Improving the Performance of Countercyclical Federal Aid: Can automatic triggers help?

EP DRAFT—1/20/2010

Abstract

In response to recessions in 1975, 2001 and 2008 the Federal government has provided states with countercyclical aid packages. These packages had several goals including both stabilization of state finances and economic stimulus usually in the form of infrastructure funding. Reviews of these programs have found that the timing of when the funds were made available and how the funds were targeted were often less than optimal. In this paper, a mechanical process for starting and stopping state aid will be investigated using three trigger mechanisms—excess unemployment, decline in general sales tax revenues and the Federal Reserve Bank of Philadelphia's Coincident Indicator Index

Richard Mattoon

Vanessa Haleco-Meyer

Taft Foster

On February 17, 2009 President Barak Obama signed into law the American Recovery and Reinvestment Act (ARRA). The legislation represents the most recent attempt by the Federal government to provide counter-cyclical aid to states and localities suffering from fiscal stress stemming from a broad based economic recession. The legislation follows the pattern of previous federal aid programs in as much as it provides a combination of direct program support (Medicaid, unemployment insurance and education aid) combined with infrastructure grants. The intension is to provide two forms of relief. First the program aid will serve as a stabilizer for state and local governments by allowing them to maintain (or at least minimize the reduction) in key expenditure areas. Second, the infrastructure money is intended to serve as a stimulus and potential job creator. However in practice, fiscal stabilization has traditionally been the overwhelming purpose for federal aid.

While states and localities normally support such generosity from Washington, there are several questions that remain regarding the efficacy of counter-cyclical federal aid. In this paper we will discuss the rationale for federal assistance as well as examining differing mechanisms for distributing federal assistance. Of particular interest will be whether the aid program is calibrated to reflect changes in the business cycle. Since this is countercyclical aid, it should only ameliorate changes in business cycle conditions that have a direct impact on state budgets and should not act to support poor budget policy by state and local governments. In addition the paper will discuss issues of the timing and targeting of aid as being critical to structuring an appropriate federal response.

Through empirical analysis the paper will model the affects of the use of different economic triggers to start and stop aid over the business cycle and examine how these triggers would have performed over previous business cycles. Triggers include the unemployment rate, change in sales tax revenues and a

change in a state specific business cycle indicator (the Federal Reserve Bank of Philadelphia's State Coincident Indicator).

The purpose and structure of aid

The idea of federal support for state (and local) governments in a downturn is hardly a new one. For example, in response to the recession of 1973–75,[i] Congress enacted the Antirecession Fiscal Assistance (ARFA) program, which was combined with general revenue sharing grants and the Local Public Works (LPW) program to provide unrestricted grants and infrastructure funding to the states. In addition, Congress had passed the Comprehensive Employment and Training Act (CETA) in 1973, and in conjunction with these other programs, this became an antirecessionary mechanism for delivering job training. More recently, in 2003, Congress passed the Jobs and Growth Tax Relief Reconciliation Act, as states dealt with a slow recovery from the 2001 recession.

The purpose of such funding is primarily to stabilize fiscal behavior in the state government sector. This aid is intended to smooth the budgetary actions states would be forced to take in the face of declining revenues and increasing expenditure demands from programs such as Medicaid and unemployment insurance. In practice, as state spending has increasingly shifted to Medicaid and education, the composition of state spending has become more cyclical. From a practical perspective federal aid is often designed to either support specific programs of state spending or maintain aggregate demand in the sector to insure that state fiscal actions do not undo federal efforts to stimulate the economy. The federal government sometimes adds an infrastructure element to its aid as a way of increasing demand in the construction sector and stimulating the economy. However, economic stimulus is clearly a secondary objective of this aid. If the federal government's primary purpose was to provide an economic stimulus, it might well be better off simply spending the money directly rather than attempting to funnel it through the states.

Skeptics of countercyclical aid for the states often suggest that this type of bailout might promote moral hazard. If the states assume that aid will be coming during any downturn, there is less reason to put their fiscal house in order. However, given past history it is unlikely that the federal government would do nothing to alleviate state fiscal pressure. The question therefore is can countercyclical aid be provided more efficiently?

Literature review—what has been learned from past programs?

Previous anti-recessionary/stimulus packages have received detailed evaluations. In the case of the 1975 recession these reports included "Anti-recession Assistance—An Evaluation" by the Comptroller General (1977) and "Countercyclical uses of federal grant programs" by the Congressional Budget Office (1978).

The Comptroller General's report specifically examined Title II of the Public Works Employment Act of 1976. This was one component of the Federal governments' response to the recession. The stated goal of the program was "to offset destabilizing fiscal action of State and local governments during recessions and, in particular, to maintain basic services customarily provided with the emphasis placed on wages and salaries of public employees."[ii]

Specifically Title II of PL 94-369 authorized the distribution of $1.25 billion over five quarters from July 1976 through September 1977. The Comptrollers report focused on five areas of inquiry:

- Was the provision of aid to State and local jurisdictions timely so that it was an effective tool to counter economic recession?

- What was the magnitude of destabilizing fiscal action by state and local governments during the economic downturn?

- Was the aid targeted effectively so that it was directed to those State and local jurisdictions that suffered most from the impact of the recession?

- Was the level of excess unemployment (which was defined in the law as any rate above 4.5%) the best indicator of the impact of the recession on states and localities?

- Was the effect of the recession a less serious problem for state and local governments than long-term structural problems associated with secular decline?

