

STATE OF TEXAS

House Pensions Investments and Financial Services Committee

Interim Hearing, September 12, 2012



Testimony by

Eyna Canales-Zarate

President of the Board, Texas Association of Public Employee Retirement Systems

TEXPERS, 1225 North Loop West, Suite 909, Houston, TX 77008

Thank you Chairwoman Truitt, Vice Chair Anchia, and members of this committee for the opportunity to testify today about public employee pensions in cities across Texas.

I am Eyna Canales-Zarate, president of the Board of Directors of the Texas Association of Public Employee Retirement Systems, or TEXPERS.

We are highly appreciative of this opportunity and your willingness to accept our views on this matter. TEXPERS is uniquely situated to provide this view.

TEXPERS is an association representing over 80 local public employee pension systems in Texas. We are a non-profit organization whose members join us voluntarily to gain educational services. Our members include: Trustees, administrators, professional service providers and employee groups who are responsible for managing the retirement money of police, fire firefighters, municipal and district employees.

In view of the time available to this committee to hear testimony, please allow me just a few minutes to summarize points provided in longer prepared remarks and included in the information package provided to you. I will now provide you with the cliff notes version:

- 1) While you are here to focus on costs of local pensions, I ask you to consider a study that TEXPERS is releasing across the state today focusing on the benefits to the Texas economy by pension-paid retirement income. The Ray Perryman Group Study, which is included in your package, concludes that the Texas economy receives a \$10 billion dollar annual boost in the form of retirement income to public employees. This is equivalent to 5 times our state's agricultural sector's payroll and is equal to its high tech manufacturing payroll. This \$10 billion dollars is a significant economic foundation for our state's economy and serves as a building block for additional growth and tax revenue creation.
- 2) With regard to costs, TEXPERS encourages you to focus your attention on the dynamics that play out at every local pension because of the incumbent design of the system. Elected Trustees join city appointed officials and taxpayer to comprise the Boards that oversee investments and manage benefits. As stakeholders in their city, they have incentives for working to ensure that benefits do not exceed a city's ability to pay. Discussions and adjustments take place at local pension systems across Texas and they serve as a system of checks-and-balances on costs.
- 3) TEXPERS believes that defined benefit plans are the best investment for cities concerned with attracting and retaining qualified personnel, given the competition of higher salaries in the private sector. We have studies confirming that defined benefit plans work better in terms of lower costs than alternatives, like defined contributions. Employee retention is very important to cities since turnover increases training costs considerably. DB plans prove to be an attractive component to retain qualified employees. In addition, DB plans offer a tried-and-true public policy prescription for cities concerned with offering adequate retirement benefits while balancing their budgets. The jury is still out on the relatively new and risky option of defined contribution plans. No long-term studies confirm their efficiency or benefit to taxpayers. We strongly recommend looking before you leap to DC plans – they appear to be budget busters over the long term and we advise against them.

Finally, in terms of making a recommendation to this Committee for our continued shared concern about containing costs, we would like to draw your attention to the importance of cities fulfilling their commitments to their pensions' Actuarial Required Contributions or ARC.

In our view, the large problems you see outside Texas result from cities and states not paying their pensions' ARCs. This non-payment digs those systems into an IOU that becomes very difficult – and expensive to fulfill. Failure to fund an ARC is the predicate to unsustainable future costs.

Thus, the single most important policy prescription that we would recommend to this panel would be that it strongly encourage plan sponsors – the cities – to make their contributions according to their actuaries' recommendations.

In Texas, the system design is doing its job. It's the failure to actually fund systems that creates the most long-term damage and add-on costs.

In conclusion, we at TEXPERS will continue to educate the legislature, media and public about defined benefit plans because they work well in keeping overall costs to taxpayers lower than any currently known alternative.

Equally important, defined benefit plans offer sufficient monthly retirement income so that retirees will not have to depend on government assistance. The studies we've provided prove this out. **No similar studies are available for defined contribution plans, according a senior fellow at the National Conference of State Legislatures.**

With that I will conclude my remarks and thank this committee for its attention to these issues.

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Thank you Chairwoman Truitt, Vice Chair Anchia, and all the members of this committee for the opportunity to testify today about public employee pensions in cities across Texas.

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We are highly appreciative of this opportunity and your willingness to accept our views on this matter.

TEXPERS is uniquely situated to provide this view.

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My comments today are intended to directly address your charge about local public employee pension costs, including the issues of:

- 1) the costs of administration

- 2) the cost of current liabilities
- 3) and recommendations for curbing rising pension costs to local governments.

Before I get to the items in the charge I do want to provide you with one look at the benefits of public employee pension plans. This is an overlooked facet of the public employee pension dynamic that many don't consider important. We do.

What is overlooked is the amount of money that pension systems contribute to the Texas economy through their steady, monthly distribution to retirees and benefactors across our great state.

TEXPERS last year asked the Perryman Group to study the economic impact of public employee pensions on the state economy.

The study found that in 2010 state and local pensions sent more than \$10 billion to retirees.

This is a very significant amount, as it is about five times the payroll of Texas agricultural concerns, about equal to the total combined payroll of computer and electronics manufacturing in Texas, and about the same as the total military payroll within Texas.

The Perryman Group estimates multiplier and spin-off effects to create about \$23.2 billion in benefit and about \$11.1 billion in output, as well as 152,059 jobs.

These are significant benefits to having professionally managed pension systems returning steady streams of public employee money to the state economy.

A 2012 National Institute for Retirement Security study says 478,767 Texan pension beneficiaries received about \$1,776 per month, or \$21,318 per year.

This is a modest, but substantial building block that serves as a foundation to the Texas economy.

Regarding the charge and this committee's concerns for costs, I will have **THREE** major points to make. These points involve:

NUMBER ONE how local pension administration and governance is already designed to keep costs low

NUMBER TWO the failure of Defined Contribution plans to prove themselves as good public policy

NUMBER THREE the ability of Defined Benefit plans to deliver cost-effective pension benefits.

I. So on to our first major point about Design.

A) The Texas system of local pension administration is already designed to keep costs low because they are administered and managed by professional staff and a board of elected or appointed Trustees with fiduciary responsibilities. This governance structure creates a system of checks and balances that favor taxpayer interests.

- i) For instance, the current system already reflects an administrative cost-shifting that has occurred, from city governments to retirees and active members themselves.

Texas cities long ago determined that investment decision making and benefits administration are specialized skills. They spun these responsibilities out to the local pensions for more cost-effective management and better results.

Our TEXPERS executive director tells how one major city he worked for simply bought U.S. Treasuries to fulfill his role as fiduciary, forgoing millions of dollars in opportunity in other types of investment assets over decades.

The people managing the systems are the ones who receive benefits. Local pension board trustees know that every dime spent on an administrative cost is one less dime available to them and the retirees who elect them.

- ii) Which brings us to another point about the benefits of the design of local pensions: the Boards are representative of employees, retirees, city administrators, elected officials and, in many cases, local residents.
- iii) The design of local boards allow various members of the system to be involved in the pension system. If there is a problem with benefits and the ability of taxpayers to meet those obligations, it can be addressed at the local level.
- iv) And I have some final comments on design and costs
 - a) In our view, there is too much emphasis put on the “funded ratio” measure of our pensions, both at the state and local levels. Every good actuary will tell you that the funded ratio is one of three or four measures of fund health and future costs.
 - i. There’s a reason for this: If you took a snapshot of “funded ratios” of pensions on March 5, 2009, when the Dow Jones closed below 6,600, there likely would not have been a pension system in the United States with a funded ratio above the “HEALTHY” level of 80 percent. So many studies of ‘funded ratios’ need to be understood in the context of when the snapshot was taken. Now, with the stock market above 13,000, in the United States, the average funded level of pensions in the U.S is 74.9 percent, according to a recent study by the National Conference on Public Employee Retirement Systems.
 - ii. Our view is that “funded ratios” are misleading headline grabbers.

- iii. As such, you should also realize that the funded ratio should not be considered an indication of iron-clad liabilities or an indicator of future costs because cities may make changes to their pension systems at any time, including providing them with the money, on a regular basis, that would help the investment managers achieve their goals.
- b) We think that a city's commitment to meeting the Actuarial Required Contribution or ARC is of equal or greater importance as a measure of fund health than the funded ratio.
- i. Too many cities and states have made extended IOUs to their pensions' ARCs, which digs those systems a hole in their underfunded status that becomes very difficult to overcome.
 - ii. Failure to fund an ARC is the predicate to so many unsustainable future costs.
 - iii. We also think that pension evaluations should look at and put emphasis on local pension trends. If an overall funded ratio status and ARC are moving in an upward trajectory, even so slightly over many years, they will continue to deliver adequate benefits to retirees at sustainable rates to taxpayers.

B. To conclude this discussion about pension system design and its relationship to costs, the single most important policy prescription that we would recommend to this panel would be that it somehow strongly encourages plan sponsors – the cities – to make their contributions according to their actuaries' recommendations.

In Texas, the system design is doing its job. It's the failure to actually fund systems that creates the most long-term damage and add-on costs.

As we look across the United States, to cities and states where major problems have occurred, this is the single common determining factor to their failure. This is what we want to avoid in Texas.

II. Shifting gears back to our second major point, we'd like to bring your attention to the failure of Defined Contribution plans to prove themselves as good public policy.

- A. When we at TEXPERS hear public policy analysts talking about pension cost we have noticed that they quickly segue to what they think is the only possible solution, which in their view is converting defined benefit plans to defined contribution plans.

It's as though the nature of DB plans is the single largest budget buster and DC plans are transformative business-sector style plans.

We disagree based on two essential proof points – we have studies that confirm DB plans are cost effective. Proponents of DC have plans have no such comparative studies.

- i. TEXPERS has confirmed that DC plans actually would cost Texas taxpayers more than DB plans to achieve similar levels of benefits. We say this because last year TEXPERS commissioned a study by Pension Trustee Advisors, a leading consultancy on public pension systems.

They used hard data – the actual employee numbers, including age, years of service, contributions, et cetera – from pensions in Austin, Houston and San Antonio to calculate and then compare the costs of using defined benefit versus defined contribution plans among their workforces.

The study found that the cost of defined benefit plans were 39 to 44 percent lower in delivering the same retirement income than a defined contribution plan.

This is an important factor considering that more than 50 percent of Texas public employees, especially our police and fire departments, do not contribute to Social Security and will not be able to secure those benefits in retirement.

- ii. On the other hand, in terms of proving the efficiency of DC plans, there are no studies that confirm the use of defined contribution plans as an effective retirement plan option. Don't believe us. That's according to Ron Snell, a senior fellow at the National Conference of State Legislatures.
 - a) According to Snell, Indiana is the only state with a DC component in its hybrid plan, reaching back to the 1960s, but they have never studied the adequacy of returns from the DC plans. Michigan also implemented a DC plan for state employees in the mid-1990s, but they too have not studied the adequacy of retirement benefits.
 - b) It must be nice to have a plan that you've never had to evaluate, as opposed to our DB plans that undergo all kinds of scrutiny.
- iv. In our view, DC plans could be considered a gamble – if they fail then taxpayers will be saddled with the costs of individuals not being prepared for retirement. We are already seeing examples of this occurring in the private sector and we know why.
 - a) DC plans are failing because employees tend to invest their own money very conservatively and also tend to withdraw money in loans that subtract from available investment money.
 - b) If you were to ask Mr. Snell, he'd tell you that Nebraska confirmed this conclusion with several comparison studies of its DC plan. In our view, these employees are the ones which likely will request state welfare money of one sort or another in their future.
 - c) Remember that DB plans have long-term professional management to smooth the rough patches and keep members money at work, a factor which produces a foundation of economic activity for the Texas economy, according to the Perryman study.

III. Finally, we at TEXPERS continue to confirm that DB plans are cost-effective retirement vehicles with the public interest in mind, from a cost-containment perspective.

- A. Defined benefit plans offer public employees a trade-off that many people find attractive.

They trade the opportunity for higher levels of current income for future guarantees of retirement income, which is a benefit many high-caliber municipal employees desire. We know from the national Institute on retirement security that employees of state and local government earn an average of 11% and 12% less, respectively, than comparable private sector employees, and this gap has only widened in recent years.

- B. In view of this dynamic, cities are able to keep their current payrolls at a much reduced cost in comparison to private sector employers. They don't pay bonuses. They don't – and can't – offer stock options.
- i. If you talk to just about any public employee, they will tell you they would have quit public employment at some point in their career to pursue higher salaries, but they did not because of their defined benefit pension.
- C. DB plans have a proven track record of investment success over several decades.
- i. When compared to defined contribution plans, defined benefit plans cost less to administer and gain sufficient retirement income for employees.
- ii. And you should know that TEXPERS members continue to tell us that defined contribution plans aren't attractive to current and future employees, a dynamic which would create instability amongst their employees and add training costs to city budgets to account for higher levels of turnover.

In conclusion, we at TEXPERS will continue to educate the legislature, media and public about defined benefit plans because they work in keeping overall costs to taxpayers lower than any currently known alternative and more importantly defined benefit plans offer a retirement to

workers that will hopefully provide sufficient money in retirement that they will not have to depend on government for subsidies. The studies prove this out and fail to prove that switching to other types of defined contribution plans will achieve the same objective.

The studies that have been referenced are attached to my presentation.

With that I will conclude my remarks and thank this body for its attention to these issues.



Appendix

Supporting studies and background information to the remarks of Eyna Canales-Zarate, President of the Board of TEXPERS



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About TEXPERS

The Texas Association of Public Employee Retirement Systems (TEXPERS) is a voluntary nonprofit educational association organized in 1989.

- TEXPER's members are the trustees, administrators and participants of public employee retirement systems in Texas, as well as professional service providers, employee groups and associations engaged in or interested in the management of those systems.
- TEXPERS consists of 84 retirement systems, 9 employee groups, 29 consultants and 152 actuaries and associate members (investment related firms);
- TEXPERS pension members represent more than 300,000 active and retired participants and \$22 billion in pension assets;
- TEXPERS provides fiduciary education to plan members for the administration of benefits and selection of investments, and offers members an organization through which Texas pension funds join together to protect their interests at the state and federal levels;
- TEXPERS has developed and implemented a Certified Trustee Training Program for pension trustees and related personnel to receive in-depth education on subjects covering fiduciary duties, governance, investment terms and practices, ethics, actuarial matters and legal matters; A Continuing Fiduciary Education program augments the education program.
- The TEXPERS Board of Directors is comprised of the trustees of its members systems.

TEXPERS Board of Directors and Staff

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Board Member	Larry Reed, San Antonio Fire & Police Pension Fund
Executive Director	Max Patterson – <i>Former Executive Director Houston Firefighters Retirement Fund; Deputy Director Finance & Administration and City Treasurer, Houston; Assistant City Manager; Police Chief</i>

Texas Association of Public Employee Retirement Systems

1225 North Loop West, ste. 909

Houston, TX 77008 * 713-622-8018 * www.TEXPERS.ORG



About Public Pension Plans in Texas

- Public employee pension plans in Texas are comprised of statewide and local plans.
- The statewide plans includes:
 - Employees Retirement System (ERS)
 - Teacher Retirement System (TRS), educational member of TEXPERS
 - Texas County & District Retirement System (TCDRS)
 - Texas Emergency Services Retirement System (TSERS) (a retirement system member) Texas Municipal Retirement System (TMRS), educational member of TEXPERS
- The majority of TEXPERS members are local government plans consisting of active and retired public employees such as police officers, firefighters, transit systems, water districts, utilities and municipal workers.
- Texas pension plans' are fully managed by a board of trustees. The trustees are chosen in accordance to each individual plan document and in most cases set in state law.
- Texas public employee retirement systems are different from other states:
 - Other states may allow or mandate sole-fiduciary structures.
 - Organizations like CALPERS, NyPERS, TRS, ERS, TMRS and others represent individual local or statewide retirement systems that invest funds on behalf of its members in order to provide retirement benefits.
 - Those funds may or may not belong to statewide or national associations such as TEXPERS, NASRA, NCPERS, MAPERS or similar organizations, which provide membership services and fiduciary education and training to their retirement system members.
- Texas law requires that any changes to local plan's contribution levels and benefits generally require legislative approval.
- Texas law encourages diversification in several ways:
 - Local control of public employee pensions has effectively created wide ranging investment allocations among different asset classes. No two plans are similar.
 - Texas law does not limited plans to certain asset classes.

TEXPERS Fiduciary Training

TEXPERS offers its members education programs:

- The Certified Trustee Training is a three part program in which pension trustees and related personnel receive in-depth education over three separate days.
- The Continuing Fiduciary Education (CFE) program is a voluntary certification program that promotes ongoing education. Members can obtain their certifications by attending TEXPERS' two annual educational conferences, or other conferences as approved by the TEXPERS Board of Directors.
- On occasion, TEXPERS offers special workshops dedicated to specific/current trends in the economy, such as Subprime Workshop, May 2008.
- In addition, TEXPERS provides continuing education credits for Texas certified public accountants (CPAs), which are applicable towards the requirements of the Texas State Board of Public Accountancy.

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Houston, TX 77008 * 713-622-8018 * www.TEXPERS.ORG

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Featured Video

Texas Public Employee Pensions Perform Well in 2011



Local systems' Board members break record for attendance at annual investment and administration conference

CORPUS CHRISTI, Texas, March 26, 2012 /PRNewswire/ -- Public employee retirement systems across Texas continue to meet or exceed long-term public fund benchmarks, according to a report released today at the 23rd Annual Conference of the Texas Association of Public Employee Retirement Systems.

TEPERS' "Report on the Asset Allocation and Investment Performance of Texas Public Employee Retirement Systems" confirmed that most local pensions continue to outperform the Wilshire Median Public Fund for previous 10- and 15-year time periods, and compare favorably at an 8.0% return to the 8.2% average actuarial return assumption for the 20-year period. For 21-years, a \$100 investment in the survey respondents' aggregate portfolio on September 30, 1990 would have grown to \$557 on September 30, 2011, exceeding the \$519 invested at the 8.2% average actuarial return assumption.

"We continue to see that Texas' local pensions perform very well using their long-term time horizons to deliver sound asset management for public sector employees," said Max Patterson, the executive director for TEPERS, an organization with more than 80 pension plans for firefighter, police, municipal and district employees, representing nearly 300,000 individuals. "City governments and their taxpayers should understand that this type of performance helps keep tax rates as low as possible while also attracting and retaining high caliber employees over long periods of time."

TEPERS released the report to pension Trustees and administrators gathered at its educational conference titled "Sustaining Long-term Success in an Unstable Market." The conference is notching an all-time attendee record with 596 registrations, compared to the 559 record marker set in 2009.

"Our members are highly dedicated and motivated individuals who take their fiduciary responsibility very seriously, as evidenced by strong rates of performance returns and their attendance at our conferences," Patterson said. He acknowledged the following standout systems for their average yearly performance over the 20-year period ending in September 2011:

Dallas Police & Fire Pension System	9.12 percent
El Paso Firemen and Policemen's Pension Fund	8.57 percent
Houston Municipal Employees Pension System	8.40 percent
Houston Police Officers' Pension System	8.32 percent
Amarillo Firemen's Relief & Retirement Fund	8.13 percent

The report noted that survey respondents had a \$21.4 billion total market value, with average asset allocations of 25.5% percent in U.S. equity, 16.1% in non-U.S. equity, 27.8% in fixed income, 10.4% in real estate, 7.4% in private equity and 12.8% in other asset classes.

About TEPERS

The Texas Association of Public Employee Retirement Systems (TEPERS) is a statewide voluntary nonprofit association to provide quality education to trustees, administrators, professional service providers and employee groups and associations engaged or interested in the management of public employee retirement systems. Today, TEPERS' member systems represent approximately 300,000 active and retired participants and approximately \$22 billion in assets. Learn more at www.TEPERS.org or www.TEPERS.blogspot.com.

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NEWS

For Immediate Release

Contact Joe Gimenez, 713.478.8034



TEXPERS Poll Confirms Texans' Positive View of Public Employee Retirement Plans

AUSTIN (May 26, 2011) – Texas voters who are 401(k) holders view defined benefit retirement plans managed by public employers as effective for firemen, police and municipal employees, according to an opinion poll conducted by the national pollster Dresner, Wickers & Associates and commissioned by the Texas Association of Public Employee Retirement Systems.

The poll qualified its 503 respondents as registered Texas voters and owners of 401(k) investments. A clear majority (54%) did not believe that public employees who already receive defined benefits managed by pension systems should be forced to change to the 401(k) self-managed plans they use.

“These poll results send a very clear message, that Texans see the current system of pension benefits as working for public employees and state and local governments,” said Eyna Canales-Zarate, the President of the TEXPERS Board of Directors. “The Texas owners of 401(k)s sense that their own retirement security is not guaranteed by that type of plan. Contrary to conventional wisdom, 401(k)s are not as universally popular as some would otherwise have us believe.”

