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State Pensions: Will Wyoming Wait Until It's Too Late?

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Introduction

While Americans learn the painful lesson that the marketplace—even a heavily regulated marketplace —more[i] efficiently controlled costs for health insurance than government will, comparatively little discussion seems to take place over the impact of excessive regulation on public retirement plans.

Municipality	Primary Driver
Stockton, CA	Pensions
Mammoth Lakes, CA	Legal judgment
San Bernardino, CA	Pensions
Boise County, ID	Legal judgment
Jefferson County, AL	Corruption (17 sent to jail)
Harrisburg, PA	Failed Green Energy Plant
Central Falls, RI	Pensions
Detroit, MI	Pensions

[ii]

Since January 2012, 8 cities and counties have filed for bankruptcy, the largest among them being Detroit, Michigan. Of these eight, four entered bankruptcy largely due to pension obligations.

All of the pensions that drove these governments to bankruptcy were of the same design: defined *benefit* programs, where pensions are set by a regulated formula regardless of available funding. Had these municipalities instead enacted defined *contribution* plans, where payouts are fully funded by employer and employee contributions, these municipalities would have no unfunded liability related to pensions.

Supporters of defined benefit plans are wary of the uncertainty associated with returns from defined contribution plans. Their concerns include: (1) defined benefit plans guarantee a level of support for pensioners that cannot be provided through 401(k) plans or similar investments, (2) 401(k) and similar investment plans suffered severely during economic downturns, and (3) employees may choose not to invest sufficiently to care for themselves in retirement.

It is clear that the above bankruptcies indicate that defined benefit plans fail to deliver the financial security they promise to both taxpayers and retirees, and there are many more arguments to be made in avoiding various other catastrophes that supporters of defined benefit plans tend not to consider. Employees, retirees, and taxpayers would all be better served if state pension plans did not incur unfunded liabilities, which can later be altered in bankruptcy court. Pensioners are particularly unprepared for changes in income when they count on their pension being guaranteed and make retirement investment decisions, if any, based on that assumption. A municipal bankruptcy that results in a significantly decreased pension does not serve the pensioner or the taxpayer well.

However, we understand that the concerns of defined benefit plan supporters will not be assuaged by predictions of future investment potential based on average annual returns or the use of financial models predicting typical results, especially following market downturns like the one experienced in 2008-2009. Therefore, to demonstrate that these concerns should not prevent Wyoming from switching to a defined contribution plan, we will look instead at what the real results *would have been* for state employees had they invested in a defined contribution plan rather than the defined benefit plans that drove them to bankruptcy. We will compare the results of a hypothetical defined contribution plan-based pension, based on actual market performance, with the existing results of the defined benefit plans currently offered to Wyoming state employees.[iii]

Types of Plans

In this paper we compare two distinct types of retirement programs: (1) defined benefit; and (2) defined contribution. The basic difference between these two plans is simple: in a defined benefit plan, a pension payment is determined based upon a formula generally relying upon length of employment and an employee's salary, while a defined contribution gives the employee investment choices—with the employer generally offering some degree of matching contributions. Wyoming state employee pensions are defined benefit plans, while 401(k) plans with employer matching are defined contribution plans.

While the general differences between the two types of plans are straightforward, there are significant differences in the plans beyond how their contributions and payments are determined. Among these are risk allocation, determining allocation of assets, and who will determine that allocation.

In a defined benefit plan, the employer takes all risk of investment, allocates assets to minimize that risk, and makes all investment allocation decisions. In a defined contribution plan, the employee assumes all risk, allocates resources based on risk tolerance and desired returns, and makes decisions regarding allocation of resources within funds offered as part of the employer's plan. While placing all risk of investment on the employer seems, at first glance, to support the argument that a defined benefit plan is more secure than a defined contribution plan, it also means that the employee has no control over his or her investments – which is a recipe for undermining that security. Without a say in which investments are made, the employee is at the mercy of the employer.

"In a defined benefit plan, the employer takes all risk of investment, allocates assets to minimize that risk, and makes all investment allocation decisions."

A defined benefit plan provides pension payments to the retiree that may continue for the retiree's surviving spouse after the retiree's death—depending upon the rules of the plan and the choices the retiree makes upon retirement. In a defined contribution plan, the retiree has accumulated an asset which can be used as the retiree sees fit, including as an inheritance for children. Here, the advantages of a defined contribution plan are quite evident. In a defined benefit plan, the employee is confined to the terms of the plan in making choices about how the pension will be distributed after death.

Both plans require that the employee make decisions as to how to receive payments upon retirement. Generally, payments will be received in the form of an annuity—an annual benefit amount that will typically be received in monthly installments—although there may be options for receiving a lump sum payment. We will pursue the differences in how defined benefit and defined contribution plans differ in the way employees may receive their payments after retirement at length in a later section.

Current Wyoming State Employee Retirement Plans

The Wyoming Retirement System (WRS) seeks to manage the current state employee retirement plans in a way that funds obligations rather than maximizing investment returns. Currently, employees entering the Public Employee Pension Plan enter under Tier 2.[iv] This plan calculates an employee's pension based on their years of service and five years' highest average salary. The employee is eligible for full benefits (i.e., receives the promised retirement) at age 65 or when their age plus years of service equals 85 or higher.

For example, an employee hired at age 30 who works for the State for 30 years is eligible for full benefits upon retirement at age 60 because the employee's age plus years of service is 85 or greater. This employee would receive 60% of the average of the five highest years' salary earned as a payment. Under the current[v] plan, if the employee were hired in 1975, retired in 2005, and had a salary roughly equivalent to U.S. median household income throughout employment; the employee could look forward to an annual pension of $25,761.84.[vi]

There are significant restrictions on defined benefit plans. First, the employee cannot make voluntary additional contributions—thus the term "defined benefit." The employee is not permitted to recoup benefits that are not pre-defined, and is thus prevented from making any additional, undefined contributions to the plan. The employee, therefore, cannot leverage the contributions with additional investment dollars, which means any additional investments the employee chooses to make must be independently and personally managed by the employee, either alone or with the help of a professional advisor.

Similarly, an employee who leaves state employment cannot take full advantage of this investment by rolling it over into a retirement plan offered by a new employer such as a 401(k) plan. Although WRS does allow a vested[vii] employee to roll over contributions if they leave state employment, doing so requires the employee to forfeit all employer contributions. Therefore, the employee must decide whether to forfeit most[viii] of their accumulated investment, or leave the funds deposited in an account over which the employee will have no control. If the employee

chooses to leave their investment with the state, the employee must begin a new retirement investment that will not benefit from the accrued principal of the vested state retirement plan.

Meanwhile, WRS is required to maintain an account for a former employee until that employee reaches age 65 if the former employee wishes to take full advantage of their vested account. For as long as 43 years[ix], WRS must manage an account with no contribution or fees from the account holder while the taxpayers must guarantee payments to a former employee who worked for the state for as little as 48 months, regardless of the performance of the WRS or that employee's later decisions. Because the administrative costs of an account in WRS are not affected by the employee's investment, this former employee costs the state just as much as an employee who continued to work for the state for the same 43 years.

This administrative obligation is an additional burden of defined benefit plans not incurred by defined contribution plans. Because a defined contribution plan consists of a group of individual accounts, a vested member may leave and roll their account over into a new investment without affecting the plan's ability to fund current obligations. This not only benefits the employee, who can continue to invest in retirement with future earnings and continue to manage their investments according to a plan best meeting their investment goals, but also the state, which benefits from reduced administrative costs.

