monthly Benefit Amount (4)/“12”	\$ 9,673	\$ 16,005
<i>Calculation of Contribution-Based Benefit Cap</i>		
(7) Accumulated Member Contributions Derived from Membership Service	\$ 192,866	\$ 395,584
(8) Actuarial Annuity Factor (<i>see explanation below</i>)	12.137	11.124
(9) Actuarial CBBC Cap Factor	4.5	4.5
(10) Contribution-Based Benefit Cap ((7)/(8))*(9)	\$ 71,508	\$ 160,026
<i>Calculation of Amount Owed to Retirement System</i>		
(11) Maximum Benefit - Benefit Cap (4)-(10)	\$ 44,577	\$ 32,030
(12) Actuarial Annuity Factor (<i>see explanation below</i>)	12.137	11.124
(13) Amount Owed to Retirement System (11)*(12)	\$ 541,037	\$ 356,298
<i>Calculation of Contribution Deficit</i>		
(14) Accumulated Contributions % (7)/(5)	13.69%	18.52%
(15) Accumulated Contributions % Required “1”/(9)	22.22%	22.22%
(16) Contribution Deficit % (15)-(14)	(8.53%)	(3.71%)

The Annuity Factor and Its Practical Impact

In addition to the cap factor discussed above, the other primary actuarial factor set by the Boards to determine the cost of a CBBC liability is the “annuity factor.” The annuity factor is an age-dependent factor that encapsulates the total annuity value for service retirements. The factors are based on an annual interest rate of 7.25% and the mortality assumption used for the payment option factors in the retirement systems.

Implementation Costs of the Law to the Retirement System

Since the General Assembly did not provide a separate administrative allocation to implement this legislation when it originally passed, the administrative budget of the Retirement Systems Division does not provide a means for examining a separate cost allocation of the implementation of the legislation. However, Steve Toole, the Executive Director of the Retirement Systems, has broken the implementation into two phases and provides a rough estimate of the cost of each phase.

“Phase One” of implementation occurred between September 2014 and July 2015 and entails the initial application of the law, including the CBBC cap factors, to members of the Retirement Systems first hired on or before December 31, 2014. For these members, their benefit will not be reduced under any circumstances by the CBBC law but their final employing agency will be responsible for paying the cost of any liabilities incurred. Toole estimates the cost of programming, testing, training, actuarial support and policy development under Phase One at \$150,100. Had the Division not implemented the law, these costs would not have been incurred, but the collection of the \$10.9 million to date for the pension funds would have been impracticable. The \$150,100 is an unrecoverable sunk cost.

“Phase Two” of implementation is planned to be completed before the Retirement System will see retirements of significant numbers of members hired on or after January 1, 2015, that are affected by the CBBC law. No members hired after January 1, 2015 could retire until January 1, 2020. When an individual in this class retires, their employing agency is given the option of paying the liability. If the agency refuses to pay, then the member is given the option of paying. If the member does not pay, then the member’s retirement benefit is reduced by a commensurate amount. Toole estimates the cost of programming, testing, and training under Phase Two at \$196,850.

CBBC Payment Estimates for Members Entering the System Before Jan 1, 2015

System-wide Benefits

Assuming that the amount of CBBC contributions invoiced in the future increases annually at a rate of 3.5% as a result of salary growth, these additional contributions to the pension accumulation funds described in G.S.135-8 and G.S. 128-30 could be as much as \$73.6 million over thirteen years. These contributions serve as a reasonable proxy for the unforeseen high liabilities resulting from the affected members’ benefits. Prior to the passage of the CBBC law, these unforeseen liabilities could not have been funded in advance. Thus, they would only be discovered quinquennially as an actuarial loss during the Actuarial Experience Investigation. Upon discovery, they would increase the Retirement Systems’ unfunded actuarial liability, or pension debt. The Retirement Systems’ funding policy would mandate that this \$73.6 million be amortized over 12 years at a rate of 7.25% annually. Table 5 shows the CBBC contributions incurred annually, and tables 6a-6c develop these contributions into an approximation of the total CBBC-related unfunded liability that would have been discovered at the end of each five-year tranche of system experience over the next 13 years.