The poll results showed that:

- 43% think public employees should be allowed to retain their defined benefit plans; 28 percent think they should be forced into 401(k) type plans.
- 45% of Texas voters think an employer pension system would do a better job of managing their retirement investments; 21% think individuals would do a better job.
- 29% believe that the average return of 401(k) investments is not competitive with the returns generated by larger defined benefit pension systems, compared with 17% who do think the returns would be competitive. This indicates a low-level of confidence in 401(k) returns.
- 51% of voters don't believe that cutting public employee pensions is an effective way to balance city and state budgets.
- 58% said their 401(k) has less money in it or is about the same as three years ago.
- 31% don't believe their 401(k) will have enough money in it when they retire and another 23% aren't sure.

“Our research shows a lack of confidence in the self-managed investment portfolios of 401(k)s among Texans who own them,” said Max Patterson, executive director of TEXPERS. “We were actually quite surprised by the level of antipathy toward them and policymakers should view their actual effectiveness among the general populace with healthy levels of skepticism.”

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About TEXPERS

The Texas Association of Public Employee Retirement Systems (TEXPERS) is a statewide voluntary nonprofit association that provides education and advocacy services to the Trustees, administrators, professional service providers and employee groups that manage the retirement money of police, firefighters, municipal and district employees in cities across Texas. Today, TEXPERS' member systems represent approximately 300,000 active and retired participants and over \$22 billion in assets. Learn more at www.TEXPERS.org or www.TEXPERS.blogspot.com.

December 2011

The Economic Benefits of Retirement Annuity and Other
Payments by Major Public Employee Retirement
Systems on Business Activity in Texas



THE PERRYMAN GROUP

510 N. Valley Mills Dr., Suite 300

Waco, TX 76710

ph. 254.751.9595, fax 254.751.7855

info@perrymangroup.com

www.perrymangroup.com



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INTRODUCTION



INTRODUCTION

- Retirement plans and pension benefits have long been a means of attracting bright, dedicated people to work for local, state, and federal government entities. These benefits have been an important element of overall compensation, **encouraging talented individuals** to work as teachers, city and county employees, firefighters, policemen, and serve in many more **essential professions important to societal well-being, safety, and convenience**. **The defined benefit structure of these plans provides an important element of security and stability for the public workforce.**
- In addition, the **money paid out to retirees generates economic benefits, both for the individuals receiving annuities and for the communities where they spend their money**. The resulting spending leads to a sizable economic stimulus as well as associated tax receipts. At the same time, the promise of pension benefits can offset a need for higher salary levels for public sector employees.
- Retirement plans thus benefit Texas taxpayers in two ways: once in the form of **high-caliber employees retained at reasonable levels of total compensation** and again in the **ongoing economic benefits that accrue from the investment in retirement plans and subsequent spending of retirement annuities**. The defined benefit structure both promotes the security and attractiveness of careers in public service and provides a substantial future income stream that is largely translated into private-sector spending within the state.
- The Perryman Group (TPG) was asked to perform a comprehensive assessment of the economic benefits associated with the aggregate payments by the Teacher Retirement System of Texas (TRS), the



Employees Retirement System of Texas (ERS), the Texas Municipal Retirement System (TMRS), the Texas County and District Retirement System (TCDRS), and the various members of the Texas Association of Public Employee Retirement Systems (TEXPERS). This report presents the findings from TPG's analysis.

Highlights of Study Findings

- The large public retirement systems and members of TEXPERS send payments to persons across Texas in the form of retirement annuities and other benefits which lead to a sizable economic stimulus. In 2010, **these plans paid more than \$10 billion to hundreds of thousands of individuals. More than 95% of these funds are provided to Texas residents.**
- To put these payments in perspective, \$10 billion is approximately equivalent to
 - **five times the total payroll in Texas agriculture;**
 - **the total combined payroll of computer and electronics manufacturing in the state;**
 - **four times the payroll petroleum refining and related industries;**
 - **the combined payrolls of air, rail, and truck transportation;**
 - **two times the payroll of the entire insurance sector (including carriers and sales); and**
 - **the total military payroll within Texas.**
- The economic benefits generated when retirement annuities and other payments from the major plans and TEXPERS members are spent are substantial. The Perryman Group estimates that the overall **impact (when multiplier effects are considered) includes**



\$23.158 billion in total expenditures and \$11.119 billion in output (gross product) each year, as well as 152,059 permanent jobs in Texas (based on 2010 payment levels).

- This economic activity also leads to **additional tax receipts**; The Perryman Group estimated these effects (based on 2010 payments) to include more than **\$1.095 billion to the State and \$438.281 million to local government entities** each year.
- Public employee retirement systems help **improve the quality of life for all Texans through their positive effects on the public-sector workforce**. In addition, they generate **substantial economic benefits which permeate the entire state**.

The Perryman Group's Perspective

- TPG is an economic research and analysis firm based in Waco, Texas. The firm has more than 30 years of experience in assessing the economic impact of corporate expansions, regulatory changes, real estate developments, public policy initiatives, and myriad other factors affecting business activity. TPG has conducted hundreds of impact analyses for the US and Texas economies as well as all Texas metro areas and regions. Impact studies have been performed for hundreds of clients including many of the largest corporations in the world, governmental entities at all levels, educational institutions, major health care systems, utilities, and economic development organizations.
- The Perryman Group has significant experience in the analysis of the economic effects of payments from retirement plans. Prior studies include multiple analyses related to the Teacher Retirement System of Texas (TRS) including an assessment of pension benefits



paid by TRS on business activity in Texas as well as a study of health care benefits. A similar study was also conducted for the Texas Municipal Retirement System (TMRS); TPG has also extensively studied the health characteristics of the recipients from the Employees Retirement System (ERS). In addition, Dr. Perryman has addressed national public retirement system conferences and chaired the Compensation Committee of a major corporation.

- The firm has also been active in key public policy initiatives concerning economic development and policy in Texas and provided detailed regional forecasts for the state for the past 25 years. Numerous other reports have been completed regarding consumption patterns and their effects on the economy.



THE MAJOR PUBLIC RETIREMENT SYSTEMS OF TEXAS AND THE ECONOMIC IMPACT OF THEIR BENEFIT PAYMENTS



THE MAJOR PUBLIC RETIREMENT SYSTEMS OF TEXAS AND THE ECONOMIC IMPACT OF THEIR BENEFIT PAYMENTS

- The Teacher Retirement System is the largest public retirement system in Texas, with almost 1,301,000 participants.
- The Employees Retirement System of Texas includes more than 220,000 participants who are current or former state employees, law enforcement officers, or judges.
- About 850 cities participate in the Texas Municipal Retirement System, which paid almost \$744 million in benefits in 2010. More than 140,000 employees receive benefits through TMRS.
- Almost all Texas' counties and 366 other types of districts are part of the Texas County and District Retirement System. Some 220,000 employees are provided benefits through TCDRS, with \$698 million in benefits paid in 2010.
- The members of The Texas Association of Public Employee Retirement Systems include about 84 retirement systems and nine employee groups as well as consultants, actuaries, and others. Together, **more than 420,000 individuals are represented by the members of TEXPERS.** Most members are local government plans of active and retired public employees such as police officers and firefighters as well as transit system, water district, utility, and other local public workers.



-
- TEXPERS provides support to plan members for benefit administration and investment selection. In addition, TEXPERS has developed a Certified Trustee Training Program of in-depth education related to fiduciary duties, governance, investing, and other cogent topics. Other educational programs and workshops related to topics of interest are also provided.

Public Retirement System Payments

- The large public retirement systems and the members of TEXPERS send payments to persons across Texas in the form of retirement annuities from defined benefit programs and other benefits which lead to a sizable economic stimulus.
- In 2010, **these plans paid more than \$10 billion to hundreds of thousands of individuals. More than 95% of these funds are provided to Texas residents.** The Perryman Group quantified the total economic impact of these injections into the economy.
- To put these payments in perspective, \$10 billion is approximately equivalent to
 - **five times the total payroll in Texas agriculture;**
 - **the total combined payroll of computer and electronics manufacturing in the state;**
 - **four times the payroll petroleum refining and related industries;**
 - **the combined payrolls of air, rail, and truck transportation;**
 - **two times the payroll of the entire insurance sector (including carriers and sales); and**
 - **the total military payroll within Texas.**



Measuring Economic Impacts

- When annuities and other benefits paid by the various retirement systems are spent, like any economic activity, they generate multiplier or **ripple effects through the economy**. As noted earlier, The Perryman Group developed a model some 30 years ago (with continual updates and refinements since that time) to describe these interactions. This dynamic input-output assessment model uses a variety of data (from surveys, industry information, and other sources) to describe the various goods and services (known as resources or inputs) required to produce another good/service. The submodel used in the current analysis reflects the specific industrial composition and characteristics of the Texas economy.
- In this case, for example, **recipients of annuity payments regularly purchase various goods and services from a number of businesses**. These companies, in turn, purchase the items necessary to produce and provide the goods and services from other companies. In this way, the effect of spending annuity payments ripples out through a variety of firms across a spectrum of industries.
- The overall economic effects are driven by the individuals receiving annuity benefits. As each of the recipients spends their payment from a retirement plan, local businesses see a positive effect on their sales. The following examples illustrate how this process works.
 - A retired teacher living in San Angelo, Texas receives a benefit payment. She then spends a portion of that money at a local grocery store, hair salon, gas station, restaurant, and many other businesses.
 - These businesses, in turn, buy various products and services from other companies. The grocery store pays a



-
- local landscape company to install and maintain plantings in front of the store; the restaurant pays a local paper goods distributor for cups and napkins; and the salon owner buys advertising on a local radio station.
- All of these companies—from the grocery store to the radio station—are employers in San Angelo, paying taxes as well as payrolls.
 - A former firefighter living in Dallas, like the teacher, also spends his annuity payment at local businesses; he also enjoys local arts. He spends a portion of his annuity payment for season tickets to the civic theater. These ticket sales support the theater’s productions and increase its revenues. The theater pays local businesses for various maintenance projects, janitorial services, and supplies.
 - A retired bus driver in Houston buys necessities for daily living and is also an avid gardener. He pays a local tree-trimming service to prune his trees and shops regularly at the local garden center. These businesses, in turn, utilize other area companies for vehicle maintenance and other services as well as all necessary supplies.
- Data regarding payments were provided by the various entities and served as inputs to the impact assessment process (a few small plans did not respond, but well over 99% of the total outlays were captured). The net (after-tax) benefits paid to Texas residents were adjusted to account for (1) typical out-of-state spending leakages and (2) savings rates within the relevant demographic categories. The remaining funds were assumed to be spent in accordance with the standard consumer patterns as determined by the *ACCRA Cost of Living Survey* and the *Consumer Expenditure Survey* of the US Department of Labor.



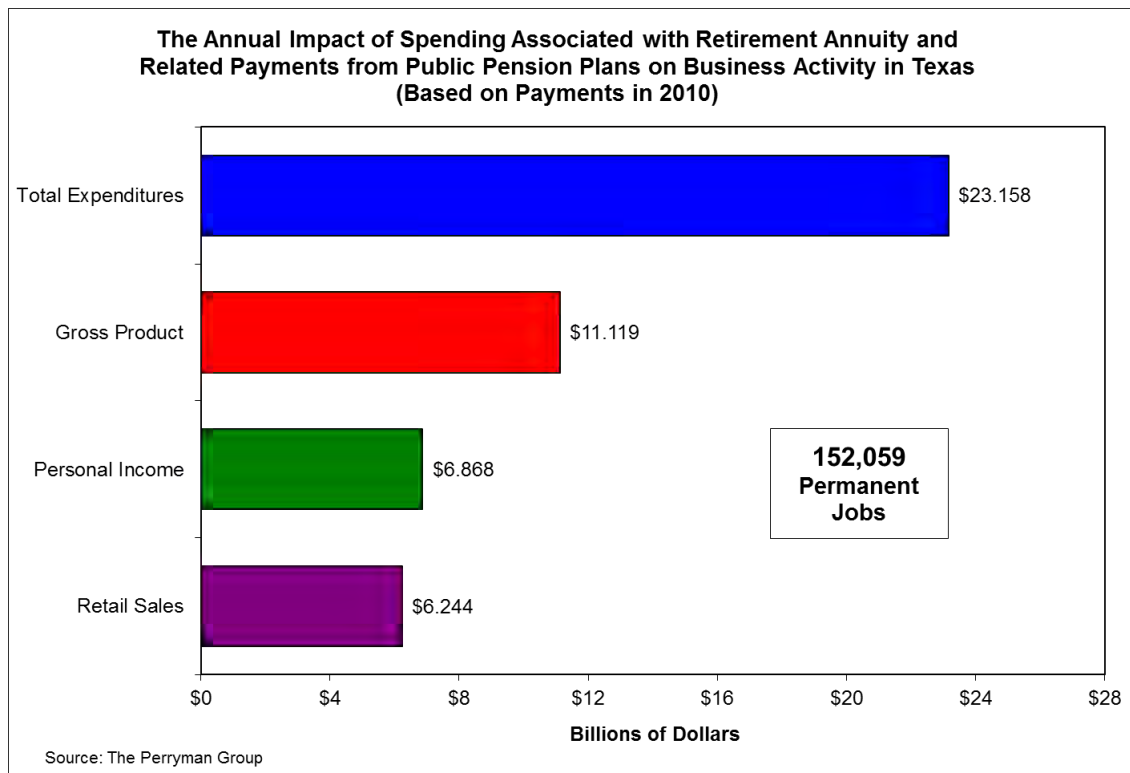
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- Impacts are expressed in terms of several different indicators of overall business activity.
 - **Total expenditures** (or total spending) measures the dollars changing hands in the state as a result of the economic stimulus.
 - **Gross product** (or output) is production of goods and services that will come about in Texas as a result of the activity. This measure is parallel to the gross domestic product numbers commonly reported by various media outlets and is a subset of total expenditures.
 - **Personal income** is dollars that end up in the hands of people in the area; the vast majority of this aggregate derives from the earnings of employees, but payments such as interest and rents are also included.
 - **Job gains** are expressed as permanent jobs (in the case of an ongoing impact) or person-years of employment (for transitory effects such as construction). In the present instance, retirement benefits and other payments represent an ongoing stream of activity; thus, the reported employment effects reflect **permanent jobs**.

 - All results are expressed on an annual basis in constant dollars and reflect payments in 2010. Additional information regarding the methods used in this report may be found in Appendix A.



Economic Impact of Spending Retirement Payments

- The economic benefits generated when retirement annuities and other payments from the major plans and TEXPERS members are spent are substantial. The Perryman Group estimates that the **total impact includes \$23.158 billion in total expenditures and \$11.119 billion in output (gross product) each year, as well as 152,059 permanent jobs in Texas.**



- This economic activity also leads to **additional tax receipts**; The Perryman Group estimated these effects (based on 2010 payments) to include more than **\$1.095 billion to the State and \$438.281 million to local government entities** each year.



CONCLUSION



CONCLUSION

- Retirement plans are an **important component of the overall compensation** for many workers. These plans enhance the attractiveness of jobs and **help attract bright and dedicated individuals** to public employee positions as teachers, police officers, firefighters, city workers, and others.
- When retirement annuities and other **payments are made and subsequently spent, economic benefits and additional tax receipts are generated.**
- The major retirement systems provide resources to hundreds of thousands of beneficiaries, while TEXPERS members include scores of retirement systems representing groups from across the state. The payments to recipients totaled more than \$10 billion in 2010, which is about five times the total payroll in Texas agriculture, approximately equal to the total combined payroll of computer and electronics manufacturing in the state, and about the same as the total military payroll within Texas.
- These payments lead to multiple rounds of additional economic activity. The Perryman Group estimates that the **total economic benefits (including multiplier or spinoff effects) include \$23.158 billion in total expenditures and \$11.119 billion in output (gross product) each year as well as 152,059 jobs.**
- Public employee retirement systems help **improve the quality of life for all Texans through their positive effects on the public-sector workforce.** In addition, they generate **substantial economic benefits which permeate the entire state.**



APPENDICES



APPENDIX A: Methods Used

US Multi-Regional Impact Assessment System

- The basic modeling technique employed in this study is known as input-output analysis. This methodology essentially uses extensive survey data, industry information, and a variety of corroborative source materials to create a matrix describing the various goods and services (known as resources or inputs) required to produce one unit (a dollar's worth) of output for a given sector. Once the base information is compiled, it can be mathematically simulated to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process.
- There are two essential steps in conducting an input-output analysis once the system is operational. The first major endeavor is to accurately define the levels of direct activity to be evaluated. In this case, estimates of current payments to recipients in Texas were provided by the major retirement systems and TEXPERS members. Well over 99% of all outlays were captured in a manner that permitted adjustments for taxes and out-of-state beneficiaries. The remaining amount was adjusted for leakages from the expenditure stream and typical spending patterns (as described within the report).
- Once the direct input values were determined, the present study was conducted within the context of the US Multi-Regional Impact Assessment System (USMRIAS) which was developed and is maintained by The Perryman Group. This model has been used in hundreds of diverse applications across the country and has an excellent reputation for accuracy and credibility. In addition, the model has been in operation and continually updated for over two decades. The system used in the current simulations reflects the unique industrial structures of the Texas economy.
- The USMRIAS is somewhat similar in format to the Input-Output Model of the United States and the Regional Input-Output Modeling System, both of which are maintained by the US Department of Commerce. The model developed by TPG, however, incorporates several important enhancements and refinements. Specifically, the expanded system includes (1) comprehensive 500-sector coverage for any county, multi-county, or urban region; (2) calculation of both total expenditures and value-added by industry and region; (3) direct estimation of expenditures for multiple basic input choices (expenditures, output, income, or employment); (4) extensive parameter localization; (5) price adjustments for real and nominal assessments by sectors and areas; (6) measurement of the induced impacts associated with payrolls and consumer spending; (7) embedded modules to estimate multi-sectoral direct spending effects; (8) estimation of retail spending activity by consumers; and (9) comprehensive linkage and integration capabilities with a wide variety of econometric, real estate, occupational, and fiscal impact models. The models used for the present investigation have been thoroughly tested for reasonableness and historical reliability.
- As noted earlier, the impact assessment (input-output) process essentially estimates the amounts of all types of goods and services required to produce one



unit (a dollar's worth) of a specific type of output. For purposes of illustrating the nature of the system, it is useful to think of inputs and outputs in dollar (rather than physical) terms. As an example, the construction of a new building will require specific dollar amounts of lumber, glass, concrete, hand tools, architectural services, interior design services, paint, plumbing, and numerous other elements. Each of these suppliers must, in turn, purchase additional dollar amounts of inputs. This process continues through multiple rounds of production, thus generating subsequent increments to business activity. The initial process of building the facility is known as the *direct effect*. The ensuing transactions in the output chain constitute the *indirect effect*.

- Another pattern that arises in response to any direct economic activity comes from the payroll dollars received by employees at each stage of the production cycle. As workers are compensated, they use some of their income for taxes, savings, and purchases from external markets. A substantial portion, however, is spent locally on food, clothing, health care services, utilities, housing, recreation, and other items. Typical purchasing patterns in the relevant areas are obtained from the *ACCRA Cost of Living Index*, a privately compiled inter-regional measure which has been widely used for several decades, and the *Consumer Expenditure Survey* of the US Department of Labor. These initial outlays by area residents generate further secondary activity as local providers acquire inputs to meet this consumer demand. These consumer spending impacts are known as the *induced effect*. The USMRIAS is designed to provide realistic, yet conservative, estimates of these phenomena.
- Sources for information used in this process include the Bureau of the Census, the Bureau of Labor Statistics, the Regional Economic Information System of the US Department of Commerce, and other public and private sources. The pricing data are compiled from the US Department of Labor and the US Department of Commerce. The verification and testing procedures make use of extensive public and private sources. Note that all monetary values, unless otherwise noted, are given in constant (2011) dollars to eliminate the effects of inflation.
- The USMRIAS generates estimates of the effect on several measures of business activity. The most comprehensive measure of economic activity used in this study is **Total Expenditures**. This measure incorporates every dollar that changes hands in any transaction. For example, suppose a farmer sells wheat to a miller for \$0.50; the miller then sells flour to a baker for \$0.75; the baker, in turn, sells bread to a customer for \$1.25. The Total Expenditures recorded in this instance would be \$2.50, that is, $\$0.50 + \$0.75 + \$1.25$. This measure is quite broad, but is useful in that (1) it reflects the overall interplay of all industries in the economy, and (2) some key fiscal variables such as sales taxes are linked to aggregate spending.
- A second measure of business activity frequently employed in this analysis is that of **Gross Product**. This indicator represents the regional equivalent of Gross Domestic Product, the most commonly reported statistic regarding national economic performance. In other words, the Gross Product of, say, Amarillo is the



amount of US output that is produced in that area. It is defined as the value of all final goods produced in a given region for a specific period of time. Stated differently, it captures the amount of value-added (gross area product) over intermediate goods and services at each stage of the production process, that is, it eliminates the double counting in the Total Expenditures concept. Using the example above, the Gross Product is \$1.25 (the value of the bread) rather than \$2.50. Alternatively, it may be viewed as the sum of the value-added by the farmer, \$0.50; the miller, \$0.25 (\$0.75 - \$0.50); and the baker, \$0.50 (\$1.25 - \$0.75). The total value-added is, therefore, \$1.25, which is equivalent to the final value of the bread. In many industries, the primary component of value-added is the wage and salary payments to employees.

