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The Economic Impact Of Nevada PERS

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By: National Institute on Retirement Security
Ilana Boivie and Beth Almeida



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EXECUTIVE SUMMARY

The Nevada Public Employees Retirement System (PERS) serves 220,421 active, inactive, and retired public employees, including teachers, public safety personnel, and others who provide for the public good in the state. But the economic impact of Nevada PERS reaches far beyond just those Nevadans who are earning or have earned retirement benefits in the system. After all, Nevada PERS retirees are also consumers and taxpayers.

When a retiree receives a pension benefit, he spends that money in his local community, providing income to local businesses, profits for owners of these firms, and helping to support the jobs and wages of employees employed by those companies. Nevada PERS retirees pay federal income taxes on their pension benefits and additional local, state, and federal tax revenue can be attributed to the economic activity supported by Nevada PERS retirees.

This study measures the economic “footprint” of pension benefits paid by Nevada PERS in the state’s economy. Using an input-output model, it analyzes how pension payments made by Nevada PERS to retirees ripple throughout the state economy. Expenditures have a “multiplier” effect in a regional or national economy. That is, when retirees spend their pension checks, this creates income for other households, firms, and even various levels of government. The income received by these households, firms and governments is, in turn, spent, thus creating an additional income effects for other households and firms. Each successive “round” of spending creates additional economic impacts which can be estimated.

Among our key findings ...

- Nevada PERS paid more than \$981 million in pension benefits last year.
- Expenditures resulting from Nevada PERS pension payments supported more than \$390 million in income for state residents other than Nevada PERS retirees.
- More than 5,700 jobs statewide can be attributed to Nevada PERS pension payments.
- Nevada PERS pension payments supported more than \$1 billion in total economic output in the state and more than \$433 million in value added.
- Payments made to Nevada PERS retirees supported more than \$196 million in federal, state, and local tax revenue.
- Each dollar paid out in pension benefits to Nevada PERS retirees residing in the state supports \$1.28 in total economic output in Nevada.
- Each dollar in taxpayer contributions to Nevada PERS supported \$6.21 in total economic output in Nevada.

OVERVIEW

Background on Nevada PERS

The 1947 Session of the Nevada Legislature passed the Nevada Retirement Act. This Act created the Nevada Public Employees' System and was signed into law on March 27, 1947, by Governor Vail Pittman. The adoption of a retirement program for Nevada's public employees was influenced by several factors. First, the Nevada Legislature realized that Nevada was one of the few states that did not have an employee pension plan. In addition, the Social Security Administration of the federal government did not allow local government employee participation. It was also known that the number of retirement plans in private industry was steadily increasing. All of these factors made government employment less attractive in states like Nevada that did not offer pension protection.

It was also known that states with established retirement programs had favorable experience meeting their pension plan objectives. These included stabilization of employment conditions by reduction of personnel turnover, making long term employment attractive to persons of proven ability and capacity, improving employee morale with the promise of financial security at retirement, and the removal of "hidden pensioners" from employment.

Employees and employers did not actually begin contributing to the System until July 1, 1948, while payments for service retirement and disability retirement started July 1, 1949. Despite the one-year setback from the time contributions began coming into the System until the date benefits were first paid, the Legislature still had to appropriate \$75,000 to meet the initial expenses of the system.

Since that time, Nevada PERS has grown significantly. Last year, the system paid roughly \$981.5 million in pension benefits to 38,339 retirees. Of this amount, \$794.5 was paid to residents of Nevada, as the vast majority of Nevada PERS retirees, 29,166, continue to reside in the State of Nevada. The average benefit was \$2,133 per month, or \$25,600 per year.

System Financing

Nevada PERS is a pre-funded retirement system. This means that contributions to the plan are made over the course of an employee's career to the pension fund. These contributions are invested and, upon retirement, the original contributions, plus investment earnings are used to pay the benefits an employee has earned. Such a system can be contrasted with a pay-as-you-go retirement system. In a pay-as-you-go system, like Social Security, current contributions are used to pay current benefits. Pre-funded retirement systems have the advantage that investment earnings can do more of the "work" of financing retirement benefits.¹

For example, in 2007, investment earnings represented a full 60% of Nevada PERS revenues. The remainder came from employer contributions (19.3%) and employee contributions (20.7%). The same pattern holds over a longer time period as well. From 1998 to 2007, investment earnings accounted for 57.8% of system revenues, with employer contributions comprising 20.6% and employee contributions 21.6%. It should be noted that these investment earnings represent the average of a 10-year time horizon; investment earnings may be quite larger over the course of an employee's lifetime.