Consequently, every participating agency in the system would have been given a pro-rata share of the increase in pension debt, as detailed in Table 8 below. This would have amounted to roughly \$1.5 million in increased employer contributions to the Retirement Systems annually from FY 2021 through FY2025; \$6.0 million from FY 2026 through FY 2030; peaking at \$11.4 million for FYs 2031 and 2032; and then gradually declining as further detailed in the “Total Annual Payment” column in Table 7 below. Without the passage of the CBBC law, the \$73.6 million of unforeseen high liabilities would be collected after 23 years and would cost

approximately \$137 million as a result of this payment schedule. Thus, the CBBC law delivers a system-wide cost reduction of \$63.5 million in avoided future interest payments, thereby reducing public agencies retirement costs, which would ultimately be paid by the taxpayers. While this cost reduction due to avoidance of future interest payments is not an economic savings for statewide taxpayers in terms of the net present value, this analysis also shows that taxpayers in jurisdictions that do not incur pension spiking liabilities will see a decrease in the cost of pension spiking because the cost of the spiking will be paid solely by agencies that incur the additional liabilities.¹

The estimates above are provided using standard assumptions and procedures adopted by the Retirement System Boards of Trustees to calculate and amortize liabilities and establish employer contributions for the Systems. For years after 2016, this analysis uses the \$4.7 million invoiced in 2016, increases that amount by 3.5% annually for inflation and productivity each year, and uses an interest rate assumption of 7.25%. There is an 18-month lag between identification of a liability and the appropriation of funding to pay for that liability. Development of the \$73.6 million is illustrated in Table 5:

Table 5: Development of Projected CBBC Contributions	
Year	CBBC Contributions Incurred
2018	\$5,037,536.84
2019	\$5,213,850.63
2020	\$5,396,335.40
2021	\$5,585,207.14
2022	\$5,780,689.39
2023	\$5,983,013.52
2024	\$6,192,418.99
2025	\$6,409,153.66
2026	\$6,633,474.04
2027	\$6,865,645.63
2028	\$7,105,943.22
2029	\$7,354,651.24
Total	\$73,557,919.70
*Figures assume pension spiking contributions will increase at a rate of 3.5% annually as a result of salary growth, using the 2016 collections as a base.	

¹ When discussing a net present value in this analysis, the 7 percent discount rate mandated by G.S. 150B-21.4 is utilized. For actuarial calculations and discussions of the value of benefits the 7.25 interest rate assumption adopted by the Retirement Systems' Boards' of Trustees under G.S. 135-6 and 128-28. It is infeasible to accurately reconcile the retirement liabilities in the aggregate to the G.S. 150B-21.4 rate.

**Table 6a: Experience Study 1
(Liabilities Discovered as of 12/31/2019)**

Year	Liabilities Incurred	Cumulative Liabilities
2018	\$5,037,536.84	\$5,037,536.84
2019	\$5,213,850.63	\$10,616,609

**Table 6b: Experience Study 2
(Liabilities Discovered as of 12/31/2024)**

Year	Liabilities Incurred	Cumulative Liabilities
2020	\$5,396,335.40	\$5,396,335
2021	\$5,585,207.14	\$11,372,777
2022	\$5,780,689.39	\$17,977,993
2023	\$5,983,013.52	\$25,264,411
2024	\$6,192,418.99	\$33,288,499

**Table 6c: Experience Study 3
(Liabilities Discovered as of 12/31/2029)**

Year	Liabilities Incurred	Cumulative Liabilities
2025	\$6,409,153.66	\$6,409,154
2026	\$6,633,474.04	\$13,507,291
2027	\$6,865,645.63	\$21,352,216
2028	\$7,105,943.22	\$30,006,194
2029	\$7,354,651.24	\$39,536,295

The Retirement Systems use a 12-year amortization schedule and level dollar payments to pay down unfunded liabilities. This is illustrated in Table 7:

Table 7: Amortization Schedule and Level Dollar Payments of Hypothetical Accrued Liability			
Date	Total Beginning of Year Balance	Total Annual Payment	Total End of Year Balance
12/31/2019	-	-	\$10,616,609
7/1/2021	\$11,791,845	-\$1,452,700	\$11,142,315
7/1/2022	\$11,142,315	-\$1,452,700	\$10,445,694
7/1/2023	\$10,445,694	-\$1,452,700	\$9,698,568
7/1/2024	\$9,698,568	-\$1,452,700	\$8,897,276
7/1/2025	\$8,897,276	-\$1,452,700	\$8,037,889
7/1/2026	\$45,011,356	-\$6,007,657	\$42,053,055
7/1/2027	\$42,053,055	-\$6,007,657	\$38,880,278
7/1/2028	\$38,880,278	-\$6,007,657	\$35,477,474
7/1/2029	\$35,477,474	-\$6,007,657	\$31,827,967
7/1/2030	\$31,827,967	-\$6,007,657	\$27,913,871
7/1/2031	\$71,826,750	-\$11,417,517	\$65,210,030
7/1/2032	\$65,210,030	-\$11,417,517	\$58,113,597
7/1/2033	\$58,113,229	-\$9,964,817	\$52,006,717
7/1/2034	\$52,006,717	-\$9,964,817	\$45,457,483
7/1/2035	\$45,457,483	-\$9,964,817	\$38,433,429
7/1/2036	\$38,433,429	-\$9,964,817	\$30,900,132
7/1/2037	\$30,900,132	-\$9,964,817	\$22,820,670
7/1/2038	\$22,819,517	-\$5,409,860	\$18,871,396
7/1/2039	\$18,871,396	-\$5,409,860	\$14,637,036
7/1/2040	\$14,637,036	-\$5,409,860	\$10,095,685
7/1/2041	\$10,095,685	-\$5,409,860	\$5,225,086
7/1/2042	\$5,225,086	-\$5,409,860	\$1,369

The analyses above estimate the impact of the rule for those retirements that continue to exceed the allowable retirement benefit maximum after the proposed rule is implemented.

Employer Costs and Benefits

The law's impact on the redistribution of pension spiking costs is apparent when examining the way these liabilities have been distributed before and after the passage of the CBBC law. Previously, when employers provided unusually large compensation increases to their employees, the action resulted in unforeseen, or larger than expected, liabilities that were discovered during the quinquennial experience study. Over a hypothetical 13-year period, the Division projects that employers would generate approximately \$73.6 million in pension spiking liabilities. Upon discovery at the end of each five-year period, the outlying liabilities generated to date would be amortized over 12 years, ultimately resulting in a total of \$137 million additional retirement contributions from all participating employers. The breakdown of such additional contributions from employers who have engaged in pension spiking and from employers who have not can be seen in table 8 below.

Table 8: Cost Shifting Among Employers Before and After CBBC Law

BEFORE CBBC LAW	Non-Spiking Employers	Spiking Employers	Total
Value of Pension Spiking Liabilities	\$0	\$73,557,919.70	\$73,557,919.70
Total Cost to Participating Agencies	\$69,225,533.43	\$67,784,664.82	\$137,010,198.25

AFTER CBBC LAW	Non-Spiking Employers	Spiking Employers	Total
Value of Pension Spiking Liabilities	\$0	\$73,557,919.70	\$73,557,919.70
Total Cost to Participating Agencies	\$0	\$73,557,919.70	\$73,557,919.70

System-wide Cost Savings: \$63,452,278.55

Employers that compensate their employees prudently with regard to their employees' long-term pension liabilities would save roughly \$69.2 million over this period, while raising the costs to employers who provide larger compensation raises than most other employers by just over \$4 million and delivering a system-wide cost reduction of \$63.5 million. As described above, the system-wide cost reduction is not a cost savings to all taxpayers in the state, but does represent a savings to taxpayers in jurisdictions where the CBBC liabilities are not incurred

It remains to be quantified whether spiking employers will alter the general pattern of making compensation decisions that increase liabilities on the retirement systems and the Department will not likely be able to study the issue until the next experience study in 2020. One critique of the CBBC law is that it makes it more expensive for agencies to provide higher compensation for agencies to attract and retain talented employees in competitive labor markets. Table 8 shows the unequal distribution of costs between agencies, which essentially is due to the law's requirement that agencies who make decisions with an outsize impact on the retirement systems bear the cost of the decision instead of passing part of the cost on to other agencies.