The reports' findings suggested several flaws in achieving the stated goal of the federal assistance. For example the report found that the use of an excess unemployment rate trigger was not sensitive enough to reflect cyclical change in state economies. In addition it was not clear that the recession by itself was sufficient to cause destabilizing state and local fiscal actions. In the case of this recession inflation played a significant role. Further the use of the excess unemployment rate to allocate aid also failed as it was unclear that excess unemployment directly reflected the impact of the recession on the state or local budget. Finally the report found that the program appeared to provide aid that was most closely related to patterns of secular/structural decline. Areas of the country experience sub-national growth rates prior to the recession received disproportionate shares of aid. This was not the intent of the legislation.

The report noted that a basic tension in the legislation was between simply supporting the state and local government sector and anticipating that aid to state and local governments would stimulate the economy. The report had no direct findings on the efficacy of using aid to state and local governments to stimulate the economy but suggested that this should be considered in crafting any future anti-recessionary response.[iii]

In the Congressional Budget Office report a key finding was that the intent of the federal action needed to be explicit. There can be conflicting pressures when programs are designed for both economic and

fiscal stabilization. If the goal is economic stabilization (and the federal government wants to use states and localities as agents for distributing funds), the CBO suggested that targeted grants are the best form of aid since these can be earmarked for specific programs and populations that are in need of economic stabilization due to a recession. A further advantage is that targeted grants are less likely to serve as substitutes for state and local revenues and cannot be used to rebuild state or local surpluses. In the most recent aid package, much of the categorical aid for Medicaid and education require states to maintain a given level of funding to access federal aid thus insuring that state dollars were not withdrawn and replaced with Federal dollars. If the purpose is fiscal stabilization, unrestricted aid or broad block grants are more effective since they allow states to maintain their aggregate spending level without (or with minimal) fiscal adjustment.[iv]

CBO findings on specific categories of aid

Unrestricted grants. The CBO found that unrestricted grants were the most readily adaptable for counter-cyclical use. This type of aid can be targeted geographically and can be absorbed via existing state and local channels, which speeds its impact. In theory unrestricted grants can be manipulated to match both periods of insufficient and excessive aggregate demand. They are best suited for fiscal stabilization and a key problem is that the lack of accountability for the spending means that states may use them inappropriately such as using the money to build a surplus during the recovery period of the cycle.

Capital construction grants. These can serve both economic and fiscal stabilization goals. On the economic stabilization side, in theory the size of construction grants can be varied to either encourage or slow new construction projects in coordination with the economic cycle. On the fiscal stabilization

side, the federal government can reduce state and local matching rates which would allow the states to divert the savings to other programs. The CBO also found that the type of construction undertaken also matters in evaluating the counter-cyclical effectiveness of the grant. Public works programs geared toward smaller, relatively short duration projects appear more effective since they can be started quicker and are less likely to add additional (and potentially unwanted) stimulus to the recovery. The CBO found that the creation of a more automatic mechanism for triggering these grants would be helpful and would ease some of the delay that occurs in spending the money associated with the start up phase (contract bidding and other review procedures).

Social Service Grants. The CBO suggested that these were not well suited for fiscal stabilization because they are fragmented and often driven by varying allocation formulas that are more directly related to the populations being served by the grants than the economic cycle. The exceptions are social service grants that are designated for specific community needs particularly training and public service employment. The CBO found these to be a cost effective method for incremental growth in public sector employment and found they could be implemented with little lag.

Transfer payment programs. The CBO found these to be limited but potentially effective vehicles for countercyclical aid. Since many of these programs have matching requirements, the federal government can make these programs more or less expansionary by manipulating the matching grant percentage. If a state is in recession the state's matching level can be reduced and when recovery occurs it can be raised.

Evaluation of the Jobs and Growth Tax Relief Reconciliation Act of 2003

The US General Accounting Office (2004)[v] evaluated the effect of $10 billion in fiscal relief that was provided to the states on a largely unrestricted basis in the aftermath of the 2001-02recession. The aid was provided in even $5 billion allotments for FY03 and FY04. The act was in response to a slow labor market recovery from the recession and the unanticipated sharp decline in state revenues that had left states with large cumulative deficits (National Conference of State Legislatures estimated deficits at nearly $26 billion). The act authorized federal funds to be used for "providing essential government services" and to "cover the costs of complying with and federal intergovernmental mandate".

The CBO review looked at three areas:

- What is known about the potential impacts of unrestricted fiscal relief on state fiscal behavior?

- How the relief payments were distributed among the states relative to their fiscal circumstances?

- How state budget officials reported the funds were used?

The CBO study noted that while the funds were authorized 19 months after the end of the recession, the slow recovery in labor markets and continuing fiscal stress in the states made this a secondary concern. From the outset the funds did not appear to be particularly targeted to reflect the relative fiscal or economic stress each state was experiencing. The funding formula did not take into account the impact of the recession, fiscal capacity or the cost of expenditure responsibilities in any individual state. Funds were allocated on a per capita basis with an adjustment that provided a minimum payment for smaller states.

The report found that by April of 2004 the cumulative budget gap for the states had fallen to $720 million from $21.5 billion of the previous year. States had closed the gap through a combination of using their own reserve funds combined with the federal fiscal relief funds. The study also found that

given the fungible nature of money that it was hard to specifically examine where the federal dollars went once they were co-mingled with state resources. The major criticism of the program was that with unrestricted funds issues of timing and targeting are all the more important. Since the unrestricted funds were provided to all states the potential existed for states with little need to substitute the federal funds for own source revenues and allow them to lower taxes or increase spending or place funds into state reserves. None of these actions would effectively act to stabilize state budgets. Of particular concern is the use of Federal funds that might inhibit states making prudent precaution such as building budget reserves in anticipation of an economic downturn.