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There is another hidden cost of defined benefit plans when compared to individual accounts that can be rolled over: not only are there costs for both the employee and the state associated with an employee's decision to leave the state's employment, but the inability to rollover investments discourages mid-career professionals from entering state employment.

These professionals are likely to have a 401(k) or similar investment plan with their current employer because so few civilian employers currently offer defined benefit plans. Professionals considering employment with the state must necessarily also consider reducing their income—not only because the wages paid by the state are likely to be lower but because they must then use a portion of their income to continue to invest for their retirement, since their employment will not be long enough to result in significant pension payments. As their income may very well be lower than expected because pension benefits are considered part of total compensation, this requires professionals to consider a disadvantageous Catch-22: their income will be lower because of the pension, but the pension will require them to give up a significant portion of their disposable income to maintain their retirement goals.[x] This limitation can prevent mid-career professionals from considering employment with the state, therefore limiting the pool of experienced professionals from which the state will be able to hire.

The WRS currently provides retirees with six retirement benefit payout options[xi]:

Option 1: Lifetime payments for retiree without beneficiary. "Typically a retiree draws all the funds from his or her account within three to five years of retiring, after which the retiree is paid with WRS investment earnings. Therefore, it is rare a lump payment is paid [to a beneficiary] at a retiree's death."

Option 2P: Full lifetime benefit for both retiree and surviving beneficiary (may not be available for non-spouse beneficiary). This plan "is a reduction from Option 1 and based on the life expectance of both you and your beneficiary."

Option 3: Full lifetime benefit for retiree and 50% benefit for spouse. "Upon your death, one-half of the monthly benefit you had been receiving would be paid to your beneficiary."

Option 3P: Full lifetime benefit for retiree and 50% benefit for spouse. "If your beneficiary precedes you in death, your benefit amount will 'pop-up' to the Option 1 amount for the remainder of your life."

Option 4: Lifetime benefit for retiree only, but if retiree dies before ten years have passed since payments began the "beneficiary would receive the same monthly benefit for the balance of the ten-year period, after which the benefit ceases."

Option 5: Lifetime benefit for retiree only. Unlike Option 1, any money remaining in the retiree's account would revert back to WRS upon the retiree's death rather than being paid out to a beneficiary.

These options raise a number of issues. First, the explanation of Option 1 states that the "account" associated with the retiree is typically depleted within three to five years. Because of this, current employees are funding a system to pay current retirees once their contributions and the returns on those investments have been depleted. Second, if a retiree chooses Option 2—which is likely the option that best describes what an employee assumes their retirement plan to be when they initially look at employment from the state—it is a reduction from Option 1. Finally,

options 3P and 5 involve serious mortality assumptions for the retiree. With Option 3P the retiree must have reason to believe the spouse is substantially likely to predecease the retiree, while Option 5 is for a retiree that expects to die within 10 years. The difference in the amount paid from plan to plan is relatively small – unless, of course, the retiree inaccurately predicts whether the retiree or spouse will die first, in which case the amount paid can be drastically lower than expected.

The Wyoming Retirement System Target Asset Allocation

When considering defined contribution plans, many may look to the performance of investments made by the state in managing the current defined benefit plan. The underperformance of the investments (reflected, in part, in its current underfunded status) might lead one to believe that a defined contribution plan would lead to even worse returns for the individual. To understand why this is not the case, we must look at how the Wyoming Retirement System (WRS) Board allocates assets when investing.

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The Board works with an outside consultant to determine asset allocation. However, the Board and the consultant have to work towards goals and within investment restrictions that would not exist in a defined contribution plan with individual accounts. The Board must meet benefit obligations, which requires that payments be made to current pensioners from the first day of any changed program and has a return objective to:

a. Keep contribution rates reasonably level over long periods of time subject to and recognizing that changes made in the law, actuarial assumptions and benefit levels will impact contribution rates.

b. Adequately fund aggregate liabilities. [xii]

"The purpose of keeping contribution rates level is to avoid the need for the legislature to adjust contribution rates in order to ensure the retirement fund is fully funded..."

The first of these objectives is designed to stabilize the contributions made to the plan. This objective is noteworthy because the State not only pays the employer portion, but pays the bulk of the employee portion as well. The purpose of keeping contribution rates level is to avoid the need for the legislature to adjust contribution rates in order to ensure the retirement fund is fully funded—a goal that has not been met, as discussed below.

The second objective relates solely to ensuring that assets are sufficient to meet obligations. In other words, the Board is not primarily concerned with maximizing the returns to its investors—primarily the taxpayers—but rather with ensuring that assets are sufficient to meet required outflows. This is not an unreasonable priority for the Board to make: the program requires the Board to use current assets and contributions to ensure both current and future distributions. The problem with this growth strategy only becomes apparent when compared to the goals of individual investors.

The individual investor can be seen as emblematic of all employees as they progress through their careers. As a young adult entering the workforce, the individual investor has the option of choosing the level of risk that is most comfortable for that particular investor. [xiii] An investor who has decades before retirement may be willing to invest in riskier funds in hopes of seeking greater returns early on, while that same investor will likely become less risk tolerant over time. After fifteen years in the workforce, approximately halfway to retirement, this investor might begin reducing risk until assets are entirely shifted to low or no risk investments in the last few years before planned retirement.

Our investor does not simply differ from the WRS Board in terms of timing of outflows; our investor has an entirely different motivation for investment. The individual investor with a defined contribution plan wants to maximize the value of the investment, while the WRS Board using a defined benefit plan is primarily concerned with stability. Ideally, the assets reach maximum value just before transitioning into a no risk annuity that will allow the investor to live the retirement he or she has dreamed of. An investor using a defined contribution plan does not require "stabilizing" the amount of contributions, nor does the individual investor need to consider how to adequately fund "aggregate liabilities." The WRS Board is required to make both stabilizing contributions and ensuring adequate funding for all liabilities a priority, and in so doing can undermine potential returns and investment value for each employee.

These differences in goals cannot be overstated: *the Board is not seeking to maximize the value of its investors' assets, nor is it*

seeking to maximize the assets available for employee retirement. Rather, the Board is seeking to make sure that it maintains funding for projected retirement benefits and that contribution requirements remain stable. The end result is a "one size fits all" investment strategy for all state employees: seeking 0% cash, 30% fixed income, 50% equity, 10% global, and 10% "alternative" investments. While the new employee would see 30% of their contribution driven towards low return fixed income investments that would be atypical investments at this stage, the employee retiring in a few months similarly has 50% of their contribution invested in equity investments that would be too risky for most at this stage.

In short, the Board's investment strategy is equally inappropriate for nearly all individual employees because of the significant differences between the status of the employee as an investor and the Board as a pension plan manager.

This incongruence results in slow, relatively nonvolatile growth of assets that has an obvious result: the guaranteed benefits are calculated based on slow growth, which results in lower payments than could be achieved in the market. Therefore, the revisions we see to pension funding requirements during economic downturns are generally the result of poor planning rather than poor investment management—the growth rate of employees was underestimated, contribution requirements were too low based on estimated returns that could not be achieved under plan restrictions, the legislature failed to recognize or plan for a decreasing tax base, or some combination thereof.

All of these issues relate to poor legislative decisions, not poor investment decisions. Public pension plans generally have very strict guidelines for investment, not dissimilar from the guidelines set out for the WRS. In other words, even if the Board members are well aware that a different strategy would result in better returns for all involved, the guidelines for investment would prevent them from enacting a more profitable strategy.