Interestingly, behavioral economics generally, and a specifically a study using N.C. Retirement System data, suggests that spiking employers could reduce their costs because people often prefer lump sum payments over annuities like pension benefits.² Because of this observed behavior preference, it is conceivable that employers could successfully opt to compensate highly paid employees using remuneration that does not increase pension liabilities in order to attract and retain especially talented individuals.

Member Costs

One very clear intent of the CBBC law was to incentivize agencies to remunerate employees in ways that do not increase the overall cost to the state of providing retirement benefits. The extent that the rule deters employers from pension spiking is unknown. To the extent that the rule deters employers from pension spiking, employees will bear the cost of reduced wages and pension benefits. Employers will benefit from avoided wage and pension contribution payments, but may choose to provide alternate forms of compensation. DST cannot determine whether, or how much, employers will offset the lost wages and pension benefits with alternative forms of compensation. Due to data availability limitations, we are unable to quantify the net impact of any avoided pension spiking on taxpayers, employers, and employees.

² Clark, Robert L., Melinda Morrill, and David Vanderweide, "Defined benefit pension plan distribution decisions by public sector employees," *Journal of Public Economics*, Volume 116, August 2014, pp 73-88.

Furthermore, since the state historically has been committed to fully funding the cost of the retirement systems, the law also prevents the shifting of costs of decisions made by individual agencies to other agencies. For example, a pro-rata share of the \$5.4 million invoiced to public schools, universities, and community colleges in 2015 and 2016 would have also been paid for by mainline state agencies whose compensation decisions did not result in such unforeseen liabilities and did not receive the presumed benefit of having a more highly compensated employee.

Economic Impact When Members First Hired January 1, 2015, and Later Begin to Retire

For purposes of this analysis, the transition point where members are given the option to pay for the CBBC liabilities or accept a lower retirement benefit is considered “actuarially neutral” to the pension system because the actuarial value of the benefit reduction is equal to the actuarial value of the CBBC liability payment.

Because only future members will have the option to either submit a contribution or accept a reduced benefit, it is not possible at present to determine how many of these members will choose to submit an additional contribution and how many will accept a reduced benefit. However, since the present value of these amounts is assumed to be equal with respect to the state, this will not affect the overall cost savings to the pension fund.

Shifting the cost of the CBBC contributions from the employers to the members will result in additional savings to employers (and ultimately taxpayers) but costs to the members. If employers choose not to pay, retirees first hired in 2015 or later will incur costs for either:

- Reduced or alternate forms of wages and commensurate pension benefit reductions;
- Foregone retirement benefits, if they exceed the allowable cap and choose not to pay; or
- Substantial one-time cost to obtain “uncapped” pension benefit

Table 9 illustrates the amount of additional contributions RSD would receive in future years from members hired on or after January 1, 2015, who would first become vested (and therefore potentially eligible to retire) as of January 1, 2020. We have provided this estimate through 2029, but generally by 2045, virtually all of the affected members will have been first hired on or after January 2015. This estimate is calculated using the following assumptions: 10% annual turnover of employees; \$35,000 starting salary of new hires; 3.5% annual salary growth; flat membership (total number of members stays the same); and 1.2% annual payroll growth. In order to develop this estimate, we take the percentage of new hire salary (out of total payroll) in a given year and multiply by the amount of CBBC contributions expected for that year. We use the 2015 new hire payroll beginning in 2020, the 2016 payroll in 2021, etc. as each cohort of new hires could reasonably be expected to become vested. This assumes that new hires will have “pension spiked” to the same extent as current employees and that their share of payroll will equal their share of CBBC contributions.