When examining the specific pattern of relief provided, the CBO focused on the relationship between changes in the state nonfarm employment and GSP to the per capita federal aid provided.   Wyoming, which had fared much better in the recession, received a much larger fiscal relief payment per capita than the national average while Indiana, Michigan and Kentucky (states that suffered significantly more than much of the nation) received slightly less than the US average per capita fiscal relief.[vi] (Figure 1)

Figure 1. Comparison of Employment, Fiscal Relief, and GSP by State

Percent change in nonfarm employment[a]

Fiscal relief payment per capita

Gross state product (GSP) per capita

Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

Dotted line represents U.S. average

-2.0   -1.0   0.0   1.0
Percent change

0   20   40   60   80   100
Dollars

0   20   40   60   80 // 113
Thousands of dollars

In the conclusion the GAO made two observations as the effectiveness of the program:

- Fiscal relief payments arrived when the economy was already in recovery (as measured by GDP growth). As such the economic stimulus value of the payments was doubtful.

- However given that employment growth lagged the recovery, states continued to see pressure on income and sales tax receipts making the aid important in helping to improve the fiscal stability of state governments. Unfortunately the formula used to distribute funds was relatively insensitive to the degree of economic stress individual states were experiencing which

calls into question the targeting of the funds. A final caution issued by the GAO concerned the potential moral hazard of federal intervention. If states believe that the Federal government will always intercede to provide counter-cyclical relief, states will have little incentive to develop their own budgetary strategies to address recessions. In particular saving through rainy day funds may be severely undercapitalized.

What about recognizing the fiscal capacity of state and local governments? (BOX)

Given that the formulas for distributing federal aid were less than perfect, is there a way to adapt them to more closely reflect the degree of economic distress a state is experiencing and their ability to provide public services? Sawicky (2003) suggests a three part formula that is transparent for distributing aid. Further he suggests two criteria for examining effectiveness of the Federal intervention. First it should reflect the uneven regional impacts of a recession and second it should preclude fiscal behavior by state and local governments that retard national recovery.

Specifically Sawicky suggests a formula based on state population (with an adjustment for the poverty rate), the state unemployment rate (as a proxy for measuring the severity of the recession) and a measure of the combined fiscal capacity of state and local government. [vii] This formula yields an "adjusted" population figure that allows for federal aid to be distributed based on a per capita basis recognizing differences in these variables.

 The rationale for the components of the formula is designed to better measure state need across a number of dimensions. Sawicky begins with resident population since it provides some proxy for the demands placed on government but believes this should be adjusted for people living in poverty since this population places higher costs on government. The adjustment is made by counting each person below the poverty line twice and adding it to the resident population.

Sawicky prefers unemployment to changes in Gross State Product for measuring cyclical stress on a state's economy. Given that GSP may recovery well before unemployment rates fall, it is possible that aid would be prematurely discontinued if GSP is used. However some might argue that the use of the unemployment rate has the opposite effect by prolonging federal aid even when the economy is in recovery.

The third element is a measure of combined fiscal capacity of state and local governments. Fiscal capacity reflects the relative per capita revenue raising capacity of government based on taxable activity in the state. Sawicky developed Total Taxable Resources (TTR) (1985)[viii] at the Treasury Department to measure this. Specifically TTR attempts to provide a comprehensive measure of overall economic well-being of a state by measuring the aggregate flows of income available for public or private purposes. As such it reflects income produced in state and income received from out of state to establish total taxable resources. An additional adjustment might be to give states credit for tax effort that would reflect total state and local revenues as a share of state fiscal capacity. A state with a higher effort score might be seen as doing more to fund its own needs or conversely less able to increase taxes without dislocations to the economy. Figure __ illustrates the interaction of these indicators for all states in 2001.

Data Elements

	Population 2001	Persons in Poverty 2001	Unemployment Rate Index 2001	TTR 1999	Tax Effort Index 1998
U.S. TOTAL	284,796,887	33,298,848	100.0	100.0	100.0
Alabama	4,464,356	709,833	111.1	76.5	103.4
Alaska	634,892	53,966	132.0	116.4	213.0
Arizona	5,307,331	774,870	98.5	88.1	87.9

Arkansas	2,692,090	479,192	106.9	74.3	94.5
California	34,501,130	4,347,142	111.1	106.9	109.2
Colorado	4,417,714	384,341	77.5	109.9	93.4
Connecticut	3,425,074	250,030	69.2	142.7	77.7
Delaware	796,165	53,343	73.4	133.6	87.8
District of Columbia*	571,822	104,072	136.2	100.0	138.2
Florida	16,396,515	2,082,357	100.6	93.1	92.5
Georgia	8,383,915	1,081,525	83.8	99.8	88.2
Hawaii	1,224,398	139,581	96.4	97.9	103.4
Idaho	1,321,006	151,916	104.8	80.8	105.1
Illinois	12,482,301	1,260,712	113.2	107.5	89.3
Indiana	6,114,745	519,753	92.2	90.1	85.7
Iowa	2,923,179	216,315	69.2	88.0	94.9
Kansas	2,694,641	272,159	90.1	93.0	93.8
Kentucky	4,065,556	512,260	115.3	83.1	104.6
Louisiana	4,465,430	723,400	125.7	83.9	100.2
Maine	1,286,670	132,527	83.8	81.3	113.9
Maryland	5,375,156	387,011	85.9	110.5	85.5
Massachusetts	6,379,304	567,758	77.5	125.5	84.9
Michigan	9,990,817	939,137	111.1	89.7	114.3
Minnesota	4,972,294	367,950	77.5	105.5	111.8
Mississippi	2,858,029	551,600	115.3	68.8	114.5
Missouri	5,629,707	546,082	98.5	91.9	86.3
Montana	904,433	120,290	96.4	71.3	115.0
Nebraska	1,713,235	161,044	65.0	94.0	105.4
Nevada	2,106,074	149,531	111.1	115.5	78.7
New Hampshire	1,259,181	81,847	73.4	119.6	67.9
New Jersey	8,484,431	687,239	88.0	127.2	86.7
New Mexico	1,829,146	329,246	100.6	84.6	118.3
New York	19,011,378	2,699,616	102.7	121.6	118.0
North Carolina	8,186,268	1,023,284	115.3	96.1	91.5
North Dakota	634,448	87,554	58.7	79.9	112.0
Ohio	11,373,541	1,194,222	90.1	93.3	111.3
Oklahoma	3,460,097	522,475	79.6	75.5	102.0
Oregon	3,472,867	409,798	132.0	98.2	118.9
Pennsylvania	12,287,150	1,179,566	98.5	95.1	99.4
Rhode Island	1,058,920	101,656	98.5	102.5	98.9
South Carolina	4,063,011	613,515	113.2	80.7	100.6
South Dakota	756,600	63,554	69.2	89.0	86.5