The growth rate of employees is also of significant concern when a defined benefit plan is in place. Future obligations grow each time an employee becomes vested, currently after 48 months of employment. As the size of the payroll increases, obligations increase at a growing rate with more employees becoming vested each year. Because the guaranteed benefits are in no way tied to investment performance, WRS must maintain sufficient annual inflows to meet obligations regardless of returns. This is the first of the two Board objectives mentioned above.

Hidden in that first objective was a two-word phrase of great import: "actuarial assumptions." Every year, the state receives a report from an independent actuary that evaluates the funded status and future needs of the WRS. This report helps legislators determine if any adjustments need to be made to the contribution or payment rates of the various pension plans. It also helps estimate future obligations and attempts to predict whether the fund is able to meet those obligations or not. We must also keep in mind that these projections are heavily dependent upon projected life expectancies, which are always increasing in the US—in 1983 the average life expectancy in the U.S. was 74, by 2013 it had risen to 79 years.

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Projected inability to meet future outflows led to the $1.6 billion unfunded liability reported in the State of Wyoming Retirement System Actuarial Valuation Report for the Year Beginning January 1, 2013, the most recent full report available. This unfunded liability represents a 23% increase over the previous year's unfunded liability. Further, this represents over 21% of the total liability of the current retirement system. Ultimately, taxpayers will end up paying for this unfunded liability through increased taxes.

As the number of employees increases, the unfunded liability increases more quickly as contributions remain insufficient—not only to meet the liability incurred with new employees but the unfunded liability that already existed. Gabriel Roeder Smith & Company, Wyoming's actuary, estimates the current contribution to be 1.74% too low after accounting for both the employee and employer contributions. With a projected payroll of nearly $1.8 billion, this shortfall represents an additional $31 million annually that Wyoming taxpayers must contribute in order to fund current obligations—assuming investments perform as projected.

This projected shortfall does not take into account any growth in the number of employees whatsoever. Given that the shortfall is the result of failure to meet previous projections, the actual shortfall can be anticipated to have an even greater cost as future projections are not met. We will discuss the assumptions made and how they compare to previous performance below.

Not only does the unfunded liability increase with the growth of government, a guaranteed benefit retirement plan creates an-

other obstacle to downsizing government. Reduction in the size of the government workforce results in a greater unfunded liability associated with the current workforce as future years see reduced contributions as a result of the reduction.

This is not to suggest that the unfunded liability would cost more than would be saved by reducing the size of government, but to point out that reliance upon current contributions to offset an unfunded liability incurred years ago underscores the basic instability of this form of retirement plan. Unfunded liabilities associated with pension plans can lead municipalities and other government entities to seek bankruptcy protection to restructure pension plans. Sadly, at this point the people most affected are pensioners who had not made financial preparations for a change in their pension benefits.

Conversely, a defined contribution plan does not create any unfunded liability and cannot leave pensioners in such unfortunate circumstances.

Addressing Concerns

As noted above, the typical concerns voiced regarding transition to a defined contribution plan from a defined benefit plan are: (1) that defined benefit plans provide a guaranteed level of support for pensioners, (2) defined contribution plans suffered severely during economic downturns, and (3) employees may not invest sufficiently to care for themselves in retirement. None of these concerns is unfounded or false. However, all are generally rooted in a lack of information or understanding.

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[Not Quite] Guaranteed Support

Probably the biggest hurdle to overcome is the notion that defined benefit plans provide a guaranteed level of support for pensioners. The security that employees feel in believing that they currently know exactly what to expect in retirement results in a fear of the unknown for them in considering other options, while others may feel that knowing exactly what obligations are owed in the future makes planning easier. In both cases, the assumptions made to come to these conclusions are unrealistic.

It is amazing the extent to which public employees believe that there is no chance of their pension being impacted by unfunded liabilities. In Detroit, for example, the population has been generally declining for over 60 years. By 1920 Detroit was the fourth largest city in the United States, and it retained this ranking until 1950 when its population reached nearly two million. Now with a population cut in half and over 70,000 abandoned buildings, Detroit has become the epitome of urban decline. Yet public employees and their unions were apoplectic at the idea that this decline might affect their pensions.

Part of the comfort public employees find in defined benefit plans rests in a fundamental misunderstanding of bankruptcy. People often associate bankruptcy with the collapse of a business—this misunderstanding played a role in the push for the bailout of automotive companies after bankruptcy brought the end of Lehman Brothers and Bear Stearns—while forgetting that companies can enter and emerge from bankruptcy just as individuals often do. As can be expected, public employees believe that there is no chance of the governmental entity (i.e., city, county, or state) ceasing to exist and, associating bankruptcy with collapse, simply assume that the governmental entity will always be there to provide their guaranteed benefit pension. They simultaneously assume their pension plan to be an inviolable contract which the government must fulfill so long as it exists – and it is this assumption that leads to the feeling of betrayal when the government cannot meet their pension obligations.

The Detroit bankruptcy should serve as a wake-up call for public employees everywhere: Public pensions are not guaranteed and are not inviolable; pensioners can find themselves facing an involuntary reduction in their pension due to a bankruptcy filed years after their retirement.

[Not Only] Defined Contribution Plans Suffer in Market Downturns

Any current discussion of transitioning from defined benefit pension plans to defined contribution retirement accounts will likely cause an employee to imagine the market downturn of 2008-2009. This memory will cause an unreasonable fear of the uncertainty of the market for an employee who believes they have a guaranteed benefit—since public employees are not concerned with municipal bankruptcies until their pension plan might be directly affected.

What these employees may not realize is that their pension plans suffer as well. The average return for WRS assets for the ten-year period of 2003-2012 was 7.06%. Despite this, the assumed rate of return remains 7.75%. While that may seem like an inconsequential difference of less than one percent, $1,000 invested at 7.06% annual return will be worth $1,978.21 in 10 years while an annual return of 7.75% would yield $2,109.47—a difference of nearly 6%. Over the course of 30 years, the investments would have matured to $7,230.86 and $8,711.66 respectively—a

difference of nearly 17%.

In other words, the slight difference between the assumed investment return and the actual investment return results in a significant difference between what we currently assume the future value of the WRS portfolio to be and what the value of the portfolio actually will be 30 years from now—when we would expect current new hires to approach retirement.

In order to evaluate the WRS portfolio, the Board and the actuary must make assumptions regarding annual returns, total payroll, and future contributions. Based on these assumptions a funding level is determined—the measure of the fund's ability to meet its future obligations. The Board can then make suggestions regarding future contributions in order to achieve full funding of future obligations. However, if any of these assumptions is incorrect, the discrepancy can further reduce the funding level. As the actuary notes: "Changes in payroll are significant because the methodology used in the valuation to amortize the unfunded actuarial accrued liability *assumes a growing payroll into the future.* If the payroll does not grow at the assumed 4.50% per year average, then the current amortization payments may be understated and the funding position of the Fund will not strengthen as assumed over time." In other words, if the payroll does not grow, the Fund cannot meet its obligations—even if the taxpayers increase contributions by 1.74% and all other assumptions made by the actuary are realized. Only if all if the assumptions are met is the fund actually structured to meet 80% of its obligations.[xxiv]

"In other words, if the payroll does not grow, the Fund cannot meet its obligations—even if the taxpayers increase contributions..."

The Board reduced the payroll growth rate to 4.25% on February 22, 2013 and the impact of this assumption will be reflected in the State of Wyoming Retirement System Actuarial Valuation for the Year Beginning January 1, 2014.[xxv]

This growth in payroll should not be confused with the size of government discussed above. The actuary assumes no growth in the number of employees and an annual salary increase of 4.25% for existing employees.[xxvi] While we have no data available for the number of employees whose positions have been reclassified or have otherwise received an increase in income during a period in which raises were not given, we do know that state employees have not seen widespread wage increases for four years and that the governor is suggesting raises for various state personnel on the order of 2%-2.5% for 2015 and 2016.[xxvii] Assuming these raises were to occur, the best case scenario would represent a 5% raise over a six year period—less than 1% annually. Despite this history, the actuary assumes a 4.25% annual increase in payroll without an increase in the number of employees while warning that the failure to increase wages will only increase the unfunded liability in the future.