Table 9: Impact on Members Hired January 1, 2015, and Later			
Year	Number of Members	\$ New Hires	Total CBBC Liabilities
2020	2	\$271,821	\$5,396,335.40
2021	5	\$653,202	\$5,585,207.14
2022	7	\$1,028,768	\$5,780,689.39
2023	10	\$1,406,212	\$5,983,013.52
2024	12	\$1,792,881	\$6,192,418.99
2025	14	\$2,195,405	\$6,409,153.66
2026	17	\$2,621,342	\$6,633,474.04
2027	19	\$3,071,619	\$6,865,645.63
2028	21	\$3,555,228	\$7,105,943.22
2029	23	\$4,073,820	\$7,354,651.24
Total		\$20,670,298	

The Department believes Table 9 is likely an overestimate of the actual amount of CBBC-related additional contributions RSD would receive from new hires from 2020 to 2024, since most new hires will not meet the age requirements (65 or older) to retire with only 5 years of service. We are reporting this only as a possible outcome because we do not have sufficient data to predict the demographics and behavioral patterns of future members. This analysis also assumes that new hires will exceed their CBBC-related maximum benefit to an equivalent extent as their counterparts hired before January 1, 2015, which may or may not be accurate, depending on the specific salary history, tenure, age at retirement, and numerous other variables that these new hires will eventually realize. These figures represent more of an estimated upper bound of potential member impact rather than an estimate of actual member impact.

Table 9 excludes any impacts from deterred pension spiking. The net impact of avoided pension spiking on taxpayers, affected employers and employees is unclear; DST cannot determine whether employers will reduce or modify how they compensate their employees or the extent to which they will offset the lost wages and pension benefits with alternative forms of compensation. Any taxpayer savings from deterred pension spiking will be realized by increased costs to highly compensated public employees and retirees.

Unquantifiable Impact on Employment Contracts

Many of the employees in the affected salary range have contracts with their employers. There is anecdotal evidence that the new law is impacting employment negotiations and at least some employing agencies are shifting their potential liabilities for pension spiking onto employees working under those contracts.

The Department asked an attorney who advises school boards and superintendents on contracts whether the anti-pension spiking law is having an impact. “The benefits cap has definitely affected negotiations and selection of some terms of employment to try to avoid spiking issues, such as contributions to other retirement plans, travel allowances, and incentives to stay – both so that the person is older [and] so that the actuarial figures change and [there are additional employee contributions in the system]. Some of these work just fine - meets the needs of the board, the superintendent, and limits negative impact on the retirement system,” she wrote to the Department. She continued, “I have had board attorneys propose shifts in liability. I have strongly

opposed this and it has not occurred in any of the contracts in which I've represented the superintendent. I've seen the issue also come up in regard to whether to give the superintendent a raise. I've seen a raise denied even though performance warranted it because they were concerned that it would cause spiking.”

Department staff and subject matter experts on this topic also report fielding at least five or more inquiries per month from finance and human resources professionals assessing the potential impact of the anti-pension spiking law on their agencies. And, agency representatives have made at least eight appearances at professional conferences to help affected parties better understand the law.

Moreover, the Department has obtained copies of at least two contracts with local school system superintendents that were inked since the CBBC law passed and include provisions related to anti-pension spiking. The Wayne County Board of Education included language in its July 2016 contract with its superintendent which reads, *“It is understood by the Board and the Superintendent that under the Anti-Pension Spiking legislation adopted by the North Carolina General Assembly substantial increases in salary and/or benefits could result in an Average Final Retirement Compensation that would require an additional payment to the State Retirement System in order to fund the payment of the employee’s retirement benefit...in that event it is agreed and understood that the Superintendent shall assume full responsibility for making any payment to the State Retirement System for the benefit of his account...”*

Interestingly, the Brunswick County School Board included similar language in its March 2015 contract with its superintendent. However, in August 2017 the contract was amended to remove the provision requiring the superintendent to pay the cost of any anti-pension spiking liability incurred.

