Improving Public Pension Funding: An Analysis of The Illinois State Employees Retirement System

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Tianwei Qu

Prepared for: Center for State and Local Government Excellence

On my honor as a student, I have neither given nor received aid on this assignment.

Prepared by:

Tianwei Qu

Master of Public Policy Candidate at the Frank Batten School of Leadership and Public Policy, University of Virginia

Prepared for:

Center for State and Local Government Excellence

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Disclaimer

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Glossary

ARC: Annual Required Contribution
COLA: Cost-of-Living Adjustment
CPI: Consumer Price Index
DB: Defined-Benefit
DC: Defined-Contribution
GARS: General Assembly Retirement System
ISBI: Illinois State Board of Investment
JRS: Judicial Retirement System
SERS: Illinois State Employees Retirement System
SRS: State Retirement Systems of Illinois
SURS: State Universities Retirement System
TRS: Teachers' Retirement System

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Executive Summary

Public pension systems in Illinois faces a profound gap between pension liabilities and pension funds. As of 2015, the Illinois State Employees Retirement System (SERS) was merely 36.2 percent funded, with 88.2 percent of its annual required contribution (ARC) paid (State Data, 2015).

In order to alleviate this problem, I came up with four policy alternatives for SERS:

1. Let present trends continue
2. Adjust investment strategy
3. Shift to DC plans or hybrid plans
4. Raise annual required contribution for both employees and the state employer

Then I evaluated all four options with four criteria: political feasibility, cost-effectiveness, sustainability, and intergenerational equity. Based on my evaluation, the second option, which is to adjust investment strategy, appeared to be the best option that would take effect in the relatively short term, and sustainable in the long term. However, further study in the risks of alternative investments proposed in this option is still required in order to better improve pension funding for the SERS.

I. Background and Literature Review

The state of Illinois is experiencing a chronical shortage of public pension funds. As of 2015, The Illinois SERS pension plan, provided by Illinois State Employees Retirement System (SERS), one of the largest state retirement systems, was only 36.2 percent funded, while only 88.2 percent of its annual required contribution (ARC) was paid (State Data, 2015). At the end of the fiscal year 2016, SERS had over 61 thousand active members, and almost 57 thousand retirees. This dangerous lack of funding means that over 110 thousand participants of the SERS plan might lose their retirement income in the next few years. Being underappreciated in the job market, and probably facing age-related health problems, many members would no longer be able to support themselves or their families. Furthermore, because years of underfunded problems have already grown into a decade-long crisis in Illinois, the possible downfall of the SERS plan could cause state-wide panic among government employees.

1. Public Pension Plans

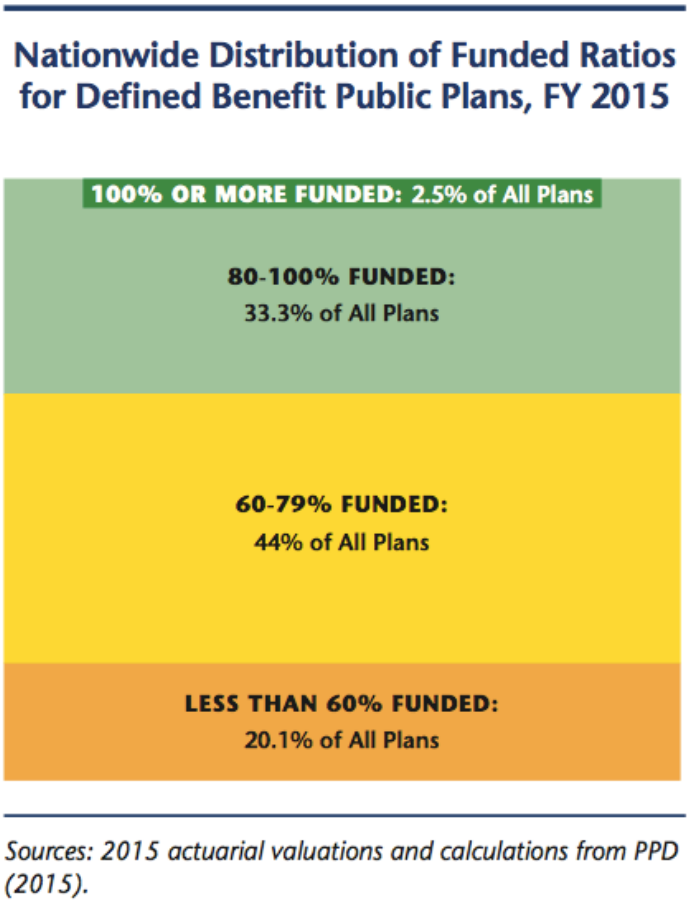
In the United States, federal, state, and local governments offer their employees public pension plans to enhance the effectiveness of public services by attracting and retaining employees, and providing financial security after retirement (SLGE, 2017). Today, public pension plans cover approximately 14.7 million active members, with over $227 billion of annual benefits going to nearly 10 million retirees (PPD, 2017). Pension systems across the country hold about $4 trillion of total assets (SLGE, 2017).