Measuring the Economic Impact of Nevada PERS Payments

When Nevada PERS mails out a pension check, the money provides an economic benefit for the retiree who receives it. Pension benefits from Nevada PERS provide a predictable, modest income that lasts a lifetime, and that can continue to a retiree's spouse after one's death. Nevada PERS pension payments provide essential income for retirees, since Nevada is one of a number of states where public employees do not participate in Social Security. Retirees and other beneficiaries spend pension payments on life's necessities, like food, utilities, healthcare, housing, transportation, and perhaps discretionary choices such as recreation, fitness, or eating out.

When retirees spend money in their local economy through the purchase of local goods and services, other Nevadans benefit. Local merchants see value as the merchants then spend this additional income on growing their business and hiring more workers. These new employees then spend their additional income, purchasing additional goods and services in the local community, creating additional cycles of economic activity. Therefore, expenditures made by retirees create income for other households, firms, and even various levels of government. The income received by these households, firms and governments is, in turn, spent, thus creating an additional income effects for other households and firms. Each successive "round" of spending creates additional economic impacts. This process is what economists refer to as a "multiplier effect."

This study estimates the economic impacts associated with Nevada PERS benefit payments within the State of Nevada.

Data and Methodology

The data used for our analysis comes from two sources—Nevada PERS and IMPLAN. Nevada PERS provided data on benefit payments and tax withholdings on a state-wide and county-by-county basis. Nevada PERS also provided data on system receipts (employer contributions, employee contributions, and investment earnings). To measure the economic impacts of benefits paid by Nevada PERS, the input-output modeling software, IMPLAN, was used. IMPLAN was first developed in the 1970s as part of a USDA Forest Service project to analyze the economic effects of local land management projects such as timber, mining, and recreation activities.²

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.³ Detailed information on the data and methodology appear in the Technical Appendix to this report.

RESULTS

We analyze four different types of economic impacts: employment, value added and income, output, and tax revenues. We also calculate an expenditure multiplier and a taxpayer investment multiplier. Each of these is described in detail below.

1. Employment Impact.

When retirees spend their pension checks, their expenditures help to support jobs. When a retiree makes a purchase, a business sees an increase in revenues, prompting hiring more workers. Using IMPLAN, we calculated the number of jobs supported by retirees' expenditures. We also consider the fact that retirees pay taxes on their pension benefits and these tax payments have additional employment effects of their own. Government entities that receive these tax payments make expenditures which might involve hiring employees to provide public services and/or purchasing goods and services from firms in the private sector. Just as the expenditures made by households support jobs, those made by government support employment as well. Combining the employment impacts of household and government expenditures attributable to Nevada PERS pension benefits yields a total employment impact. These calculations were performed at the state level and for each county.⁴ The employment impact estimates include full-time and part-time positions.

We estimate that Nevada PERS pension benefit payments supported more than 5,700 jobs statewide. By way of comparison, this is more than the number of Nevadans that were employed in the entire utilities industry, in which there were 5,202 total jobs in 2006 (the last year for which data was available).⁵

On the county level, predictably, Clark County—which, home to the city of Las Vegas, has the largest economy

of the 17 counties—accounted for the largest number of jobs, with 2,845 full and part-time positions supported by Nevada PERS pension payments. Washoe County had the second largest employment impact with 1,341 jobs. Third was Carson City County, with 449 positions.

Table 1. Total Jobs Supported by Nevada PERS Pension Benefit Payments

State of Nevada	5,721
Carson City	449
Churchill	122
Clark	2,845
Douglas	113
Elko	129
Esmeralda	1
Eureka	4
Humboldt	43
Lander	7
Lincoln	32
Lyon	93
Mineral	15
Nye	73
Pershing	8
Storey	3
Washoe	1,341
White Pine	38

We also analyzed employment impacts by industry across the entire state. As the following table indicates, Retail Trade had the largest employment impact, with 1,264 positions supported by Nevada PERS payments. Health Care and Social Assistance also had a large employment impact with 913 jobs, as did Accommodation and Food Services with 697 jobs.

Table 2. Total Jobs Supported by Nevada PERS Pension Benefit Payments within the State of Nevada, by Industry

Industry	Jobs
Agriculture, forestry, fishing, and hunting	11
Mining	5
Utilities	23
Construction	47
Manufacturing	92
Wholesale Trade	176
Retail Trade	1,264
Transportation and Warehousing	178
Information	98
Finance and Insurance	331
Real Estate and Rental and Leasing	347
Professional, Scientific, and Technical Services	263
Management of Companies and Enterprises	15
Administrative and Support and Waste Management and Remediation Services	192
Educational Services	65
Health Care and Social Assistance	913
Arts, Entertainment, and Recreation	144
Accommodation and Food Services	697
Other Services (Except Public Administration)	365
Public Administration	30
Total	5,258

2. Value Added and Income Impacts.

Value added is a net estimate of the creation of “new value” in the economy. It includes the value of employee compensation, profits, rents, and other aspects of production, but excludes the costs of purchased materials and services. Using IMPLAN, we calculated the value added attributable to Nevada PERS pension payments (including household and government expenditure effects). Estimates of total value added are provided as well as estimates of income received by state residents (not including PERS retirees) supported by pension payments, which includes employee compensation, proprietors’ income, and property income.