- The third gauge of economic activity used in this evaluation is **Personal Income**. As the name implies, Personal Income is simply the income received by individuals, whether in the form of wages, salaries, interest, dividends, proprietors' profits, or other sources. It may thus be viewed as the segment of overall impacts which flows directly to the citizenry.
- The fourth measure, **Retail Sales**, represents the component of Total Expenditures which occurs in retail outlets (general merchandise stores, automobile dealers and service stations, building materials stores, food stores, drugstores, restaurants, and so forth). Retail Sales is a commonly used measure of consumer activity.
- The final aggregates used are **Permanent Jobs** and **Person-Years of Employment**. The Person-Years of Employment measure reveals the full-time equivalent jobs generated by an activity. A person-year is simply the equivalent of a person working for a year. As an example, it could be a carpenter employed for five months, a mason for three months, and a painter for four months. In the case of a construction project, these are typically spread over the course of the construction and development phase. It should be noted that, unlike the dollar values described above, Permanent Jobs is a "stock" rather than a "flow." In other words, if an area produces \$1 million in output in 2009 and \$1 million in 2010, it is appropriate to say that \$2 million was achieved in the 2009-2010 period. If the same area has 100 people working in 2009 and 100 in 2010, it only has 100 Permanent Jobs. When a flow of jobs is measured, such as in a construction project or a cumulative assessment over multiple years, it is appropriate to measure employment in Person-Years (a person working for a year). This concept is distinct from Permanent Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.



APPENDIX B: Detailed Sectoral Results



**The Annual Impact of Spending Associated with Retirement Annuity and
Related Payments from Public Pension Plans on Business Activity in Texas
(Based on Payments in 2010)
Detailed Industrial Category**

Category	Total Expenditures	Gross Product	Personal Income	Employment (Permanent Jobs)
Agricultural Products & Services	\$428,122,444	\$116,403,588	\$79,277,351	1,327
Forestry & Fishery Products	\$10,811,577	\$11,338,155	\$4,205,133	57
Coal Mining	\$57,857,118	\$16,711,209	\$17,609,674	125
Crude Petroleum & Natural Gas	\$309,747,554	\$67,662,516	\$31,205,883	161
Miscellaneous Mining	\$7,451,972	\$3,202,768	\$1,882,716	20
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$559,766,568	\$286,858,143	\$236,388,972	3,491
Food Products & Tobacco	\$875,399,066	\$225,167,952	\$115,026,562	2,012
Textile Mill Products	\$11,510,555	\$2,624,905	\$2,220,936	54
Apparel	\$159,580,588	\$88,238,674	\$44,711,871	1,277
Paper & Allied Products	\$138,058,915	\$61,095,461	\$27,620,808	442
Printing & Publishing	\$194,326,435	\$98,398,349	\$64,226,824	1,141
Chemicals & Petroleum Refining	\$726,167,799	\$109,962,939	\$51,634,004	401
Rubber & Leather Products	\$105,477,641	\$45,357,821	\$26,515,971	554
Lumber Products & Furniture	\$43,595,765	\$15,291,137	\$10,901,773	238
Stone, Clay, & Glass Products	\$56,628,277	\$31,385,316	\$16,414,649	280
Primary Metal	\$45,602,484	\$12,616,449	\$9,391,076	147
Fabricated Metal Products	\$115,353,487	\$41,421,012	\$26,741,448	480
Machinery, Except Electrical	\$71,295,499	\$28,578,848	\$20,416,844	228
Electric & Electronic Equipment	\$69,119,657	\$36,395,424	\$21,758,427	190
Motor Vehicles & Equipment	\$55,647,469	\$12,529,043	\$8,139,680	121
Transp. Equip., Exc. Motor Vehicles	\$24,182,301	\$10,351,451	\$6,764,288	86
Instruments & Related Products	\$19,458,582	\$7,979,713	\$6,065,286	81
Miscellaneous Manufacturing	\$44,621,684	\$17,604,315	\$12,141,875	203
Transportation	\$654,917,418	\$450,209,134	\$297,752,246	4,310
Communication	\$682,989,155	\$422,002,809	\$180,166,546	1,670
Electric, Gas, Water, Sanitary Services	\$1,663,392,354	\$373,396,325	\$162,940,210	722
Wholesale Trade	\$703,022,695	\$475,736,725	\$274,314,024	3,215
Retail Trade	\$4,354,763,345	\$3,608,524,368	\$2,157,782,183	59,250
Finance	\$296,230,288	\$156,453,890	\$91,103,545	850
Insurance	\$406,938,974	\$243,564,354	\$145,612,368	1,834
Real Estate	\$4,061,858,830	\$398,972,907	\$64,283,179	598
Hotels, Lodging Places, Amusements	\$345,586,985	\$182,020,969	\$119,412,045	3,049
Personal Services	\$963,424,854	\$599,252,142	\$466,227,871	8,229
Business Services	\$908,634,207	\$534,871,997	\$436,318,478	5,562
Eating & Drinking Places	\$1,889,454,543	\$1,106,543,520	\$588,740,237	27,878
Health Services	\$1,206,431,555	\$855,092,471	\$722,988,601	12,508
Miscellaneous Services	\$862,761,119	\$337,570,170	\$292,645,222	7,321
Households	\$27,492,281	\$27,492,281	\$26,910,562	1,949
Total	\$23,157,682,042	\$11,118,879,253	\$6,868,459,370	152,059

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

July 25, 2011

Mr. Maxie L. Patterson
Executive Director,
Texas Association of Public Employee Retirement Systems
Two Riverway, Suite 630
Houston, TX 77056

Subject: Analysis of Defined Benefit Plan Efficiency

Dear Max:

Three Texas retirement systems, through the Texas Association of Public Employee Retirement Systems (TEXPERS), desire to compare their three defined benefit (DB) pension plans to 401(k)-type defined contribution (DC) retirement savings plans. A research paper in 2008 titled "A Better Bang for the Buck" was authored by Beth Almeida and William B. Fornia for the National Institute of Retirement Security (NIRS) in which the costs and benefits of a typical DB plan were compared to the costs and benefits of a typical DC plan, based on a hypothetical group of employees.

TEXPERS, with the support of the three systems asked William B. Fornia and Pension Trustee Advisors, Inc. (PTA) to conduct similar research for them using pension formulas and employee profiles consistent with their following three Texas pension plans:

1. Fire and Police Pension Fund, San Antonio
2. City of Austin Employees' Retirement System
3. Houston Municipal Employees Pension System

The attached report is based on the methodology and approach of "A Better Bang for the Buck", but applying data relevant to the plans named above. In the analysis that follows, we found that for the profiles of the Texas workers in the three DB plans above, the cost ranged from 39% to 44% less than the DC cost to provide the same level of retirement.

The work was conducted by Pension Trustee Advisors under my direction. I look forward to discussing this with you further.

Sincerely,



William B. Fornia, FSA

Cc: Warren Schott – F&P San Antonio
Steve Edmonds – COAERS
Rhonda Smith – HMEPS

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Introduction

Worries about retirement security abound. Governments are concerned about delivering on the promises that they have made to their citizens and to their employees as tax revenues shrink amid a weakening economy. In this environment, some have proposed replacing traditional defined benefit (DB) pensions with 401(k)-type defined contribution (DC) retirement savings plans in an effort to save money.

The value of traditional DB pensions to employees is generally recognized: they provide a secure, predictable retirement income that cannot be outlived. But less well known is the value of a DB pension to an employer. Due to their group nature, DB plans possess “built-in” savings, which make them highly efficient retirement income vehicles, capable of delivering retirement benefits at a low cost to the employer and employee. These savings derive from three principal sources.

First, DB plans better manage longevity risk, or the chance of running out of money in retirement. By pooling the longevity risks of large numbers of individuals, DB plans avoid the “over-saving” dilemma – that is, saving more than people need on average to avoid running out of cash – that is inherent in DC plans. Consequently, DB plans are able to do more with less.

Second, because DB plans, unlike the individuals in them, do not age, they are able to take advantage of the enhanced investment returns that come from a balanced portfolio throughout an individual’s lifetime.

Third, DB plans, which are professionally managed, achieve greater investment returns as compared with DC plans that are made up of individual accounts. A retirement system that achieves higher investment returns can deliver any given level of benefit at a lower cost.

Because of these three factors, we find that a DB pension plan can offer the same retirement benefit at substantially less than the cost of a DC retirement savings plan. **Specifically, our analysis indicates that for workers in the three Texas DB plans that were studied, the cost to deliver the same level of retirement income ranges from being 39% to 44% lower than the cost of a DC plan.** This is an important factor for policy makers to consider, especially with respect to public sector workforces, where tax dollars are an important source of funds for retirement benefits. DB plans are a more efficient use of taxpayer funds when offering retirement benefits to state and local government employees.

More specifically, this study finds that ...

- Longevity risk pooling in the Texas DB plans saves from 12% to 15%;
- Maintenance of portfolio diversification in the Texas DB plans saves from 3% to 5%; and
- The Texas DB plans’ superior investment returns save from 22% to 25%.

... as compared to a typical DC plan.

Two Approaches to Retirement – DB and DC Plans

Employers who offer retirement benefits can consider two basic approaches: a traditional defined benefit (DB) pension plan and a defined contribution (DC) retirement savings plan. Each type of plan has certain distinguishing characteristics that influence their cost to employers and employees.

How DB plans work

While employers have a good degree of flexibility in designing the features of a DB plan, there are some features all DB plans share.

DB plans are designed to provide employees with a predictable monthly benefit in retirement. The amount of the monthly pension is typically a function of the number of years an employee devotes to the job and the worker's pay – usually toward the end of their career. For example, the City of Austin Employees Retirement System Group B provides a benefit in the amount of 2.5% of final average salary per year of service. Thus, a City of Austin Code Enforcement Inspector whose final average salary is \$55,000, and who had devoted 30 years to the job, would earn a monthly benefit of \$3,438 (\$41,250 per year). This plan design is attractive to employees because of the security it provides. Employees know in advance of making the decision to retire that they will have a steady, predictable income that will enable them to maintain a stable portion of their pre-retirement standard of living.

Benefits in DB plans are pre-funded. That is, employers (and, in the public sector, employees) make contributions to a common pension trust fund over the course of a worker's career. These funds are invested by professional asset managers whose activities are overseen by trustees and other fiduciaries. The earnings that build up in the fund, along with the dollars initially contributed, pay for the lifetime benefits a worker receives when he retires.

How DC plans work

DC plans function very differently than DB plans

First, there is no implicit or explicit guarantee of retirement income in a DC plan. Rather, employers (and usually employees) contribute to the plan over the course of a worker's career. Whether the funds in the account will ultimately be sufficient to meet retirement income needs will depend on a number of factors, such as the level of employer and employee contributions to the plan, the investment returns earned on assets, whether loans are taken or funds are withdrawn prior to retirement, and the individual's lifespan.

While DC plan assets are also held in a pension trust, that trust is comprised of a large number of individual accounts. DC plans are typically "participant directed," meaning that each individual employee can decide how much to save, how to invest the funds in the account, how to modify these investments over time, and at retirement, how to withdraw the funds. Retirement experts typically advise individuals in DC plans to change their investment patterns over their lifecycle. In other words, at younger ages, because retirement is a long way off, workers should allocate more funds to stocks, which have higher expected returns, but also higher risks. As one gets closer to retirement, experts suggest moving money away from stocks and into safer, but lower returning assets like bonds. This is to guard against a large drop in retirement savings on the eve of retirement, or in one's retirement years.

This high degree of participant direction makes DC plans very flexible in accommodating individuals' desires, decisions, and control. Employees, however, do not always follow the best expert advice when it comes to saving and investing for retirement. Too many workers fail to contribute sufficient amounts to the plans, and individuals' lack of expertise in making investment decisions can subject individual

accounts to extremely unbalanced portfolios with too little or too much invested in one particular asset, such as stocks, bonds, or cash. For example, one study found that more than half of all DC plan participants had either no funds invested in stocks—which exposes them to very low investment returns—or had almost all their assets allocated to stocks, making for a much more volatile portfolio.

Another important difference between DC and DB plans becomes apparent at retirement. Unlike in DB plans, where workers are entitled to receive regular, monthly pension payments, in DC plans it is typically left to the retiree to decide how to spend one's retirement savings. Research suggests that many individuals struggle with this task, either drawing down funds too quickly and running out of money, or holding on to funds too tightly and having a lower standard of living as a result. In theory, employers that offer DC plans could provide annuity payout options, but in practice they rarely do.

Both DB and DC plans are important to retirement security

Because individuals do not have perfect knowledge as to whether they will remain in a given job (and therefore in a given DB plan) until retirement, taking advantage of the opportunity to save in a supplemental DC plan can provide employees with useful diversification of retirement income sources. DC plans also are flexible vehicles that can accommodate individual retirement income needs that can vary. For example, two otherwise identical workers might have different family situations, health needs, or simply different preferences and expectations about their retirement income needs. DC plans give workers the opportunity to save for retirement in a manner that reflects their individual situations.

This is why most retirement experts liken the ideal design of retirement income sources to a “three-legged stool,” consisting of Social Security, a DB plan, and a supplemental DC savings plan. Indeed, researchers have found that workers who have access to all three sources of retirement income are in the best position to achieve a secure retirement.

However, to the extent that retirement benefits for private sector employees constitute a cost to employers, and since benefits for public employees are supported by taxpayer contributions, designing retirement benefits in a fiscally responsible fashion is an important public policy goal. To that end, it is important for policymakers to recognize that the features that make DB plans highly attractive to employees – a predictable monthly retirement benefit, low fees and professional management of retirement assets – also provide significant savings for employers and taxpayers.

DB Plans are more cost effective

The cost of either a DB or DC plan depends primarily, but not only, on the generosity of the benefits that it provides. Economists have found that DB plans are typically more generous than DC plans, and obviously, more generous benefits are more expensive. However, for any given level of benefit, a DB plan will cost less than a DC plan. This makes DB plans, in the language of economists, *more efficient* since they stretch taxpayer, employer or employee dollars further in achieving any given level of retirement income.

There are three primary reasons behind DB plans' cost advantage.

1. First, because DB plans pool the longevity risks of large numbers of individuals, they avoid the “over-saving” dilemma inherent in DC plans. DB plans need only accumulate enough funds to provide benefits for the average life expectancy of the group. In contrast, individuals will need to set aside enough funds to last for the “maximum” life expectancy if they want to avoid the risk of running out of money in retirement. Since the maximum life expectancy can be substantially greater than the

- average life expectancy, a DC plan will have to set aside a lot more money than a DB plan to achieve the same level of monthly retirement income.
2. Second, because DB plans do not age, unlike the individuals in them, they are able to take advantage of the enhanced investment returns that come from a balanced portfolio over long periods of time. For instance, ongoing DB plans generally include individuals with a range of ages. As older workers retire, younger workers enter the plan. As a result, the average age of the group in a mature DB plan does not change much. This means DB plans can ride out bear markets and take advantage of the buying opportunities that they present without having to worry about converting all of their money into cash for benefits in the near future. By contrast, individuals in DC plans must gradually shift to a more conservative asset allocation as they age, in order to protect against financial market shocks later in life. This process can sacrifice investment returns because people may have to sell assets when they are worth too little due to market fluctuations coinciding with retirement timing. Moreover, they are not able to take advantage of higher expected returns associated with a balanced portfolio.
 3. Third, DB plans achieve greater investment returns as compared to the individual account DC plans. Superior returns can be attributed partly to lower fees that stem from economies of scale. Also, because of professional management of assets, DB plans achieve superior investment performance as compared to the average individual investor.

Methodology

We compare the relative costs of DB and DC plans by constructing a model that first calculates the cost of achieving a target retirement benefit in a typical DB plan. We express this cost as a level percent of payroll over a career. We then calculate the cost of providing the same retirement benefit under a DC plan. Additional details on our methodology can be found in the Technical Appendix to the *“Better Bang for the Buck”* report.

Our model is based on a group of 1,000 newly-hired employees as shown below in each of three Texas plans:

1. The Fire and Police Pension Fund, San Antonio
2. The City of Austin Employees Retirement System Group B
3. The Houston Municipal Employees Pension System Group D.

For the purposes of simplicity, we give the individuals in each group a common set of features, according to the average data associated with each different plan.

Worker	Age when Hired	Age at Retirement	Years of Service	Male or Female?
San Antonio Police Officer	27	57	30	Male
Austin Code Enforcement Inspector	32	62	30	Male
Houston Nurse	36	62	26	Female

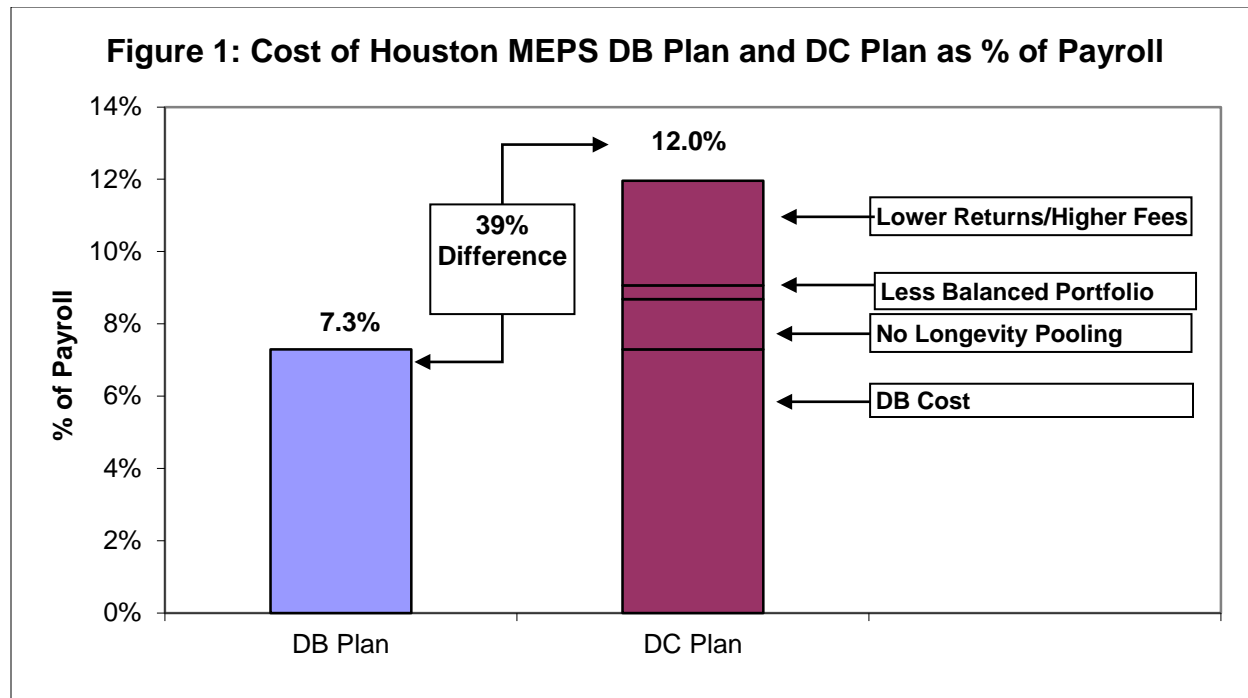
Next, we calculate the benefits provided under each plan. This is based on information provided by the various plans.

Worker	Final Average Pay	Pension Multiplier	Years of Service	Monthly Pension
San Antonio Police Officer	\$80,000	2.25%/5%/2%	30	\$5,733
Austin Code Enforcement Inspector	\$55,000	2.50%	30	\$3,438
Houston Nurse	\$50,000	1.8%/1%	26	\$1,917

We define certain parameters for life expectancy and investment returns. Then, on the basis of all these inputs, we calculate the contribution that will be required to fund our target retirement benefit through the DB plan over the course of a career. We perform the same exercise for the DC plan. The following pages will review various findings for these three hypothetical workers as well as summaries of their results.