The pension plans are usually either defined-benefit (DB) or defined-contribution (DC). Under DB plans, employees receive annual benefits after retirement based on the employee's length of service and salary. A DB plan requires both employers and employees to contribute to a pension fund while the employees are working. Usually, the fund consists of employer contributions, employee contributions, and earnings from investments. All participants share financing and risk. Instead of offering a specific retirement benefit, a DC plan pays an employee with investment earnings and accumulated savings based on contributions to the employee's individual retirement account. The contributions come from either the employee, or the employer, or both parties, at a certain percentage of the employee's salary (SLGE, 2017). Besides employer and employee contributions, pension systems also finance their plans by investment earnings. Unlike the DB plans, the DC plans give employees a range of investment options that they could manage individually. 401(a), 403(b), and 457 DC plans are typical DC plans.

DB plans are the most prevalent plans in the public sector, as they place some level of responsibility and risk on both the employer and employee and provide employees more retirement security. Only a few states and the District of Columbia offer DC plans as the only retirement plan option (SLGE, 2017).

The funded status of DB plans across the county varies (see Figure 1). According to Public Plans Data, only 2.5 percent of all plans are completely funded; 33.3 percent are over 80 percent funded; and about 20 percent are under 60 percent funded (PPD, 2015).

Figure 1. Nationwide Distribution of Funded Ratios for Defined Benefit Public Plans, FY 2015. Reproduced from SLGE (2017).



2. Illinois Pension Crisis and Legislative History

The pension system in Illinois consists of six state-administered systems and several locally-administered systems. Three of the large state-administered systems, SERS, Teachers' Retirement System (TRS), and State Universities Retirement System (SURS), make up the majority of public pension active membership in the state.

The Illinois pension systems are historically underfunded. In 1969, the Illinois Pension Laws Commission reported that five of the largest retirement systems in the state were underfunded. The General Assembly Retirement System (GARS) was 68.5% funded; SURS was 47% funded; SERS was 43% funded; the Judicial Retirement System (JRS) was 32.3% funded, and TRS was 40% funded. Overall, the five pension systems were 41.8% funded in 1969. The Sixth Illinois Constitutional Convention convened that year, and the delegates agreed to add the Pension Clause to the Illinois Constitution in 1970. These systems are similarly underfunded despite fluctuations since 1969 (Madiar, 2014).

The first pension enhancement for state employees since 1971 became law in 1998, which increases benefits for employees with Social Security to a flat rate formula of 1.67% for each year of service. Employees without Social Security receive a flat rate of 2.2% for each year of service.

In 1994, the underfunding problem of the State's pension systems loomed large as Governor Jim Edgar sought re-election. In the same year, the General Assembly passed a bipartisan pension funding plan proposed by Governor Edgar that was supposed to be enacted in 1995. This funding plan was signed into law as Public Act 88-593 in August 1994. According to the legislation, 90% funding of the state's five pension systems was to be achieved by the fiscal year 2045 (Tim Novak, 1994).

The Rule of 85, that took effect in 2001, enabled system members to retire with full pension as long as their age and service credits sum up to 85. This law gives employees an opportunity for early retirement.

In April 2010, a \legislation created a two-tiered system, where members on different tiers would receive different retirement benefits based on two retirement age requirements.

Individuals who joined the SERS after December 31, 2010, are on Tier 2.

On December 5, 2013, Governor Quinn signed Public Act 98-0599 into law. This legislation made several major changes to the pension systems. This pension reform law reduced the fiscal year 2014 unfunded liability as well as state contributions by capping pensionable earnings and reducing automatic annual increases of Tier 1 members. The law also increased the retirement age by aligning the retirement age with Social Security's retirement age. Also, the law encouraged current workers to control their retirement savings going forward with 401(k)-style plans modeled after the existing State Universities Retirement System's 401(a) plan.

However, in May 2014, the Illinois Supreme Court ruled against this Act, affirming a previous Sangamon County Circuit Court decision that this new pension law was unconstitutional and void and unenforceable in its entirety. The Court claimed that the Illinois Constitution's Pension Clause, added in 1970, protects both earned and unearned benefits of current state workers from cutting pension obligations due to funding failures. The Pension Clause hence became a legal obstacle for government to reduce pension benefit rights. However, these rights are "contractual" in nature (Madiar. 2014). Hence, pension benefit rights can be changed through contract modification principles.