Tennessee	5,740,021	809,343	94.3	87.4	93.6
Texas	21,325,018	3,177,428	102.7	95.9	87.1
Utah	2,269,789	238,328	92.2	83.2	117.4
Vermont	613,090	59,470	75.4	87.5	99.7
Virginia	7,187,734	575,019	73.4	106.7	88.4
Washington	5,987,973	640,713	134.1	107.6	109.0
West Virginia	1,801,916	295,514	102.7	69.6	112.1
Wisconsin	5,401,906	426,751	96.4	93.1	129.5
Wyoming	494,423	43,015	81.7	112.5	188.4

Note: Fiscal capacity (TTR) for the District of Columbia is arbitrarily set to zero. The District's TTR index requires special modification to reflect its constraints on taxing authority. These modifications are beyond the scope of this paper.

Defining three criteria for assessing aid—Tiggers, Timing, and Targeting

If an aid program is primarily designed to counter downturns in the business cycle the ideal program might be one that is almost mechanical in responding to business cycle movements. This would take the politics out of constructing aid packages and also would help eliminate the inevitable delay that occurs before Congress can act to authorize and aid program. As the business cycle sinks, a trigger should be flipped on once the decline reaches a designated point. Similarly the trigger should be flipped off once recovery is underway in order to prevent over-stimulating the economy. In other words the trigger must be timed to reflect the business cycle expansion and contraction.

Further, aid should reflect the severity of the downturn in each state. It would seem obvious that states bearing the brunt of the recession should receive a larger share of aid than states that are relatively unscathed. However, a complicating factor is that the aid needs to be calibrated to only offset the cyclical stress of the recession. If a state entered the recession with a structural deficit caused by inept fiscal management the federal aid should not act to make the state whole. Given that moral hazard is a real concern with Federal aid, ideally federal aid should come with strings attached to encourage states

to put their fiscal house in order and better plan for future business cycle declines through their own

counter-cyclical measures (such as Rainy Day fund).

Timing of aid

For federal antirecessionary aid to be effective, it must be timed to counter the economic effects

associated with a decline in the business cycle.[ix] This is easier said than done. Ideally, the aid should

start arriving to the states shortly after the peak in the cycle and be discontinued either once a recovery

has begun or when a recovery has been firmly established. In addition, there is the issue of whether the

amount of aid should be scaled to reflect the severity of the downturn. Ideally, the level of aid would be

recalibrated during each quarter to reflect the cyclical stress being felt by the states; this is preferable to

the aid being distributed as a lump sum.

Another issue with timing is recognizing the lags in distributing the aid. Unless there is an automatic

mechanism for triggering aid, the first lag is often the time it takes to secure passage of an aid bill by

Congress. Consider the current circumstances: The National Bureau of Economic Research (NBER) dates

the current recession as having begun in December 2007; and the aid package was enacted in February

2009.[x] So, nearly five quarters had passed before aid became available to the states. The second lag is

the time it takes for the federal government to distribute the aid money to the states. Further, the

states often have to set up mechanisms for channeling the funds into the necessary programs. All of this

slows the process of spending the money during the recession. In the GAO's assessment of the aid

programs enacted in response to the 1973–75 recession, it was found that only 50% of the federal

money appropriated had actually been spent by the states even after the recession ended.[xi] The balance

went to either build a surplus or reduce the state's deficit. In the case of the Jobs and Growth Tax Relief

Reconciliation Act of 2003, the first federal funds were distributed 19 months after the end of the

recession. [xii]

An experiment based on three triggers

For the purposes of this paper we will use three different triggers for turning aid on and off over the business cycle. The goal in selecting the three possible triggers is to use an indicator that is able to be state specific and reported on a timely basis. As the analysis will show each trigger performs quite differently over the business cycle.

