

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS



THE EFFECTS OF STATE FISCAL RELIEF

September 10, 2009

I. INTRODUCTION

One important component of American Recovery and Reinvestment Act (ARRA) is state fiscal relief. Through August 28, \$38.4 billion had gone to states in the form of fiscal relief, with most of that total (\$28.1 billion) coming through a higher Federal share of Medicaid spending. As Table 1 shows, state fiscal relief constituted a crucial portion of the early part of the stimulus – nearly two-thirds of the spending and a quarter of total ARRA stimulus (that is outlays plus tax cuts) through the second quarter of 2009 came in the form of state fiscal relief.¹

Table 1. Total ARRA Spending and Tax Relief by Category

	February - June ^a	July ^b	August ^c
	Billions of Dollars		
Spending provisions ^d	43.0	16.5	15.7
State fiscal relief ^e	28.2	6.2	4.0
Tax provisions ^f	56.8	10.3	9.2
Total	99.8	26.8	24.8

Sources: Recovery.gov; Updated simulations from the Department of the Treasury (Office of Tax Analysis); CEA calculations.

Notes: a. Data from recovery.gov are through June 26.

b. Data from recovery.gov are for June 27 through July 31.

c. Data from recovery.gov are for July 31 through August 28.

d. All recovery.gov spending excluding: Economic Recovery Payments made through the Social Security Administration and Railroad Retirement Board; and Compensation and Pensions made through Veteran Affairs.

e. Grants to States for Medicaid; State Fiscal Stabilization Fund.

f. Estimated effects of tax provisions; Economic Recovery Payments; Compensation and Pensions.

State budget relief was especially important because states, which normally must end the year with a balanced budget,² experienced budget gaps of up to 20 percent of their general funds at some point during the 2009 fiscal year.³ In response to these gaps, states were already raising taxes and reducing spending by the time the ARRA was passed. These actions not only placed further burdens on families already suffering from the recession and cut important services, but also directly contributed to the worsening of the downturn. The aid to states appears to have

¹ See U.S. Recovery Accountability and Transparency Board (2009).

² See National Governors Association and National Association of State Budget Officers (2008) for a discussion of the exact balanced budget requirements.

³ See National Conference of State Legislatures (2009a).

helped prevent large tax increases and cuts to government social programs and services that otherwise would have taken place.

All states have received substantial support. The ARRA was designed to provide greater support for states hit harder by the recession. For example, it further increased the Federal component of Medicaid spending in states that have experienced especially large increases in unemployment. Moreover, because Medicaid is a means-tested program, an increase in Medicaid funding naturally provides more funds to states where more workers are unemployed.⁴ And indeed, fiscal relief per capita has on average been greater in states that had higher unemployment rates at the time the Act was passed.

Since there is ample evidence that increases in government spending and reductions in taxes help slow economic downturns, there is every reason to think that the state fiscal relief has been one force helping to move the economy from recession to recovery. But, we have little direct evidence that specifically concerns the economic effects of state fiscal relief. For example, there has been little research concerning the macroeconomic effects of the 1972 State and Local Fiscal Assistance Act or the \$20 billion state fiscal relief package in 2003. In this report, we therefore look at the effects of state fiscal relief in more detail.

Simply asking whether states that have received more ARRA funds have generally performed better has an obvious problem: on average, states that were “sicker” may have received more “medicine.” For example, the ARRA further increased the Federal component of Medicaid spending in states that have experienced especially large increases in unemployment. Moreover, because Medicaid is a means-tested program, during recessions states that lose the largest number of jobs tend to see a relative increase in the number of their residents eligible for Medicaid. These states would therefore tend to receive more funds from the Federal government. Thus, a finding that states that had received more ARRA funding had greater economic problems would not be evidence that fiscal relief causes economic problems; it would just be evidence that the relief was well targeted.

⁴ A possible effect operating in the opposite direction is that states with larger economic declines could decrease Medicaid generosity to balance their budgets. To ensure that this did not occur, the ARRA specifically mandated that eligibility standards not be tightened, so distressed states could not alter their eligibility rules and still receive ARRA funding.

This report describes how it is possible to mitigate this problem by focusing on a part of the Medicaid relief to states which resulted from decisions prior to the recession. We then describe the institutional details of the Federal Medicaid funding. Finally, we present results for the relationship between employment changes and state fiscal relief and suggest that government-related employment and spending may explain part of this relationship.