While it is always perilous to infer too much from anecdotal information, the Department believes it is reasonable to conclude that the new law has been understood by public agency employers and is being considered in employment decision making. Further, it seems reasonable to conclude that if employers are attempting to shift liabilities to employees first hired before January 1, 2015 it will be unlikely that employers will pay the additional liability costs for employees first hired on or after that date.

Stakeholder Input

The Boards of Trustees posted the proposed factors online for a week prior to the October 2014 and 2015 meetings when the cap factors were discussed and selected. The Board also provided a time for public comment during the meetings. No comments were received on the selection of the CBBC cap factors at those meetings.

Table of Impacts

Costs

- Direct implementation costs of \$196,850
- Individual agencies would pay additional funds in the year incurred rather than allowing those costs to increase the State's pension debt
- Employers incurring CBBC contributions will pay an estimated \$73.6 million from 2018 to 2029
- Unknown costs to employers for alternate forms of compensation, which economic literature suggests could be less than the equivalent cost of the lifetime retirement benefits that would be incurred if no behavioral changes are made.
- Unknown impact on spiking employers' ability to attract and retain top candidates.
- The Department believes it is reasonable to conclude that the new law has been understood by public agency employers and is being considered in employment decision making
- Further, it seems reasonable to conclude that if employers are attempting to shift liabilities to employees first hired before January 1, 2015, it will be unlikely that employers will pay the additional liability costs for employees first hired on or after that date.
- Members first hired after January 1, 2015, retiring through 2029 will see a reduction in the nominal value of retirement benefits roughly estimated at \$20.7 million, or a net present value of \$11.3 million.

Benefits

- Cost savings to Employers and Retirement Systems of \$63.5 million over twelve years and thus for taxpayers realized because of immediate collection of unanticipated losses. This is a \$0.943 million net present value when the opportunity costs of an immediate rather than delayed payment schedule are subtracted.
- Employers not incurring CBBC contributions (prudent compensation decisions) will save an estimated \$69.2 million in avoided re-distributed retirement costs associated with pension spiking
- There is also anecdotal evidence that the law may be impacting employer behavior by discouraging compensation decisions that shift liability from local budgets to the retirement systems. Any savings to taxpayers or costs to members from deterred pension spiking are unquantified for employees first hired before January 1, 2015 due to lack of data.
- Taxpayers will receive a cost savings because members first hired on or after January 1, 2015, retiring through 2029 will see a reduction in the value of retirement benefits roughly estimated at \$20.7 million in nominal terms with and net present value of \$11.3 million.

Table 10: Net Economic Impact, Including State Government, Local Government, and Private Sector	
(\$0.943 million)	Cost Savings to Retirement Systems and taxpayers for employees first hired before January 1, 2015 [\$63.5 million nominal]
(\$11.3 million)	Cost Savings to Retirement Systems and taxpayers for employees first hired on and after January 1, 2015 [\$20.7 million nominal]
\$0.172 million	Cost of Implementation costs to Department [\$196,850 nominal]
\$11.3 million	Reduced or purchased retirement benefits Costs to employees first hired on and after January 1, 2015 through 2029 due to [\$20.7 million nominal]
\$11.3 million	Present value of net savings accruing to taxpayers, excluding the unquantified, but likely positive impact of deterred pension spiking.

Persons Affected

The North Carolina Retirement Systems Division provides benefits to more than 900,000 members, including:

- Teachers
- State Government Employees
- Local Government Employees
- Firefighters
- Rescue Squad Workers
- Judges
- Law Enforcement Officers
- National Guard Members
- State Legislators
- Registers of Deeds
- Other public workers

The Retirement Systems serve more than 1,200 public agency employers in the state. The total number of retirees receiving benefits for the year ending June 30, 2016, was 277,584. The total dollar amount of benefits paid for year ending June 30, 2016, was \$5.8 billion, up from \$5.6 billion in the previous fiscal year.