3. SERS

The State Retirement Systems of Illinois (SRS) administers three separate retirement systems: SERS, the General Assembly Retirement System, and the Judges Retirement System. On January 1, 1944, over 17 thousand state employees elected to become members of SERS, marking the establishment of SERS as an Illinois state agency. The system first managed the assets of SERS. In 1970, the SERS transferred its investment functions to the newly created Illinois State Board of Investment (ISBI). By the fiscal year 2017, the actuarially determined liability of SERS reached $46.7 billion. With the actuarial value of assets of only $16.6 billion, the unfunded accrued actuarial liability amounted to $30.1 billion (SERS, 2017) .

A. Contributions

SERS offers a single pension plan, the Illinois SERS plan, and other benefits for state employees who do not qualify for membership in another state system.

The SERS plan is a DB retirement plan. According to the Illinois Compiled Statutes, all participating members should contribute specified percentages of their salaries for retirement annuities and survivors' annuities. Contributions of SERS members are excluded from gross income for Federal and State income tax purposes. The total contribution rate is 4% if the member is covered by Social Security and 8% if the member is not covered (SERS, 2017).

B. Benefits

The retirement annuity is based on the member's final average compensation and the years of service credit that have been established. The final average compensation is calculated using the 48 highest consecutive months of service within the last 120 months of service (SERS, 2017).

SERS has a two-tiered system of benefits and retirement rules. Individuals who became a member of SERS or a reciprocal retirement system after December 31, 2010 are on Tier 1, while all others are on Tier 2.

The regular formula for Tier 1 members states that a member must have a minimum of eight years of service credit and may retire at age 60, or at any age if the sum of the member's age and his or her years of service credit equal 85 years, to between ages 55-60 with 25-30 years of service credit with a reduced benefit. A Tier 2 member must have a minimum of 10 years of credited service and may retire at age 67, or between ages 62-67 with a reduced benefit. All retirees will receive an annual pension increase of 3% or one-half of the Consumer Price Index (CPI), whichever is less (SERS, 2017).

C. Investments

According to the Illinois Pension Code, the Board of Trustees and staff members of ISBI are responsible for managing and investing assets belonging to the SRS and the Illinois Power Agency (collectively, the "Fund"). ISBI seeks to "maximize the likelihood of meeting long-term return objectives, while (i) maintaining prudent risk exposure, (ii) controlling fees and expenses related to managing the Fund and (iii) complying with the governing provisions of the Illinois Pension Code and other applicable laws and regulations" (ISBI, 2017). Recognizing the efficiency of public

securities markets, ISBI invests for the long-term value of the Fund with low-fee, passive strategies. Below please see a chart (Figure 2) showing the previous asset allocation as well as the new asset allocation. In fiscal year 2017, SERS owned approximately 94% of the net position of the ISBI commingled fund (SERS, 2017), and this number is supposedly constant over recent years. As of the end of fiscal year 2016, SERS experienced a roughly $228 million decrease in net positions of investment (ISBI, 2016).

4. Future Improvements and Best Practices

Gale and Krupkin (2016) gave the state and local government straightforward options: cut employee benefits, raise employee contributions, increase the tax, or cut spending. There are more options and opportunities for public pension systems like SERS to adopt.

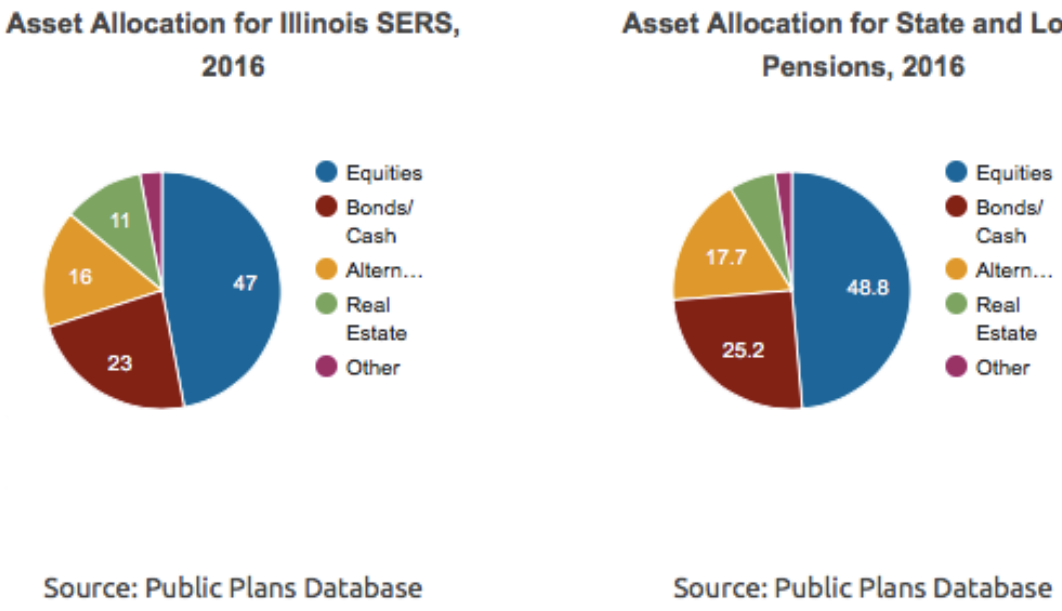
Figure 2. Changes in Asset Allocation of ISBI, FY 2016. Source: ISBI, 2016