DB Plans are more cost-effective because of longevity risk pooling, portfolio diversification, and superior returns

We find that the cost to fund the target retirement benefit for the Nurse under the Houston Municipal Employees’ Pension System Group D DB plan, for example, comes to 7.3% of payroll each year. By comparison, we find that the cost to provide the same target retirement benefit under the DC plan is 12.0% of payroll each year. In other words, the DB plan can provide the same benefit at a cost that is 39% lower than the DC plan, as shown in **Figure 1**. These costs are calculated independently of who pays the costs. In most public pension plans, the cost is shared between the employers and the employees.



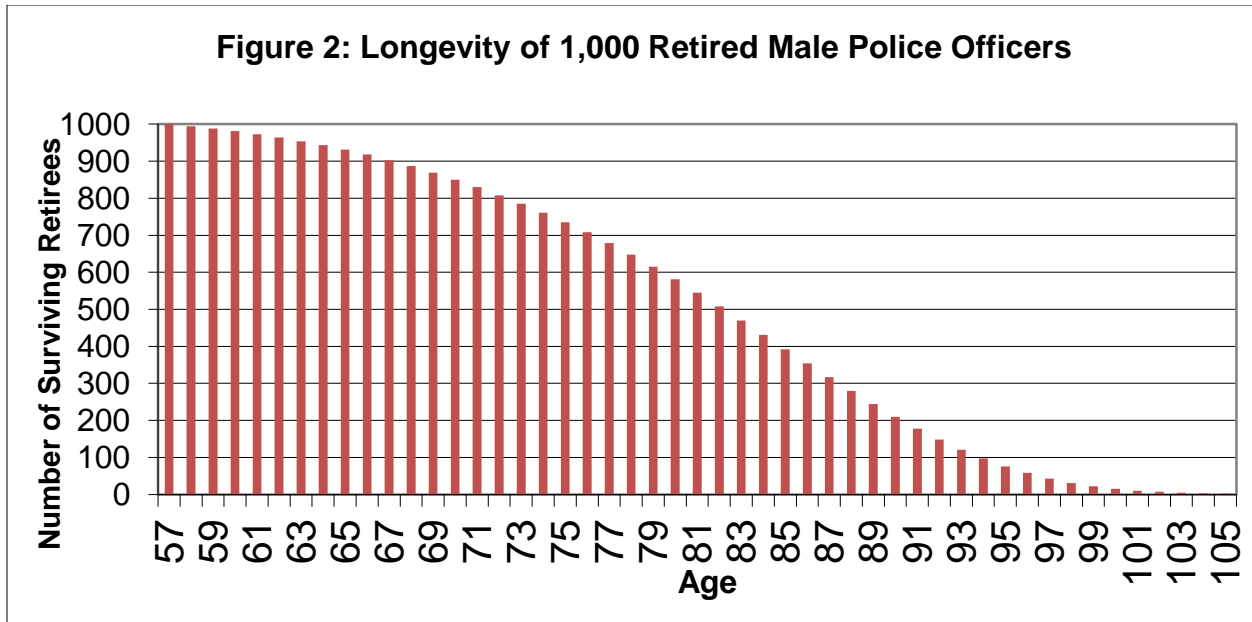
The cost comparisons for the employee groups analyzed in our study are as follows. Costs are shown as percentage of annual payroll.

Worker	DB Cost	DC Cost	Difference
San Antonio Police Officer	20.1%	35.7%	44%
Austin Code Enforcement Inspector	15.4%	25.5%	40%
Houston Nurse	7.3%	12.0%	39%

The DB cost advantage stems from differences in how benefits are paid out in each type of plan, how investment allocations shift in DC plans as individuals age, and how actual investment returns in DC plans compare with those in DB plans.

Longevity Risk Pooling

Longevity risk describes the uncertainty an individual faces with respect to their exact lifespan. While actuaries can tell us that, on average, for example, our pool of male police officers who retire at age 57 will live to be 82, they can also predict that some will live only a short time, and some will live to be over 100. **Figure 2** illustrates the longevity patterns among our 1,000 police officers. With each passing year, fewer retirees are still living. Age 82 corresponds to the year when roughly half of retirees are still alive.

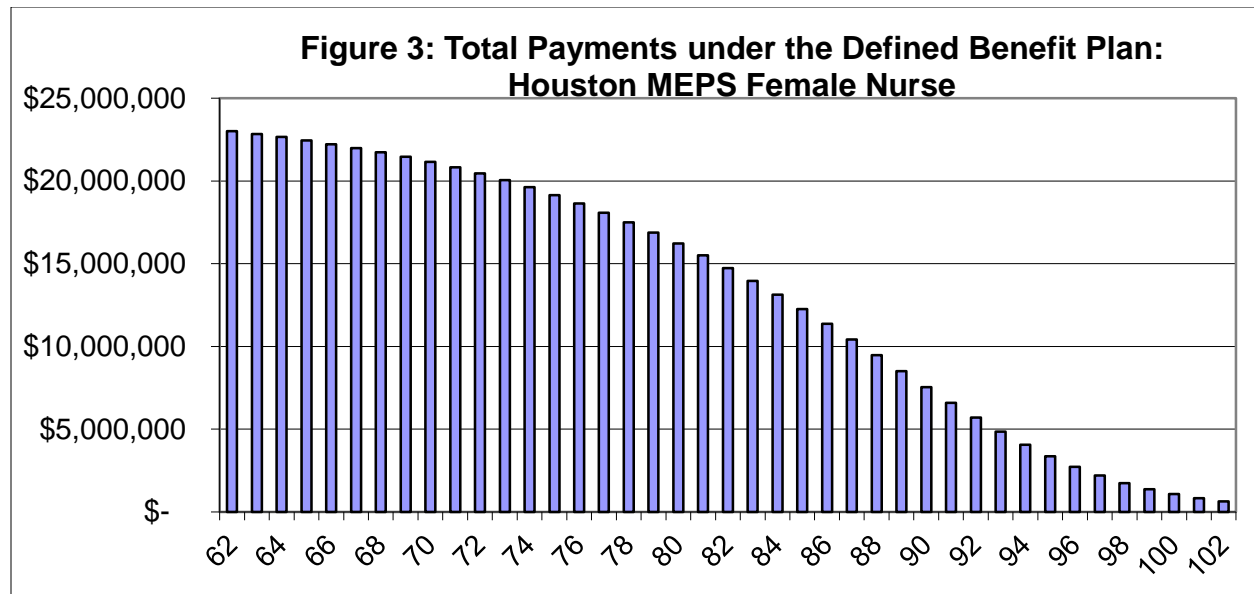


In a DB plan, the normal form of benefit is a lifetime annuity, that is, a series of monthly payments that lasts until death. A DB plan with a large number of participants can plan for the fact that some individuals will live longer lives and others will live shorter lives. Thus, a DB plan needs only to ensure that it has enough assets set aside to pay for the *average* life expectancy of all individuals in the plan, or in the police officer’s case, to age 82. Based on our target benefit level, the DB plan needs to have accumulated \$921,807 for each police officer in the plan by the time they turn 57. This amount will ensure that every individual in the plan will receive a regular monthly pension payment that lasts as long as they do. The contribution required to fund this benefit, smoothed over a career, comes to 20.1% of payroll.

The corresponding information for all three employee groups analyzed in our study is as follows:

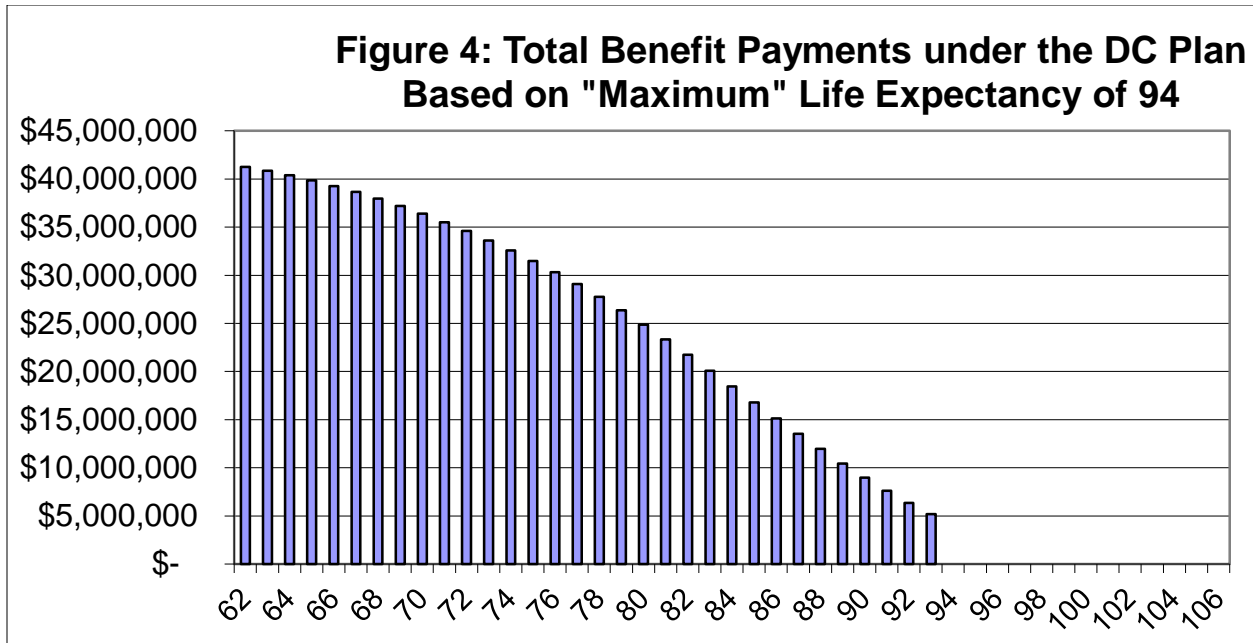
Worker	Amount needed at age of retirement	Average life expectancy at retirement
San Antonio Police Officer – Male	\$921,807	82 at age 57
Austin Code Enforcement Inspector – Male	\$411,190	83 at age 62
Houston Nurse – Female	\$243,053	86 at age 62

Total annual payments out of the Houston MEPS DB plan will have a similar pattern as seen in **Figure 3**. The amount of benefits paid out will decrease steadily with the effect of 1000 retiring individuals gradually dying off. In the DB plan, every retiree receives a steady monthly income that lasts until his or her death.



Next, we contrast this situation with that in a DC plan. Because DC plans rarely offer annuity options, individuals must self-insure longevity risks. This can be an expensive proposition. Because an individual in a DC plan does not know exactly how long he will live, he will probably not be satisfied with saving an amount sufficient to last for the *average* life span, because if he lives past age 83, he will have depleted his retirement savings. For this reason, an individual will probably want to be sure that he has enough money saved to last for the *maximum* life span (or something close to it).

We define the “maximum life expectancy” for purposes of the Austin Code Enforcement Inspector analysis as 94 years old. It corresponds to the age beyond which only 10% of individuals survive, and therefore it is not a “true” measure of maximum life expectancy. In fact, our mortality table indicates that one lucky individual out of the 1,000 retired Austin males will celebrate his 106th birthday. This simplifying assumption is intended to be more realistic (that most individuals will be satisfied with a 90% chance of not outliving their money, rather than a 100% chance), but it will also tend to understate the cost of the DC plan. **Figure 4** illustrates the payout pattern under the DC plan, where individuals withdraw funds on an equivalent basis to the DB plan until age 94 – that is, in a series of regular payments. After age 94, there are no more withdrawals, even though 100 (10% of our initial pool of 1,000) workers are still living. The money has simply run out.

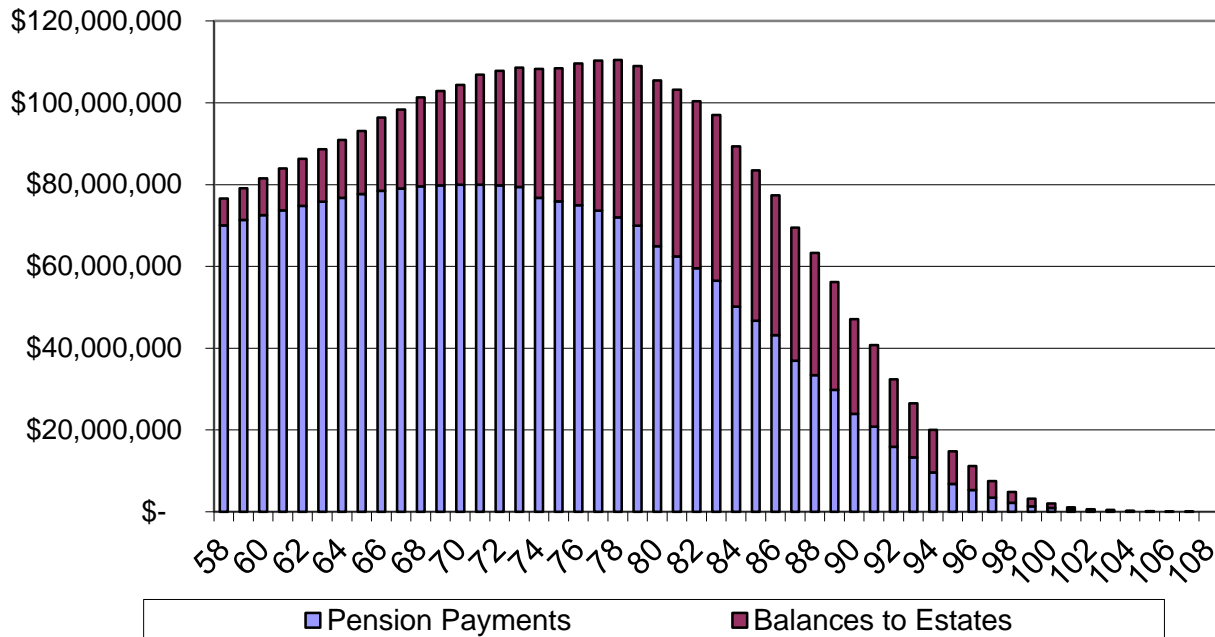


Thus, our simplifying assumption of using a 90th percentile life expectancy of 94, rather than the true maximum life expectancy, will reduce the cost of providing the target benefit under the DC plan, but will also mean that individuals with exceptionally long lives will experience a reduced standard of living, compared to what they would experience under a DB plan. Thus, in our example, the DC plan ends up delivering less in total retirement benefits than the DB plan.

Of course, those 10% of individuals who do survive beyond age 94 would want to avoid the possibility of having their retirement income reduced to zero. It is likely that individuals will respond to a long life by gradually reducing their withdrawals from the plan to avoid running out of money.

It is important to acknowledge that if a retiree dies before exhausting all of his or her DC retirement savings, the money in the account does not simply evaporate. Rather, it will pass to the estate. Benefits that were intended to be pension benefits become death benefits paid to heirs instead. This is the “over-saving” dilemma that is inherent in DC plans. **Figure 5** illustrates this phenomenon for the San Antonio police officer. Since his average life expectancy is 82, but DC retirees must prudently save for the 10% possibility of reaching age 94, the aggregate amount of money transferred to estates is substantial – totaling 20% of all assets accumulated in the plan (although only 9% on a present-value basis). Note also that the Police Officer illustration has a hump shape. This is because the underlying San Antonio DB plan provides an inflation-based cost of living increase. So our hypothetical DC participant will similarly increase his withdrawal due to inflation.

**Figure 5: Total Benefit + Estate Payments under the DC Plan:
San Antonio Police Officer**



While some individual heirs will benefit from these intergenerational transfers of wealth, they are not economically efficient from a taxpayer or employer perspective. Because heirs did not provide services that the employer/taxpayer benefited from, providing additional benefits to heirs is economically inefficient. Moreover, these additional “death benefits” are not tied in any direct way to an individual employee’s productivity during his working years, rather their value is a function of living a shorter life.

DB plans avoid this problem entirely. By pooling longevity risks, DB plans not only ensure that all participants in the plan will have enough money to last a lifetime, they can accomplish this goal with less money than would be required in a DC plan. Because DB plans need to fund only the average life expectancy of the group, rather than the maximum life expectancy for all individuals in the plan, less money needs to be accumulated in the pension fund. Remember that the San Antonio Fire and Police Pension Fund DB plan needed to accumulate \$921,807 for each police officer in the plan by the time he turns 57 in order to fund the target level of benefit. Due to the “over-saving” dilemma, DC plans must accumulate at least \$1,146,979 per participant, or \$225,172 more, in order to minimize the likelihood of running out of funds. In order to accumulate those additional amounts, contributions to the plan would climb to 25.0% of pay, from 20.1% under the DB plan.

Maintenance of Portfolio Diversification

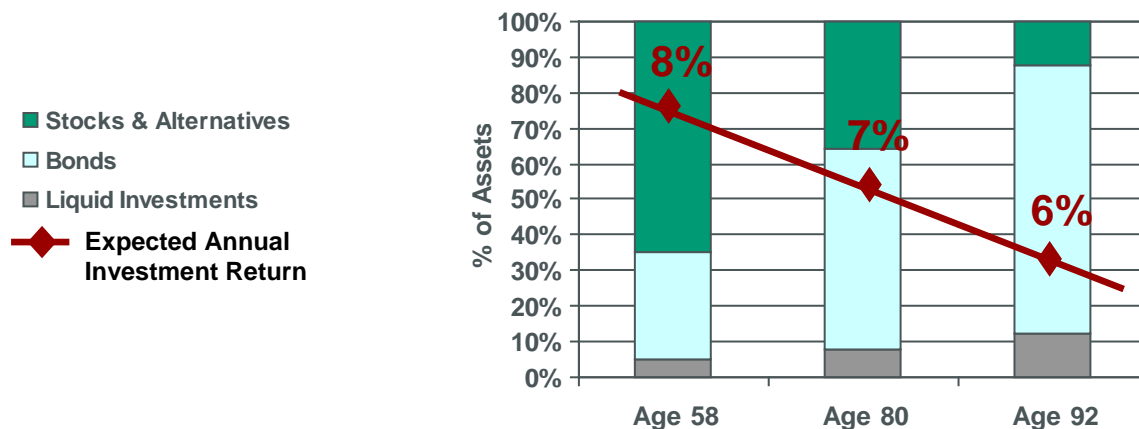
A retirement system that achieves higher investment returns can deliver a given level of benefit at a lower cost. All else equal, the greater the level of investment earnings, the lower contributions to the plan will need to be. Prior research substantiates DB plans’ significant advantage in investment returns, as compared to DC plans.

Part of the reason why DB plans tend to achieve higher investment returns as compared to DC plans is that they are long-lived. That is, unlike individuals, who have a finite career and a finite lifespan, a DB pension fund endures across generations; thus a DB plan, unlike the individuals in it, can maintain a

well-diversified portfolio over time. In DC plans, individuals’ sensitivity to the risk of financial market shocks increases as they age. The consequences of a sharp stock market downturn on retirement assets when one is in their 20s are minor, compared to when one is on the eve of retirement. For this reason, individuals are advised to gradually shift away from higher risk/higher return assets as they approach retirement. While this shift offers insurance against the downside risk of a bear market, it also sacrifices expected return since more money will be held in cash or similar assets that offer low rates of return in exchange for more security. A reduction in expected investment returns will require greater contributions to be made to the plan in order to achieve the same target benefit.

In the development of our analysis, Texas’s well-diversified DB plans are expected to achieve investment returns of 8% per year, net of fees. (Similarly, the three plans’ actuaries assume 7.75% to 8.50%). In the DC plan, individuals gradually shift out of higher risk/higher return assets in favor of lower risk/lower return assets. This results in a sacrifice of expected annual return of 2% by age 92, as shown in **Figure 6**.

Figure 6: Returns Based on Age



We find that the shift in portfolio allocation has a modest, but nonetheless, significant effect on cost. Specifically, we find that the per- retiree amount that must be accumulated in the Austin Code Enforcement Inspector’s DC plan by retirement age now climbs to \$529,421. By comparison, the DB plan requires \$411,190. The contributions required to fund the target benefit level now climb to 19.8% of payroll (compared to 15.4% of payroll under the DB plan).

Superior Returns

Another important reason why DB plans achieve higher investment returns than DC plans is that assets are pooled and professionally managed. Expenses paid out of plan assets to cover the costs of administration and asset management reduce the amount of money available to provide benefits. As a result, a plan that can reduce these costs will require fewer contributions. By pooling assets, large DB plans are able to drive down asset management and other fees. For example, researchers at Boston College (Munnell and Soto) find that asset management fees average just 25 basis points for public sector DB plans. By comparison, asset management fees for private sector 401(k) plans range from 60 to 170 basis points. Thus, private DC plans suffer from a 35 to 145 basis point cost disadvantage, as compared with public DB plans. On their face, these differentials may appear small, but over a long period of time, they compound to have a significant impact. To illustrate, over 40 years, a 100 basis

point difference in fees compounds to a 24% reduction in the value of assets available to pay for retirement benefits.