We estimate that Nevada PERS pension benefit payments supported more than \$433 million in value added, statewide, in 2007. We also estimate that more than \$390 million in income received by Nevada residents (not including PERS retirees) can be attributed to Nevada PERS pension payments. Again, Clark County saw the largest impacts, with \$217 million in value added and \$196 million in income supported by Nevada PERS pension payments. Washoe County was next in line, with \$103 million in value added and \$92 million in income supported. Third in line was Carson City County, with \$31 million in value added and \$28 million in income.

Table 3. Value Added Supported by Nevada PERS Pension Benefit Payments

	Total Value Added*	Total Income**	Employee Compensation	Proprietor Income	Other Property Type Income	Indirect Business Taxes
Nevada	\$433,724,935	\$390,675,108	\$234,914,445	\$28,010,545	\$127,750,118	\$43,049,827
Carson City	30,596,619	27,534,362	15,514,396	2,758,110	9,261,856	3,062,257
Churchill	7,739,782	6,955,662	3,367,702	1,250,863	2,337,097	784,120
Clark	217,960,235	196,389,940	117,935,586	14,705,685	63,748,669	21,570,295
Douglas	7,885,844	7,057,577	3,917,137	583,912	2,556,528	828,267
Elko	8,854,643	7,901,561	4,987,830	285,427	2,628,304	953,082
Esmeralda	69,701	59,629	13,966	16,558	29,105	10,072
Eureka	280,214	250,726	110,606	33,643	106,477	29,488
Humboldt	2,834,511	2,506,572	1,394,841	189,231	922,500	327,939
Lander	454,185	399,336	198,577	32,941	167,818	54,849
Lincoln	1,862,591	1,683,747	893,395	132,096	658,256	178,844
Lyon	6,284,518	5,593,463	3,127,520	293,312	2,172,631	691,055
Mineral	978,428	887,287	445,514	107,579	334,194	91,141
Nye	4,968,638	4,416,524	2,358,509	305,727	1,752,288	552,114
Pershing	447,382	403,789	196,639	29,839	177,311	43,593
Storey	250,594	218,265	80,262	11,521	126,482	32,329
Washoe	103,095,169	92,975,616	59,408,444	3,439,789	30,127,383	10,119,553
White Pine	2,442,556	2,180,543	1,272,031	122,904	785,608	262,013

* Total value added is the sum of employee compensation, proprietor income, other property type income, and indirect business taxes.

** Total income is the sum of employee compensation, proprietor income, and other property type income.

In the following table, we also provide breakdowns by industry, and find that the largest value added and income impacts occurred in the Retail Trade sector, with \$65.5 million in value added and \$51.0 million in income supported. Next in line was Health Care and Social Assistance, which realized \$60.5 million in value added and \$59.8 million in income, followed by Real Estate and Rental and Leasing, with \$35.5 million and \$30.2 million in respective value added and income impacts.

Table 4. Value Added and Income Supported by Nevada PERS Pension Benefit Payments within the State of Nevada, by Industry

	Value Added	Income
Agriculture, forestry, fishing, and hunting	\$621,528	\$580,004
Mining	479,506	434,092
Utilities	8,959,334	7,510,048
Construction	4,327,215	4,122,909
Manufacturing	6,961,738	6,831,555
Wholesale Trade	20,189,530	15,751,812
Retail Trade	65,506,140	51,017,777
Transportation and Warehousing	11,399,223	9,049,816
Information	11,919,045	10,598,934
Finance and Insurance	22,255,082	21,483,662
Real Estate and Rental and Leasing	35,508,999	30,201,989
Professional, Scientific, and Technical Services	20,819,787	20,397,045
Management of Companies and Enterprises	3,010,561	2,961,214
Administrative and Support and Waste Management and Remediation Services	6,937,635	6,742,930
Educational Services	2,228,732	2,201,149
Health Care and Social Assistance	60,519,240	59,836,886
Arts, Entertainment, and Recreation	6,076,578	5,514,421
Accommodation and Food Services	28,073,018	27,791,741
Other Services (Except Public Administration)	12,578,322	11,485,070
Public Administration	2,789,427	2,789,427
Total	\$331,160,640	\$297,302,481

3. 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 Nevada PERS pension payments (including household and government expenditure effects) in the state and in each county. As with our employment, income and value added estimates, we also provide, on a statewide basis, breakdowns of total output supported by pension payments by industry.