Alternatives to the Rule Making

As precursor to examining a continuum of possibilities of cap factors it is worth noting that the Boards of Trustees are required under the statute to adopt a cap factor. Further, it should be said that under the statute, the Boards must accept the recommendation of the actuary for a cap factor.

When the Boards of Trustees reviewed and adopted the recommendation of the actuary pursuant to the CBBC statute, a continuum of alternatives would have been compliant with the statute. It is important to note that one primary purpose of setting a cap factor is to ensure that the statutory constraint of not impacting more than 0.75% of expected retirements in any given year is not violated. To that end, a page from a presentation titled “Contribution-Based Benefits Cap,” which was presented to the Board of Trustees in October 2015 by the Retirement Systems’ actuary is copied in below. It was developed by the actuary to review the expected impact of alternative cap factors with the Board. The page from the presentation shows the lowest possible cap factor

(in red) that would be arguably compliant with the statute, and highlights in blue the midpoints between the factors in place for the first year of the program and the lowest possible factor. The Board adopted the midpoint.

Given that the CBBC law envisions a quinquennial review of the factors in conjunction with the required actuarial experience review, the Department believes the factors selected by the Boards should be carried forward in rules until at least the next experience review. Additionally, since the Board of Trustees is allowed by statute to select the interest rate used in the calculation of the value of the member's contributions within a range between 3-4% and the rate is currently at 4%, they rulemaking needs to for the possibility that the Board could lower the interest rate. For purposes of the CBBC law, lowering the interest rate would reduce the value of members' contributions, which would make more retirements subject to the CBBC and make it possible that the rule would violate the statutory constraint of not impacting more than 0.75% of expected retirements in a given year.

Recommendations

Based on December 31, 2014 valuation and proposed experience study assumptions

TSERS				LGERS			
Contribution -Based Benefit Cap Factor	Number of Retirement Eligible Members Over Cap	Expected Number of Members Capped	Expected Percent of Members Capped	Contribution -Based Benefit Cap Factor	Number of Retirement Eligible Members Over Cap	Expected Number of Members Capped	Expected Percent of Members Capped
4.1	353	77	0.79%	4.2	139	29	0.83%
4.2	298	66	0.67%	4.3	123	25	0.73%
4.3	255	57	0.58%	4.4	100	21	0.62%
4.4	221	50	0.51%	4.5	86	18	0.52%
4.5	185	41	0.42%	4.6	71	15	0.43%
4.6	155	35	0.36%	4.7	56	12	0.36%
4.7	134	31	0.31%	4.8	49	11	0.33%
4.8	115	26	0.27%	4.9	40	10	0.28%
4.9	92	21	0.22%	5.0	32	7	0.21%
5.0	68	15	0.16%	5.1	25	6	0.17%

Current Factor	Midpoint	Minimum Allowable Factor
----------------	----------	--------------------------

Given that we now have perfect hindsight, we can estimate the amount that would have been invoiced to agencies for retirements with effective dates in 2016 if the actuary's recommendation to Boards of Trustees had been to either keep the factors in place that were selected in 2014 or to select the lowest possible factor.

Table 11: Cost Estimate of Alternative Cap Factors Applied to 2016 Retirements Triggering CBBC Liabilities

Cost of Factors Selected by the Boards in 2015	\$ 4.7 million
Cost of Lowest Possible Factor	\$ 7.0 million
Cost of 2015 Factors if used for 2016	\$ 3.3 million

These alternative cost estimates are derived by first applying the expected percentage difference in number of affected retirements at various cap factors, then second by adjusting the actual number of retirements impacted by using the first figure and then multiplying that new product by the average amount actually invoiced in 2016. While the Department does not have data to provide certainty behind any assumptions regarding member or employer behavior that would be associated with varying cap factors, we believe it is reasonable to assume that lower cap factors would reduce the incidence of pension spiking. However, that could be tempered by the increased likelihood of generating political opposition to the policy stemming from the simple fact that choosing the lowest possible factors instead of the factors actually picked would result in at least a 49 percent increase in costs to spiking employers.