Administrative costs are largely driven by scale. Thus, a similarly-sized DB plan and DC plan can have opportunities to negotiate minimized administrative expenses. But a DC plan involves costs that do not exist in a DB plan, such as the costs of individual recordkeeping, individual transactions, and investment education to help employees make good decisions. DB plans, unlike DC plans, bear the administrative costs of making regular monthly payments after retirement.

But fees are only part of the story – differences in the way retirement assets are managed in DB and DC plans play a substantial role. As previously discussed, investment decisions in DB plans are made by professional investment managers, whose activities are overseen by trustees and other fiduciaries. Research has found that DB plans have broadly diversified portfolios and managers who follow a long-term investment strategy. We also know that individuals in DC plans, despite their best efforts, often fall short when it comes to making good investment decisions. Thus, it should not be surprising that researchers find a large and persistent gap when comparing investment returns in DB and DC plans. Munnell and Sunden put the difference in annual return at 80 basis points. A 2007 report from the global benchmarking firm, CEM Benchmarking, Inc., concluded that between 1998 and 2005, DB plans showed annual returns 180 basis points higher than DC plans, largely due to differences in asset mix. And Towers Watson found that, between 1995 and 2008, DB plans outperformed DC plans by 103 basis points, on average. Among large plans, the DB advantage was even greater – at 127 basis points.

In our model, we use conservative estimates of the differences in DB and DC plan costs and expected returns. We model a 100 basis point (1%) net disadvantage for the DC plan annual investment returns as compared with DB plan returns. While this is slightly higher than the estimate of Munnell and Soto, it is lower than the more recent estimates of Flynn and Lum from CEM Benchmarking, and Towers Watson. This 100 basis point differential persists into the retirement years and magnifies the effects of the shift in asset allocation discussed previously. However, our model separates these effects to avoid double-counting. We do not isolate the impact of expenses and fees from the impact of superior investment management skill.

We find that a 1% per year disadvantage in DC plan investment returns compounds over time to create a significant cost disadvantage. In particular, we find that the amount which must be set aside for each Houston Nurse at retirement age now climbs to \$334,448 (compared to the \$243,053 required in the Houston MEPS DB plan). The level of required contributions to the DC plan climbs again, this time to 12.0% of payroll (compared to 7.3% under the DB plan).

Summary of Results – DB Plans Reduce Costs by about 40%

Taken together, the economies that stem from investment pooling and longevity risk pooling can result in significant cost savings to employees and employers (or in the case of the public sector, taxpayers). In our model, required contributions range from being 39% to 44% lower in the three DB plans as compared to the DC plans.

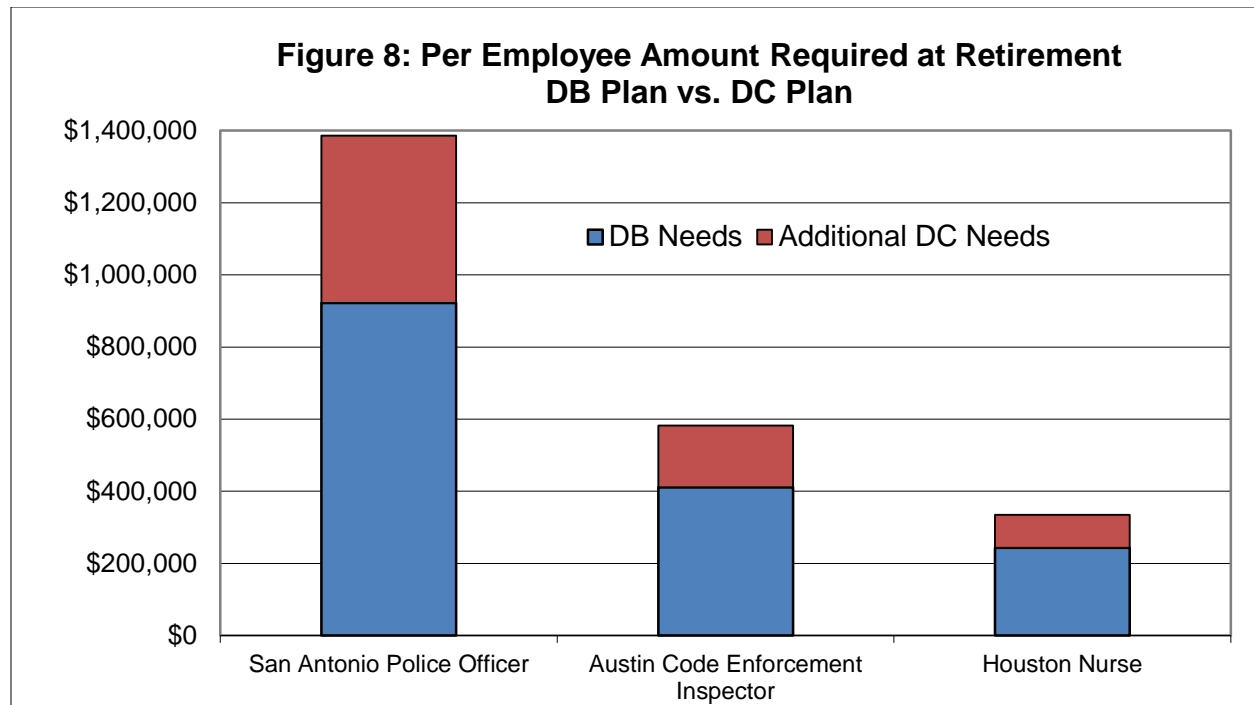
Our analysis clearly demonstrates that DB plans are far more cost-effective than DC plans. We find that to achieve target retirement benefit that will replace 46% to 86% of average salary, the three DB plans will require contributions ranging from 7.3% to 20.1% of payroll, whereas the DC plan will require contributions to be almost twice as high, ranging from 12.0% to 35.7% of payroll. We find that due to the effects of longevity risk pooling, maintenance of portfolio diversification and greater investment returns over the lifecycle, a DB plan can provide the same level of retirement benefits at 56% to 61% of the cost of a DC plan, as shown in **Figure 7**.

Figure 7: Tallying DB Plan Cost Savings

	San Antonio Police Officer	Austin Code Enforcement Inspector	Houston Nurse
1. Longevity risk pooling saves.....	14%	15%	12%
2. Maintenance of portfolio diversification saves	5%	3%	3%
3. Superior investment returns save	25%	22%	24%
All-in costs savings in DB plans	44%	40%	39%

The longevity risk pooling that occurs in the three DB plans accounts for 12% to 15% of the incremental cost savings. The DB plans’ ability to maintain a more diversified portfolio drives another 3% to 5% cost savings, and their superior investment returns across the lifecycle generate an additional 22% to 25% reduction in cost.

Our results also indicate that DB plans can do more with less. That is, they can ensure that all individuals in the plan (even those with very long lives) are able to enjoy an adequate retirement benefit that lasts a lifetime, at the same time that they require fewer assets to be contributed to a retirement plan and fewer assets to accumulate in the plan. For example, we calculated the amount of money that would be required to be set aside for each retired Austin Code Enforcement Inspector in each type of plan to provide a retirement benefit of \$3,438 per month. As shown in **Figure 8**, at retirement age, the City of Austin DB plan requires about \$410,000 to be set aside for each individual, whereas the DC plan requires more than \$580,000. The difference – more than \$170,000 for each and every worker – illustrates that the efficiencies embedded in DB plans can yield large dollar savings for employers, employees and taxpayers. The DB and DC costs are also compared as follows for each of the three employees which we studied.



Finally, below is a table summarizing the cost differential between DB and DC plans for the three groups.

	DB Cost	Longevity Pooling Impact	Diversification Impact	Superior Return Impact	Full DC Cost
San Antonio Police Officer	20.1%	4.9%	1.7%	9.0%	35.7%
Austin Code Enforcement Inspector	15.4%	3.7%	0.7%	5.7%	25.5%
Houston Nurse	7.3%	1.4%	0.4%	2.9%	12.0%

Conclusion

Our findings indicate that DB plans provide a better bang for the buck when it comes to providing retirement income. We find that a DB plan can provide the same level of retirement income at about 40% less cost than the cost of a DC plan. Hence, DB plans should remain a centerpiece of retirement income policy and practice, especially in light of current fiscal and economic constraints.

We find that the biggest drivers of the cost advantages in DB plans are longevity pooling and enhanced investment returns that derive from reduced expenses and professional management of assets. The sacrifice of investment returns that results from life-cycle driven shifts in portfolio allocation in DC plans had a smaller, but still significant, effect. The sources of cost savings in DB plans reflect, at a very basic level, the differences in how DB and DC plans operate. Group-based DB plans provide lifetime benefits and feature pooled, cost-efficient, professionally managed assets: these features drive significant cost savings that benefit employers, employees, and taxpayers.

When considering our results, it is important to keep in mind that in our effort to construct an “apples to apples” comparison, we made a number of simplifying assumptions that actually reflected more favorably on DC plans. For instance, we did not model any asset leakage from the DC plan before retirement, through loans or early withdrawals, nor any terminations of employment under either plan. We also assumed that individuals followed a sensible “goldilocks-like” withdrawal pattern in retirement – not too fast, not too slow, but just right. We used conservative estimates of the difference in actual investment returns between DB and DC plans. And, we used a 90th percentile life expectancy to project required accumulations in the DC plan, rather than “full” life expectancies. Thus, if anything, our analysis likely underestimates the cost of providing benefits in a DC plan and thereby understates the cost advantages of DB plans.

Due to the built-in economic efficiencies of DB plans, employers and policy makers should continue to carefully evaluate claims that “DC plans will save money.” As mentioned, benefit generosity is a separate question from the economic efficiency of a retirement plan. While either type of plan can offer more or less generous benefits, DB plans have a clear cost advantage for any given level of retirement benefit. Considering the magnitude of the DB cost advantage, the consequences of a decision to switch to a DC plan could be dramatic for employees, employers, and taxpayers.

Finally, policymakers should consider proposals that can strengthen existing DB plans and promote the adoption of new ones. When viewed against the backdrop of workers’ increasing insecurities about their retirement prospects and the economic and fiscal challenges facing employers and taxpayers, now more than ever, policy makers ought to focus their attention and energy on this important goal. The very features that make DB plans attractive to employees drive cost savings for employers and taxpayers. In this way, DB plans represent a rare “win-win” approach to achieving economic security in retirement that should be recognized and replicated.

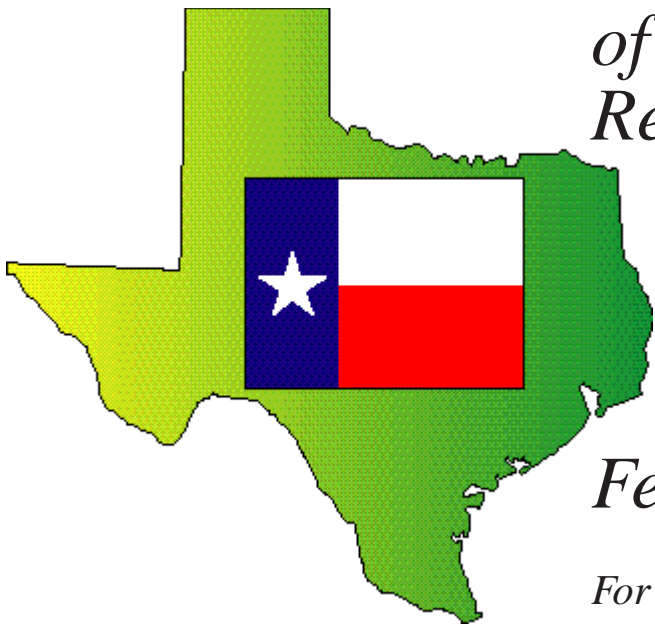
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TEXPERS
225 North Loop West, Suite 909
Houston, Texas 77008
Phone (713) 622-8018
Fax (713) 622-7022

TEXPERS

Report on the Asset Allocation and Investment Performance of Texas Public Employee Retirement Systems

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*The Texas Association
of Public Employee
Retirement Systems*

February 2012

For Periods Ending September 30, 2011





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TEXPERS®
 1225 North Loop West, Suite 909
 Houston, Texas 77008
 Tel: 713/622-8018 - Fax: 713/622-7022
 e-mail: texpers@texpers.org

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Prepared by:
Fredric D. Richmond, CFA

Key Findings

- Eighty-four percent of surveys mailed to TEXPERS members were returned with complete data, an excellent response percentage.
- Survey respondents had a total market value of \$21.4 billion. The average asset allocation of the survey respondents was 25.5% percent in U.S. equity, 16.1% in non-U.S. equity, 27.8% in fixed income, 10.4% in real estate, 7.4% in private equity and 12.8% in other asset classes.
- When measuring investment performance for survey respondents as a group over the twenty year period ending September 30, 2011 the respondents' composite investment return was 8.0%, compared to the average actuarial investment return assumption of 8.2%.
- For the fifteen years ended September 30, 2011 survey respondents 7.1% return exceeded the 6.8% return for the Wilshire Median Public Fund for the same period.
- For the ten years ended September 30, 2011 survey respondents 6.5% return exceeded the 6.0% return for the Wilshire Median Public Fund for the same period.
- A \$100 investment in the survey respondents' aggregate portfolio on September 30, 1990 would have grown to \$557 at September 30, 2011. This exceeds the \$519 that \$100 invested at the 8.2% average actuarial return assumption would have grown to during the same twenty-one year period.

Introduction

This report reviews the asset allocation and investment performance for local pension systems that are members of the Texas Association of Public Employee Retirement Systems (TEXPERS) for the one, three, five, ten, fifteen and twenty year periods ending September 30, 2011. Both the aggregate TEXPERS and individual systems' asset allocation as well as investment performance will be examined.

The purpose of this report is to document TEXPERS member systems' diversification with respect to the types of assets invested in, and the investment performance of these systems with respect to their actuarially assumed returns, market benchmarks and other public funds. This will demonstrate that local systems are being managed in compliance with the "prudent expert" rule, which requires fiduciaries of the system exercise their duties with the care, skill, prudence and diligence under the prevailing circumstances that a prudent person acting in a like capacity and familiar with matters of the type would use in the conduct of an enterprise with a like character and like aims.

Individual pension system data in this report was obtained from a December 2011 survey requesting asset allocation and investment return information from TEXPERS members. A total of sixty-four surveys were sent to TEXPERS members. Fifty-six surveys were completed and returned, a eighty-eight percent response. Fifty-four responses, or eighty-four percent, had the five year quarterly return history required for inclusion in the study. Eighty-four percent is considered an excellent response percentage for surveys. The member systems responding represent assets of approximately \$21.4 billion. A copy of the survey is contained in Appendix 1 and a listing of TEXPERS members responding to the survey is contained in Appendix 2. Respondents that agreed to have their name disclosed in this report are listed in Appendix 3. A listing of actuarial return and inflation assumptions is in Appendix 4.

Thanks to Wilshire Associates, Inc. for providing the market return and peer group comparison data.

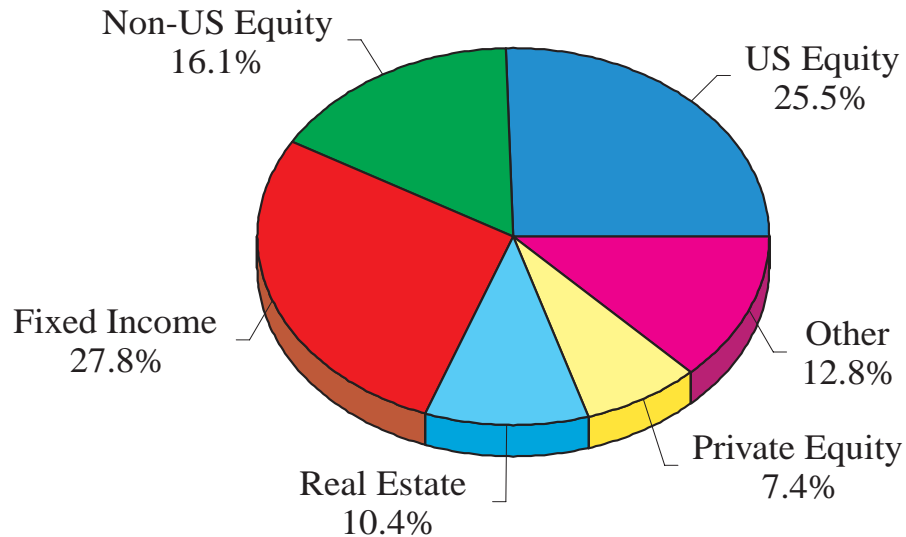
TEXPERS Composite

Asset Allocation

Figure 1 illustrates the average asset allocation of survey respondents as a composite group. The U.S. and Non-U.S. Equity asset classes include investments such as domestic and international common stocks. Fixed income includes investments such as government and corporate bonds from domestic and international issuers. Real estate includes both publicly or privately traded real estate securities and direct investments in properties. Private equity includes primarily venture capital, growth capital and leveraged buyouts. Other includes all assets not falling into one of the previous classes.

Figure 1

Market Value \$21.4 Billion
As of September 30, 2011



The asset allocation demonstrates that, in aggregate, the respondents have a level of diversification within the norm for public pension systems.

Investment Performance

Trailing Period Returns - Table

Table 1

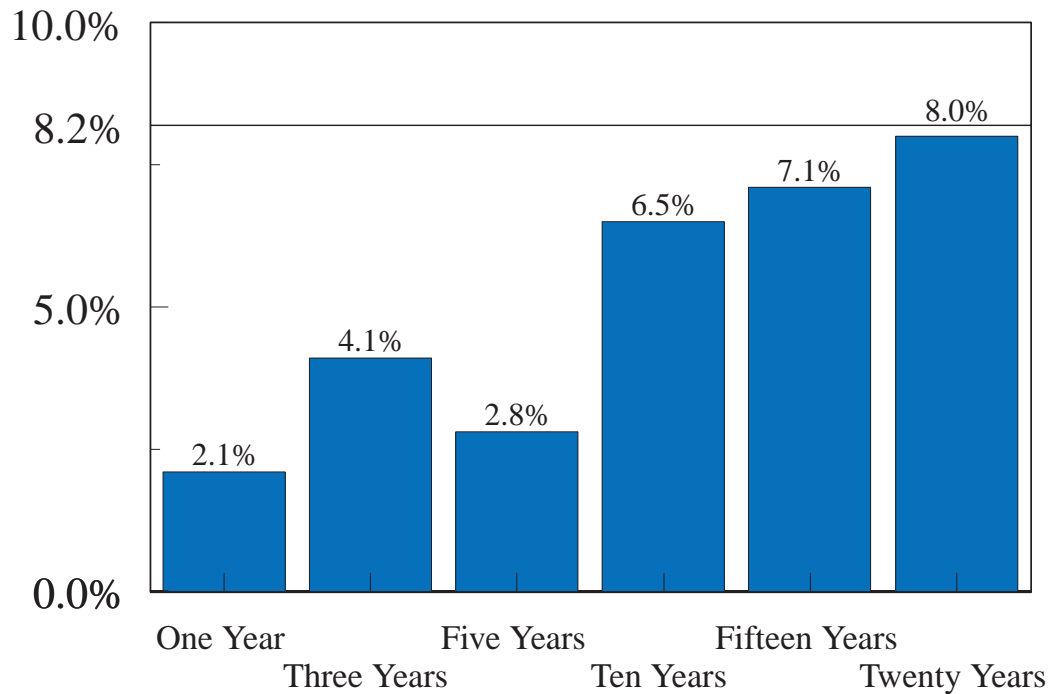
Annualized Returns for the Periods Ending 9/30/2011	One Year	Three Years	Five Years	Ten Years	Fifteen Years	Twenty Years
TEXPERS Average	2.1	4.1	2.8	6.5	7.1	8.0
Actuarial Assumption	8.2	8.2	8.2	8.2	8.2	8.2

Table 1 and Figure 2 compare the survey respondents' average investment return over the one, three, five, ten, fifteen and twenty year periods ending September 30, 2011 to their average actuarial investment return assumption of 8.2%. Given several extraordinarily difficult market environments over the twenty year period the average annual return of 8.0% compares favorably to the actuarial return assumption of 8.2%.