Trigger 1--Excess unemployment rate. As this has been used in the past it has several advantages. First it is available on a reasonably timely basis and can be reported at differing geographic levels. The transparency of the measure makes it easier to assess the relative stress that differing regions are facing and also allows for more precise targeting since (in theory) intra-state variation can be considered allowing for specific metropolitan aid strategies. A clear limitation of the unemployment rate is that it can reflect structural change in the economy and therefore run high in some regions and low in others. As such it is not necessarily a cyclical indicator. Also, as unemployment is a classic lagging indicator, if not properly structures, it is likely to continue to trigger aid even when recovery is well under way. For this paper, the trigger for unemployment will be any increase in the unemployment rate from the peak of the business cycle of more than 1 percent for each state. Aid would be turned off when the unemployment rate falls by 2% in a state. To insure that this measure reflects cyclicality, the change in the unemployment rate would be based on the change in an individual state's unemployment rate at the beginning and end of the cycle and not an arbitrary national threshold unemployment rate.

Trigger 2--Philadelphia Fed Coincident Indicator

The biggest advantage is that the coincident indicator gives a state specific index reading for how each state responds to the business cycle. As such it allows for a measurement of variation in state response that permits a better understanding of which states are seeing the largest effects from the recession. In addition the index is available monthly allowing for reasonably current analysis. Also since it is

published for all 50 states it allows for transparency and has a clear methodology that can be understood by all analysts. Specifically the Coincident index consists of: four state-level variables which are nonfarm payroll employment, average hours worked in manufacturing, the unemployment rate, and wage and salary disbursements deflated by the consumer price index (U.S. city average). The trend for each state's index is set to the trend of its gross domestic product (GDP), so long-term growth in the state's index matches long-term growth in its GDP. For this trigger a drop of -0.1 in the log measure of the index will trigger aid being turned on and the return in the log measure to 0 will turn off the aid.

Trigger 3: State Sales Tax Revenues

In terms of general fund revenues, the general sales tax is either the first or second largest revenue source in most states for funding expenditures. Therefore a decline in sales tax revenues is usually a harbinger of fiscal stress.   Arguable, movements in sales tax revenues are best able to track macro-economic cycles and do not suffer from the high volatility demonstrated in income tax revenues where special factors such as capital gains and bonus income can distort the tax base. In particular since the sales tax is reliant on big ticket expenditures, a downturn in the economy (particularly in housing or auto sales) will be reflected in sales tax receipts. Finally, sales tax data are available on a timely basis.

The disadvantage to sales tax receipts mostly have to do with policy changes enacted by states that impact the sales tax base or rate. For example, many states have gradually added services as taxable activities. This has expanded the sales tax base but the treatment of services is hardly uniform from state to state. Similarly, states have varying sales tax rates and often allow for local option tax add-ons. The fact that neither the rate nor base is static is makes assessing how much is raised in a given year somewhat harder. Ideally you would want to measure the natural rate of growth in a fixed sales tax base.   This trigger will turn on when Sales tax revenues fall by 5% and turn off when they return to

previous levels. Finally, there is also the difficulty that some states do not have a general sales tax so the behavior of such a hypothetical revenue stream would have to be imputed.

Defining the experiment

The first stage of this experiment is to examine how the three potential triggers behave over the business cycle. Specifically, how long does it take for aid to be triggered after a recession is underway and when does the aid turn off when recovery is detected? The second stage of the experiment concerns targeting of the aid. Using differing rules for how is the aid distributed based on state specific criteria we will distribute a hypothetical aid package. Would this pattern of aid make such a program politically unfeasible if certain states are disproportionate winners or losers? Finally we need to evaluate the level of aid received relative to some measure of the depth of the economic downturn in each state. Figure __ demonstrates the pattern of aid that each trigger would produce over the previous two recessions.