Our model finds that the \$794.5 million in PERS benefits paid within the State of Nevada last year supported over \$1.017 billion dollars in overall economic output in the Nevada economy. This is only slightly less than the total Gross State Product contributed by the nondurable goods manufacturing industry, which generated \$1.485 billion to the Nevada economy in 2007.⁶

The total output impact incorporates what are called the direct, indirect, and induced output impacts. The direct 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 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.

For Nevada PERS pension payments, the total output impact of \$1.017 billion includes \$794.5 million in direct impacts, \$108.6 million in indirect impacts, and \$114.4 million in induced impacts.

On the county level, Clark County again showed the highest output impact, with \$405.0 million in direct, \$52.2 million in indirect, and \$55.8 million in induced impacts, for a total output impact of close to \$513 million. These impacts add up to significantly more than was contributed by both the agriculture, forestry, fishing, and hunting industry (\$247 million) and educational services industry (\$351 million) to the entire Nevada economy in 2007.⁷

Table 5. Output Impacts Supported by Nevada PERS Pension Benefit Payments

	Direct	Indirect	Induced	Total Output
State of Nevada	\$794,530,274	\$108,627,817	\$114,418,315	\$1,017,576,406
Carson City	66,264,226	6,935,967	5,978,893	79,179,086
Churchill	16,280,898	1,474,929	1,945,914	19,701,741
Clark	404,978,392	52,158,803	55,778,135	512,915,330
Douglas	20,833,324	1,415,258	1,337,851	23,586,433
Elko	22,575,177	1,264,876	1,765,512	25,605,565
Esmeralda	394,690	5,949	591	401,230
Eureka	1,096,363	30,211	8,472	1,135,046
Humboldt	8,489,167	460,190	459,042	9,408,399
Lander	2,193,961	41,186	36,303	2,271,450
Lincoln	8,059,916	211,753	210,964	8,482,633
Lyon	20,138,224	1,163,579	933,025	22,234,828
Mineral	4,157,691	101,325	115,591	4,374,607
Nye	14,725,912	842,278	775,086	16,343,276
Pershing	2,576,637	29,934	31,878	2,638,449
Storey	1,688,688	35,058	18,005	1,741,751
Washoe	191,025,961	23,388,110	26,468,024	240,882,095
White Pine	8,881,321	325,541	368,644	9,575,506

Table 6 displays total output impacts of Nevada PERS payments by industry. Once again, Retail Trade and Health Care and Social Assistance showed the highest output supported by PERS payments, with \$93.5 million and \$93.4 million in total output supported in these industries, respectively. The Finance and Insurance industry was also supported greatly by PERS, as this industry has \$54.6 million in total output attributable to PERS benefit payments.

Table 6. Total Output Supported by Nevada PERS Pension Benefit Payments within the State of Nevada, by Industry

Agriculture, forestry, fishing, and hunting	\$1,508,794
Mining	1,917,553
Utilities	15,302,973
Construction	8,457,251
Manufacturing	28,489,896
Wholesale Trade	31,054,614
Retail Trade	93,464,037
Transportation and Warehousing	20,973,270
Information	26,043,806
Finance and Insurance	54,583,399
Real Estate and Rental and Leasing	45,483,973
Professional, Scientific, and Technical Services	33,407,021
Management of Companies and Enterprises	4,612,252
Administrative and Support and Waste Management and Remediation Services	11,824,466
Educational Services	3,787,649
Health Care and Social Assistance	93,410,409
Arts, Entertainment, and Recreation	9,615,227
Accommodation and Food Services	50,012,479
Other Services (Except Public Administration)	22,895,647
Public Administration	5,827,120
Total	\$562,671,834

4. Multipliers.

An expenditure multiplier tells us the total economic impact that each dollar in expenditures has. (For example, a multiplier of 1.2 would mean that for every \$1 spent in a local economy, \$1.20 of total output is supported.) An expenditure multiplier is calculated by taking the total output (consisting of the direct, indirect, and induced impacts taken together) and dividing it by the value of the “initial event” in the economy (in this case, a pension benefit being paid). The expenditure multiplier usually lies between 1.0 and 3.0.

In 2007, Nevada PERS benefit payments had an expenditure multiplier of 1.28, meaning that for every dollar paid out in pension benefits to Nevada retirees, \$1.28 in total output was supported in Nevada’s economy.