Trailing Period Returns - Chart

Figure 2

Returns vs. Average Actuarial Assumption For Periods Ending 9/30/2011



Growth of \$100

Figure 3

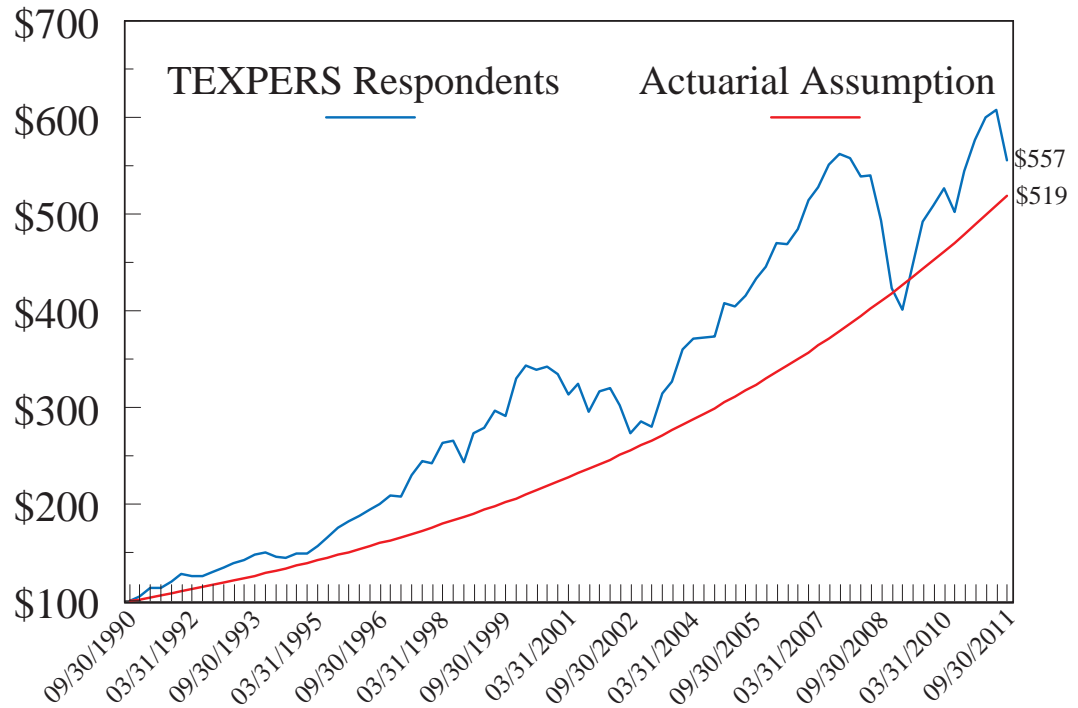


Figure 3 displays the growth of \$100 as if it were invested on September 30, 1990 in the survey respondents' aggregate portfolio. This is compared to \$100 invested in a hypothetical portfolio growing at the 8.2% average actuarial assumption. As can be seen from this exhibit, a \$100 investment in the survey respondents' aggregate portfolio would have grown to \$557 at September 30, 2011. This exceeds the \$519 that \$100 invested at the 8.2% average actuarial return assumption would have grown to during the same period.

TEXPERS member systems as a group have exceeded their actuarial investment return hurdle over the 21 years ending September 30, 2011.

Individual Pension Systems

Asset Allocation

Table 2 details the percentage allocation to the major asset classes by each survey respondent.

Table 2

Fund	U.S. Equity	Non-U.S. Equity	Fixed Income	Real Estate	Private Equity	Other	Fund	U.S. Equity	Non-U.S. Equity	Fixed Income	Real Estate	Private Equity	Other
1	33.86%	15.90%	29.63%	3.01%	0.00%	17.60%	28	49.49%	6.75%	27.78%	14.65%	0.00%	1.33%
2	42.05%	19.39%	33.44%	3.94%	0.00%	1.18%	29	57.91%	10.45%	31.64%	0.00%	0.00%	0.00%
3	43.33%	20.89%	35.78%	0.00%	0.00%	0.00%	30	45.50%	13.44%	41.06%	0.00%	0.00%	0.00%
4	13.72%	8.28%	16.45%	26.47%	19.95%	15.13%	31	13.72%	8.28%	16.45%	26.47%	19.95%	15.13%
5	40.79%	20.06%	25.61%	8.56%	0.00%	4.98%	32	53.26%	21.24%	24.45%	0.00%	0.00%	1.05%
6	40.35%	19.14%	40.51%	0.00%	0.00%	0.00%	33	39.74%	23.78%	11.48%	12.19%	2.99%	9.82%
7	29.78%	26.20%	22.65%	10.04%	1.41%	9.92%	34	30.42%	30.37%	36.76%	1.32%	1.08%	0.05%
8	35.66%	23.79%	34.95%	0.00%	0.00%	5.60%	35	45.12%	19.00%	35.88%	0.00%	0.00%	0.00%
9	40.20%	11.97%	26.78%	8.22%	6.22%	6.61%	36	14.09%	34.61%	44.55%	0.00%	0.00%	6.75%
10	28.45%	19.27%	44.99%	0.00%	2.25%	5.04%	37	39.68%	13.50%	36.47%	0.00%	0.00%	10.35%
11	36.52%	18.81%	22.97%	5.10%	0.00%	16.60%	38	33.65%	20.63%	32.95%	11.67%	1.10%	0.00%
12	33.85%	17.42%	28.46%	3.01%	0.00%	17.26%	39	49.44%	17.81%	28.26%	2.81%	0.00%	1.68%
13	57.82%	6.42%	35.10%	0.66%	0.00%	0.00%	40	38.90%	18.51%	32.76%	9.83%	0.00%	0.00%
14	52.41%	6.07%	39.40%	0.00%	0.00%	2.12%	41	33.82%	16.13%	29.25%	2.89%	0.00%	17.91%
15	12.47%	11.13%	29.08%	0.88%	9.29%	37.15%	42	33.78%	16.69%	29.03%	2.84%	0.00%	17.66%
16	67.49%	0.00%	27.71%	0.00%	4.80%	0.00%	43	40.07%	17.86%	36.85%	0.00%	0.00%	5.22%
17	53.63%	8.51%	36.62%	1.24%	0.00%	0.00%	44	48.80%	9.35%	25.07%	0.00%	0.00%	16.78%
18	28.47%	20.48%	40.39%	10.40%	0.00%	0.26%	45	33.48%	15.98%	30.38%	2.95%	0.00%	17.21%
19	42.68%	13.18%	35.43%	4.67%	0.00%	4.04%	46	33.10%	16.16%	30.48%	2.98%	0.00%	17.28%
20	57.43%	2.01%	40.56%	0.00%	0.00%	0.00%	47	16.47%	11.99%	32.36%	8.06%	6.83%	24.29%
21	33.70%	15.88%	29.84%	2.97%	0.00%	17.61%	48	23.02%	15.18%	29.40%	10.15%	7.78%	14.47%
22	32.10%	19.46%	42.12%	4.76%	1.56%	0.00%	49	30.41%	30.84%	31.53%	7.22%	0.00%	0.00%
23	42.77%	19.44%	37.79%	0.00%	0.00%	0.00%	50	28.82%	11.55%	48.66%	0.00%	3.95%	7.02%
24	43.60%	18.99%	37.41%	0.00%	0.00%	0.00%	51	23.64%	21.32%	22.57%	9.76%	14.73%	7.98%
25	33.40%	14.80%	41.70%	4.70%	0.00%	5.40%	52	49.97%	1.01%	34.41%	14.61%	0.00%	0.00%
26	60.19%	2.27%	31.72%	0.00%	0.00%	5.82%	53	34.22%	16.17%	34.31%	1.60%	0.00%	13.70%
27	46.42%	15.58%	38.00%	0.00%	0.00%	0.00%	54	26.36%	9.87%	13.70%	29.02%	11.38%	9.67%

Investment Performance

Table 3 lists investment returns for survey respondents over the one, three, five, ten, fifteen and twenty year periods ending September 30, 2011. For comparison purposes the benchmark of 60% of the Wilshire 5000 index and 40% of the Barclays Capital Aggregate index is represented by the “Index”.

Table 3

Fund	One Year	Three Years	Five Years	Ten Years	Fifteen Years	Twenty Years		Fund	One Year	Three Years	Five Years	Ten Years	Fifteen Years	Twenty Years
1	-0.65%	4.10%	2.80%	6.66%	7.31%	N/A		28	-1.21%	4.05%	2.07%	6.25%	7.19%	8.46%
2	-1.70%	4.39%	2.32%	5.81%	6.35%	7.63%		29	0.50%	2.75%	2.53%	N/A	N/A	N/A
3	-0.87%	1.25%	0.11%	N/A	N/A	N/A		30	0.54%	4.79%	1.73%	4.38%	6.18%	N/A
4	4.90%	2.48%	4.31%	7.97%	8.13%	9.12%		31	4.90%	2.48%	4.31%	6.63%	6.99%	7.84%
5	-1.31%	5.56%	4.78%	4.77%	N/A	N/A		32	-0.67%	4.27%	1.95%	N/A	N/A	N/A
6	0.45%	4.80%	2.73%	4.14%	6.26%	N/A		33	-0.56%	2.77%	2.35%	5.34%	N/A	N/A
7	-0.57%	2.79%	1.55%	5.46%	6.89%	8.05%		34	-2.01%	4.97%	3.03%	7.17%	7.86%	8.57%
8	-1.16%	5.43%	3.06%	N/A	N/A	N/A		35	2.11%	1.65%	-0.21%	N/A	N/A	N/A
9	1.70%	4.82%	3.97%	6.04%	7.31%	N/A		36	2.77%	0.68%	0.12%	N/A	N/A	N/A
10	-1.03%	3.59%	1.80%	N/A	N/A	N/A		37	-1.50%	4.24%	1.94%	5.28%	6.82%	N/A
11	-3.11%	3.84%	1.64%	4.12%	3.99%	N/A		38	0.07%	4.99%	1.57%	6.25%	6.85%	7.69%
12	-0.65%	4.11%	2.90%	N/A	N/A	N/A		39	-1.66%	3.93%	2.48%	6.01%	5.74%	N/A
13	-0.48%	4.49%	2.78%	N/A	N/A	N/A		40	-2.25%	4.91%	3.18%	5.27%	5.21%	N/A
14	-3.19%	0.72%	-0.85%	N/A	N/A	N/A		41	-0.62%	4.04%	2.92%	6.99%	7.68%	N/A
15	4.41%	5.71%	3.85%	7.15%	7.63%	8.32%		42	-1.09%	1.27%	-0.72%	N/A	N/A	N/A
16	3.15%	4.65%	4.04%	5.59%	7.14%	8.13%		43	0.02%	6.19%	3.33%	N/A	N/A	N/A
17	-0.05%	2.28%	1.34%	4.21%	N/A	N/A		44	-3.37%	1.10%	-1.05%	4.97%	6.93%	N/A
18	-0.05%	2.30%	1.01%	N/A	N/A	N/A		45	-0.47%	3.95%	2.81%	6.96%	8.28%	N/A
19	0.96%	2.67%	1.12%	4.55%	6.20%	7.65%		46	-0.50%	4.31%	2.07%	5.28%	5.36%	N/A
20	-1.45%	4.69%	2.74%	5.42%	6.29%	N/A		47	1.72%	2.89%	0.72%	5.89%	6.11%	7.62%
21	-0.68%	3.89%	2.74%	N/A	N/A	N/A		48	3.22%	2.08%	1.91%	4.98%	6.54%	7.69%
22	-2.63%	3.17%	2.16%	5.39%	6.87%	N/A		49	0.58%	6.25%	3.03%	6.18%	6.87%	7.83%
23	-0.54%	6.68%	3.95%	N/A	N/A	N/A		50	-0.17%	5.62%	3.39%	5.66%	5.64%	N/A
24	1.06%	6.37%	3.34%	5.20%	N/A	N/A		51	2.97%	4.23%	3.96%	7.82%	7.40%	8.40%
25	-0.93%	2.34%	1.17%	2.16%	N/A	N/A		52	0.62%	1.23%	0.58%	5.11%	5.43%	N/A
26	0.73%	0.22%	-1.27%	3.46%	N/A	N/A		53	-2.23%	3.18%	2.22%	2.73%	5.19%	N/A
27	0.17%	4.28%	1.47%	4.26%	6.09%	N/A		54	6.92%	0.29%	1.24%	5.51%	6.63%	8.74%
								Index	3.16%	5.01%	2.75%	5.09%	6.39%	7.80%

Five Year Return versus Standard Deviation

Figure 4

For the Five Years Ending September 30, 2011

Annualized Return

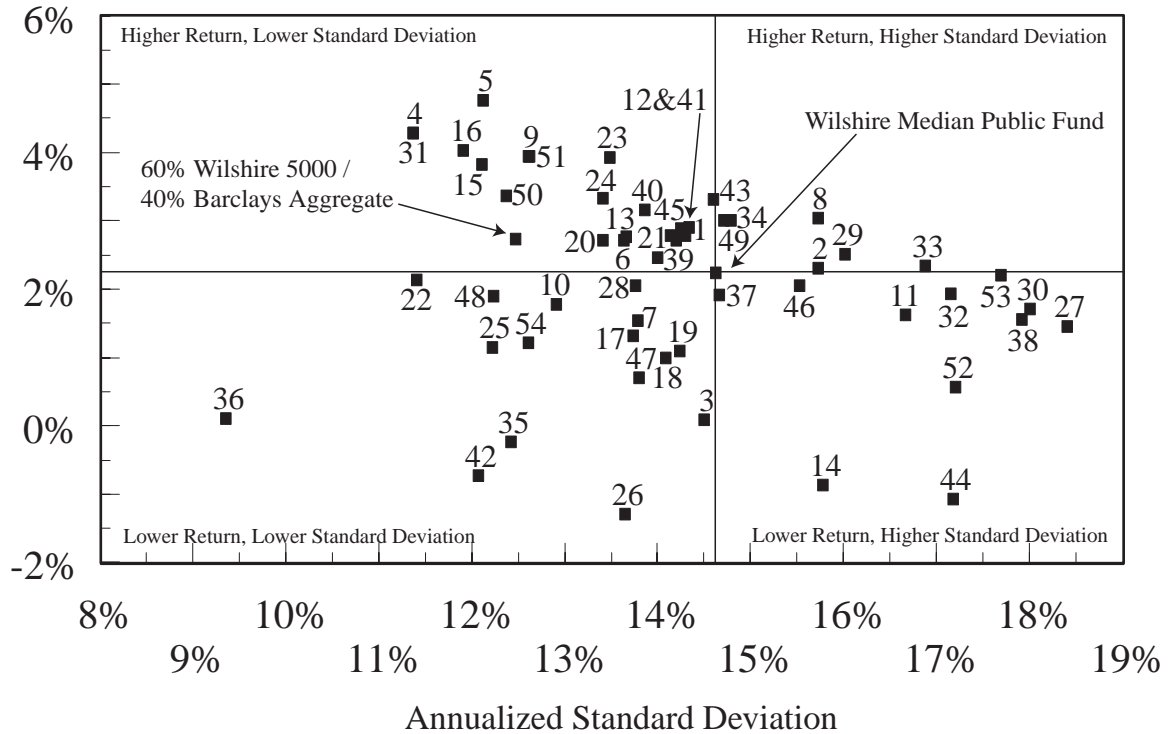


Figure 4 shows the five year return and standard deviation characteristics of the individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the Wilshire Public Funds Universe, representing the returns of Wilshire’s public fund clients. The second benchmark is a combination of 60% of the Wilshire 5000 equity index and 40% of the Barclays Capital Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in all four quadrants of the chart. Twenty-one respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Twenty-two respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Eleven respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Ten Year Return versus Standard Deviation

Figure 5

For the Ten Years Ending September 30, 2011

Annualized Return

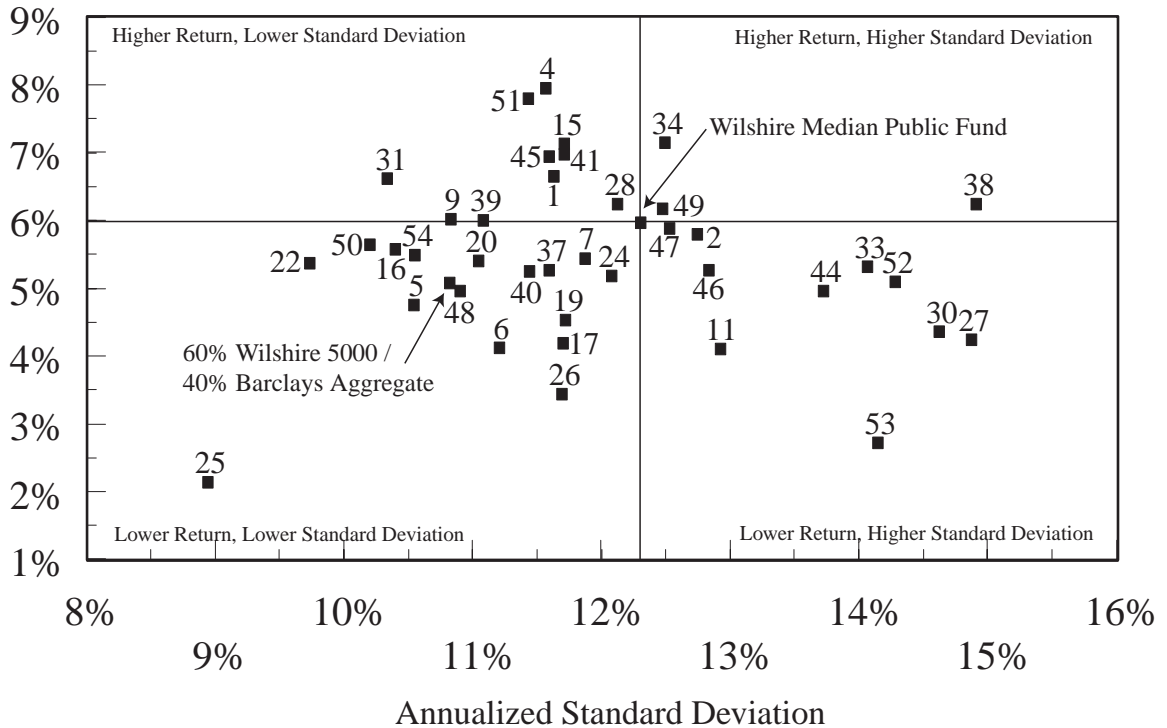


Figure 5 shows ten year return and standard deviation characteristics of individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the Wilshire Public Funds Universe, representing the returns of Wilshire’s public fund clients. The second benchmark is a combination of 60% of the Wilshire 5000 equity index and 40% of the Barclays Capital Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in all four quadrants of the chart. Ten respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Nineteen respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Ten respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Fifteen Year Return versus Standard Deviation

Figure 6

For the Fifteen Years Ending September 30, 2011

Annualized Return

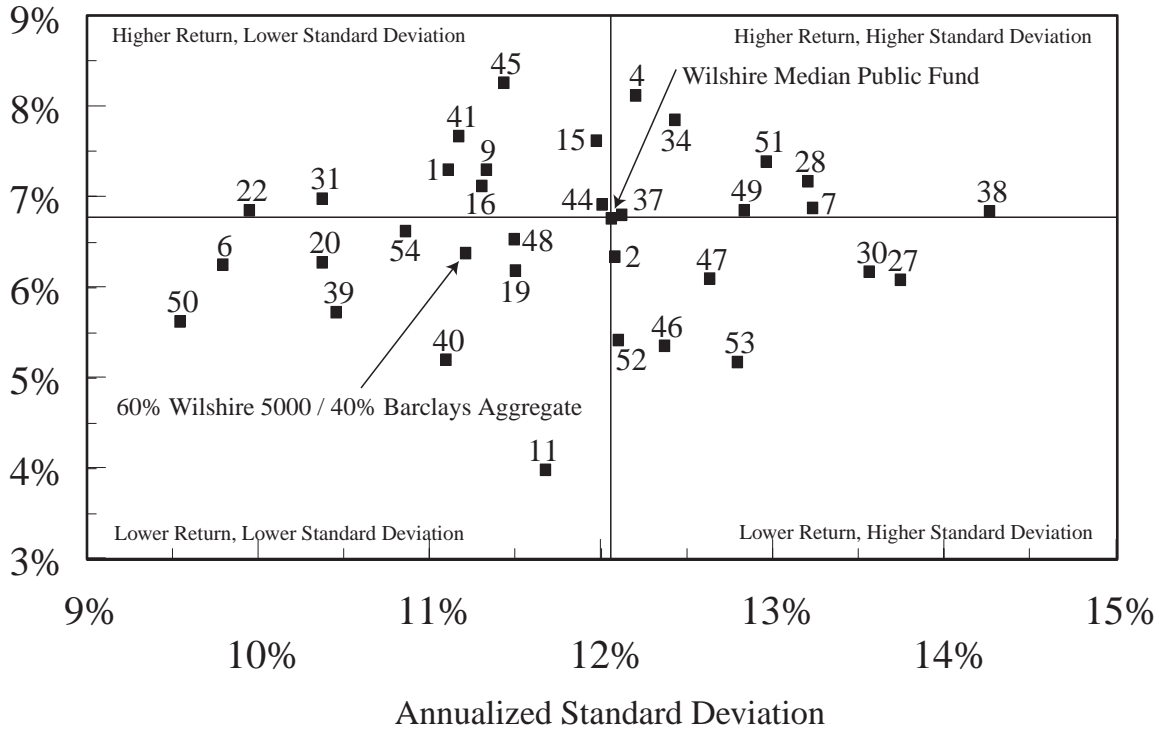


Figure 6 shows fifteen year return and standard deviation characteristics of individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the Wilshire Public Funds Universe, representing the returns of Wilshire’s public fund clients. The second benchmark is a combination of 60% of the Wilshire 5000 equity index and 40% of the Barclays Capital Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in all four quadrants of the chart. Nine respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Seventeen respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Seven respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Twenty Year Return versus Standard Deviation