In other words, the approximately 20% unfunded status of the WRS pension fund relies significantly upon an assumption that has not been true for at least four years and will not be true for at least two more. And this is despite the actuary's statement that deviation from these assumptions would increase the likelihood the Fund will be unable to meet its obligations to its employees.

While payroll increases have frequently been more complicated than a simple adjustment to the entire pay table, only three times since 1977 has a widespread increase of greater than 4.25% been given to state employees at large. This does not necessarily mean that existing payrolls did not increase by more than 4.25% on other occasions—data is not available to determine actual annual payroll increases on an individual basis. However, it does tend to suggest that assuming an average 4.25% annual increase for existing employees may be a bit ambitious for the purposes of determining the funding level of the current retirement system. Yet every year that wages do not increase by this amount—without regard for increases in the number of employees—the WRS pension fund will have an even worse underfunded status. Just as compounded interest causes investments to grow at an accelerated pace, *compounded shortfalls resulting from failure to meet the actuary's assumptions will result in an accelerated decrease in the funded status of the pension plan.* Because the fund has failed to meet the actuary's assumed rate of return and wages have not grown at the rate the actuary assumes, the pension fund has become more underfunded over time.

Granted, WRS is nowhere near the trouble that faces Detroit today. The question is, will Wyoming wait until we reach crisis level or will we correct the situation while it remains manageable—before any pensioners find themselves creditors in a bankruptcy that will result in an unplanned reduction in the pension they had thought guaranteed?

Employees Might Not Invest Enough

If we were to ask City of Detroit pensioners if they saved enough to survive the City's bankruptcy, we would very likely find that almost all of them planned for their retirement under the assumption that they would be guaranteed a minimum benefit for the rest of their lives and that their spouse could count on the same. Similarly, asking a disabled veteran recovering from

injuries sustained in Afghanistan or Iraq whether they anticipated the federal government might decide that they were not entitled to full medical retirement benefits would result in a confused "No" response.

Yet both Detroit pensioners and young disabled veterans have found themselves identified as a primary source of savings for governments seeking such reductions. In neither case is the government concerned with first ensuring that the individuals have made the appropriate financial arrangements to maintain their current lifestyle before making the cuts because, in both cases, the government determined that the budget situation held priority over the concerns of the individuals affected.[xxviii]

Yet when defending the defined benefit plans that will be cut, one of the primary concerns expressed is that some employees might not invest sufficiently to care for themselves in retirement. Detroit pensioners never had the opportunity to determine what level of investment would be appropriate for them because they were misled into believing that they need not invest to care for themselves—their investments would serve only to augment the pension they believed they would be entitled to and would be guaranteed and inviolable. These pensioners would certainly have made different financial decisions had they been told their pensions would be reduced to pennies on the dollar of the benefit they had been promised.

"Of course the most significant issue of concern to employees is the financial impact defined contribution plans will have on them."

A defined contribution plan makes no such empty promises and encourages employees to invest with the possibility of future hardship in mind.

Employees investing in a defined contribution plan are told that no benefit can be guaranteed and that they may wish to consider investing above the minimum amount and/or investing in additional outside opportunities. The uncertainty is presented up front and honestly to the employee, not hidden behind an empty promise that change could never happen (until, of course, it does).

They are not, however, left without any guidance to determine investment strategies on their own. The defined contribution plan provides employees the opportunity to invest in a variety of funds that vary in risk and strategy. Depending on an individual's risk tolerance and age, they can choose from funds that suit their goals. Looking at the federal Thrift Savings Plan as an example, employees can even invest in a fund that will change asset allocation to adjust risk over time based upon their anticipated retirement date (e.g., invest in a 2040 fund).

Meanwhile, the employer encourages a minimum level of investment through employer matching programs. Rather than simply putting aside a minimum percentage on the employee's behalf, the employer increases contribution in proportion to the employees' contributions to their own retirement accounts (subject to minimum and maximum contribution amounts set by the employer). While this does not force the hand of employees, it provides significant financial incentive for employees to invest with their future in mind.

Further, a defined contribution plan can allow employees to rollover funds from previous employment when joining the state. For example: a mid-career professional who is 50 years old and would like to retire in 10 years, instead of 15, is discouraged by wages that are artificially low, a pension plan designed to keep them working until 65, limits on after-tax contributions to an individual retirement account (IRA), the possibility of their existing investment not growing with additional contributions, the loss of employer contributions, or how pension payments from a relatively short career with the state would fit into their retirement planning.[xxix] Mid-career professionals would instead be able to rollover their existing employer sponsored investment into the state's defined contribution plan, continue contributions, continue receiving employer contributions, and retire according to the plans they have made – instead of an arbitrary age determined by the state.

What If…

Of course the most significant issue of concern to employees is the financial impact defined contribution plans will have on them. As noted, state employees find comfort in the defined benefit plans even as they see bankruptcies eliminate the defined benefits of others. Even though defined benefit programs nominally rely on employee and employer contributions as well as investments by the employer to provide sufficient funding, Wyoming pays almost all of the employee contribution in lieu of salary increases.[xxx]

In the case of public pension plans, the result of insufficient returns from investments is a burden on taxpayers until the situation warrants bankruptcy. These pension plans ostensibly seek to leverage investments for gains but use taxpayers as an insurance against losses – which is to say, they attempt to risk the contributions, not the contributors. Because there is low risk to the organization in increasing the unfunded liability associated with pension plans—unlike a public corporation, the state

need not worry about decreased value to shareholders associated with the liability—there is little incentive to decrease the liability through investment management as opposed to simply passing legislation increasing the contribution to the pension fund from taxpayers.

That taxpayer insurance scheme is not the only significant difference between a defined benefit program and a 401(k) type retirement plan; employees cannot benefit from better-than-expected returns on investments. Those returns will be held to guard against (inevitable) losses for future employees.

For all stakeholders—taxpayers, employees, and retirees—the question eventually becomes one of financial viability: does a defined benefit or defined contribution plan make more sense?

In order to truly evaluate and compare the two types of plans, we must determine how these events affect retirees. The federal government has already provided a model for government investment plans similar to a 401(k), the Thrift Savings Plan (TSP). Recognizing the risk of stocks, the TSP encourages investors to shift to less risky investments (e.g., bonds) and allows them to invest in plans that will automatically shift assets as the investor comes closer to retirement. We can look to a defined contribution plan similar to TSP to determine how this plan would compare to a defined benefit pension plan.

Generally, these discussions use historical data to create projections. However, projections are not persuasive when people are concerned that they may be affected by an economic downturn at or near their planned retirement. For this reason, we will look at the hypothetical of people who would have been affected by bear markets such as Stagnation[xxxi], Black Monday[xxxii], the Dotcom Bubble[xxxiii], the accounting scandals[xxxiv], the 9/11 attacks[xxxv], and the Great Recession[xxxvi]. What would retirement look like for employees who invested instead of relying upon defined benefit plans?[xxxvii] Looking at employees who began working in the decade from 1975 through 1984, all but those who began work in 1984 would have higher income under a defined contribution plan than they would under a defined benefit plan paying 60% of their five year highest average salary. Annual retirement benefits would be as shown in Table 1:[xxxviii]

It is important to understand the assumptions behind this chart. We assume that the employee worked for 30 years—the 1975 employee would retire in 2004 since 1975 is the first year of employment—before retirement and was hired at age 30 in order to receive benefits immediately under either plan upon retiring at the age of 60. We do not consider what impact the decision to continue working beyond that point would have on their retirement in this chart.