Figure 1. Pension Expenditure Multiplier



Because PERS is pre-funded, only a small portion of the total pension payments made in any given year was funded through taxpayer dollars. As discussed above, in the last ten years, employer (or taxpayer) contributions to PERS only consisted of 20.6% of the total pension fund receipts, the remainder funded by employees themselves (21.6%) and through investment earnings (57.8%). Therefore, it may be helpful to calculate the total impact of PERS payments that is attributable to the “taxpayer investment” in PERS.⁸

Because only \$0.22 of every dollar paid out in pension benefits is generated through taxpayer contributions, the “taxpayer investment” multiplier will be substantially higher than the expenditure multiplier. In 2007, for example, of the \$794.5 billion paid out in PERS benefits to Nevada retirees, only \$163.8 million was funded by taxpayer dollars. The taxpayer investment multiplier, then,

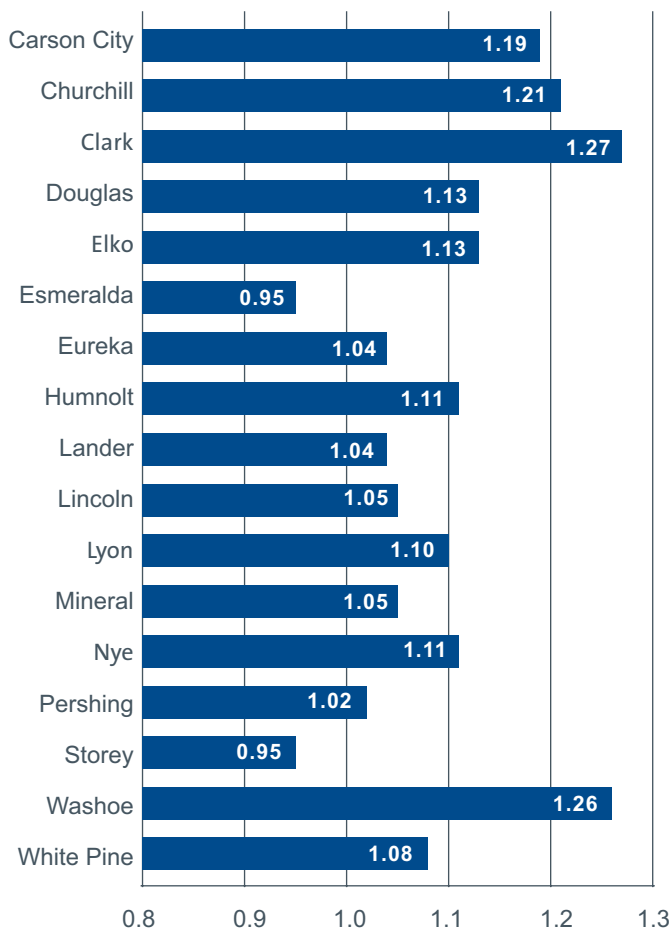
was 6.21. In other words, for every dollar contributed to PERS by taxpayers, \$6.21 in total output was supported in the Nevada economy.

Figure 2. Taxpayer Investment Multiplier



Figure 3 displays the total expenditure multipliers for the State of Nevada, and for each county. Expenditure multipliers vary somewhat by county, but generally speaking, larger counties and those with more diverse economic bases will have larger multipliers than smaller counties and those with a more homogeneous economic base.

Figure 3. Expenditure Multipliers by County



On the county level, the average expenditure multiplier was 1.10, meaning that for every dollar paid out in pension benefits by a state or local pension plan, \$1.10 in total output was supported in a single county. The area with the largest total expenditure multiplier was Clark County, with a total expenditure multiplier of 1.27; again, this is to say that for every dollar in pension benefits spent within Clark County, \$1.27 in total economic output was supported.

Esmeralda and Storey counties have multipliers less than 1.0 due to the fact that they are both quite small, with very narrow economic bases, and many of the expenditures made by county residents occur outside of the county. Esmeralda County, for example, is extremely rural with few retail and fewer health care opportunities. Storey is also rural, and is not far from the municipalities of Reno (Washoe County), Dayton (Lyon County), and Carson City, where consumers may travel to purchase items. In both of these counties, then, a broader regional multiplier would likely be greater than 1.0, as pension checks are often spent on goods and services in close proximity to the county in question. However because of modeling limitations, calculating such regional multipliers across county boundaries is not possible using IMPLAN.

5. 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 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. It also includes the tax impact of government expenditures. This includes all corporate, personal income, and business taxes that are generated through each spending round.

As shown in Table 8, Nevada PERS benefit payments supported close to \$200 million in total tax revenue in

2007, with state and local tax receipts of \$44.0 million, and federal receipts of \$152.6 million. The county with the highest tax revenue generated was again Clark County, where pensions paid by Nevada PERS supported \$21.9 million in state and local tax receipts and \$78.7 million in federal tax receipts, for a total of close to \$100.5 million in tax revenue in 2007.