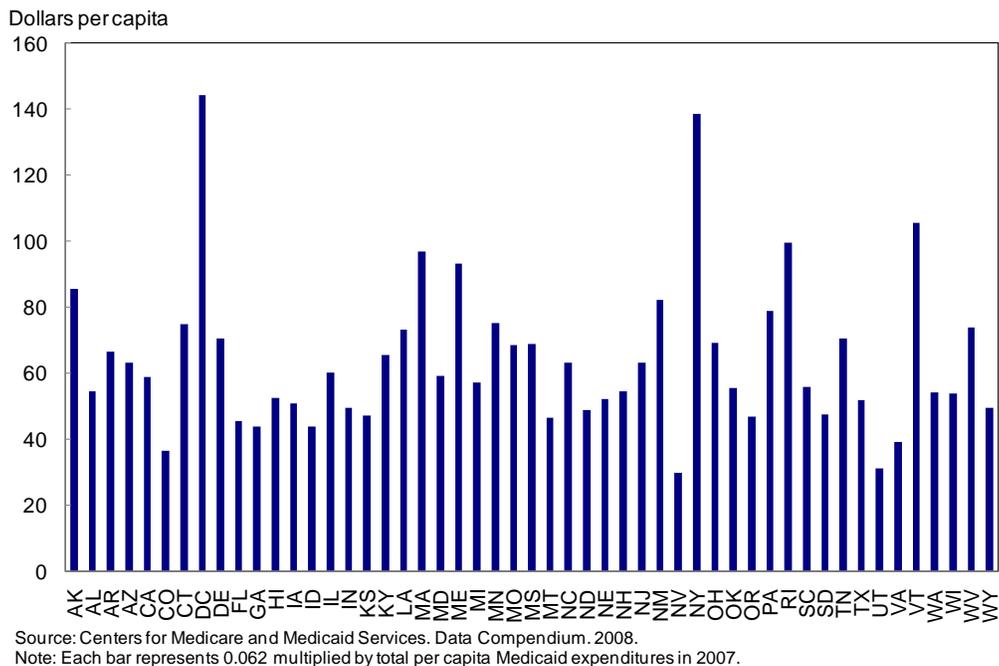
II. IDENTIFYING THE RELATIONSHIP BETWEEN FISCAL RELIEF AND EMPLOYMENT CHANGES

To get evidence about the effects of the fiscal relief, we focus on a particular part of the relief: the increase in Federal Medicaid spending which resulted from typical state Medicaid expenditures *before* the recession. Even in normal times, Medicaid expenditures per capita vary substantially across states. The ARRA increased by 6.2 percentage points the Federal share of states' Medicaid expenses. As a result, states that spent more on Medicaid per resident before the recession received more recovery dollars per capita from this portion of the package.

We can estimate the fiscal relief to states from this portion of the program by multiplying 0.062 times Medicaid spending per person in the state in fiscal year 2007. Since this component, which we refer to as “estimated non-cyclical ARRA Medicaid payouts,” was determined before the recession, it is plausibly less related to the recession's effects on jobs than overall state fiscal relief. Indeed, although we cannot be sure if other factors are responsible for the relationship between this measure and employment changes, we will present evidence below to suggest that this correlation is not driven by some important underlying differences between states that received more money and states that received less.

Because there are substantial cross-state differences in the amount of money spent on Medicaid per resident, some states received more dollars per capita from this portion of the stimulus package than others. Figure 1 shows the variation in estimated non-cyclical ARRA Medicaid payout across states. This difference allows us to compare the change in employment in states that received relatively large amounts of fiscal relief with those that received somewhat less. By using this “treatment-and-control group” research design, we attempt to isolate the effect of state fiscal relief from other factors that may have influenced net employment growth.

Figure 1. Estimated Non-cyclical ARRA Medicaid Payouts

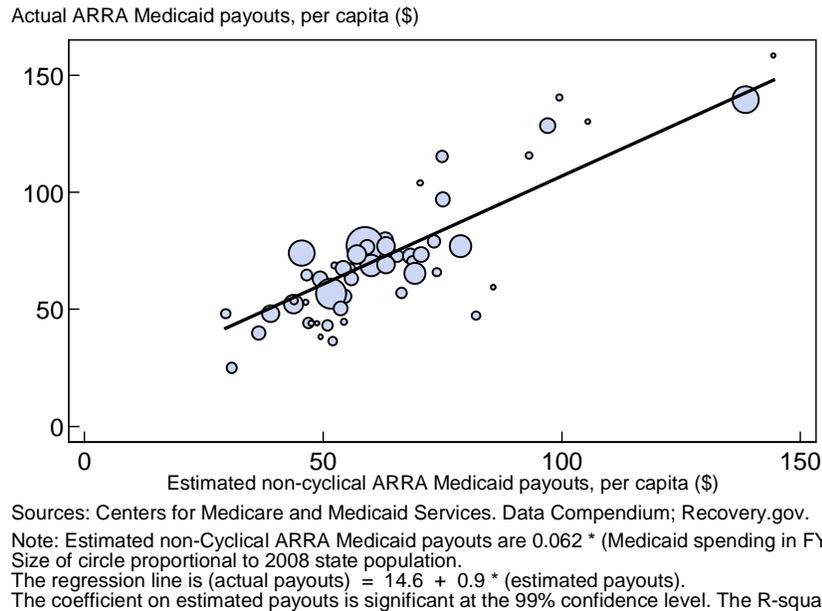


There is a very strong relationship between actual ARRA Medicaid payouts through July 3 and estimated non-cyclical ARRA Medicaid payouts, as shown in Figure 2.⁵ Note that in Figure 2, as in all scatter plots, the size of a circle is proportional to a state's population. The difference between the two values partly reflects the fact that a state's actual payouts depend directly on a state's current employment situation.⁶ The estimated payouts, in contrast, are calculated with variables determined prior to the beginning of the recession.

⁵ We focus on spending data from July because the latest employment data available for our analysis is also from July.

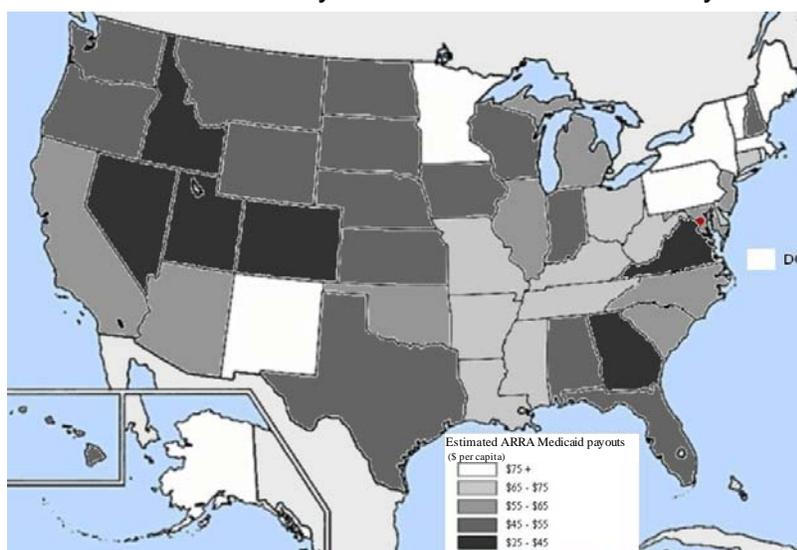
⁶ See Section III for more details. Differences between a state's actual and estimated ARRA Medicaid payouts also reflect changes in Medicaid spending between 2007 and the present.