Figure 7

For the Twenty Years Ending September 30, 2011

Annualized Return

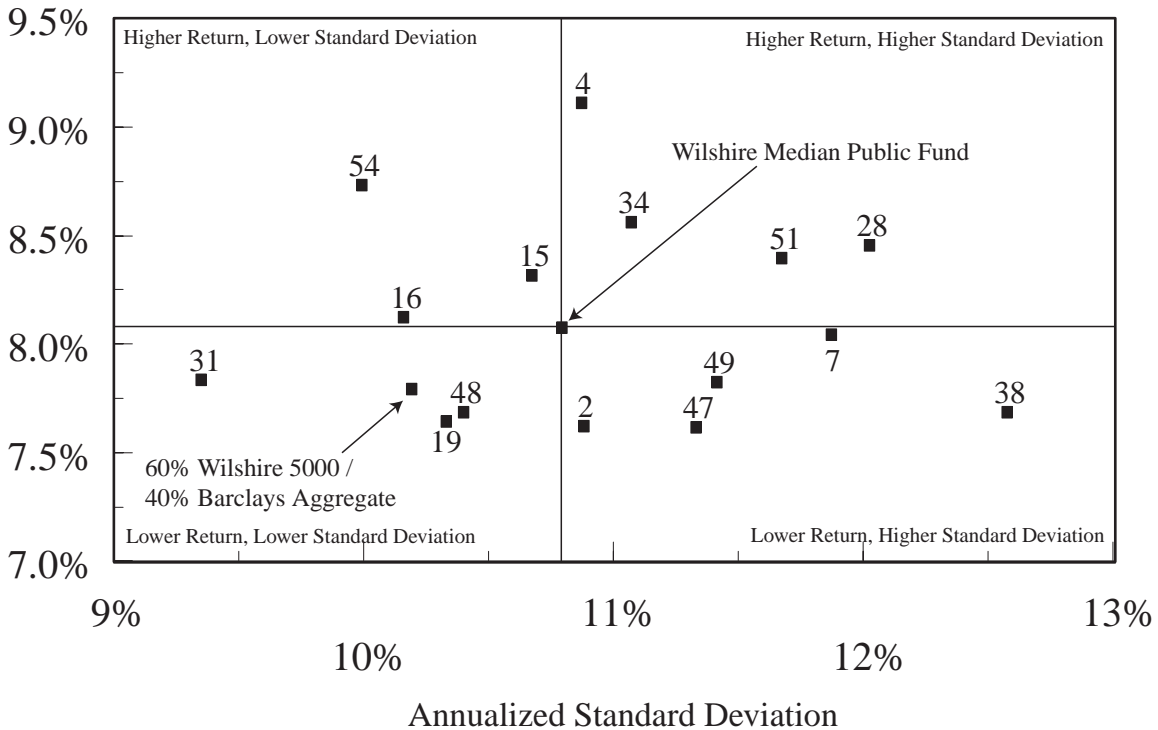


Figure 7 shows twenty year return and standard deviation characteristics of individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the Wilshire Public Funds Universe, representing the returns of Wilshire’s public fund clients. The second benchmark is a combination of 60% of the Wilshire 5000 equity index and 40% of the Barclays Capital Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in all four quadrants of the chart. Three respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Seven respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Five respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Appendix 1

Investment Return Survey of TEXPERS Defined Benefit Plans

Fund Name: _____
 Prepared by: _____
 Title of Preparer: _____
 Voice/Fax Number: _____ / _____
 E-mail Address: _____

Market Value Data (dollars)

Please provide market values as of September 30, 2011. These do not have to be audited numbers as custodial market values are sufficient. However, please do not change asset classes.

<u>Asset Class</u>	<u>Market Value</u>
U.S. Equity (break out global to US/Non-US)	
Non-U.S. Equity (incl. Emerging Markets)	
Fixed Income (incl. Global Fixed, STIF, Cash)	
Real Estate (incl. Direct and REITS)	
Private Equity (incl. Non-US Private Equity)	
Other (i.e. Hedge Funds, Alternatives, etc.)	
Total Plan	

Total Fund Rates of Return (percents)

All returns must be actual total fund quarterly returns and should not be annualized. The returns must include both income & changes in market value; income yields alone are not sufficient. If your fund WAS in last year's report only the four quarters ending Sept. 30, 2011 are required. Please note that the Dec. 31 return is for the quarter ended, NOT the year ended:

<u>Quarter Ended></u>	<u>Mar. 31</u>	<u>Jun. 30</u>	<u>Sept. 30</u>	<u>Dec. 31</u>
2011				XXXXXXXX
2010	XXXXXXXX	XXXXXXXX	XXXXXXXX	

If your fund WAS NOT in last year's performance report, you will need to provide actual (not annualized) quarterly returns for **at least the trailing five years**:

<u>Quarter Ended></u>	<u>Mar. 31</u>	<u>Jun. 30</u>	<u>Sept. 30</u>	<u>Dec. 31</u>
2011				XXXXXXXX
2010				
2009				
2008				
2007				
2006				
2005				
2004				
2003				

Actuarial Investment Return Assumption: _____ Inflation Assumption: _____
 OK to identify fund by name in the performance report (circle one): YES NO

Appendix 2

List of TEXPERS Survey Respondents

Abilene Firemen's Relief & Retirement Fund
Amarillo Firemen's Relief & Retirement Fund
Atlanta Firemen's Relief & Retirement Fund
Austin Employees' Retirement System
Austin Fire Fighters Pension Fund
Austin Police Retirement System
Beaumont Fireman's Relief & Retirement Fund
Big Spring Fireman's Relief & Retirement Fund
Brownwood Firemen's Relief & Retirement Fund
Conroe Firefighters' Retirement Fund
Corpus Christi Firefighters' Retirement System
Corsicana Firefighters' Relief & Retirement Fund
CPS Energy Employees' Pension Plan
Dallas Employees' Retirement Fund
Dallas Police & Fire Pension System
Dallas Police & Fire Supplemental Plan
DART Employees' DB Retirement Plan & Trust
Denison Firemen's Relief & Retirement Fund
El Paso City Employees' Pension Fund
El Paso Firemen and Policemen's Pension Fund
Floresville Electric Light & Power Pension Plan
Fort Worth Employees' Retirement Fund
Galveston Firemen's Relief & Retirement
Greenville Firemen's Relief & Retirement System *
Guadalupe-Blanco River Authority Defined Benefit Plan
Harlingen Firemen's Relief & Retirement Fund
Houston Municipal Employees Pension System
Houston Police Officers Pension System
Irving Firemen's Relief & Retirement Fund
Irving Supplemental Benefit Plan
Killeen Firemen's Relief & Retirement Fund
Laredo Firefighter Retirement System
Longview Firemen's Relief & Retirement Fund
Lubbock Fire Pension Fund
Lufkin Firemen's Relief & Retirement Fund
Marshall Firemen's Relief & Retirement Fund
McAllen Firemen's Pension and Relief Fund
Midland Firemen's Pension and Relief Fund
MTA / TWU of Houston Non-Union Pension Plan
MTA / TWU of Houston Union Pension Plan
Odessa Firefighters' Relief & Retirement Fund
Orange Fireman's Relief & Retirement Fund
Plainview Fireman's Relief & Retirement Fund
Plano Retirement Security Plan
San Antonio Fire and Police Pension Fund
San Benito Firemen's Relief & Retirement Fund
Sweetwater Firemen's Relief & Retirement Fund
Temple Firefighter's Relief & Retirement Fund
Texarkana, TX Firemen's Relief & Retirement Fund
Texas City Firemen's Relief & Retirement Fund
Texas Emergency Services Retirement System
Travis County Emergency Services District #6 *
Tyler Firefighters Relief and Retirement Fund
University Park Firemen's Relief & Retirement Fund
VIA Metropolitan Transit
Waxahachie Firefighter's Relief & Retirement Fund

* Responded but was unable to provide sufficient data.

Appendix 3

Respondent Fund Number - Name Cross Reference

Number	Name	Number	Name
40	Abilene Firemen's Relief & Retirement Fund	15	Houston Police Officers Pension System
16	Amarillo Firemen's Relief & Retirement Fund	33	Irving Firemen's Relief & Retirement Fund
12	Atlanta Firemen's Relief & Retirement Fund	50	Killeen Firemen's Relief & Retirement Fund
49	Austin Employees' Retirement System	11	Laredo Firefighter Retirement System
7	Austin Fire Fighters Pension Fund	53	Longview Firemen's Relief & Retirement Fund
54	Austin Police Retirement System	9	Lubbock Fire Pension Fund
10	Beaumont Fireman's Relief & Retirement Fund	42	Lufkin Firemen's Relief & Retirement Fund
45	Big Spring Fireman's Relief & Retirement Fund	21	Marshall Firemen's Relief & Retirement Fund
23	Brownwood Firemen's Relief & Retirement Fund	37	McAllen Firemen's Pension and Relief Fund
36	Conroe Firefighters' Retirement Fund	27	MTA / TWU of Houston Non-Union Pension Plan
20	Corpus Christi Firefighters' Retirement System	30	MTA / TWU of Houston Union Pension Plan
43	Corsicana Firefighters' Relief & Retirement Fund	44	Odessa Firefighters' Relief & Retirement Fund
4	Dallas Police & Fire Pension System	6	Orange Fireman's Relief & Retirement Fund
31	Dallas Police & Fire Supplemental Plan	13	Plano Retirement Security Plan
18	DART Employees' DB Retirement Plan & Trust	3	San Benito Firemen's Relief & Retirement Fund
2	El Paso City Employees' Pension Fund	41	Sweetwater Firemen's Relief & Retirement Fund
34	El Paso Firemen and Policemen's Pension Fund	22	Temple Firefighter's Relief & Retirement Fund
14	Floresville Electric Light & Power Pension Plan	39	Texarkana, TX Firemen's Relief & Retirement Fund
47	Fort Worth Employees' Retirement Fund	8	Texas City Firemen's Relief & Retirement Fund
26	Galveston Firemen's Relief & Retirement	32	Texas Emergency Services Retirement System
29	Guadalupe-Blanco River Authority DB Plan	17	Tyler Firefighters Relief and Retirement Fund
1	Harlingen Firemen's Relief & Retirement Fund	46	University Park Firemen's Relief & Retirement Fund
51	Houston Municipal Employees Pension System	19	VIA Metropolitan Transit
		24	Waxahachie Firefighter's Relief & Retirement Fund

Appendix 4

Respondent Fund Number - Return Assumptions

Fund	Nominal	Inflation	Real		Fund	Nominal	Inflation	Real
1	8.00%	4.00%	4.00%		28	7.75%	3.50%	4.25%
2	7.50%	3.50%	4.00%		29	8.00%	4.00%	4.00%
3	6.50%	2.30%	4.20%		30	8.00%	2.50%	5.50%
4	8.50%	4.00%	4.50%		31	8.50%	4.00%	4.50%
5	8.00%	3.00%	5.00%		32	7.75%	3.50%	4.25%
6	8.00%	2.30%	5.70%		33	8.25%	2.30%	5.95%
7	7.75%	3.50%	4.25%		34	7.75%	3.50%	4.25%
8	7.75%	2.30%	5.45%		35	7.75%	2.30%	5.45%
9	8.00%	2.30%	5.70%		36	7.75%	4.00%	3.75%
10	8.00%	4.00%	4.00%		37	8.00%	3.00%	5.00%
11	8.00%	3.75%	4.25%		38	8.25%	3.00%	5.25%
12	7.25%	4.00%	3.25%		39	7.75%	3.50%	4.25%
13	7.75%	3.00%	4.75%		40	8.00%	3.25%	4.75%
14	8.00%	4.00%	4.00%		41	8.00%	3.00%	5.00%
15	8.50%	3.00%	5.50%		42	7.50%	2.00%	5.50%
16	8.25%	3.00%	5.25%		43	7.75%	2.30%	5.45%
17	7.75%	3.75%	4.00%		44	8.50%	3.00%	5.50%
18	8.00%	2.50%	5.50%		45	8.00%	3.00%	5.00%
19	8.00%	3.00%	5.00%		46	8.00%	4.00%	4.00%
20	8.00%	4.00%	4.00%		47	8.25%	3.00%	5.25%
21	8.00%	4.25%	3.75%		48	7.75%	4.00%	3.75%
22	7.75%	4.00%	3.75%		49	7.75%	3.25%	4.50%
23	7.25%	2.30%	4.95%		50	8.00%	4.00%	4.00%
24	7.00%	2.30%	4.70%		51	8.50%	3.00%	5.50%
25	7.00%	2.30%	4.70%		52	7.75%	4.00%	3.75%
26	8.00%	3.25%	4.75%		53	8.00%	3.00%	5.00%
27	8.00%	2.50%	5.50%		54	8.00%	4.00%	4.00%

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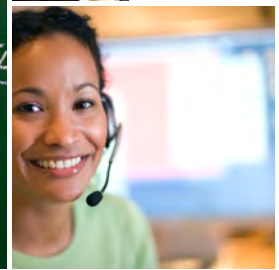


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Out of Balance?



Comparing Public and Private Sector Compensation over 20 Years

April 2010



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Out of Balance?

Comparing Public and Private Sector Compensation over 20 Years

KEITH A. BENDER AND JOHN S. HEYWOOD

Executive Summary

The current recession and the resulting fiscal difficulties faced by state and local governments have renewed interest in the compensation of the public workforce in regard to pay, pensions, and other benefits. In this report we examine the extent to which state and local government compensation in the United States is comparable to compensation in the private sector.

Levels of compensation help determine both the competence and the efficiency of governmental services. Excessive levels waste resources, depriving governments of the opportunity to address other costly objectives or to reduce burdens to taxpayers. Insufficient levels make it difficult, if not impossible, to attract workers of the quality needed to provide the services demanded by citizens. Comparability with the private sector is the most generally accepted standard by which economists and compensation specialists judge whether the processes for determining compensation in the public sector are working.

In this report we use publicly available data from the U.S. Bureau of Labor Statistics, along with an established methodology used by researchers since the 1970s, to compare worker earnings across and between private, state, and local sectors. We analyze differences in pay between each sector as reported for the last several decades, up to and including the latest estimates. We also estimate the variation of these trends across some of the largest states.

Next, to compare overall compensation across public and private sectors, we describe benefit levels and composition in public and private sectors. The earnings-comparability estimates are adjusted to include benefits.

The analysis finds that:

- Public and private workforces differ in important ways. For instance, jobs in the public sector require much more education on average than those in the private sector. Employees in state and local sectors are twice as likely as their private sector counterparts to have a college or advanced degree.
- Wages and salaries of state and local employees are lower than those for private sector workers with comparable earnings determinants (e.g., education). State employees typically earn 11 percent less; local workers earn 12 percent less.
- Over the last 20 years, the earnings for state and local employees have generally declined relative to comparable private sector employees.
- The pattern of declining relative compensation remains true in most of the large states we examined, although some state-level variation exists.
- Benefits (e.g., pensions) comprise a greater share of employee compensation in the public sector.
- State and local employees have lower total compensation than their private sector counterparts. On average, total compensation is 6.8 percent lower for state employees and 7.4 percent lower for local workers, compared with comparable private sector employees.

This recession calls for equal sacrifice, but long-term patterns indicate that the average compensation of state and local employees is not excessive. Indeed, if the goal is to compensate public and private workforces in a comparable manner, then the data do not call for reductions in average state and local wages and benefits.



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Pensionomics 2012

Measuring the Economic Impact of DB Pension Expenditures

by Ilana Boivie

March 2012

EXECUTIVE SUMMARY

Defined benefit (DB) pension benefits are highly valued by the retired Americans who count on these plans for a secure source of income in retirement. But the benefits provided by pension plans have an impact that reaches well beyond the retirees who receive pension checks.

Often overlooked is the vital role that DB pensions play in stimulating the U.S. economy and creating jobs. Virtually every state and local economy across the country is enhanced substantially from the spending of pension benefits. This economic stimulus is particularly important given the economic downturn and high unemployment rate in the wake of the Great Recession.

For example, when a retired nurse residing in the state of Minnesota receives a pension benefit payment, the steady, monthly benefit payment provides him/her with peace of mind and retirement security. But the benefits don't stop there. S/he spends the pension check on goods and services in the local community. S/he is likely to purchase food, clothing, and medicine at local stores, and may even make larger purchases like a car or computer. These purchases, coupled with those of other retirees with pensions, create an economic ripple effect. In short, pension spending supports the economy and creates jobs where retirees reside and spend their benefits.

Pension expenditures may be especially vital to small or rural communities, where other steady sources of income may not be readily found if the local economy lacks diversity.

Additionally, reliable pension income can be especially important in stabilizing local economies during economic downturns, because retirees know they are receiving a steady check despite economic conditions. In contrast, retirees only with 401(k)-type plans may be reluctant to spend down their nest egg, particularly if their savings are negatively impacted by market downturns. Retirees with a DB pension need not worry about reducing spending with every dip in the stock market.

This study analyzes data on DB pension plans in both the public and private sectors to assess the overall economic impact of benefits paid by these plans to retirees. For state and local plans, we analyze these impacts on a national level as well as in each of the fifty states.

The economic gains attributable to DB pension expenditures are quantifiable. This study finds that, in 2009:

- Over \$426 billion in pension benefits were paid to nearly 19 million retired Americans. Of that:
 - » \$187 billion was paid to some 8 million retired employees of state and local government and their beneficiaries (typically surviving spouses);
 - » \$67.6 billion was paid to some 2.5 million federal government beneficiaries;
 - » \$171.5 billion was paid to some 8.4 million private sector beneficiaries.
- Expenditures made out of those payments collectively supported:
 - » 6.5 million American jobs that paid nearly \$315 billion in labor income;
 - » \$1 trillion in total economic output nationwide;
 - » \$553 billion in value added (GDP);
 - » \$134 billion in federal, state, and local tax revenue.
- DB pension expenditures have large multiplier effects:
 - » For each dollar paid out in pension benefits, \$2.37 in total economic output was supported.
 - » For every taxpayer dollar contributed to state and local pensions, \$8.72 in total output was supported nationally.
- The largest employment impacts were seen in the food services, real estate, health care, and retail trade sectors.

INTRODUCTION: DEFINED BENEFIT PENSION PLANS IN THE UNITED STATES

Defined benefit (DB) pension plans have existed in the United States since the 19th century.

In the private sector, the first defined benefit (DB) pension plan was introduced in 1875 by the American Express Company.¹ Over time, many private sector employers saw the value of offering DB pension coverage to their employees, as these benefits not only were quite valued by workers, but from a human resource management perspective, they also acted as an effective recruitment and retention tool.² Although private sector DB plans have experienced a decline in recent decades (due in large part to a difficult regulatory environment),³ in 2005, 33% of private sector employees still had DB pension coverage.⁴

In the public sector, Congress created the Civil Service Retirement System (CSRS) to provide a pension for civilian federal employees in 1920. In 1986, Congress implemented the new Federal Employee Retirement System (FERS), which includes Social Security, a DB annuity, and a 401(k)-type savings plan, called the Thrift Savings Plan.⁵ On the state and local level, employee pension systems began to take root on a large scale during the Great Depression. When Social Security was established in 1935, the system left out state and local workers, and many states acted to develop their own retirement systems for their employees. Between 1931

and 1950, nearly half of the large public employee pension plans existing today were established; 45 states had retirement systems in place by 1961.⁶

In 2009, state and local pension plans in the United States collectively held total assets of \$2.5 trillion. They served 27.5 million Americans, including 14.8 million active participants, 4.6 million inactive members, and 8.0 million retirees and other beneficiaries receiving regular benefit payments. Total benefit payments in 2009 were \$187 billion, for an average benefit payment of \$1,950 per month, or \$23,407 per year.⁷

Federal pension plans currently serve 2.3 million active civilian employees.⁸ In 2009, Federal plans paid out some \$67.6 billion in pension benefits to 2.5 million retirees and beneficiaries.⁹ Private sector pension plans covered 44 million Americans,¹⁰ including 8.4 million retired Americans in 2009.¹¹ With total plan assets of \$2.2 trillion in 2009,¹² private DB pensions paid out some \$171.5 billion in pension benefits to these retirees and beneficiaries.¹³ The average private sector pension benefit was \$1,691 per month, or \$20,298 per year.