Figure _Unemployment rate trigger
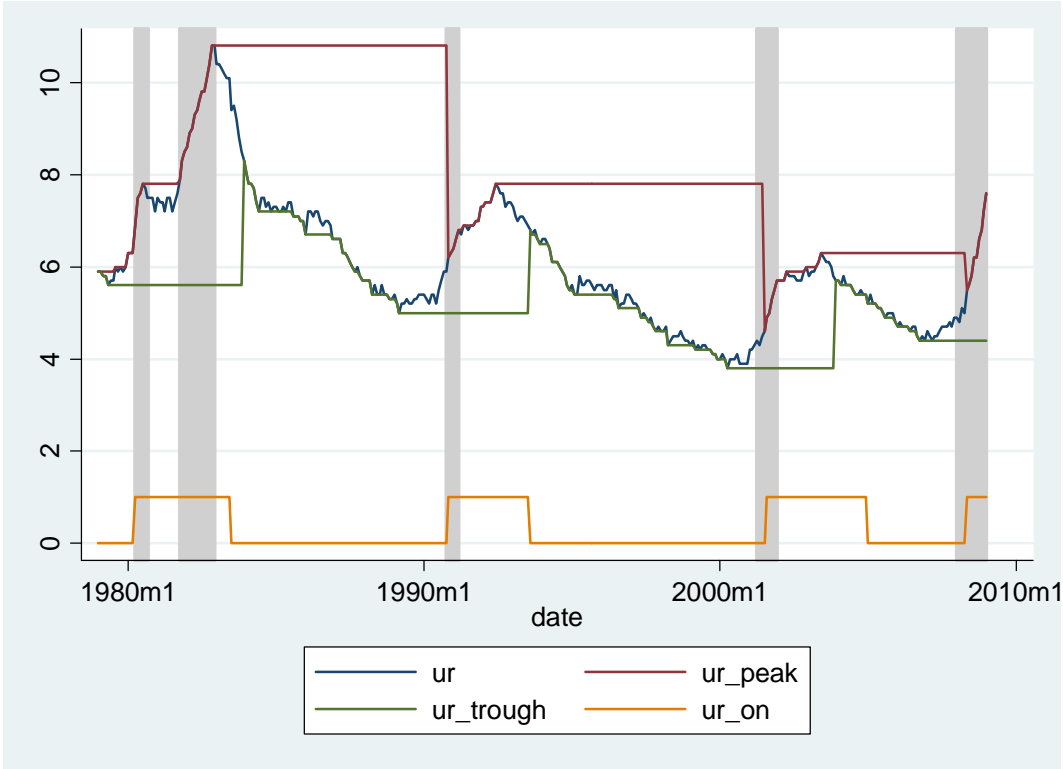
Figure_Sales Tax rate trigger
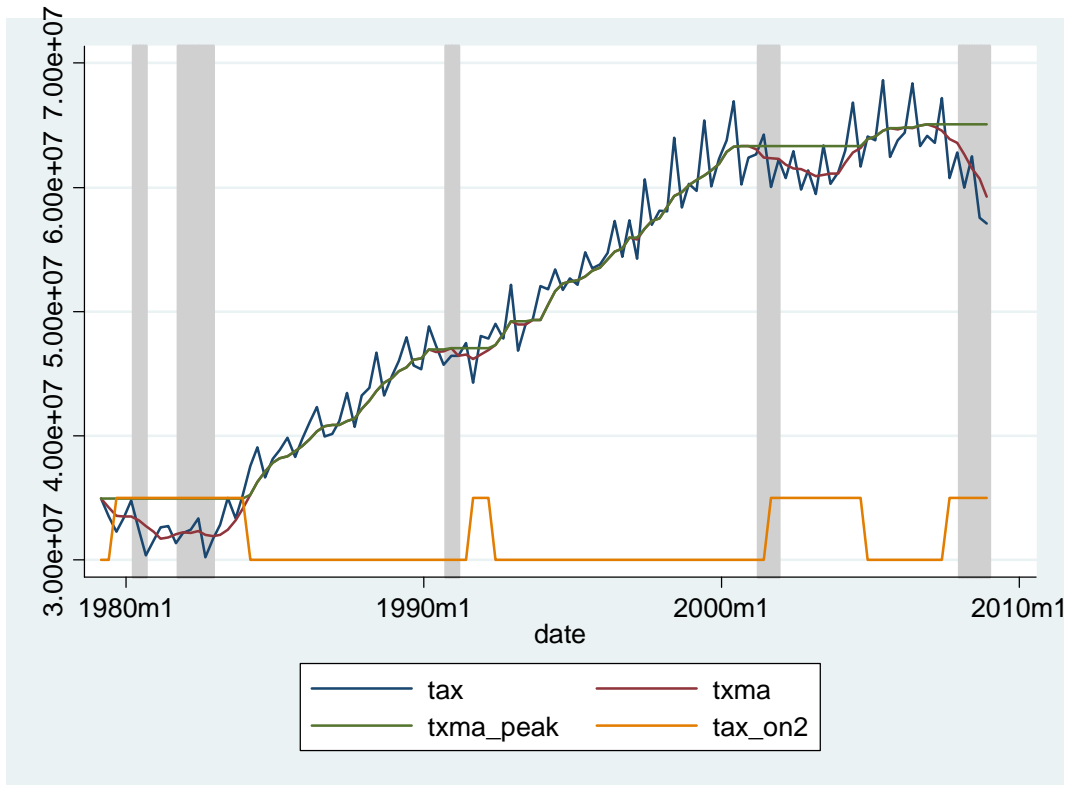
Figure_Philadelphia Fed Coincident Indicators
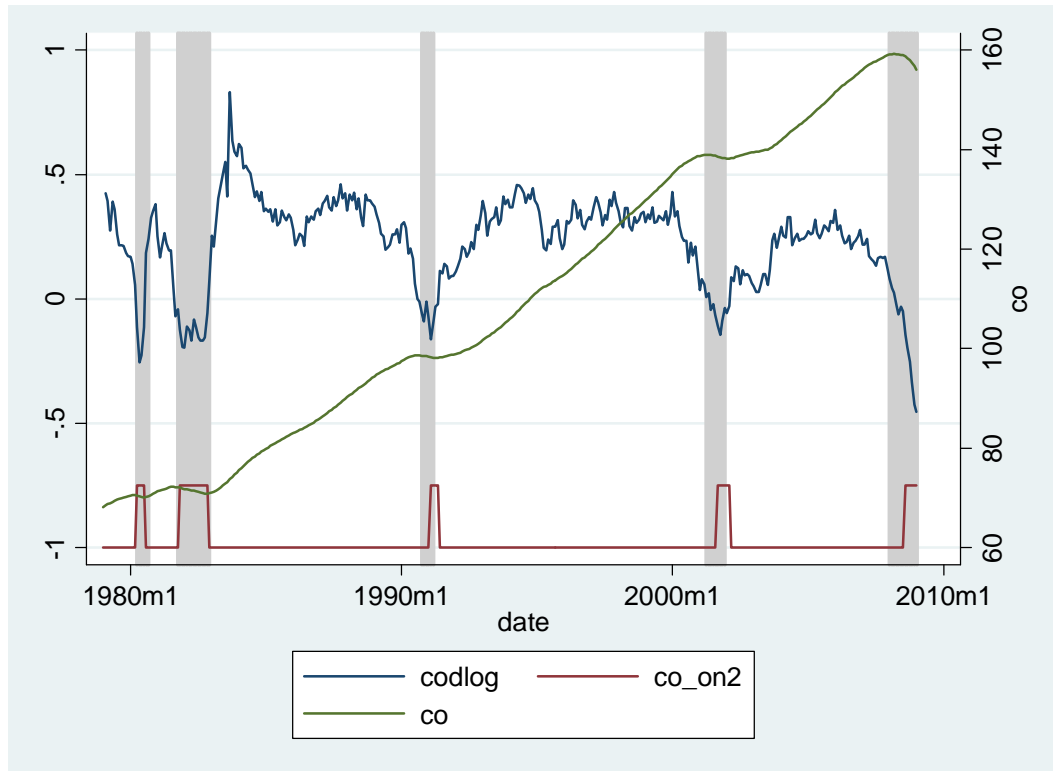
As the figures demonstrate, both the unemployment rate trigger and the sales tax trigger perform