Figure 2. Estimated and Actual ARRA Medicaid Payouts



Although the estimated non-cyclical ARRA Medicaid payouts are clearly more exogenous than actual ARRA Medicaid payouts, there are important differences between states that were high Medicaid spending and states that were low Medicaid spending states. For example, Figure 3 shows the strong regional component to the estimated non-cyclical ARRA Medicaid payouts. However, it also shows that there is also variation *within* regions and that states that might seem relatively similar have different estimated non-cyclical ARRA Medicaid payouts. For example, New York has a higher value than New Jersey or California, states somewhat similar to New York. We will show that the correlation is robust to accounting for many important observable differences between high and low spending states. Even so, we cannot rule out the possibility that there is some other confounding variable driving the correlation.

Figure 3. Estimated Non-cyclical ARRA Medicaid Payouts by State



Source: Centers for Medicare and Medicaid Services. Data Compendium. 2008.

Note: The data represent 0.062 multiplied by total per capita Medicaid expenditures in 2007.

III. INSTITUTIONAL DETAILS OF MEDICAID GRANTS

Before turning to our main findings, we describe some of the institutional details of the Medicaid grants and argue why differences in grants that result from a state's 2007 Medicaid spending are less related to a state's economic performance than is the total size of a state's fiscal relief.

Medicaid is a government program that provides health insurance for persons and families with incomes below a certain threshold or who meet other requirements. Both the eligibility requirements and the insurance coverage vary across states. By statute, the Federal government reimburses states for between 50 and 83 percent of their Medicaid expenditures, as determined by the Federal Medical Assistance Percentages (FMAP).⁷ Each state's FMAP is recalculated each fiscal year based on the state's per capita income relative to the national average, with poorer states receiving higher reimbursement rates. Thus, states that have lower average incomes, more recipients of Medicaid per capita, or more generous benefits will receive larger per capita matching funds from the Federal government.

⁷ See Assistant Secretary for Planning and Evaluation (2007) for details of the FY 2009 FMAP determination.

ARRA made three changes to the FMAP calculation.⁸ First, the baseline FMAP, based on states' income relative to other states, may not decrease for FY 2009-FY 2011:Q1. Second, for October 2008 through December 2010, the FMAP is increased by 6.2 percentage points above the baseline for every state.⁹ The additional match is applied retroactively from passage in mid-February back to October 2008, making part of the transfer purely lump-sum. Finally, states receive a further increase in their quarterly FMAP between October 2008 and December 2010 based on the change in the state's unemployment rate relative to its lowest three-month average unemployment rate since January 2006. To qualify for the ARRA changes, states must maintain "eligibility standards, methodologies, [and] procedures" of their Medicaid programs not more restrictive than existed on July 1, 2008.¹⁰ Program benefits may, however, change.

States gained access to ARRA Medicaid funds early in 2009 and were able to use them for a variety of purposes. On February 25, the ARRA-enhanced Medicaid funds were made available to states for the first two quarters of fiscal year 2009.¹¹ States can draw down these funds the same way that they receive regular Medicaid matching funds, as they submit receipts. Importantly, the changes to FMAP made by ARRA were intended to boost the level of discretionary funds available to states, and not simply to relieve Medicaid burdens. Because an increase in FMAP reduces required payments by states, the additional funds are to a large degree fungible. Aside from mandating that states must maintain Medicaid eligibility standards and that "any amounts attributable (directly or indirectly)" to the increase in a state's FMAP may not be "deposited or credited into any reserve or rainy day fund of the State," ARRA does not contain language substantially limiting how the funds are used.¹²

The increase in the FMAP was in the earliest versions of the bill from mid-January and remained through passage on February 13, suggesting that the most appropriate period to begin analysis is January if state governments' revenue expectations were affected by Congress's activities. A draft version of the House bill released on January 15, 2009 allocated \$87 billion to

⁸ See U.S. Congress (2009). Section 5001.

⁹ Under ARRA the 0.83 cap on the FMAP is also removed.

¹⁰ See U.S. Congress (2009). Section 5001.

¹¹ See Department of Health and Human Services. Centers for Medicare and Medicaid Services (2009b).

¹² See U.S. Congress (2009). Section 5001.

increase the FMAP by 4.8 percentage points, a feature highlighted in the House Appropriations Committee press release accompanying the draft.¹³ Indeed, the original House and Senate versions, passed on January 28 and February 10, respectively, had this component of aid to states, with an increase of 4.9 percentage points in the House version and 7.6 percentage points in the Senate version.¹⁴ The use of an FMAP increase to provide aid to states only six years earlier further increased the plausibility that such a provision would make it into the final bill in this case. Because the details of the FMAP expansion were already apparent in January, our primary analysis focuses on changes in employment from January to July 2009 (the most recent month for which we have employment data by state), although our results are generally not sensitive to considering other time horizons.

IV. SUGGESTIVE CORRELATIONS

Here we present evidence that states that received higher estimated ARRA Medicaid payouts experienced a larger net growth in their employment to population ratio. Figure 4 documents this correlation. The horizontal axis plots the estimated amount of money (per capita) that a state received, excluding transfers related to a state's economic performance. The vertical axis shows the change in the percent of the state's population that was employed from January 2009 to July 2009.¹⁵ Because the outcome variable is measured more precisely for states with larger populations, the best-fit line weights states by their population size, although the results are somewhat larger and still statistically significant if we do not weight.¹⁶ In Figure 4, the size of the circle represents the size of a state's population.