To place these numbers in perspective, the total federal tax revenue generated from Nevada PERS benefit payments was just slightly less than the federal government’s entire central personnel management budget in 2007.⁹ The total state and local tax revenue supported is roughly equivalent to what the State of Nevada spent on parks and recreation, housing and community development, and waste management—combined—in 2004 (the last year for which data was available).¹⁰

Table 8. Tax Revenue Supported by Nevada PERS Pension Benefit Payments

	State/Local Tax Revenue	Federal Tax Revenue	Total Tax Revenue*
Nevada	\$44,000,680	\$152,612,558	\$196,424,460
Carson City	3,279,789	11,207,635	14,474,957
Churchill	813,394	2,642,068	3,452,756
Clark	21,870,790	78,720,939	100,496,956
Douglas	835,664	3,235,026	4,067,542
Elko	965,822	3,610,140	4,571,954
Esmeralda	10,303	44,859	55,151
Eureka	10,696	133,287	143,894
Humboldt	302,294	1,213,667	1,514,840
Lander	53,441	263,216	316,497
Lincoln	202,183	1,046,418	1,247,883
Lyon	734,657	2,790,133	3,522,277
Mineral	99,535	521,048	620,225
Nye	575,221	2,061,146	2,634,472
Pershing	45,645	253,182	298,669
Storey	33,726	234,086	267,748
Washoe	10,332,607	35,748,032	46,032,898
White Pine	275,761	1,169,939	1,444,678

* Totals may not add up exactly due to other corporate transfer taxes included in the totals but not separated out into federal and state level allocations by IMPLAN.

CONCLUSION

Nevada PERS provides a critical source of reliable income for more than 38,000 retired Nevadans who have served the state and local communities—police officers, firefighters, schoolteachers, and other public servants.

But the economic impact of Nevada PERS reaches well beyond employees who contributed to and earned benefits in the plan during their working years. The secure income provided to retirees is recycled in local economies as a stable source of revenue for local businesses and various levels of government. Because of the regular pension payments retirees receive, they have income for household needs and invest in their local communities. Regardless of what the economy may be, Nevada PERS retirees provide a boost to local business revenues and local workers' incomes.

Economic gains from retirees are quantifiable. Statewide, Nevada PERS pension benefits supported over 5,700 jobs and over \$390 million in total incomes in 2007. These pension benefits further supported the generation of over \$1.0 billion in total output, and close to \$200 million in federal, state, and local tax revenue in that year.

In these times of financial and economic crisis, public pension plans like Nevada PERS must be recognized for the important role they play in providing a stable, reliable source of income not just for public sector retirees, but also for the local economies in which their retirement checks are spent. Such pre-funded retirement systems allow the investment of \$1 of taxpayer contributions to be multiplied many times over. For each dollar invested by Nevada taxpayers, more than \$6 in economic activity in the state is supported, indicating that Nevada PERS is not only serving its members well, but providing an important economic benefit to all Nevadans.

TECHNICAL APPENDIX: DETAILED METHODOLOGY

The data used for our analysis comes from two sources—Nevada PERS and IMPLAN. Nevada PERS provided data on benefit payments and tax withholdings on a state-wide and county-by-county basis. Nevada PERS also provided data on system receipts (employer contributions, employee contributions, and investment earnings). To measure the economic impacts of benefits paid by Nevada PERS, 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.

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 and local retirement systems. Because of differences in modeling and the data used, the results of our study may not be comparable with these other analyses. Thus, the reader should avoid drawing conclusions based on comparisons between our results and those of other studies.

IMPLAN is an input-output model that uses a matrix to represent the economy of a region in order to estimate the effect of events occurring in a single industry or institution on all other industries, as well as consumers, government, and foreign suppliers to the economy. IMPLAN uses a Social Accounting Matrix (SAM), which captures all the industry and institution transactions in the local area; subsections of a SAM describe various structures and functions of a local economy. The SAM describes a local economy in terms of the flow of dollars from purchasers to producers within a region, while also accounting for non-industrial transactions such as payment of taxes by businesses and households. This offers a better portrayal of the household income effect portion of local economic events than other models.

Migration/Leakage

We began with the recognition that upon retirement, not all Nevada PERS beneficiaries continue to reside in their home states or counties. When a Nevada PERS beneficiary moves out of state, he takes his pension payments with him, spending pension checks in his new state of residence, rather than in the state where the pension payment originated. Such a move is called a leakage, because any income that is spent out of state is lost to the state of origin in terms of adding to total economic output, and therefore the value added, employment, and expenditure multiplier of the state of origin.

For this study, we relied on data supplied by Nevada PERS on zip codes where individual benefit checks were sent. For ease of calculation, we assume that no zip codes overlap into more than one county. In this way, we are able to very accurately account for any county-to-county or out of state leakage that has occurred since the time any given beneficiary has retired.

Disposable Income Impacts

Household income data in IMPLAN is assumed to be disposable income; that is, IMPLAN assumes that every dollar inputted into the model is spent in the local economy. Therefore, before calculating the economic impacts of pension benefit payments, it is necessary to account for any and all taxes that are withheld from pension payments. By subtracting income taxes from gross pension payments, we calculate disposable income in order to avoid over-estimating the economic impacts of state and local government plans.