unpredictably.   The unemployment rate trigger appears to "turn on" in a relatively timely fashion but

given the dynamics of unemployment over the last several recessions (namely the "jobless recoveries")

aid would continue flowing well after the recession is technically over. While it would be possible to

simply change the sensitivity of when the trigger turns off by having it triggered with only modest

improvements in unemployment, this might be politically difficult. Ending aid to the states when high

unemployment is present (and state safety net programs are being highly utilized) would be difficult.

While the recession might have ended demand on state expenditures may still be running high.

Similarly the sales tax indicator shows idiosyncratic behavior.   In the double dip recession of the early

1980s aid would have turned on too early and would have stayed on well past the turn in the cycle. In

1990 it both turns on and turns off after the recession ends and in 2001 it turns on late and then persists well into the recovery. In the current cycle it turns on a little early.

In terms of matching the business cycle, it is not surprising that a business cycle indicator would do the best job of switching aid on and off. From a purely technical view, a rule based on changes to the Philadelphia Fed's Coincident Indicator Index would switch aid on and off based on cyclical movements in the economy. It would appear then that this would be our winning candidate however the use of such a trigger would certainly displease the states that would argue that a lag in expenditure pressures would most certainly have the aid disappearing before fiscal stress diminished. The argument for the use of such a trigger is that the goal of the aid is to ameliorate the pro-cyclical response of the states to the business cycle. The aid is only intended to maintain state spending during the contraction of the business cycle and is less concerned about how the states adjust when recovery is under way. The impact of tax increases or spending cuts during recovery while be far more muted on the macro economy than during the contraction.

Rules for distributing the aid

Once the trigger has been met, aid will be distributed to reflect the severity of the downturn in the indicator for each state. States will be divided into quintiles with 30% of the aid available during the period being available to states in the first quintile (those with the largest downturn), 25% to the states in the next quintile, 20% to the third quintile, 15% to the fourth and 10% to the fifth. If a state does not have a decline in its individual indicator to match that of the national trigger, it will receive no aid.

A clear issue (that is not dealt with here) is what should be the size of the Federal aid package? While this proposal has the advantage of not distributing money to states that do not need the money (and therefore making it possible for the aid package to distribute less than what is originally appropriated), it does not offer guidance on what the size of the original appropriation should be. It is possible that the

22

package could be calibrated to some projection of aggregate state deficits but these numbers are notoriously volatile and are often in dispute. If the states are going to receive federal aid there is little incentive for them to understate the size of a deficit. Ideally the size of the federal aid should only reflect the cyclically related portion of state deficits and not structural imbalances that are unrelated to a decline in the business cycle.

Attaching Strings to the Aid

Another possible modification to countercyclical aid is to limit how much of the federal money is available in out-right grants. We would propose that some of the aid be reserved as loans which states would have to repay once revenues are restored. This would help limit the moral hazard problem of simply bailing out the states and like any loan program, the terms of the loan could be constructed to reflect the specific conditions of the borrower.

Projections of Aid Distribution Based on Triggers and Formula Allocation

Figure __, demonstrates the quintile rankings for each state across four different recessions based on the use of the three triggers—excess unemployment, sales tax revenues and the coincident indicators. In this figure, the quintile assignment is based on the average quintile rank over the cycle and therefore is simply an illustration of where the stationary rank would fall if the entire recession were treated as one period. In practice, what we propose is a system where the quintile ranks would be recalibrated in each period (most likely quarterly) to allow states to move up and down rankings as conditions either improved or worsened. As such a state showing significant improvement might move up from the 5th quartile (most in need of aid based on the indicator) to the 1st quartile. Such a move would significantly reduce the level of aid the state receives. However what these figures illustrate is that who would receive the largest share of aid (quintile 5) changes given the character of each recession. The 1980 and

1982 recessions clearly are more reflected in manufacturing oriented states while the 1991 recession

has an east coast and New England bias.

Unemployment

	quintile 1	quintile 2	quintile 3	quintile 4	quintile 5
1980 & 1982 Recessions	DE	RI	ID	WA	UT
	HI	CT	LA	IA	KY
	NY	NM	KS	MN	MS
	FL	MD	VT	AR	IL
	NJ	ME	SD	NV	OH
	MA	OK	NE	NC	IN
	VA	MT	NH	WY	MI
	CA	PA	CO	AL	MO
	TX	GA	AZ	OR	WI
	AK	ND	TN	SC	WV
1991 Recession	SD	ND	IL	LA	MD
	MT	AL	MO	MS	DE
	UT	NM	WA	SC	CT
	GA	AR	OH	VA	MA
	IA	ID	TN	FL	ME
	NE	TX	OR	PA	NH
	CO	OK	WI	NC	NJ
	WY	AZ	NV	MI	NY
	HI	MN	AK	CA	RI
	KS	IN	KY	WV	VT
2001 Recession	ID	SD	TN	CT	WI
	MT	AR	KS	NY	OR
	NM	GA	NV	CA	UT
	WV	IA	AL	MN	IN
	ND	MD	MS	OK	CO
	RI	ME	VT	AZ	MI
	DE	LA	KY	VA	MO
	WY	NE	FL	NJ	NC
	AK	PA	NH	IL	SC
	HI	OH	TX	MA	WA
2008 Recession	ND	OK	ME	OH	MN
	SD	TX	PA	SC	GA
	AR	KS	WA	CO	NC
	NE	UT	MS	VT	TN
	NH	NM	NJ	AL	IL