Imagine an employee who began work in 1975 at the age of 30. Had he worked for 30 years and retired under the defined benefit plan, he would expect pension payments of $25,545.60 annually (although, his payments will not actually equal this amount). However, had he invested according to our assumptions he could have annual perpetuity payments of over $47,000 and leave the entire principle of his investment (over $730,000) for his children. The defined benefit plan would leave nothing for his children.

Another note is that the defined benefit pension plan benefit uses the simple description as a percentage of the final three years of employment rather than exploring the various options currently available to WRS members. Looking at our hypothetical 1984 employee, which will be the topic of discussion below, we can use the WRS online calculator[xxxix] to evaluate pension options. Using the same assumptions above—member age 60, beneficiary age 60, 30 years of service, and a highest average annual salary of $49,224—the results are not quite the $29,871.20 the retiree would have assumed to be the lifetime benefit for the retiree and spouse.

Table 2 shows the various options available to the 1984 em-

Table 1

Year Hired	Defined Benefit		Defined Contribution Annuity Payments				25 Year Annuity vs. 60% Pension
	20%*	60%	100 Yr.	30 Yr.	25 Yr.	20 Yr.	
1975	$ 8,515.20	$ 25,545.60	$47,343.28	$ 55,754.48	$ 59,709.07	$ 66,126.05	$ 34,163.47
1976	$ 8,773.33	$ 26,320.00	$34,849.04	$ 43,448.50	$ 47,087.75	$ 52,870.02	$ 20,767.75
1977	$ 9,090.47	$ 27,271.40	$30,773.98	$ 38,658.17	$ 41,956.08	$ 47,184.65	$ 14,684.68
1978	$ 9,476.93	$ 28,430.80	$22,021.14	$ 28,731.02	$ 31,393.93	$ 35,576.30	$ 2,963.13
1979	$ 9,737.60	$ 29,212.80	$27,212.93	$ 35,163.28	$ 38,358.33	$ 43,387.46	$ 9,145.53
1980	$ 9,844.20	$ 29,532.60	$24,000.68	$ 32,134.95	$ 35,264.27	$ 40,153.39	$ 5,731.67
1981	$ 9,782.47	$ 29,347.40	$23,295.96	$ 30,833.80	$ 33,772.87	$ 38,375.07	$ 4,425.47
1982	$ 9,765.93	$ 29,297.80	$26,753.66	$ 34,791.82	$ 37,995.23	$ 43,030.14	$ 8,697.43
1983	$ 9,844.80	$ 29,534.40	$22,757.28	$ 31,106.41	$ 34,246.90	$ 39,135.45	$ 4,712.50
1984	$ 9,957.07	$ 29,871.20	$11,788.83	$ 17,525.64	$ 19,527.89	$ 22,609.08	$ (10,343.31)

* This column reflects the benefit for a mid-career employee hired 20 years later. This is provided simply as reference information

ployee upon retirement on December 31, 2013 based upon the WRS calculator. The only way to receive more than the assumed benefit is to select Options 1, 3, 3P, 4, or 5. Options 1 and 5 provide no benefit for a beneficiary, while Option 4 only provides benefit to a beneficiary only within the first 10 years of retirement and Options 3 and 3P cut the beneficiary's benefit in half—the difference being that the retiree will get more money under 3P if the beneficiary dies first. As noted above, Option 2P represents the benefit commonly assumed to be a state pension. Option 2P results in a benefit slightly below 60% of the retiree's highest 36 months' average salary.

Table 2

Plan	First Year Pension		Beneficiary (Retiree Dies First)		Retiree (Beneficiary Dies First)	
	Monthly	Annually	Monthly	Annually	Monthly	Annually
Option 1	$ 2,691.94	$ 32,303.28	$ -	$ -	$ 2,691.94	$ 32,303.28
Option 2P	$ 2,409.01	$ 28,908.12	$ 2,409.01	$ 28,908.12	$ 2,409.01	$ 28,908.12
Option 3	$ 2,560.30	$ 30,723.60	$ 1,280.15	$ 15,361.80	$ 2,560.30	$ 30,723.60
Option 3P	$ 2,544.96	$ 30,539.52	$ 1,272.48	$ 15,269.76	$ 2,691.94	$ 32,303.28
Option 4	$ 2,640.58	$ 31,686.96	*1	*1	$ 2,666.20	$ 31,994.40
Option 5	$ 2,697.05	$ 32,364.60	$ -	$ -	$ 2,694.36	$ 32,332.32

*1 - If retiree dies before 10 years of payments are made, beneficiary receives payments for balance of 10 years.

The various defined contribution benefits represent multiple choices the retiree would have for establishing an annuity with the fund they have established, with each column representing a different term for the annuity. Unlike the defined benefit plan, the defined contribution plan creates an asset that will become a part of the estate that can be passed on to the retiree's children. For example, the 1980 employee could elect to receive approximately $24,000 per year from their IRA, based on U.S. Treasury Bond rates, while leaving over $500,000 cash in their estate. This is a retirement planning option not available to defined benefit retirees, but it can be important to parents of disabled adult children. It is important to remember that annual income and expenses of the retiree and spouse are not the only consideration in retirement planning.

At first glance, it appears as though the 1984 employee is doomed. However, the employee hired in 1984 is not confined to the standard assumptions used to develop this table. This employee, realizing that the market crashed immediately before they would have transitioned to a less risky investment, does not have to simply accept these paper losses. The employee could choose to remain in the market for a year or two and retire on time, remain in the workforce for a year or two longer, or even remain in the stock market for 30 years before making a retirement decision. The 1984 employee would still be able to have a higher retirement income using some of these strategies, as shown in Table 3.

Table 3: 1984 Employee Choices

	30 Yr.	25 Yr.	20 Yr.
Baseline Assumptions	$ 17,525.64	$ 19,527.89	$ 22,609.08
Add'l Year in Market	$23,129.08	$25,399.98	$28,944.93
Add'l Year of Work	$23,962.74	$26,315.49	$29,988.21
Two Years in Market	$25,580.51	$28,055.23	$31,924.27
Two Years of Work	$27,457.77	$30,114.09	$34,267.07
Market Until 2014 Retirement	$27,712.62	$31,089.33	$36,258.41

It is important to note that these hypothetical 1984 employees demonstrate the worst-case scenario during the Great Recession—the worst economic downturn since the Great Depression—which occurred only seven years after the 9/11 attacks and erased all gains over that period. From January 2001 through September 2010, nearly a decade, their investment would have realized effectively zero gain yet they could still position themselves for a significantly higher retirement income through a variety of investment strategies. These same financial conditions helped contribute to the unfunded status of the Detroit pensions and the decline in the funded status of the WRS. The difference being that this hypothetical employee has years to make adjustments including working until age 57 or 60 before retiring to make up lost ground.

The pensioners in Detroit will not have such an option. In bankruptcy court they will be told exactly what percentage of their promised pension they will receive. They will not have the opportunity to roll funds over into another investment with a third party they trust more. They cannot simply continue working another year or two in order to be sure they have the retirement income they planned on. They must make an entirely new plan for retirement while already retired. Had this employee been invested in a defined contribution plan, the city's bankruptcy would have no more effect on this retiree than it does other citizens.