To this end, we utilized data supplied by Nevada PERS on all tax withholdings from pension benefit checks. (Because Nevada has no state income tax, federal income taxes were the only relevant withholdings in this regard.)

We disregard other benefit paycheck withholdings for ease of computation, and because we assume that any additional withholdings fall within the same disposable income allocation modeled by IMPLAN. (Say, for example, that an individual has withholding of \$50 per pension check for health care services—which are technically paid out of disposable income. Therefore, if we subtract this expense for disposable income as a withholding, we will be underestimating the pension benefit’s impact, because IMPLAN will account for health care services through its modeling matrices.)

For this study, Nevada's aggregated, and each individual county's, disposable pension payments are inputted into IMPLAN as direct payments to households. The household income range used is based on the median household income among heads of household age 65 and older for the State of Nevada, taken from the 2007 American Community Survey (ACS) of the U.S. Census.¹¹ In 2007, the median household income in Nevada for those aged 65 and up was \$38,993, so the IMPLAN sector for households in the income range of \$35,000-50,000 per year was used for the statewide analysis. Unfortunately, the ACS does not provide data for each county in Nevada; only data for Clark and Washoe counties is included in the survey. However, the median incomes for these two counties fall within the same range as the statewide figure (with median incomes of \$39,192 and \$43,063, respectively). Thus, for the county-level analysis, we assumed the same median household income range as for the statewide analysis. These household expenditure impacts on employment, income, value added, output, and taxes were then calculated using IMPLAN.

Government Revenue Impacts

The federal taxes that are withheld from pension benefit checks do not go unspent. The federal government uses those revenues to fund programs, hire employees, and purchase goods and services. Therefore, in order to correctly assess the full economic impact of Nevada PERS pension benefit payments, we must account for the federal expenditure resulting from the federal taxes withheld from benefit checks.

To model this effect in IMPLAN, we first separate federal expenditures into three subcategories: defense spending, nondefense spending, and investment spending. We used data from the Office of Management and Budget to calculate the percentage of total expenditure accounted for by each of these categories in 2007,¹² and assume that each additional dollar received by the federal government will be allocated in the same way. We then allocate the total federal tax withholdings from PERS payments into each category based on these percentages. The resulting figures are added to the IMPLAN model as the corresponding federal expenditure, and the corresponding employment, income, value added, output, and tax impacts are then calculated.

Multipliers

Multipliers relate the overall economic effect to a single unit of any initial event in ratio form. An expenditure multiplier, for example, displays the total output supported for every dollar that is initially spent in a local economy. In terms of pension benefit payments, the expenditure multiplier assesses the impact on total output for each dollar paid out in a pension benefit. For example, an expenditure multiplier of 1.2 would mean that for every \$1 paid out in a pension benefit, \$1.20 of total economic output is generated in the local economy. For this study, expenditure multipliers are calculated by taking total output supported within a local area divided by total pension benefits paid to residents in that area in that year.

County-Level Economic Impacts

When calculated on a county-by-county basis, the economic impacts and multipliers are collectively smaller than the statewide impacts and multipliers, due to the fact that county economies are generally smaller and less diverse than the state economy as a whole. The smaller and more homogeneous any local economy is, the smaller the economic multipliers will be for that economy, due to the fact that input-output economic analysis takes into account local production patterns, eliminating from any local economy's total output that which leaves the state.

For example, if a consumer in the county of Humboldt purchases a new car, that purchase is broken down into its various components of production: the engineers and designers, the auto parts manufacturers, the automobile assembly manufacturer, and the retail car salesman all receive a portion of the revenue from that sale. Because the car was purchased within Humboldt, the portion of output due the car dealership will certainly be added to Humboldt's total output. If the car was designed in Canada and manufactured in Detroit, however, output from these services would not be included in Humboldt's total output, because they were not performed within the county of Humboldt. If any services are rendered within the State of Nevada, but not within Humboldt County, these economic impacts would be accounted for at the state level, but not on the Humboldt County level. Therefore, because most individual counties economies are not nearly as diverse as the Nevada economy as a whole, the county-level multipliers will be smaller than the state-level multipliers. On the other hand, if all of the services in any single transaction were performed by Nevada companies and employees, they will be accounted for in the statewide economic impacts.

A second reason why statewide multipliers can be larger than their county-level counterparts is due to the problem of leakage. Upon retirement, not all workers continue to

reside in their home counties. When a pension beneficiary moves out of one county, he takes his pension payments with him, spending his pension checks in his new county of residence, rather than in the county where the pension payment originated. Such a move is called a leakage, because any income that is spent out of any given local economy is lost to that economy in terms of adding to total economic output, and therefore the value added, employment, and expenditure multiplier of the county of origin. Similarly, beneficiaries and retirees who move out of Nevada entirely and to another state are "lost" in terms of economic impacts not just to the county of origin, but to the statewide economic impacts as well.