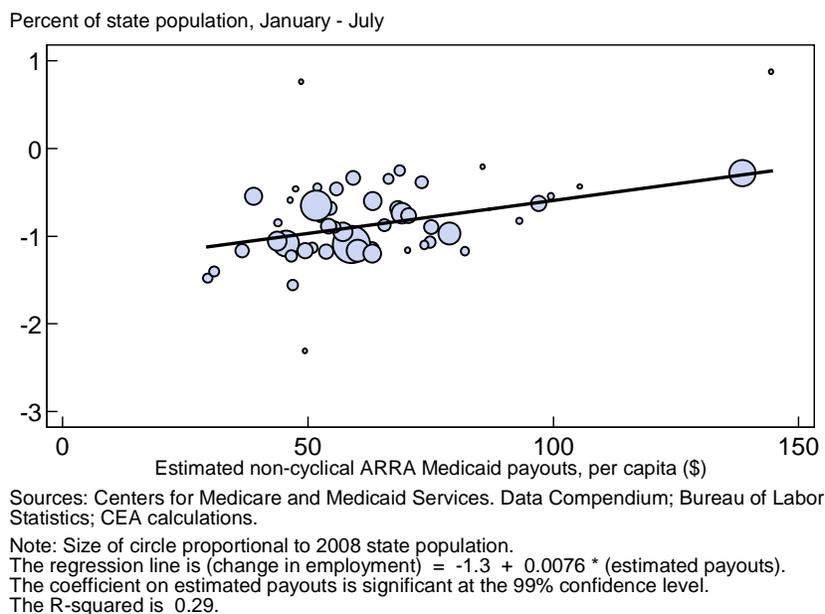
¹³ Obey (2009).

¹⁴ See U.S. House (2009) for the House version and U.S. Senate (2009) for the Senate version.

¹⁵ The data come from the Bureau of Labor Statistics Current Employment Statistics, an establishment-based survey which asks firms to report the number of employees on payroll during the pay period that includes the 12th day of the reference month. Note that, since this data is an establishment survey, an individual can actually be counted more than once, so "per capita employment" would be a more accurate term.

¹⁶ When we do not weight, the coefficient on estimated payouts is 0.0106, and the result is significant at the 99% level. We also obtained a direct measure of the standard error of the state-level employment from the BLS. When we use this measure to construct weights, the results are very similar to the population weighted results. Here, the coefficient on estimated payouts is 0.0076. The result is significant at the 99% confidence level.

Figure 4. Change in Nonfarm Employment



The clear message from the figure is that states that received more of this type of relief experienced better labor market outcomes than states that received less. The magnitude of this relationship is large: the figure implies that receiving \$120 per capita instead of \$60 per capita is related to a state the size of Michigan gaining about 45,600 jobs.¹⁷

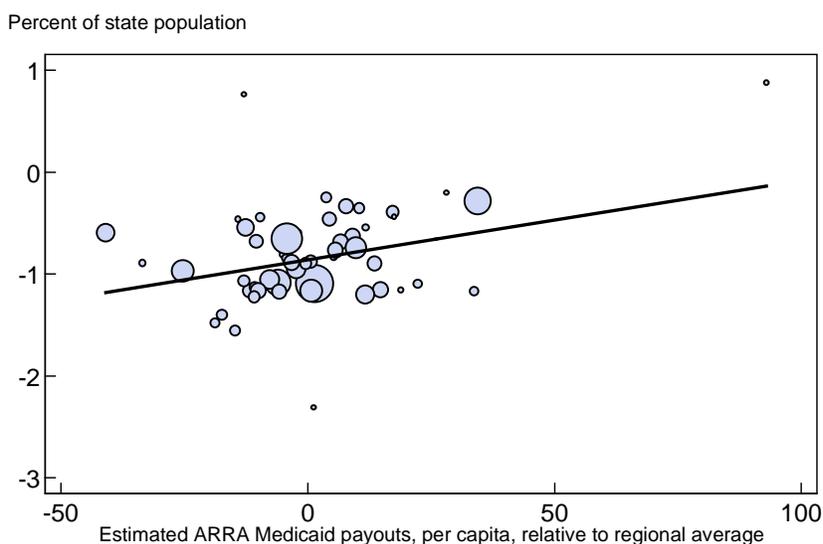
Although our use of Medicaid payouts based upon past Medicaid expenditures reduces the concern that correlation does not imply causation, we caution that interpreting this evidence as indicating causality remains problematic. However, this relationship does not appear to be driven by some important underlying differences between states that received more money and states that received less. First, in the six months before the details of ARRA became clear, states that later received more relief lost essentially the same number of jobs per capita as states that

¹⁷ We calculate this number as follows. We multiply the difference between \$60 per capita and \$120 per capita by the value from the regression line in the scatter plot (0.0076), divided by 100 so that employment changes are also in per capita terms. We then multiply this number by the size of Michigan's population, approximately 10 million, to arrive at 45,600. As stressed above, these results are correlations and should not be interpreted as causal relationship.

later received less; it is not the case that high Medicaid spending states were hit less hard by the recession in the half year before ARRA was passed.¹⁸

Second, using multivariate regression analysis to account for differences between states such as geographic location, industry composition, and population density changes does not affect the basic correlation.¹⁹ For example, Figure 5 shows the correlation between estimated ARRA Medicaid payouts and change in employment from January to July, 2009 after we take into account differences between the nine census regions. The figure shows a similar positive correlation between a state's being a high Medicaid spender and its change in employment between January and July even after taking into account a state's region.