Further, it should be noted that this example assumes one of the lowest risk market investment strategies available—invest-

ment in an index fund for the entire employment period until five years before retirement. Employees who invest in target funds that automatically shift from higher risk investments to lower risk investments as their retirement date approaches could realize significantly higher gains, coupled with higher fluctuations, early on, thus greatly increasing their retirement income.

One example alternative strategy would be investment in a Russell 2000 index fund (a fund that invests in smaller, riskier companies) for 15 years, a Dow index fund for 10 years, and treasuries for the final five years. This strategy would have afforded the 1984 employee the opportunity to retire with greater income than a 60% defined benefit plan without working an additional year or carrying greater risk later.[xli] It is important to understand that this alternate strategy—one that shifts risk over time due to a retirement target date—is a common fund management technique and does not involve individual investment research and strategy. Nor does this require any special knowledge or a high tolerance for risk. This sample alternate strategy still uses investment in index funds as its strategy, just allowing for moderate risk during the first 15 years of employment. The results are shown in Table 4, below.

Table 4: 1984 Strategies

	Baseline	Alternate
30 Yr.	$ 17,525.64	$24,918.53
25 Yr.	$ 19,527.89	$27,954.79
20 Yr.	$ 22,609.08	$32,602.70

Another significant variable is the amount of money invested. While current law increases the total WRS contribution to over 15% and the most recent actuarial report finds that an additional 1.74% would be needed to complete fund current obligations, the defined contribution plan example provided above represents a 15% contribution level.

As noted above, the fund can be constructed in a way to ensure employees are incentivized to contribute to a desired minimal level. While we cannot force public employees to invest a certain portion of their income for retirement, employees can be encouraged to invest through designing employer contributions to be dependent upon employee contributions (e.g., matching contributions). Combine these offerings with educational materials explaining the advantages of getting matching contributions, even if the market slows, and a comparison of retirement with investment to retirement on social security can encourage investment. In our sample, we assume employee matching up to 7.5% of income. Employees who wish to save more could easily do so. Tables 5 and 6 revisit the 1984 employee's results after adding one percent of their income in additional investment for a total of 16% (which is less than the contribution needed to reach a funded status for the current WRS):

For reference, the defined benefit plan would pay this employee $29,602.44 annually. While there are scenarios in which this employee would receive less than 60%, this represents the worst case scenario for that employee. The baseline, baseline plus one percent, and alternate plus one percent strategies all assume that the employee exited the market at the end of 2008—the worst possible time.

None of these scenarios represent anything close to the impact bankruptcy will likely have on Detroit pensioners. Not only do these represent payments from an individual account that is not dependent upon contributions from future employees or subject to future legislative changes, but they represent an asset belonging to the employee that can be passed on to the employee's spouse and/or children. In the worst case, the employee can expect slightly less than would be available in a pension plan. In the best case, the employee can expect more than twice what would be available in a pension plan—the 1975 employee would actually receive more from their retirement plan than was earned in any year of employment. That said, in general employees can expect a higher return from investments from an individual account than as part of a collective pension plan.

How do these benefits compare to the salary earned before retirement? A pension plan will not generally pay more than 100% of the salary used to calculate benefits, but there is no upper limit on an employee's investments in a defined contribution plan. Just for the sake of addressing this point, we will consider the extreme example of an employee who joined with the state at age 18, worked for 52 years, retired at 70, has a spouse who is also 70 years old, and use the same average top three years' salary of $49,224. Table 7 summarizes

Table 5: Alternate 1984 Employee Choices

	30 Yr.	25 Yr.	20 Yr.
Baseline Assumptions	$ 17,525.64	$ 19,527.89	$ 22,609.08
Baseline +1%	$ 18,694.01	$ 20,829.75	$ 24,116.35
Add'l Year in Market +1%	$24,671.02	$27,093.32	$30,874.59
Add'l Year of Work +1%	$25,560.25	$28,069.85	$31,987.42
Two Years in Market +1%	$27,285.88	$29,925.57	$34,052.55
Two Years of Work +1%	$29,288.28	$32,121.70	$36,551.54
Market Until 2014 Retirement +1%	$29,560.13	$33,161.96	$38,675.64

Table 6: 1984 Strategies

	Baseline	Alt. +1%
30 Yr.	$ 17,525.64	$26,579.77
25 Yr.	$ 19,527.89	$29,818.44
20 Yr.	$ 22,609.08	$34,776.22

the options for this employee.

Despite having worked for 52 years—which would calculate out to 104% of the top three salary, but is limited to 100% — the only way the retiree could receive anything greater than the highest average annual salary used to calculate pension would be to assume that the spouse will die first and choose Option 5. None of these options equal the final year salary of $50,099, nor do they begin to approach the asset this employee would have established over those 52 years.

Other Considerations

There are other considerations beyond those expressed by proponents of defined benefit plans, most of which have been mentioned previously but warrant summary here. First, defined contribution plans create an asset that can be passed on to the employee's children should the employee and spouse not live long enough to expend their full investment. *Second, the employee is in full control and can freely contribute more to the plan and leverage their full investment rather than having a percentage of their income taken for a defined benefit plan that will pay less than their investment.* Third, the plan can be constructed to allow employees to rollover their 401(k) plan from previous employment into this plan—or rollover their vested retirement into a 401(k). Fourth, the state, counties, and cities can consolidate all retirement plans as the investment is funded by contributions—removing pensioners from the list of potential losers in the event of a municipal bankruptcy. Finally, once all employees are on this plan there will never be an unfunded obligation so long as the fund is never raided for other purposes.

For those who choose not to invest despite these options, they are making an educated decision to rely on some other source of support in retirement. Future generations of taxpayers should not be obligated based on the concern that a small percentage of government employees will make poor decisions regarding their retirement – particularly in light of the constant input they will receive regarding how to make wise investment decisions that will ensure a comfortable retirement.

Conclusion

For employees who choose to invest and take advantage of employer matching contributions, defined contribution plans are clearly a better choice. The worst possible outcome for a defined contribution plan is that an employee might need to delay retirement for two years, whereas the worst case scenario for an employee with a defined benefit plan is helplessly watching as their retirement income is reduced drastically by a municipal bankruptcy well after they have already entered retirement. If a retired employee on a defined benefit plan suffers this worst-case scenario, it is likely he or she will be forced to return to the workforce. Even this option may not save the retiree from hardship; a retiree who has not been in the workforce for ten or more years will have great difficulty finding work beyond basic entry-level positions (e.g., Wal-Mart greeter), and many retirees are not physically or mentally healthy enough to be able to work.

For employers the defined contribution plan eliminates the potential of unfunded liabilities. In the case of government employers, the defined contribution plan means never telling taxpayers that they must pay more to fund pensions for state employees when those taxpayers have no similar guaranteed retirement.