Table 1.
Public and Private Sector Pension Benefits, 2009

	State and Local	Federal	Private Sector	Total*
Beneficiaries	8.0 million	2.5 million	8.4 million	18.9 million
Total Benefits	\$187.0 billion	\$67.6 billion	\$171.5 billion	\$426.2 billion
Average Benefit	\$23,407	\$27,081	\$20,298	\$22,504**

Sources: U.S. Census Bureau State and Local Government Employee-Retirement Systems, U.S. Office of Personnel Management Federal Annuity Roll, U.S. Bureau of Labor Statistics Current Population Survey, and author's calculations.

*Totals may not add up exactly due to rounding.

** Total average benefit represents a weighted average of public and private sector benefits.

DB plans are prefunded systems, which means that a retirement fund receives regular contributions for each employee during the course of that person’s career. This type of arrangement can be contrasted with “pay-as-you-go” systems like Social Security, whereby contributions of current employees are used to pay benefits for current retirees. Prefunded retirement systems have the advantage that investment earnings can do much of the work of paying for benefits. In such a system, the contributions made on behalf of current employees are invested, and these investment earnings compound over time. Over a span of decades, accumulation of investment earnings can be substantial, and in many cases pay the majority of the pension benefits.

In state and local government pension plans, typically both the employee and employer make contributions to the pension fund. Pension fund trustees have a fiduciary duty to ensure that the retirement fund is operating in the best interest of workers and retirees, and hire professional managers to oversee fund investments.¹⁴ In this respect, public plans differ from private sector DB plans, which are generally funded solely by employers.

DB pensions are distinguishable from defined contribution (DC) plans (like 401(k) plans) in that they provide broad-based coverage, secure money for retirement, a lifetime income, and special protections for spouses.¹⁵ Even after accounting for all of the significant advantages of a DB retirement system over DC accounts, research shows that DB plans are more economically efficient than DC plans. Pensions can deliver the same level of retirement benefits at nearly half the cost of a DC plan.¹⁶

State and local pension fund receipts come from three sources: employer contributions, employee contributions, and earnings on investments. Figure 1 shows that between 1993 and 2009, 27.1% of public pension fund receipts came from employer contributions, 14.0% from employee contributions, and 58.9% from investment earnings. Earnings on investments—not taxpayer contributions—have historically made up the bulk of pension fund receipts, even though this time period saw two very large market downturns within a single decade.

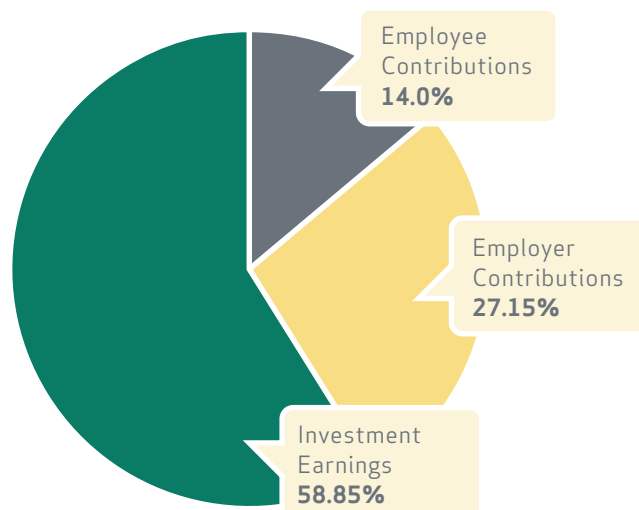
Just as contributions from employees and employers have an expanded impact through the compounding of investment

earnings over time, a similar dynamic occurs when retirees spend their pension checks. When a retiree receives a pension benefit, the money does not go under a mattress. Rather, the retiree spends it on goods and services in the local community. These expenditures have a “ripple effect” in the economy, as one person’s expenditures become another person’s income. Analyzing the size and nature of these ripple effects is the goal of our study.

Measuring the National Economic Impact of DB Pension Plans

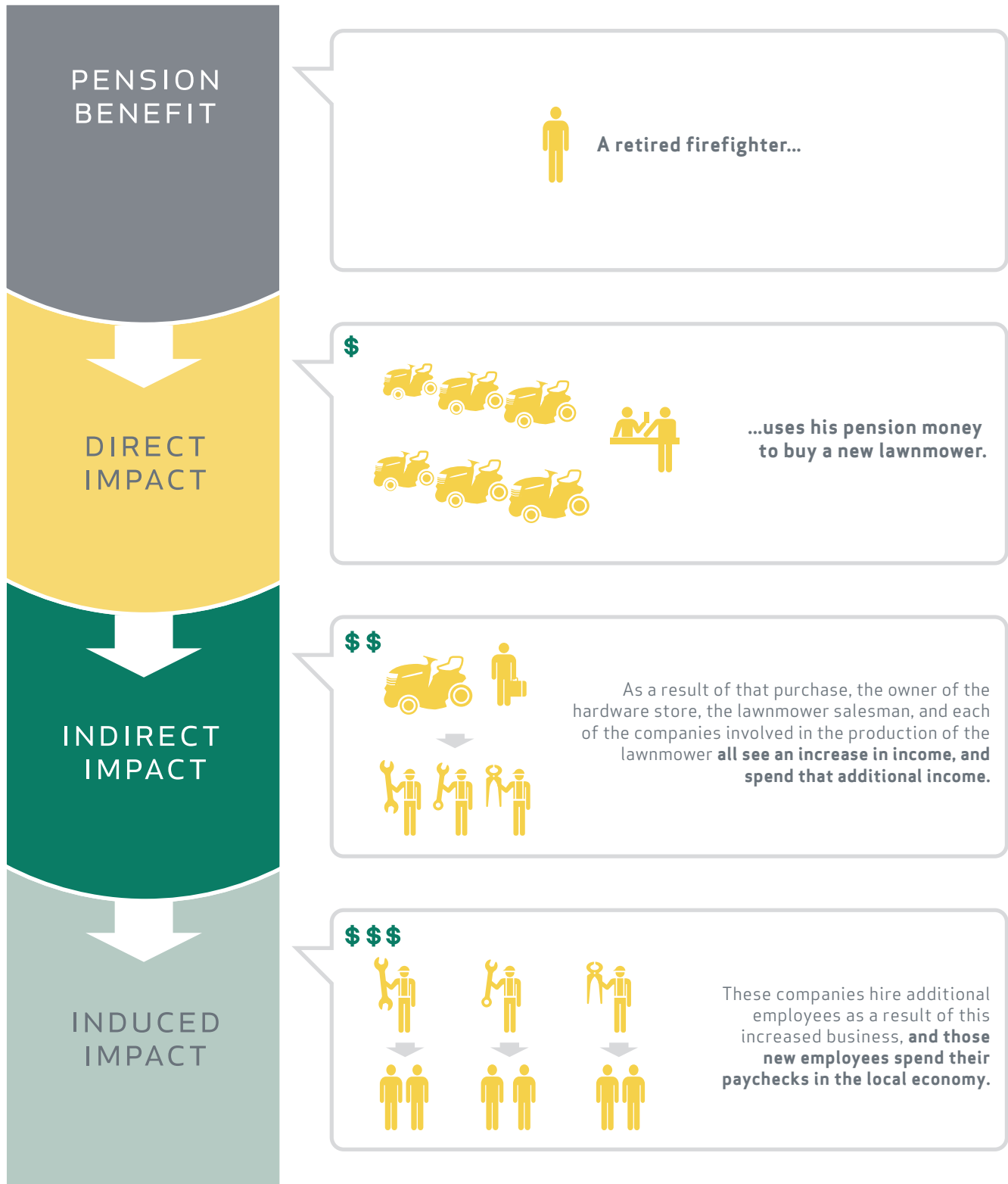
This study measures the economic impact of pension benefits paid by public and private pension plans nationally, as well as the economic effects of state and local plans within each state economy. Our analysis rests on the recognition that expenditures have a “multiplier” effect in a regional or national economy. When money is spent at a local business, that business sees an increase in revenue, thus boosting the economy initially. But that initial purchase generates even more local income, as shop owners will spend more money at other local businesses, purchasing more input goods to make additional products.

Figure 1:
Aggregate State and Local Pension Contributions by Source, 1993-2009



Source: Author's calculations from U.S. Census Bureau State and Local Government Employee-Retirement Systems.

Figure 2:
The Multiplier Effect: How Spending Ripples Through the Economy, Supporting Jobs and Incomes in the Process



Then, those input business owners will also spend more money in the local economy to increase their production, and so on. Additionally, with the increase in revenue, local merchants may hire extra workers, further fueling the local economy. Thus, with each new round of spending, additional revenue is generated, expanding job creation, incomes, total output, and tax revenue to the local community, as illustrated in Figure 2.

Our analysis is focused on the expenditure effects of pension benefits, measuring the economic impacts that result when expenditures made by retirees ripple throughout the economy. Because pension benefits are permanent sources of income—in that they cannot be outlived—we would expect the economic impacts to be larger than those of temporary income increases.¹⁷ For this reason, we would expect the economic impacts of pension benefit expenditures to be larger than those out of, for example, unemployment insurance benefit payments. It should also be noted that this study measures the gross economic impacts of pension benefit expenditures, rather than the net economic impacts. For a detailed explanation, see the Technical Appendix.

Because taxpayers and elected officials have an interest in gauging the ultimate economic impact of each tax dollar “invested” in a state or local pension plan, we calculate a proxy measurement of the total economic impact attributable to each dollar in pension contributions made by the taxpayer, called the “taxpayer investment factor.” Details follow.

Data and Methodology

The data used for our analysis comes primarily from two sources: the U.S. Census and IMPLAN. Data for 2009 was used, as it was the most recently available at the time of our analysis.

Data on state and local pension plans comes from the Census Bureau’s State and Local Government Employee-Retirement System survey, which is a representative sample of state and local DB pension plans in the United States. This survey provides data on revenues, expenditures, financial assets, and membership for state and local pension plans on a national basis and in each of the 50 states.¹⁸ Federal pension data comes from the Federal Annuity Roll, published by the U.S. Office of Personnel Management.¹⁹ Data on private pension benefits comes from the Census Bureau and Bureau of Labor Statistics’ Current Population Survey Annual Social and Economic (ASEC) Supplement, which reports sources of household income, including pension and survivor income, by age.²⁰

To measure the economic impacts of retiree expenditures made out of benefits paid by DB pension plans, the input-output modeling software, IMPLAN, was used. IMPLAN was first developed in the 1970s as a part of a USDA Forest Service project to analyze the economic effects of local land management projects such as timber, mining, and recreation activities.²¹ Since that time, IMPLAN has been used by industry and government analysts throughout the country to assess economic impacts of highly varied local community development projects; these studies include many recent economic impact studies of pension benefit payments from state retirement systems.²²

Since NIRS’ original *Pensionomics* study was published in 2009, IMPLAN has undergone significant modeling changes. Due to these changes, results of the current study are not directly comparable to those of the older study, and the reader should avoid drawing conclusions based on such comparisons. Detailed information on our data and methodology and further discussion of these differences appear in the Technical Appendix.

ECONOMIC IMPACT MEASUREMENTS

We analyze the economic impact of expenditures made by retirees out of their DB pension payments along four dimensions: employment and labor income, output, value added, and tax revenues. Each of these is described in detail below.

1. Employment and Labor Income Impact: When retirees spend their pension checks, their expenditures help to support jobs—at the local diner, hospital, or even at a factory somewhere across the country. When a retiree makes a purchase, a business sees an increase in revenue. With enough of an increase, that business may be prompted to hire more workers. Using IMPLAN, we calculated the number of jobs supported by retirees’ expenditures. We also present estimates of the direct, indirect, and induced employment impacts. The direct employment impact occurs when the initial benefit payment is spent by the retiree. The indirect impact occurs as a result of the additional income generated through the purchase of more goods and services by merchants receiving direct expenditures from retirees. The induced employment impact is attributable to the additional income generated through the purchase of goods and services by employees hired as a result of the direct and indirect impacts. In all cases, the employment impact estimates “annual average jobs” for that industry within a single year. We also present estimates of labor income supported by pension expenditures, which is a component of value added, as described below.

2. Output Impact: Total output includes the value of all goods and services produced in the economy. Using IMPLAN, we calculate the value of total output supported by retirees’ expenditures of DB pension benefits. As with the employment effects, we present estimates of the impact on total output, broken down by direct, indirect, and induced impacts. The direct impact consists of the initial round of spending. Indirect impacts consist of those additional rounds of spending by the local merchants. Induced impacts are the additional outputs created when new employees, hired as a result of the direct and indirect spending rounds, spend their paychecks in the local economy.

We also calculate a pension expenditure multiplier and taxpayer investment factor. The pension expenditure multiplier tells us the total economic impact attributable to each dollar in pension benefits paid to a retiree. (For example, a multiplier of 2.2 means that every \$1 paid to retirees in a local economy supports \$2.20 of total output in that region.) We calculate the pension expenditure multiplier by dividing the total output (consisting of the direct, indirect, and induced impacts taken together) by the value of the “initial event” in the economy (in this case, the gross pension benefit being paid). Expenditure multipliers usually lie between 1.0 and 3.0.

3. Value Added Impact: Value added is a net estimate of the creation of “new value” in the economy. Commonly referred to as Gross Domestic Product (GDP), it includes the value of employee compensation, profits, rents, and other aspects of production, but excludes the costs of purchased materials and services. IMPLAN calculates the value added attributable to DB pension benefit expenditures.

4. Tax Impact: Economic activity of all kinds—receiving pension income, earning wages, producing profits, selling goods and services—provides the basis for the tax revenues that are required to fund government services. To calculate the impact that pension payments have on tax revenues, we first calculate the taxes paid by beneficiaries directly on their pension benefits. Then, using IMPLAN, we calculate estimates of taxes attributable to the economic activity that results when retirees’ spend their pension checks and in all subsequent rounds of spending. This includes all corporate, property, and business taxes that are generated through each spending round.

RESULTS: NATIONAL ECONOMIC IMPACT OF DB PENSION PLANS

Our analysis indicates that benefits paid by DB pension plans have a sizeable economic ripple effect. The impact on employment, income, output, value added, and tax revenues are large and reach well beyond the retirees who receive pension benefits from these plans.

Employment and Income

The analysis finds that the \$426.2 billion in gross public and private pension benefits paid out in 2009 supported 6.5 million American jobs, as shown in Table 2. Of these jobs, 2.9 million were supported by state and local pension benefit expenditures, 1.0 million by Federal pension expenditures, and an additional 2.6 million by private pension expenditures. Over 2.8 million were attributable to direct impacts (direct spending by retirees), 1.5 million to indirect impacts (additional spending rounds by merchants), and 2.3 million through induced impacts (additional jobs supported when employees, hired as a result of the direct and indirect spending rounds, spend their paychecks). These jobs collectively paid

out an estimated \$314.8 billion in labor income, as shown in in Table 3.

To put these employment impacts in perspective, the 6.5 million jobs supported by pensioners' expenditures is more than number of Americans that were employed in the entire construction industry, in which there were 6.3 million jobs in 2009.²³

In addition, in 2009 the national unemployment rate was 9.3%. The entire labor force in the country consisted of 153.8 million potential workers, of whom 14.2 million were unemployed.²⁴ In light of these numbers, the fact that DB pension expenditures supported 6.5 million jobs is significant, as it represents a full 4.2 percentage points in the national labor force.

Table 2.
DB Pensions Support 6.5 Million American Jobs

	State and Local Pensions (# Jobs)	Federal Pensions (# Jobs)	Private Pensions (# Jobs)	Total Jobs Supported* (# Jobs)
Direct Impact	1,223,257	442,304	1,121,914	2,787,476
Indirect Impact	652,099	235,786	598,075	1,485,959
Induced Impact	989,764	357,878	907,765	2,255,407
Total Employment Impact	2,865,120	1,035,968	2,627,754	6,528,842

*Totals may not add up exactly due to rounding.

Total Output

Our model further finds that the \$426.2 billion in public and private pension benefit payments in 2009 supported just over \$1.0 trillion dollars in overall economic output in the national economy, including \$387.8 billion in direct impacts, \$279.8 billion in indirect impacts, and \$340.9 billion in induced impacts. \$442.6 billion in economic activity stemmed from state and local pension benefit expenditures, \$160 billion from Federal pension expenditures, and \$405.9 billion from private pension benefit expenditures. See Table 4.

This is roughly equivalent to the total output contributed by the entire wholesale trade industry, which generated \$1.0 trillion in total output in the national economy in 2009.²⁵

Value Added (GDP)

Retirees' expenditures of DB pension benefit payments supported \$552.9 billion in value added to the national economy in 2009, including \$242.6 billion supported by state and local pension benefits, \$87.7 billion by Federal pension benefits, and an additional \$222.5 supported by private pension benefit expenditures. See Table 5.

This is roughly the same amount of value added as was contributed by the entire finance and insurance industry, which generated \$568.0 billion in value added in 2009.²⁶

Tax Revenue

In terms of tax revenue, the model finds that \$134.0 billion in

Table 3. **DB Pensions Support \$314.8 Billion in Labor Income**

	From State and Local Pensions	From Federal Pensions	From Private Pensions	Total Labor Income Supported*
Direct Impact	\$49.7 billion	\$19.6 billion	\$54.2 billion	\$123.6 billion
Indirect Impact	33.7 billion	13.3 billion	36.7 billion	83.6 billion
Induced Impact	43.3 billion	17.1 billion	47.2 billion	107.6 billion
Total Labor Income Impact	\$126.7 billion	\$50.0 billion	\$138.2 billion	\$314.8 billion

*Totals may not add up exactly due to rounding.

Table 4. **DB Pensions Support \$1 Trillion in Total Economic Activity**

	From State and Local Pensions	From Federal Pensions	From Private Pensions	Total Output Supported*
Direct Impact	\$170.2 billion	\$61.5 billion	\$156.1 billion	\$387.8 billion
Indirect Impact	122.8 billion	\$44.4 billion	112.6 billion	279.8 billion
Induced Impact	149.6 billion	\$54.1 billion	137.2 billion	340.9 billion
Total Output Impact	\$442.6 billion	160.0 billion	\$405.9 billion	\$1.0 trillion

*Totals may not add up exactly due to rounding.

total tax revenue was attributable to public and private pension expenditures in 2009, including \$74.3 billion in federal tax revenue and \$59.7 billion in state and local tax revenue. (See Tables 6 and 7.)

Tax revenue comes from two major sources: taxes paid by beneficiaries directly on their pension benefits and taxes resulting from expenditures made in the local economy (for example, sales taxes resulting from a retail purchase). Of the

total tax revenue supported, \$12.7 billion came from taxes paid by beneficiaries on their benefits and \$121.2 billion from other tax revenues.

To put these numbers in perspective, the total federal tax revenue attributable to public pension benefit payments is more than the \$70.2 billion the federal government spent on all elementary, secondary, and vocational education services, and social services, combined, in 2009.²⁷ The total state and

Table 5. DB Pensions Support \$552.9 Billion in Value Added (GDP)

	From State and Local Pensions	From Federal Pensions	From Private Pensions	Total Value Added Supported*
Direct Impact	\$94.7 billion	\$34.2 billion	\$86.9 billion	\$215.8 billion
Indirect Impact	64.1 billion	23.2 billion	58.8 billion	146.0 billion
Induced Impact	83.8 billion	30.3 billion	76.9 billion	191.1 billion
Total Value Added Impact	\$242.6 billion	\$87.7 billion	\$222.5 billion	\$552.9 billion

*Totals may not add up exactly due to rounding.

Table 6. DB Pensions Support \$74.3 Billion in Federal Tax Revenue

	From State and Local Pensions	From Federal Pensions	From Private Pensions	Total Federal Tax Revenue*
Taxes Paid by Beneficiaries on Benefits	\$3.2 billion	\$1.1 billion	\$2.9 billion	\$7.2 billion
Tax Revenue Resulting from Retiree Expenditures	29.4 billion	10.6 billion	27.0 billion	67.0 billion
Total Federal Tax Revenue Impact	\$32.6 billion	\$11.8 billion	\$29.9 billion	\$74.3 billion

*Totals may not add up exactly due to rounding.

Table 7. DB Pensions Support \$59.7 Billion in State and Local Tax Revenue

	From State and Local Pensions	From Federal Pensions	From Private Pensions	Total State and Local Tax Revenue*
Taxes Paid by Beneficiaries on Benefits	\$2.4 billion	\$858.9 million	\$2.2 billion	\$5.5 billion
Tax Revenue Resulting from Retiree Expenditures	23.8 billion	8.6 billion	21.8 billion	54.2 billion
Total State and Local Tax Revenue Impact	\$26.2 billion	\$9.4 billion	\$24.0 billion	\$59.7 billion

*Totals may not add up exactly due to rounding.