	Old Policy	Current Policy
	%	%
Equities:	55	52
U.S. Equity	30	23
Developed Foreign Equity	16.5	13
Emerging Markets Equity	3.5	7
Private Equity	5	9
Rate Sensitive:	7	19
Intermediate Investment Grade Bonds	7	11
Long-term Government Bonds	0	3
TIPS	0	5
Credit:	13	11
High Yield Bonds	4	2.5
Bank Loans	4	2.5
Opportunistic Debt	0	4
Foreign Developed Bonds	3	0
Emerging Market Debt	2	2
Real Assets:	15	15
Real Estate	10	10
Infrastructure	5	5
Hedge Funds	10	3
Expected Return	7.5	7.7
Standard Deviation	13.4	12.9

Investment Policy

Public pension funds are invested in broadly diversified portfolios to generate investment earnings with an acceptable level of risk. Public pension fund investment decisions are primarily focused on the long-term. Mohan and Zhang (2014) claim that risk-shifting incentives dominate US public pension funds asset allocation decisions. As of 2016 (see Figure 3), the asset allocation for state and local pensions in Illinois consisted of 48.8% equities, 25.2% bonds and cash, 17.7% in alternatives, 6.4% in real estate, and 2.3% in other investments (PPD, 2017). Seligman (1967) believed that the asset mix of the public plans should more closely resemble private funds.

Figure 3. Asset Allocation Comparison between SERA and National Average



One of the most attractive investment instruments is alternatives. Alternatives, according to preliminary research conducted by Jean-Pierre Aubry et al. (2017), are defined as investments that are not traditional stocks, bonds, and cash held directly or in mutual funds. The alternatives fall into four major categories: private equity, hedge funds, real estate, and commodities. Many states have started to invest in alternatives for their robust returns. Aubry et al. (2017) also suggested that the alternatives lost substantially less than traditional equities during the financial crisis. Jackwerth and Slavutskaya (2016) found that during 1994–2012, adding portfolios of hedge funds produced significantly higher total benefits than adding other forms of alternatives.

However, higher returns often indicate higher or even unclear risks. Rauh (2009) finds no

evidence that pension funds and especially financially distressed funds engage in a risk-shifting behavior, because changes in the asset allocation are prompted by an incentive for efficient risk management. On the contrary, Mohan and Zhang (2014) suggested that public pensions undertake more risk when underfunded. Boubaker et al. (2016) discovered a positive correlation between pension fund risk-taking, low-interest rates and the decline in Treasury yields.

Disagreement on the best investment choices exists. While some researchers such as Campbell and Viceira (2001) and Cochrane (2014) find that investments in stocks can be less risky and more profitable for long-horizon portfolios, other studies advocate even more conservative approaches (Bader and Gold, 2007). In general, Shnitser (2015) found a positive correlation between greater constraints on legislative control over funding decisions, typically through the delegation of control to pension-system boards, and better funding discipline.

Plan Design

DB plans have numerous disadvantages. First, the government funds DB plans through contributions and investments made by a trusted institution. Any mistakes would cost thousands of members their retirement income. Second, as more DB plans become underfunded, the state and local government would have no choice but to impose reduced benefits or increase contributions, shifting significant burdens to the members. Also, when the economy is doing poorly, state tax revenue falls while transfer payments tend to rise, which increases lawmakers' incentive to skip required payments to pension accounts.

One solution to the unfunded problem is to shift the retirement plan from DB to DC. A hybrid pension plan could also be helpful because a complete transition to DC might encounter significant obstacles. Hybrid pension plans combine elements of both DB and DC plans. The two most prevalent types of hybrid plans sponsored by state and local governments are: 1) a combination of defined benefit and defined contribution plans and 2) a cash balance plan, which is a defined benefit retirement plan with hypothetical individual employee accounts.

While a shift in plans might solve the problem in the long run, it does not resolve the unfunded liabilities in the near-term. DC plans are not an easy solution. A study by the University of Illinois (2011) showed that DC plans expose employees to more investment risk than DB plans. Without enough financing knowledge and experience to support their choice of investments, workers with DC plans bear the risk of poor investment earnings.

Managerial Improvements Within State and Local Pension Systems

According to Joshua Franzel et al. (2017) in a report regarding public pension practice, good pension systems often have the below characteristics. The system should have continuous and direct contact between legislative committee staff and system staff, simplified information for all stakeholder groups, and prompt postings on their websites when new information becomes available. Most successful systems also have an advisory committee comprised of representatives from city and related employee groups and associations to help formalize the communication process for stakeholders. Moreover, the system would provide information at the level of detail requested, with tailored messaging, and be available to the range of stakeholder groups, including system critics. However, better management does not necessarily lead to higher investment returns or directly help to close the funding gap.