Tax Revenue

To calculate total tax revenue generated by the pension payments, federal income taxes paid by beneficiaries on benefit payments are added to taxes paid in all subsequent rounds of spending. For the former, the federal taxes are included as described above. For the latter, IMPLAN calculates all corporate, personal income, and business taxes that are generated through each spending round of both household income and federal expenditures. Total tax revenue is the sum of these two figures.

ENDNOTES

- 1 Pre-funded retirement systems can also help to promote intergenerational fairness, since the generation that receives the benefit of public services is the one that pays the cost of delivering those services.
- 2 USDA Natural Resources Conservation Service. 2008. *IMPLAN Model*. Washington, DC: U.S. Department of Agriculture. <http://www.economics.nrcs.usda.gov/technical/implan/implanmodel.html>
- 3 Examples of recent pension benefit payment economic impact studies using IMPLAN software include studies commissioned by the California Public Employees Retirement System, the California State Association of County Retirement Systems, the State of Minnesota, and the State of Mississippi. Because of differences in data and methodology, the results of our study may not be comparable with these analyses. Readers should avoid drawing conclusions based on such comparisons.
- 4 When calculated on a county-by-county basis, the economic impacts and multipliers are collectively smaller than the statewide impacts and multipliers, due to the fact that county economies are generally smaller and less diverse than the state economy as a whole. The smaller and more homogeneous any local economy is, the smaller the economic multipliers will be for that economy, due to the fact that input-output economic analysis takes into account local production patterns, eliminating from any local economy's total output that which leaves the state.
- 5 U.S. Bureau of Economic Analysis. 2008. *Regional Economic Accounts: Total Full-Time and Part-Time Employment by NAICS Industry*. Washington, DC: U.S. BEA.
- 6 U.S. Bureau of Economic Analysis. 2008. *Gross Domestic Product by State*. Washington, DC: U.S. BEA.
- 7 U.S. Bureau of Economic Analysis. 2008. *Gross Domestic Product by State*. Washington, DC: U.S. BEA.
- 8 The methodology used to calculate the taxpayer investment of PERS follows that of Fountain, R., and Waste, R. 2007. *The Annual Economic Impacts of CalPERS Benefit Payments*. Sacramento, CA: The Applied Research Center, California State University.
- 9 White House Office of Management and Budget. 2008. Budget of the United States Government, Fiscal Year 2008. *Historical Tables: Table 3.2—Outlays by Function and Subfunction: 1962–2012*. Washington, DC: OMB.
- 10 U.S. Census Bureau. 2008. State and Local Government Finances and Employment: State Government Finances. *State Governments: Expenditures and Debt by State: 2004*. Washington, DC: U.S. Census Bureau.
- 11 U.S. Census American Community Survey. *Table B19049: Median Household Income in the Past 12 Months (in 2006 Inflation-Adjusted Dollars) by Age of Householder*. Washington, DC: U.S. Census Bureau.
- 12 White House Office of Management and Budget. 2008. Budget of the United States Government, Fiscal Year 2008. *Historical Tables: Table 3.2—Outlays by Function and Subfunction: 1962–2012*. Washington, DC: OMB.

ABOUT THE AUTHORS

Ilana Boivie is a Policy Analyst with the National Institute on Retirement Security. Prior to joining NIRS, Ms. Boivie worked with the Arrowhead Center at New Mexico State University and at the Center for American Progress in Washington, D.C., conducting economic development and public policy research. Ms. Boivie began her career in publishing, as an editorial associate with *Humanist*, a nationally-published bimonthly magazine. Ms. Boivie holds a M.A. in economics from New Mexico State University, with a concentration in applied econometrics and experimental statistics, and a B.A. in English from Binghamton University, where she graduated magna cum laude.

Beth Almeida is the Executive Director of the National Institute on Retirement Security. Before joining NIRS, she served as assistant director for strategic resources and as senior economist with the International Association of Machinists and Aerospace Workers (IAM) where she was instrumental in transitioning some 40,000 airline employees out of terminating or freezing pensions into the IAM's multi-employer defined benefit pension plan. Earlier in her career, Ms. Almeida led research initiatives at academic centers in Germany, France, and her home state of Massachusetts. She has authored numerous economic and pension publications and is a frequent speaker at academic and industry conferences, both in the US and abroad. Beth earned a bachelor's degree in international business from Lehigh University and a master's degree in economics from the University of Massachusetts Amherst.

Public Employees' Retirement System of Nevada

693 W. Nye Lane
Carson City, NV 89703

1-775-687-4200

1-866-473-7768