Using the extreme example of an employee with 52 years' service, we have demonstrated that defined benefit retirement plans do provide a real ceiling on potential retirement income. We have also pointed out that the minimum income employees believe to be guaranteed with a defined benefit retirement plan is really just illusory. The state can redefine pension plans so long as the political will exists to do so, and bankruptcy courts can restructure liabilities when the political will does not exist. *Either way, the guaranteed benefit of a pension plan is only guaranteed until the guarantee is revoked.*

Individual retirement accounts are an asset belonging to the individual, not a liability that can be restructured in bankruptcy court. The elimination of liabilities is not only important to taxpayers who might have to pay them off, they are important to the creditors expecting to be paid. In the case of pension plans,

Table 7

Plan	First Year Pension		Beneficiary (Retiree Dies First)		Retiree (Beneficiary Dies First)	
	Monthly	Annually	Monthly	Annually	Monthly	Annually
Option 1	$ 4,102.00	$ 49,224.00	$ -	$ -	$ 4,102.00	$ 49,224.00
Option 2P	$ 3,428.86	$ 41,146.32	$ 3,428.86	$ 41,146.32	$ 3,428.86	$ 41,146.32
Option 3	$ 3,807.48	$ 45,689.76	$ 1,903.74	$ 22,844.88	$ 3,807.48	$ 45,689.76
Option 3P	$ 3,747.18	$ 44,966.16	$ 1,873.59	$ 22,483.08	$ 4,102.00	$ 49,224.00
Option 4	$ 3,867.04	$ 46,404.48	*1	*1	$ 2,666.20	$ 31,994.40
Option 5	$ 4,130.71	$ 49,568.52	$ -	$ -	$ 2,694.36	$ 32,332.32

*1 - If retiree dies before 10 years of payments are made, beneficiary receives payments for balance of 10 years.

retirees are simply another form of creditor—a lesson currently being taught on its grandest scale yet in Detroit.

Transitioning to a defined contribution plan does, however, present one significant hurdle: as those who remain on the defined benefit plan retire, resources for funding the defined benefits are more rapidly depleted. This depletion is further hastened by the lack of payments from new employees because the defined benefit plan requires annually increasing contributions to fund its liabilities.

Shortfalls of this fund could be covered by the Permanent Wyoming Mineral Trust Fund (PWMTF). As the PWMTF was established to preserve future wealth, eliminating unfunded obligations which could result in increased taxes on future generations would be an appropriate use of these funds. While not a perfect solution, the cost of this problem is only increasing. Eventually taxpayers will pay the cost through higher taxes or a payment from the PWMTF. Every year that the WRS does not meet its projected 7.75% return on investments and that existing payrolls do not increase by 4.25% —without considering the impact of new members—the fund will fall further into unfunded status. In Detroit we have seen what happens when obligations continue to grow while the number of employees contributing to the defined benefit plan eventually could not, and the unfunded liability became unsustainable. The only question is whether Wyoming will wait until the situation has gotten so dire as to resemble Detroit immediately before its bankruptcy, or whether Wyoming will follow what nearly every successful private employer has done: *remove the liability of defined benefit pension plans.* ■

Endnotes

[i] It should be noted that the health insurance marketplace was far from a free market. Insurance is among the most heavily regulated industries in the United States. A 2010 Working Paper published by the Mercatus Center at George Mason University, available at http://mercatus.org/sites/default/files/IRCD_McLaughlinUbaydli_v1-0.pdf, found the finance and insurance industries to be by far the most regulated industry. This study only focused on federal regulation; a surprising result given that insurance is frequently referred to as a state regulated industry. State regulations further add to the burden on the industry. Therefore, the notion that problems with the insurance marketplace represented a 'failure of the free market system' is simply unfounded. In fact, it appears that the insurance market was the furthest thing from a free market an American citizen could participate even prior to the passage of the Patient Protection and Affordable Care Act.

[ii] The primary driver listed is not presented as the primary municipal expense. These represent the most significant unfunded liability which led to the municipality's decision to proceed with bankruptcy in order to restructure its debt. Jefferson County is the exception, in that widespread illegal activity led to a variety of financial issues.

[iii] Although this comparison is hypothetical in nature, it is not theoretical. The returns discussed are based on actual market performance over the period including market downturns.

[iv] As we look at the current Wyoming plans, we will not review every plan that was available over the last thirty years. Although we are using historical data to compare actual results, the discussion of what might have been available over the last 30 years. The purpose here is to discuss what options are available for current and future employees. Historical investment performance has been chosen solely to provide real world examples of the difference in plans while taking into account actual market fluctuations and potential timing issues.

[v] This assumes that the current plan had been in existence in 1975. The purpose of this examination is to compare options going forward, but we are doing so using historical market performance as a mechanism for evaluating the effects of timing on the defined contribution plan. A predictive model based on average historical returns does not help us review timing because it assumes average annual returns in the future.

[vi] Median household income in 1975 was $10,531. In years 2001 through 2005, the years on which the pension would be based, the median household income had increased from $41,458 to $45,496. These are nominal, real number values based on US Census Bureau data available at http://www.census.gov/prod/2013pubs/p60-245.pdf. This data is used in place of the median state income data tables provided by Census at http://www.census.gov/hhes/www/income/data/statemedian/ in order to have consistent data as the latter tables do not contain data before 1984. Although there may be some error induced in calculating median household income in this fashion, the error is harmless in this discussion as numbers are used simply to provide an example of the scale while accounting for moderate increases in income. Because the calculations involve percentages, the results can be scaled to other income levels.

[vii] Vesting occurs after 48 months of employment.

[viii] Employer contributions are currently 7.12% and employee contributions are 7.5%. However, in September 2014 employer contributions will increase to 7.62%. Therefore, by the time an employee reaches 48 months of employment, the majority of the contributions will be employer contributions. These amounts are nominal amounts as the actual employee contribution is 1.68% and will remain at this level until September 2016 when it rises to 1.93% due to the state paying employee contributions in lieu of pay increases.

[ix] An employee hired at age 18 and leaving the state at age 22.

[x] The state pays the majority of the nominal employee contribution in lieu of wage increases. For an experienced professional, the result is a lower nominal wage offered by the state that is supposed to be augmented by benefits including the pension. However, an experienced professional looking at a limited duration employment with the state will not see a pension based on a lower salary as a significant benefit (e.g., someone considering retiring in 10 years would receive a pension of 20% upon reaching the age of 65).

[xi] Each of the available options are explained in Public Employee Pension Plan Handbook, Wyoming Retirement System, January 2013. Available at http://retirement.state.wy.us/Media.aspx?mediaId=755.

[xii] Taken from the Board Policy Manual, dated May 25, 2012, p. 4. Available at: http://retirement.state.wy.us/investments/index.html.

[xiii] There are seemingly infinite choices for asset allocation, but we will simplify this discussion into high, medium, low, and no-risk strategies. A high risk strategy could range from providing capital investment for a startup company, buying high yield ("junk") bonds, investing in high risk stocks, to purchasing aggressive mutual fund shares. For the purposes of this discussion, we are focused primarily on mutual fund investments as part of an employment retirement plan. The various risk levels would be reflected in the volatility of funds over the course of an employee's working life. High, medium, and low risk funds would allocate assets to achieve the appropriate level of volatility and performance in relation to the overall market. The "no-risk" investment would be treasury bonds.

[xiv] WRS Board Policy Manual at Appendix I. The goals given are the strategic goals; actual asset allocation will vary from these targets.

[xv] Although the employee actually pays very little of their contribution, the contribution made in their name is part of their total compensation and could be invested in an alternative strategy in a defined contribution plan.

[xvi] Life expectancy at birth from the World Bank. Available at http://data.worldbank.org/indicator/SP.DYN.LE00.IN.

[xvii] State of Wyoming Retirement System Actuarial Valuation for the Year Beginning January 1, 2013. On October 28, 2013, the WRS published its Report to the JAC (Joint Appropriations Committee). This report updates some of the actuarial values, but not the market values. The market values are those most favorable to the WRS pension fund and are used throughout. However, the assumptions adopted by the Board on February 22, 2013 are reflected herein.

[xviii] State of Wyoming Retirement System Actuarial Valuation for the Year Beginning January 1, 2013, Appendix A.

[xix] Seelye, Katharine Q., Detroit Census Confirms a Desertion Like No Other, The New York Times, March 22, 2011. Available at: http://www.nytimes.com/2011/03/23/us/23detroit.html?_r=0.