Raise Annual Required Contribution

The Annual Required Contribution (ARC) is the liabilities each year, plus the cost to amortize unfunded liabilities from past years, minus required employee contributions (PPD, 2017). Currently, the ARC hiked to above 45 percent of the government employees' payroll over the past few years, while the average US ARC remains lower than 14 percent of payroll. Although an increase in ARC could relieve the current undergoing funding problem in Illinois, it would become a heavy burden for the Illinois government. To meet its ARC payment obligations, Illinois would have to increase tax revenue. Higher taxes could lead to complicated outcomes and could influence the people of Illinois in an unpredictable way.

The employer, namely the government, contributes tremendously to DB plans; thus, increasing ARC might force the state to cut its spending on other government goods and services. This governmental decision might trigger unwanted results, such as reduced salaries or job cuts. Meanwhile, Illinois might have to increase government borrowing (University of Illinois, 2011), dragging the state into a vicious circle. According to Jean-Pierre Aubry et al. (2016), retirement plans with a higher ARC as a percentage of total government revenue are more likely to experience plan changes than the plans with lower employee contributions.

Benefit Cuts

In Illinois, the amount a retiree receives increases each year through an annual cost-of-living adjustment (COLA), which is either 3 percent, or one-half of the Consumer Price Index (CPI), depending on whichever is less. Since 2010, many states have enacted legislations, including

the 2013 Illinois law, that reduced, suspended, or eliminated COLAs for current workers and often for current retirees. All the COLA changes represent a cut in benefits, but the magnitude of the cuts varies. The changes fall into three groups: (1) virtually eliminating the COLA for the foreseeable future; (2) reducing guaranteed fixed amounts; and (3) reducing caps for CPI-linked COLAs. Munnell et al. (2014) estimated that eliminating a 2-percent compounded COLA reduces lifetime benefits by 15-17 percent. Eliminating a 3-percent COLA on the same initial benefit reduces lifetime benefits by 22-25 percent.

However, Gale and Krupkin (2016) believed that cutting benefits or raising employee contributions would put the burden on the members of pension systems. As a result, benefit cuts might sacrifice the working efficiency and even the quality of the public work force. Also, because the Illinois Constitution's Pension Clause prevents any form of benefit reduction, this option could be all too risky.

II. Evaluative Criteria

1. Political feasibility

I will evaluate proposed policy options in later analysis based on their political feasibility, which is the likelihood of wining political support for the policy option to take effect. For example, would the board of trustees of the SERS, the SERS' current members, or the state government and legislature agree with the option?

2. Cost-Effectiveness

All alternatives proposed in this project except status quo will impose a certain cost to the Illinois government in order to achieve the desired outcome. Effectiveness will project how much pension funds would increase under each policy alternative. Thus, how much a policy alternative will cost to achieve per effectiveness, which refers to increased pension funds for all members served overtime.

3. Sustainability

Any adjustments in a public pension system can influence tens of thousands of members. Most policy options proposed are hardly achievable in the short term. Hence, it is important to find out what obstacles an option will encounter during the implementation, whether an option will survive as long as expected, and how any predictable changes would affect its implementation.

4. Intergenerational Equity

The policy options will also be evaluated based on intergenerational equity, both regarding state employees and taxpayers. On the one hand, implementing a new pension policy requires time, which means it would first only affect a relatively small group of employees before eventually covering all state employees. For some options, new employees might be able to enjoy more benefits brought by the new policy. On the other hand, if a policy alternative increases or decreases the cost of public pension, taxpayers before the policy implementation will have to spend less or more money on the same amount of public services than the taxpayers during the implementation. Therefore, it is vital to recognize the fairness of an option on both employees' and taxpayers' sides.

III. Policy Options

Option 1. Let Present Trends Continue

It is undeniable that the SERS plan is significantly underfunded, even relative to other public pension systems in Illinois. However, the public pension crisis Illinois is suffering from is a chronicle and historical problem that cannot be solved in the short term. First, given that the pension policy is defined and bound by state legislations and constitution, SERS, as a single pension system, can hardly make any fundamental reforms regarding laws and regulations. Not only for SERS, but for all state pension systems, the opportunity to engage a reform is extremely limited. For example, the pension reform bill signed into law in 2013 was eventually rejected by Illinois Supreme Court, although that bill did provide comprehensive solutions. Second, ISBI is currently managing all investments of SRS, and the Illinois Power Agency collectively. Thus, altering investment strategy for SERS alone, or for the Fund as a whole might not be feasible in the near term. However, ignoring the problem, or doing nothing will endanger the retirement benefits for all members sooner or later.