Figure 5. Change in Nonfarm Employment: Region Effects



Sources: Centers for Medicare and Medicaid Services. Data Compendium; Bureau of Labor Statistics.

Note: Size of circle proportional to 2008 state population.

The regression coefficient on estimated payouts is 0.0078 and is significant at the 99% confidence level.

¹⁸ Specifically, when we repeated the correlations presented above using per capita employment change from June 2008 – December 2008, we find that the correlation is small in magnitude and not statistically different from 0. When we add control variables described below, the results are similar.

¹⁹ The variables we considered are the nine census regions, lagged change in employment, industry composition, population density, share of workers covered by a union, total state population, and the size of the housing bubble in the state. We experimented with using every combination of these control variables and found that the correlation was always positive. We also included a measure of the number of jobs that a state would have been expected to lose based on its 2007 industry composition, and continued to find a strong positive relationship.

Finally, we note that differences in 2007 per capita Medicaid spending are driven by (1) more residents per capita being Medicaid beneficiaries or (2) the average Medicaid beneficiary having more spending devoted to her. These two sources of variation are empirically distinct and mildly negatively correlated across states: states that have more beneficiaries tend to spend somewhat *less* per beneficiary. We find that there is a positive correlation between both (1) and (2) and a state's growth in employment. Because these two reasons why states were high Medicaid spenders yield similar conclusions, it is less likely that the correlation is driven by underlying differences between high and low Medicaid spending states. Other robustness checks include ensuring that the correlation is robust to dropping any single state from the analysis and is not dependent on the specific time window chosen.²⁰

V. IMPORTANCE OF STATE RELIEF FOR GOVERNMENT EMPLOYMENT AND BUDGETS

The above analysis shows that there is a strong and positive relationship between state fiscal relief and relative net job creation. Yet, for fiscal relief to affect economic outcomes, it has to affect state budgetary decisions. Here, we discuss the impact that fiscal relief had on state budgets, and how that may have led to the observed employment outcomes.

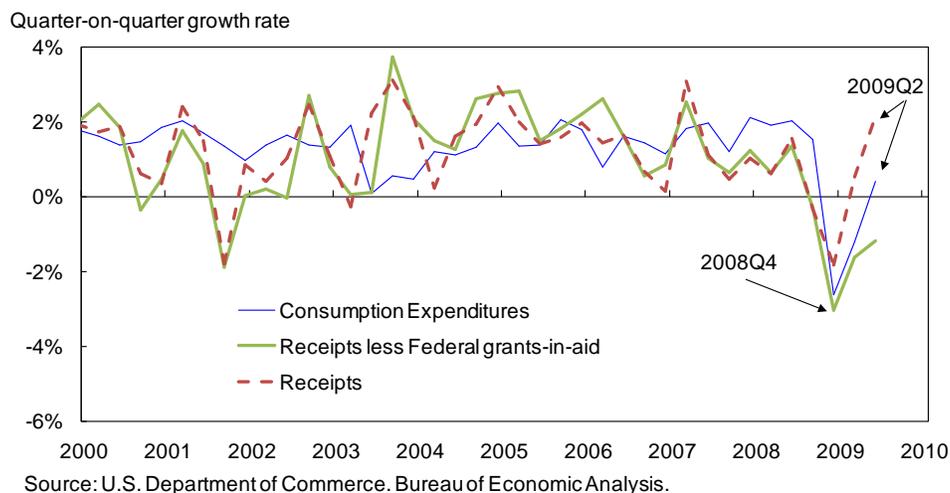
Time series evidence of state and local government receipts and expenditures suggests that Federal grants-in-aid may have helped avoid further cuts in government expenditure. Figure 6 shows the time series of expenditures, receipts, and receipts minus Federal grants-in-aid (all transfers from the Federal government to state and local governments, including Medicaid, transfers for welfare payments and social services).²¹ The final quarter in 2008 and the first quarter in 2009 were the first quarters since 1952 where nominal consumption expenditure for state and local governments declined. While total receipts minus Federal grants-in-aid continued to fall for the first two quarters of 2009, the growth rate of total receipts was positive during these two quarters. This difference between the behavior of the two series reflects the important

²⁰ There is a significant positive correlation when we consider the following time periods for our employment change: January to June 2009, February to July 2009, January to April 2009, and April to July 2009.

²¹ See U.S. Department of Commerce. Bureau of Economic Analysis (2009b), Table 3.24U contains a complete list of the components of Federal grants-in-aid.

role of Federal transfers (including the Medicaid component in ARRA) in helping to alleviate the state fiscal crisis during the recession.