[xx] Binelli, Mark, How Detroit Became the World Capital of Staring at Abandoned Old Buildings, The New York Times, November 9, 2012. Available at: http://www.nytimes.com/2012/11/11/magazine/how-detroit-became-the-world-capital-of-staring-at-abandoned-old-buildings.html?pagewanted=all&_r=0.

[xxi] Davey, Monica; Vlasic, Bill; and Walsh, Mary Williams;

[xxii] This is the Market Value average returns. The Actuarial Value average returns of the WRS was only 4.52% for the same 10 year span. State of Wyoming Retirement System Actuarial Valuation for the Year Beginning January 1, 2013, Table 10, p. 18.

[xxiii] State of Wyoming Retirement System Actuarial Valuation—January 1, 2013, Appendix A.

[xxiv] Actuarial funding level of 78.56% and market funding level of 80.67%. State of Wyoming Retirement System Actuarial Valuation for the Year Beginning January 1, 2013, p. 1.

[xxv] In the Report to the JAC, the actuarial funding level had decreased from 78.56% to 72.8%, including planned contribution increases. Report to the JAC, Wyoming Retirement System, October 28, 2013. As noted above, the market values are used throughout since these values are most favorable to the pension fund.

[xxvi] The payroll increase need not be an across the board payroll increase. The 4.25% increase would have to reflect the total payroll increase for existing employees, not an average wage increase (i.e., employee wages may only increase an average of 4% but the highest paid employees' raises might be sufficient to increase payroll by 4.25%while, conversely, an average wage increase of 4.50% might be constructed so that the total payroll only increased by 4.1%).

[xxvii] Brown, Trevor. Gov. Mead: State employee raises a budget priority, Wyoming Tribune Eagle, November 29,2013. Available at http://www.wyomingnews.com/articles/2013/11/30/news/19local_11-30-13.prt.

[xxviii] To be clear, disability compensation is a separate issue from retirement. Depending on the nature and degree of disability, a defined benefit plan may be warranted through an insurance program or other plan. However, the decision of the federal government to reduce COLA for the pensions of young disabled vets because they are of "working age" (regardless of actual ability to work) should serve as a wakeup call for anyone believing that defined benefit government pensions are inviolable.

[xxix] Depending on the policy of their former employer, they may or may not be able to leave their existing investment intact. They may find themselves forced to rollover a 401(k) into a third-party IRA of their choosing upon leaving employment. Regardless, they would almost certainly need to rollover their employer sponsored investments into a third party IRA in order to continue making contributions. Because they would be making these contributions from their state employment, the contributions would be made from their after-tax earnings. The decision to invest in a Roth or Traditional IRA is not significant to this discussion as it would deal more with the employee's individual tax returns than the general impact on employees throughout the year. However, this should not be read as to suggest that the employee would not have the option to choose a Roth IRA from a third party.

[xxx] Wyoming Statutes 9-3-412 deals with member contributions for state employment. Section 9-3-412(a) establishes the percentage, currently 7.5%, of the employee's wages that are required as contributions. However, this would generally be considered taxable income by the IRS and state employees would have to report the income on their federal tax filings. Therefore, section 9-3-412(b) establishes that the employee contributions are considered employer contributions under Internal Revenue Code, section 414(h). Section 9-3-412(c) further requires that a majority of the nominal employee contribution, currently 5.82%, "shall be paid by the employer without any salary reduction or offset." This means that the employee actually receives 5.82% more income than is represented to the employee, the public, and the IRS in their wages because the employer pays most of the nominal employee contribution. In reality, despite the current requirement to contribute 7.5% of their income to their pension plan, state employees only contribute 1.68% of their income to pension plans. The total actual employee contribution is less than the 1.74% shortfall the state's actuary has identified in the plan's funding status—in order for employees to fund their own pension plan without increasing the burden to taxpayers they would have to more than double the amount they are currently contributing to their retirement.

[xxxi] See http://www.investopedia.com/terms/s/stagnation.asp for an explanation of stagnation.

[xxxii] See http://www.investopedia.com/terms/b/blackmonday.asp for an explanation of Black Monday.

[xxxiii] See http://www.investopedia.com/terms/d/dotcom-bubble.asp for an explanation of the Dotcom Bubble.

[xxxiv] Dorfman, John, What Enron, WorldCom, Tyco Fiascos can Teach Us: John Dorfman, Bloomberg, March 2, 2004. Available at http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aqrJ2Fj0XJj0.

[xxxv] Davis, Marc, How September 11 Affected The U.S. Stock Market, Investopedia, September 9, 2011. Available at http://www.investopedia.com/financial-edge/0911/how-september-11-affected-the-u.s.-stock-market.aspx.

[xxxvi] See http://www.investopedia.com/terms/g/great-recession.asp for an explanation of The Great Recession.

[xxxvii] This discussion requires several assumptions:

1. US Median household income is used as the basis for comparison. Because the defined benefit and defined contribution plans both function as a percentage of income, the results are relevant for any income level not subject to statutory (state or federal) limits.
2. The plan provides matching contributions up to 7.5% of employee salary and employee invests 7.5% to take advantage of matching contributions.
3. Since there are nearly infinite possibilities for an employee to choose in regards to investment mix and timing of transition from risky to low risk investments, we assume the employee is 100% invested in stocks until five years before retirement. For the final five years, the employee is 100% invested in 30 year treasury notes.
4. Stock investments will be relatively low risk—using an index fund that mirrors the Dow Jones Industrial Average.
5. The hypothetical employees will work for 30 years before retirement.
6. The hypothetical employees begin work on January 1 of their respective years and retire on December 31 of their 30th year of employment.
7. Upon retirement, payments are based upon investments structured as an annuity with average bond yields. Payments are given for 20, 25, and 30 year annuities. The 100 year annuity reflects a minimal payment that will leave the principal largely intact for secondary beneficiaries (e.g., children), while also providing stable income should the retiree or beneficiary live beyond 30 years after retirement.
8. The DJIA and bond yields are held constant through the end of the year for the employee retiring in 2013 as of November 1.
9. The cost of the investment plan will be the historical average expense ratio of the TSP (0.044%). See https://www.tsp.gov/investmentfunds/fundsoverview/expenseRatio.shtml.
10. Median household income for 2013 is unchanged from 2012.
11. Defined Benefit plans are used for Tier 2 Employees under current Wyoming retirement plans. This discussion is focused on future retirement options and Tier 2 applies to future employees. See http://www.wyoming.gov/loc/06012011_1/employees/Pages/Benefits.aspx.
12. The 20% column represents a hypothetical employee who is employed by Wyoming 10 years prior to retirement. As noted elsewhere, this employee would have to consider forfeiting the benefit of investing in an IRA with employee contributions for the final 10 years of employment while rolling over their existing investments into a third party IRA in exchange for lower annual compensation while employed by the state and the annual benefit listed herein. This calculation can limit the pool of mid-career professionals from which the state can hire—necessarily reducing the opportunity for the state to find the most qualified individual for a particular position.

[xxxviii] Actual dollars are used throughout this discussion.

[xxxvx] Calculator available at http://wrscalculators.state.wy.us/start.aspx.

[xl] For the sake of discussion, we will use the simplified calculation—resulting in a slightly higher pension benefit—throughout. This approximates Option 2P as the retiree's decision. Assumptions regarding mortality are beyond the scope of this discussion and Option 2P provides the maximum pension benefit for comparison to a defined contribution plan if we assume that either the beneficiary or retiree will live at least 20 years in retirement (without assuming which one will live longer).

[xli] This alternate strategy uses annual returns.