Cost Effectiveness: The first option poses no cost to the SERS. The SERS will continue to provide pension to its members according to its two-tiered system. The ISBI would continue to manage the assets of SERS based on its current investment policy. As for effectiveness, because the SERS would impose no new policies, there would be no increased effectiveness for the system and its members.

Political Feasibility: This option does not require any change in current policy. Hence it is most feasible.

Sustainability: Given the existence of the Pension Clause that prevents any reduction of pension benefits of current state employees, the current policy might continue to exist for a considerably long time before any new laws are made. However, because SERS is only a little more than 30 percent funded, and the investment returns in recent years are far from satisfying, pension reforms are necessary while the system can still afford to pay the benefits.

Intergenerational Equity: SERS already have a two-tier system, in which members enrolled in the system after 2010 have a different retirement age and benefit combinations.

Option 2. Adjust Investment Strategy

The SERS could increase the percentage of total investments in alternatives. Alternatives are non-traditional investments including private equity, hedge funds, real estate, and commodities. As of 2016, the SERS has 16% of total investments in alternatives, below the national average of 17.7% (PPD, 2016). I recommend that the SERS adjust its asset allocation structure, push up investments in alternatives further to around 20%.

Although alternatives appear to be profitable, it is not yet clear that these investments are evaluated on a long-term basis. Moreover, Christiansen and Elebash (1985) suggested in their study of state pension funds that it would take longer for large state pension boards like ISBI, to react to chasing investment conditions.

Cost Effectiveness: The costs and effectiveness of this option are unclear. First, if the ISBI successfully changed its policy by investing more in alternative instruments, the future returns would depend on the market and the combination of investment. Although some studies show a positive attitude towards alternatives, and many states have already increased investment in alternatives, the actual returns of this option seem unpredictable, particularly in the long term. Meanwhile, adjusting investment does not pose significant cost either to ISBI or to SERS.

Political Feasibility: An adjustment is feasible through lobbying the ISBI. Although it is not clear how long would it take to achieve the adjustment, this option is possible in the near future.

Sustainability: Research on investment instruments, such as hedge funds and real estate, indicate that while alternatives are more lucrative, they also come with higher risk. Because the pension investment tends to focus on long-term return objectives, this option could work as long as it keeps producing positive returns on average. However, the adjustment can be replaced once proved to be unprofitable, and market fluctuations greatly influence investment returns.

Intergenerational Equity: Adjusting investment strategy equally affects all SERS members.

Option 3. Shift to DC Plans or Hybrid Plans

The DB plan that SERS offers has many shortcomings. Besides recent low investment returns, lack of employer contributions also expands the funding gap, for contributions make up a substantial portion of total state government budget each year. A DC plan could alleviate the existing issue by reducing the ratio of employer contribution to total contributions. The DC plan could also allow SERS members to make their own investments. Thus, despite the market situation changes overtime, an investment failure would not harm all members.

While it might be hard to transform the whole system to defined contribution plans in the short term, the SERS could choose a hybrid plan instead. By undertaking a hybrid plan, the SERS could either offer a plan combining defined benefit and defined contribution, or a cash balance plan, which is a defined benefit plan with hypothetical individual employee accounts.

However, because members are required to make independent investments under either plan, it would be hard to estimate the total benefits received upon retirement. Thus, this alternative might encounter legal obstacles as the benefits from the new plan are unclear, because the current plan's benefits are subject to the protection of the Illinois Constitution's Pension Clause.

Cost Effectiveness: Countries such as Sweden, Latvia, and Italy have witnessed a pension system shift to notional defined contribution (NDC) in recent decades. Given the complicated legal and administrative issues, it takes years to finish the transition. For example, Sweden experienced a 15-year transition (The World Bank, 2006). Hence, I assume that implementing this option will take 20 years.

Currently, SERS has over 85,000 active contributing members, and over 58,000 retirees (SERS, 2017). According to the data from Illinois Department of Pubic Health (n.d.), there were 15,467 births and 107,041 deaths in Illinois as of 2016, whereas the total population in Illinois in the same year was 12.84 million. Hence, the birth rate and death rate of Illinois are 1.20 per 1000 and 8.33 per 1000 respectively. So I estimate the total number of members served in the 20-year period for the policy implementation is

$$58{,}000 + 58{,}000\times(1 + 0.0012 - 0.00833) + 58{,}000\times(1 + 0.0012 - 0.00833)\times(0.0012 - 0.00833) + \cdots \approx 1{,}119{,}600$$

Political Feasibility: The Illinois Supreme Court ruled against a Public Act signed in 2015, in which legislators made major changes to public pension systems. The Court claimed that the Act was unconstitutional by violating the Illinois Constitution's Pension Clause that protects both earned and unearned benefits of current state employees. Because new plans would inevitably affect the state employees' pension benefits, attempts to make new pension law might be likely to fail in the short run.