Figure 6. State and Local Government Growth Rates

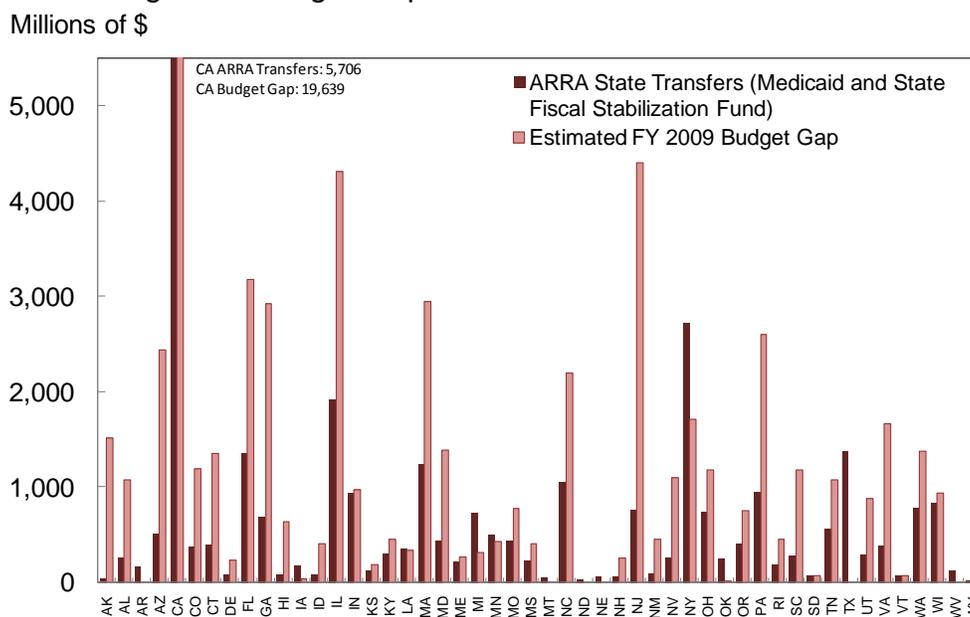


Next, we show that the size of the state fiscal relief was substantial but generally less than states' budget gaps. The state fiscal relief component of ARRA is comprised of both the higher Federal share of Medicaid spending and the State Fiscal Stabilization Fund from the Department of Education. Figure 7 compares the size of total funds from these programs that had been transferred to each state through July 3 with the state's maximum reported fiscal 2009 budget gap.²² While these transfers were sizeable in magnitude, in 35 states they are smaller than the reported budget gap. This means that states could have used the funds to increase their rainy day funds only if they reduced expenditures or increased taxes in the same fiscal year. Given that states underwent deep expenditure cuts in 2009 (42 states cutting their fiscal year 2009 budgets by \$31.6 billion through June 2009), it seems unlikely that this would have occurred.²³

²² We use data from July 3 because most states end their fiscal year at the end of June. Data on the state budget gaps is from the National Conference of State Legislatures (2009b).

²³ Budget cut data from National Governors Association and National Association of State Budget Officers (2009).

Figure 7. Budget Gaps and ARRA Transfers to States



Sources: National Conference of State Legislatures (2009b); recovery.gov; CEA calculations.

We can also examine directly the relationship between ARRA Medicaid transfers and relative increases in a state's total balances, a comprehensive measure of state savings which contains both the rainy day fund and the state's ending balance. Figure 8 plots the estimated non-cyclical ARRA Medicaid payouts against changes in states' total balances, in per capita terms.²⁴ If states were saving a substantial fraction of their fiscal relief, we would expect to see a positive correlation between the total amount that the Federal government transferred to a state and the change in its total balances. Instead, the best-fit line is slightly downward-sloping, the opposite of what one would expect if larger transfers resulted in total balance build-up.²⁵ When we use multiple regression techniques to account for some of the differences between high and low Medicaid spending states, we see a similar negative correlation.²⁶ Although one must be

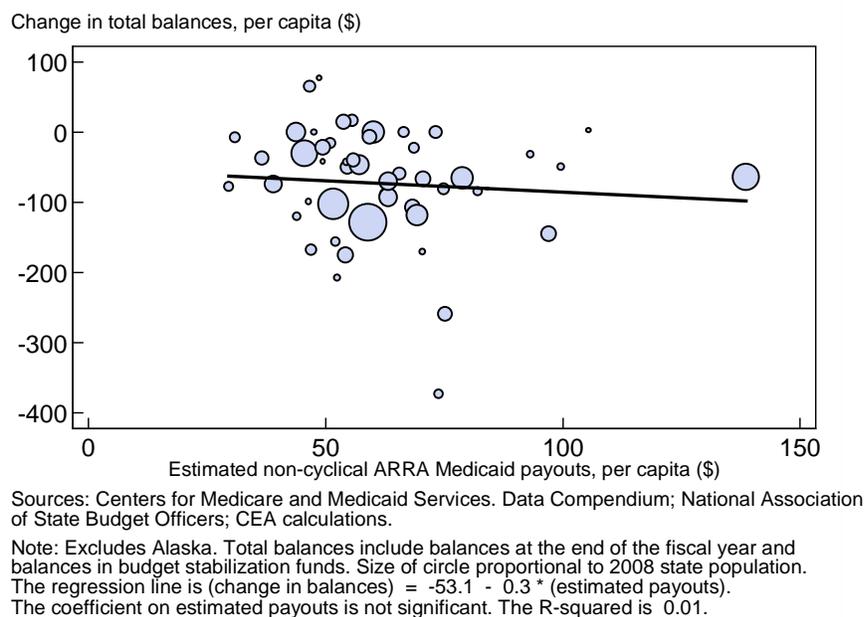
²⁴ For this analysis, we exclude Alaska because the change in its total balances was more than ten times larger than any other state on a per capita basis. When we include Alaska, we have a similar negative correlation. Data for this analysis comes from National Governors Association and National Association of State Budget Officers (2009).

²⁵ The correlation is similar if we restrict attention to states' rainy day funds rather than their total balances. Data are the most recent estimates published in National Governors Association and National Association of State Budget Officers (2009). Because these data are estimates, they may not reflect final totals. Our results are similar if we exclude states that do not have fiscal years that end in June (New York, Texas, Alabama, and Michigan).

²⁶ As before, the variables considered are the nine census regions, lagged change in employment, industry composition, population density, share of workers covered by a union, total state population, and the size of the housing boom in the state.

cautious in interpreting this correlation, these results provide some suggestive evidence that states do not appear to be saving the money that they received.