Risk Analysis

As has been stated previously, the Department has decided to engage in rulemaking on this topic out of an abundance of caution in the event that four school systems mentioned above prevail on appeal. The school systems who have filed the CBBC cases argue that without completed rulemaking, the Retirement Systems cannot implement the CBBC law. Although the Department disputes these plaintiffs' legal position, the Department is requesting that this rulemaking be handled as expeditiously as possible; this will mitigate any potential harm should the school systems be successful on appeal or in any actions the school systems may file in the future.

Using the same methodology in the cost section above, the failure of these four schools system to pay the \$1.8 million owed to the State as required by the CBBC statute will result in taxpayers eventually paying \$3.8 million to pay for the increased liability on the Retirement System.

Sensitivity Analysis

Age at Retirement

The CBBC calculation defined in the statute is highly sensitive to minor changes in inputs. Average age of the affected members at retirement is a particularly important variable to consider in assessing the sensitivity of this analysis. A significant increase in the age of retirees earning more than the wage threshold in the CBBC law would decrease the incidence of spiking and reduce the costs to employers. Retirement staff who have worked with employers who sought additional information before members retire report that in most cases if an employee works between 6 more months and two years at the same wage there will not be a pension spike or it will be greatly reduced.

Wage Growth Assumption

For this analysis, we assume that the total amount of CBBC contributions invoiced each year will increase at an annual rate of 3.5% as a result of wage growth. This is in line with baseline wage inflation and productivity increase assumptions used in the Retirement Systems' actuarial valuations. However, the relationship between wage growth and the amount of CBBC contributions invoiced is both highly sensitive and complex, as several elements of the calculation change in tandem with one another (e.g., AFC and accumulated member contributions). The effects of even small changes to each variable in the CBBC calculation can have a dramatic and markedly variable impact on the amount owed to the Retirement Systems in the form of a CBBC contribution. For example, a salary increase of 3.5% in the final year of the AFC period for all CBBC cases in this data set results in a pension benefit increase of just 0.88% (\$66 per month), but increases the amount of the CBBC contribution owed by an average of \$8,637. The average percent increase in the amount owed is about 27%. Even more striking is the range observed as a result of such an increase: the percent change in the amount owed ranged from 2.08% to 250.7%. The increase in the dollar amount showed less variation, ranging from \$5,382 to \$17,437. However, the amount owed tends to increase substantially for initially smaller CBBC contributions, while larger CBBC contributions show much smaller increases. The average increase for the lower 50% of CBBC contributions was \$6601, and the average increase for the upper 50% was \$6,564; the average percent change, on the other hand, was 34% for the lower 50% but just 4% for the upper 50%, with the average amount owed being \$104,619. It is possible that these observations are due to other factors, including age at retirement or unobserved variation in retirees' salary and work history, among many others.

A 3.5% salary increase in the year immediately preceding retirement for all cases in the data set would increase the amount of contributions received by the Division in 2016 (the representative "snapshot" used in this analysis to project future CBBC receipts) by 7.89%, from \$4.7 million to \$5.1 million. Thus, for the cap factors proposed in this rule, we believe the 3.5% annual increase in the amount of CBBC contributions received to be reasonably conservative using the limited information available.

Interest Rate Applied to Member Contributions

The interest rate credited to employee contributions is 4% compounded annually. The Board of Trustees is currently allowed to set this interest rate anywhere between 3% and 4%. If the Board reduces the interest rate to 3%, it would mean a 25% reduction in the growth rate of the value of employee contributions used in the CBBC calculation. This would result in an increase in the incidence and the cost of pension spikes.

The Wage Threshold in the CBBC Law

If the wage threshold were increased by the General Assembly above the current \$100,000 indexed by the CPI-U since January 1, 2015 (currently at \$102,819.28) without lowering the CBBC Cap Factor then the number of pension spiking liabilities that agencies are required to pay would decrease, but the costs of the pension spikes to the retirement systems would increase and would be borne by all employing units. If the wage threshold were decreased then an increase in the incidence and the cost of pension spikes would result.