Sustainability: The DC plans, or hybrid plans such as hypothetical individual employee accounts, also known as notional defined contribution accounts, could fundamentally alleviate the pension crisis. Hence, the new plans are sustainable regarding the benefits. However, the future of this option can be unpredictable politically. First, the option might face the same dilemma as the 2015 Act. Second, it is also possible for the future legislature or governor who does not agree with the new plans to stem the implementation or to overhaul. (Should I mention this if I do not have any names of politicians in mind? – I think it's fine)

Intergenerational Equity: Once signed into law, this option would provide a different contribution and benefit level for new state employees. Additionally, taxpayers under this option might be able to pay significantly less for state workers' pension than taxpayers do now. Thus, this change damages the intergenerational equity between present state employees and taxpayers.

Option 4. Raise Annual Required Contribution for Both Employees and The State Employer

The SERS could bump up the ARC, so as to reduce the proportion of investment gains in total funding. Both the annual report of ISBI (2016) and of the SERS (2017) showed that investment performance is far from optimistic in recent years. Considering the fast-changing global political and economic situations, relying more on stable contributions seems more rational and less risky.

However, as discussed by many researchers, further imposing heavy economic burden on state government could negatively affect government financing system and taxpayers. To meet higher ARC obligations, the Illinois government would have no choice but to transfer this burden onto taxpayers. For example, the government would either reduce costs or increase tax revenues. Cutting costs might lead to a lower salary or fewer jobs for state employees; thus, hurting the quantity and quality of public services. While the economic implications of higher taxes remain unclear, increasing budget allocation to ARC payments can bring about changes to government

functions. The government can borrow from other entities, but it is the taxpayers who ultimately pay all the debts in the end.

Cost Effectiveness: This option, if signed into law, would cost the state employer $100 million per year with annual payments growth of 3 percent. In 20 years of implementation, the total cost of this option (with a social discount rate at 3 percent) is:

Total cost (million USD)= $\sum_{20}^{1} \$100 * (1.03)^{t-1} = \$2687$

PVC (million USD)= $100*20= $2000

This option will affect all 1,119,600 retirees who receive benefits from SERS in the 20-year period.

Cost-Effectiveness Ratio= $\frac{PVC}{Units\ of\ Effectiveness} = \frac{\$\ 2000\ million}{1{,}119{,}600\ members} = \$1{,}786$/member

Political Feasibility: Because the amount of annual required contribution (ARC) under current DB plan is regulated by state law, raising ARC requires legislative efforts. The current plan requires both state employees and government have to pay for ARC, and contributions have become a great burden on state government. This option, therefore, would likely encounter resistance from both the public and within the government.

Sustainability: Increasing ARC would impose an even greater financial burden on the government and will eventually be transferred to taxpayers. Although this option could alleviate current problem immediately, it is far from a fair solution in the long run.

Intergenerational Equity: This option has equal influence on current and new state workers. However, taxpayers under this option have to pay more for public services than taxpayers did before.

IV. Outcome Matrix and Recommendation:

Taking all criteria into consideration, I recommend that the SERS should adjust its investment strategy on pension funds. First, this option is highly feasible and relatively easier to implement. The members of the board of trustees in SERS could directly report their financial and administrative situation to the state government and legislation so as to make adjustments within the government system. Second, this option promotes intergenerational equity by affecting all members in the two-tier system and all taxpayers equally. However, making investment adjustments also have potential downsides. For example, the risks of investing in alternatives remains unclear, and it is almost impossible to predict the investment market in the next 20 years. However, given the unstable market trends and the rise of populism and hence the protectionism around the world, the investment market could face great risks. While traditional investments are vulnerable to financial crisis, Aubry et al. (2017) found alternatives have better performance in this kind of situation.

Options	Political Feasibility	Cost (million USD)	Members Served	Cost Effectiveness	Sustainability	Intergenerational Equity
Status Quo	High	0	-	-	Low	High
Adjust Investment Strategy	High	NA	1,119,600 members	-	Medium	High
Shift Pension Plans	Low	-	1,119,600 members	-	High	Low
Raise ARC	Medium	$2000	1,119,600 members	$1,786/ member	Low	Low

Bibliography

Bader, L.N., Gold, J. (2007). The case against stock in public pension funds. *Finance Analysts Journal*. 63, 55–62.

Barnard Seligman. (1967). State Pension Fund Investment Policy. *Financial Analysts Journal.* Mar/Apr 67, Vol. 23 Issue 2

Center for State and Local Government Excellence (SLGE). (2017). *Understanding Public Pensions: A Guide for Elected Officials*. Washington DC: Elizabeth Kellar

Cochrane, J.H.(2014). A mean-variance benchmark for intertemporal portfolio theory. *Journal of Finance* 69, 1–49.