Figure 8. Total Budget Reserve Balances



Many state governors have given examples of how they have used the fiscal aid to avoid expenditure reductions. For example, Governor Jan Brewer of Arizona noted her commitment to use “Arizona’s portion of Federal funds to help avoid massive cuts to [its] higher education system.”²⁷ Governor Martin O’Malley of Maryland told of “looking down the barrel of those hard budget decisions” and being “forced to articulate a budget that proposed devastating cuts.”²⁸ Those sentiments were echoed by Governor Deval Patrick of Massachusetts. He described how the fiscal relief would help “Massachusetts sustain critical safety net programs and services while avoiding laying off thousands of teachers, public safety workers, human service providers and other government employees.”²⁹

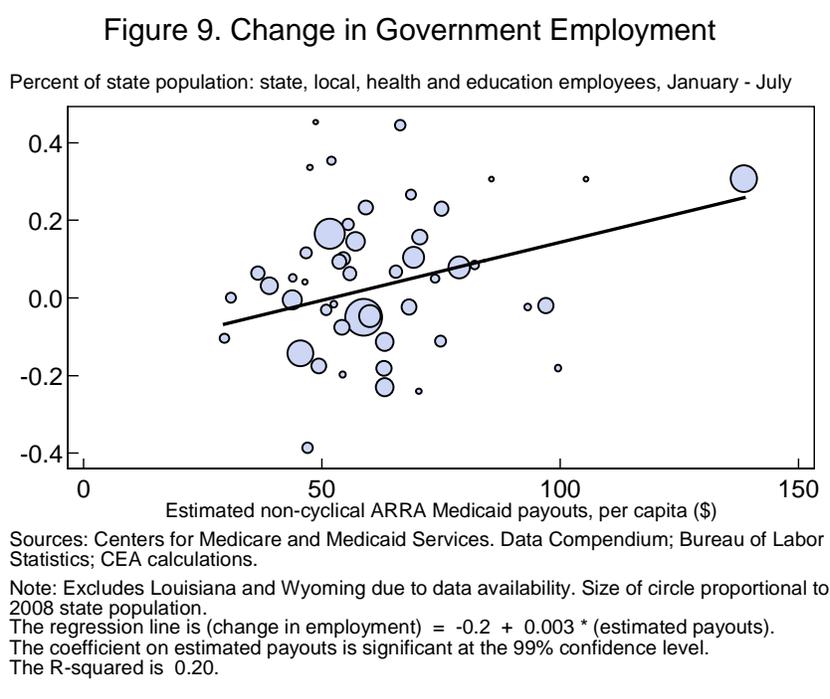
Employment data confirm this narrative evidence. As states reduced budget cuts, we would expect to see fewer layoffs in the areas of public safety, education, health care and other

²⁷ See Brewer (2009).

²⁸ See O’Malley (2009).

²⁹ See Patrick (2009).

sectors where state governments provide a large amount of financial support. Figure 9 demonstrates a positive relationship between the estimated ARRA payments and the growth in employment in these sectors. We do not see a similar correlation in the period before ARRA was passed. Results are similar when we take into account observable differences between states, although as before we cannot be sure that other differences between states are not driving the result.³⁰ Comparing Figures 9 and 4 indicates that about one-quarter to one-half of the relationship between estimated ARRA Medicaid payments and total employment results from jobs created or saved in government-related sectors.



Thus, several pieces of evidence support the idea that state fiscal relief helped create jobs through preventing cuts to services and avoiding tax increases. First, logic suggests that states are unlikely to build up their total balances while cutting programs. Second, statistical evidence suggests that states that received larger estimated ARRA Medicaid payouts did not build up their

³⁰ The variables we considered are the same as above: the nine census regions, lagged change in employment, industry composition, population density, share of workers covered by a union, total state population, and the size of the housing boom in the state. We also find a similar positive and significant correlation when we restrict attention to just government workers. When we do not weight by a state's population, we find a similar positive relationship between estimate ARRA Medicaid payouts and growth in employment in public safety, education, health care and other sectors where state governments provide a large amount of financial support. The result, however, is somewhat smaller in magnitude and is not statistically significant.

rainy day funds. Third, anecdotal evidence suggests that states did save jobs using ARRA state fiscal relief. Finally, there is a strong relationship between greater estimated ARRA Medicaid payments and growth in jobs related to government.

VI. CONCLUSION

State fiscal relief has been an important component of Recovery Act spending. This money went out the door quickly and played a critical role for the states, which are required to operate with a balanced budget. The CEA analysis clearly shows that states that received more fiscal aid experienced better employment outcomes in the first six months of ARRA implementation. Furthermore, this analysis suggests that states did not hoard recovery dollars in rainy day funds and that the best available evidence indicates that more recovery dollars resulted in better outcomes for crucial state programs.

There are several caveats to our analysis. First, we only have six months of data on which we can conduct our analysis. As more data become available and the existing data are revised, the jobs portrait may become clearer. Second, the analysis omits cross-state spillovers, which would lead to missing some of the relationship between fiscal relief in one state and increased jobs in the rest of the country, as well as other factors. Finally, although the correlations are robust to accounting for many important differences between states, there may be other important differences between states that spend large amounts on Medicaid that would affect the results.

DATA APPENDIX

Primary Outcome Variable. Our main outcome variable is the change in a state's seasonally adjusted employment from January 2009 to July 2009, divided by its 2008 population. The data come from the Bureau of Labor Statistics (BLS) Current Employment Statistics (CES), an establishment-based survey which asks firms to report the number of employees on payroll during the pay period that includes the 12th day of the reference month. We also focus on employment in certain industries (government, health, or education). These data also come from the CES and are seasonally adjusted.

Rainy Day Fund Information. Data for a state's rainy day funds are taken from the June 2009 National Governors Association and National Association of State Budget Officers "The Fiscal Survey of States."

ARRA Spending Data. We use data from the US government's official website, recovery.gov, through July 3, 2009.

2007 Medicaid Spending Data. We use data from Centers for Medicare and Medicaid Services Data Compendium 2008 Edition table VII.1 for data on total 2007 spending. For data on the number of Medicaid beneficiaries in each state, we use the Medicaid Statistical Information System State Summary Datamart.