Center for Retirement Research at Boston College. (2014). *COLA Cuts in State/ Local Pensions*. Boston: Alicia H. Munnell, Jean-Pierre Aubry, Mark Cafarelli

IIT Chicago-Kent College of Law and the University of Illinois School of Labor and Employment Relations. (2014). *The Illinois Public Employee Relations Report*. Chicago: Eric M. Madiar

Illinois Department of Pubic Health (n.d.). Vital Statistics. Retrieved from: http://www.dph.illinois.gov/data-statistics/vital-statistics

Illinois Policy Institute. (2016). *What's driving Illinois' $111 billion pension crisis: Retirement ages, COLAs and out-of-sync pension payouts.* Chicago, IL.Ted Dabrowski, John Klingner

Illinois Policy. (n.d.). *Pensions 101: Understanding Illinois' Massive, Government-Worker Pension Crisis*. Chicago: Ted Dabrowski, John Klingner. Retrieved from: https://www.illinoispolicy.org/reports/pensions-101-understanding-illinois-massive-government-worker-pension-crisis/#part4

ISBI. (2016). *2016 Annual Report: Illinois State Board of Investment*.

Jeffrey R. Brown. (2014). Reforming Public Pensions Subject to Political and Legal Constraints: The Illinois Experience. *National Tax Journal*. Dec 2014, Vol. 67 Issue 4, p941-964. 24

Jens Carsten Jackwerth; Anna Slavutskaya. (2016). The Total Benefit of Alternative Assets to Pension Fund Portfolios. *Journal of Financial Markets.* November 2016. 31.

John Y. Campbell, Luis M. Viceira. (2001). Strategic Asset Allocation: Portfolio Choice for

Long-Term Investors.

Joshua Franzel. (2014). *State Hybrid Retirement Plans in the United States*. [PDF document]. Retrieved from: https://slge.org/wp-content/uploads/2015/05/24.10.14-WPC-presentation-Hybrid-Retirement-Plans-of-US-State-Governments-Joshua-Franzel.pdf

Natalya Shnitser. (2015). Funding Discipline for U.S. Public Pension Plans: An Empirical Analysis of Institutional Design. *Iowa Law Review.* Jan 2015, Vol. 100 Issue 2, p663-714

Nancy Mohan; Ting Zhang. (2014). An Analysis of Risk-Taking Behavior for Public Defined Benefit Pension Plans. *Journal of Banking and Finance.* March 2014 40

Rauh, J.D. (2009). Risk shifting versus risk management: investment policy in corpo- rate pension plans. *Finance Studies*. 22 (7), 2687–2733.

Robert F. Rich et al. (2011). *Public Pension Policy in Illinois: An Introduction to a Crucial Issue.* Institute of Government and Public Affairs at University of Illinois.

Sabri Boubaker et al. (2017). Assessing the Effects of Unconventional Monetary Policy and Low Interest Rates on Pension Fund Risk Incentives. *Journal of Banking and Finance.* April 2017 77

SLGE. (2016). *State and Local Pension Reform Since the Financial Crisis*. Washington DC: Jean-Pierre Aubry, Caroline V. Crawford

SLGE. (2016). *The Funding of State and Local Pensions: 2015-2020*. Washington DC: Alicia H. Munnell, Jean-Pierre Aubry

SLGE. (2017). A First Look at Alternative Investments and Public Pensions. Washington DC: Jean-Pierre Aubry, Anqi Chen, Alicia H. Munnell

SLGE. (2017). Public Pension Reporting and Disclosure: The Current State of Practice and Examples of What Works Well. Washington DC: Joshua Franzel, Elizabeth Kellar, Paula Sanford, Keith Brainard, Alex Brown

SLGE. (2017). *State and Local Pensions: A Long-Term View*

State Employees' Retirement System of Illinois. (2017). *Comprehensive Annual Financial*

Report for the Fiscal Year Ended June 30, 2017

SERS. (n.d.). History of SERS. Retrieved from: https://www.srs.illinois.gov/SERS/history_sers.htm

The World Bank. (2006). *Pension Reform: Issues and Prospects for Non-Financial Defined Contribution (NDC) Schemes.* Washington DC. Robert Holzmann, Edward Palmer

Tim Novak. (1994). Illinois Pension Fund At Issue In Campaign, St Louis Post-Dispatch. Apr. 19, 1994.

Urban Institute. (n.d.). *State and Local Government Pensions*. Retrieved from: https://www.urban.org/policy-centers/cross-center-initiatives/state-local-finance-initiative/projects/state-and-local-backgrounders/state-and-local-government-pensions

William G. Gale, Aaron Krupkin. (2016) *Financing State and Local Pension Obligations: Issues and Options*. Brookings Institute.

William A. Christiansen; Clarence C. Elebash. (1985). Why Are State Pension Funds So Conservative? *Journal of Insurance Regulation*. Mar 85, Vol. 3 Issue 3.