Control variables.

Region effects: we use the 9 census regions

Lagged employment change: The lagged employment is a state's seasonally adjusted change in employment level from June to December (the 6 months before the period of interest).³¹

House price appreciation: We use the percent change in the state's housing price index as measured by the Federal Housing Finance Agency House Price Index from 1999Q4 to 2004Q4 as a way of controlling for the size of a state's housing boom.

GDP per capita: A measure of a state's 2006 per capita GDP. Data is from the Bureau of Economic Analysis.³²

Employment manufacturing share: A measure of the state's concentration in manufacturing from 2005-2007.³³

³¹ By December there was already public discussion of a stimulus package involving aid to states. If states began to respond to expected stimulus funds before January 12th, then including lagged employment change through January would bias our coefficient of interest downward. For this reason we use the June to December period as the pre-ARRA trend in all of our regressions.

³² U.S. Department of Commerce. Bureau of Economic Analysis (2009a).

³³ U.S. Department of Commerce. Bureau of the Census (2009a) and U.S. Department of Commerce. Bureau of the Census (2009b).

State 2008 population and population density: Data is from the U.S. Census.

Union share: Share of workers affiliated with a union in 2007.³⁴

³⁴ See U.S. Department of Labor (2009b).

REFERENCES

- Brewer, Jan. "Governor Jan Brewer Announces Award of Stimulus Funds for Universities." August 3, 2009. http://az.gov/recovery/assets/docs/08-03-09_PR-SFSF_funds_to_Universities.pdf.
- National Conference of State Legislatures. "State Budget Update: April 2009." April 2009a.
- National Conference of State Legislatures. "State Budget Update: July 2009." July 2009b.
- National Governors Association and National Association of State Budget Officers. "Budget Processes in the States." Summer 2008. <http://www.nasbo.org/Publications/PDFs/2008%20Budget%20Processes%20in%20the%20States.pdf>.
- National Governors Association and National Association of State Budget Officers. "The Fiscal Survey of States." June 2009. <http://www.nasbo.org/Publications/PDFs/FSSpring2009.pdf>.
- Obey, David. "Summary: American Recovery and Reinvestment Action and Action Now!" January 15, 2009. <http://appropriations.house.gov/pdf/PressSummary01-15-09.pdf>.
- O'Malley, Martin. "Testimony of Governor Martin O'Malley: Third Stimulus Oversight Hearing to Examine Challenges Facing States, Local Governments." July 8, 2009. <http://oversight.house.gov/documents/20090707153430.pdf>.
- Patrick, Deval. "Testimony before United States House Oversight and Government Reform Committee, July 8, 2009." <http://oversight.house.gov/documents/20090707150915.pdf>.
- U.S. Congress. *American Recovery and Reinvestment Act of 2009*. H.R. 1, 111th Cong., 1st Sess. February 17, 2009.
- U.S. Department of Commerce. Bureau of Economic Analysis. "Gross Domestic Product by State." Accessed July 2009a.
- U.S. Department of Commerce. Bureau of Economic Analysis. "National Income Product Account Tables." Accessed September 8, 2009b.
- U.S. Department of Commerce. Bureau of the Census. "American Community Survey." Accessed September 1, 2009a. http://factfinder.census.gov/servlet/GCTTable?_bm=y&-geo_id=01000US&-box_head_nbr=GCT2404&-ds_name=ACS_2007_3YR_G00_&-lang=en&-mt_name=ACS_2007_3YR_G00_GCT2404_US9T&-format=US-9T.
- U.S. Department of Commerce. Bureau of the Census. "Puerto Rico Community Survey." Accessed September 1, 2009b. http://factfinder.census.gov/servlet/GCTTable?_bm=y&-

[geo id=01000US&- box_head_nbr=GCT2404&-ds_name=ACS 2007 3YR G00 &-lang=en&-mt_name=ACS 2007 3YR G00 GCT2404_US9T&-format=US-9T](http://geo.id=01000US&- box_head_nbr=GCT2404&-ds_name=ACS 2007 3YR G00 &-lang=en&-mt_name=ACS 2007 3YR G00 GCT2404_US9T&-format=US-9T).

- U.S. Department of Health and Human Services. Centers for Medicare and Medicaid Services. “American Recovery and Reinvestment Act of 2009 Section 5001: Increased Federal Medical Assistance Percentage. Factsheet.” Accessed September 9 2009a. <http://ccf.georgetown.edu/index/cms-filesystem-action?file=statistics/guidance%20on%20arra%20fmap.pdf>.
- U.S. Department of Health and Human Services. Centers for Medicare and Medicaid Services. Data Compendium. Accessed September 2009b. http://www.cms.hhs.gov/DataCompendium/17_2007_Data_Compendium.asp#TopOfPage.
- U.S. Department of Health and Human Services. Assistant Secretary for Planning and Evaluation. “Federal Financial Participation in State Assistance Expenditures.” November 28, 2007. <http://aspe.hhs.gov/health/fmap09.htm>.
- U.S. Department of Labor. Bureau of Labor Statistics. “Current Employment Statistics Survey: State Employment and State Employment by Industry.” Accessed September 5, 2009a.
- U.S. Department of Labor. Bureau of Labor Statistics. “Union Members in 2008.” January 28, 2009b. <http://www.bls.gov/news.release/pdf/union2.pdf>.
- U.S. House. *American Recovery and Reinvestment Act of 2009*. H.R. 1.EH, 111th Cong., 1st Sess. January 28, 2009.
- U.S. Recovery Accountability and Transparency Board. Accessed September 2009. <http://www.recovery.gov/>.
- U.S. Senate. *American Recovery and Reinvestment Act of 2009*. H.R. 1.EAS, 111th Cong., 1st Sess. February 10, 2009.