WI	MA	OR	AZ	MI
IA	MD	DE	IN	CA
WY	MT	KY	ID	FL
WV	NY	VA	CT	NV
AK	LA	MO	HI	RI

Sales Tax

	quintile 1	quintile 2	quintile 3	quintile 4	quintile 5
1980 & 1982 Recessions	TX	ND	HI	WY	MO
	OK	NM	IA	WV	MD
	ME	AZ	NV	CA	WA
	CT	LA	SC	OH	NY
	ID	MS	VA	TN	KY
	SD	NE	NJ	AL	PA
	UT	RI	FL	CO	MA
	VT	AR	KS	MI	IL
	MN	GA	NC	WI	IN
1991 Recession	KY	IA	TX	WY	CO
	AR	ID	VT	FL	GA
	NC	KS	HI	IN	OH
	VA	ME	IL	LA	MD
	WA	MN	OK	MI	NY
	NM	NE	PA	MO	SC
	AZ	NJ	SD	MS	CT
	AL	NV	ND	RI	MA
	CA	TN	UT	WI	WV
2001 Recession	RI	WY	PA	NV	NM
	AR	KS	WI	MA	OH
	AZ	NC	CO	MO	CT
	ID	MS	VA	TN	WA
	NJ	ND	AL	TX	KY
	NE	OK	IL	NY	FL

	SD	HI	ME	SC	UT
	VT	IA	MD	GA	CA
	WV	LA	MI	IN	MN
2008	ND	UT	MS	IA	MA
Recession	OK	AL	NC	NM	MI
	SD	IN	VA	SC	CT
	WY	ME	CO	AZ	PA
	ID	KS	NE	KY	CA
	VT	WV	TN	MO	FL
	RI	AR	LA	WI	MN
	TX	WA	NJ	GA	NY
	HI	MD	NV	IL	OH

Coincident Index

	quintile 1	quintile 2	quintile 3	quintile 4	quintile 5
1980 Recession	CO	CT	NC	AL	ID
	FL	AZ	MD	AR	IN
	HI	DE	ME	IA	KY
	LA	GA	MS	IL	MI

	NH	MA	ND	KS	MO
	OK	NJ	RI	MN	MT
	TX	NV	SC	NE	OH
	VA	NY	TN	SD	OR
	WY	UT	VT	WI	PA
	CA	NM	AK	WA	WV
1982 Recession	AK	NM	LA	NE	ID
	CT	NY	ME	NV	IN
	FL	DE	HI	KS	PA
	NH	MA	RI	AR	IA
	UT	CA	TN	SD	MI
	GA	AZ	WY	AL	MT
	CO	ND	SC	KY	OH
	NJ	OK	WI	MN	OR
	VA	VT	MD	MO	WA
	TX	NC	MS	IL	WV
1991 Recession	AR	NM	NV	MO	MI
	AZ	OK	CA	NC	PA
	CO	SD	AL	NJ	AK
	HI	TN	DE	OH	CT
	IA	TX	FL	OR	MA
	ID	UT	GA	SC	MD
	LA	WI	IL	WA	ME
	MT	KS	IN	WV	NH
	ND	MS	KY	NY	RI
	NE	MN	VA	WY	VT
2001 Recession	AK	ME	CT	GA	MA
	MT	NE	VA	IL	NC
	ND	FL	CA	KY	NV
	NM	AZ	AR	MN	AL
	RI	ID	HI	MS	IN
	SD	LA	IA	OH	MI
	WY	UT	NH	TN	NY
	MD	VT	OK	PA	OR
	NJ	DE	TX	CO	SC
	WV	KS	WI	MO	WA
2008 Recession	AK	UT	AR	NC	RI
	LA	VA	CT	VT	AZ
	ND	WI	NY	MN	DE
	NE	IA	CA	AL	FL
	OK	KS	IN	GA	ID
	TX	NH	MO	KY	MI
	WY	SD	NJ	MD	NV

		NM	MA	TN	ME	OR
		WV	MS	HI	PA	SC
		CO	MT	IL	OH	WA

Distributing the aid

Appendix 1 shows the distribution of a hypothetical $10 billion aid package to all 50 states. The first $7

billion would be in the form of grants and if a state stays eligible for assistance, the second $3 billion

would be in the form of a loan. As was demonstrated above the states would be broken into quintiles

with the group in the most severe cyclical downturn (quintile 5 as measured by the trigger) receiving

30% of the total, quintile 4 would get 25%, quintile 3, 20%, quintile 2, 15% and quintile 1, 10%. This

hypothetical aid package is designed to be spread over 5 quarters. At the start of each quarter a re-

ranking would occur to determine a new set of quintiles and the aid would be adjusted to reflect this

relationship. This is purely illustrative as the selection of distribution of the aid over five quarters in

even allotments is purely arbitrary. It might well be the case that to have the largest macro effect that

you would want to front load the aid to insure that as much as possible is spent in the first two quarters.

To get a better sense of the relationship between the 3 triggers figure __demonstrates the pattern of

funding that the state of Illinois would have received. What can be seen from the figure is that the level

of aid does differ significantly based on the choice of indicator. One feature that jumps out is that using

either sales or unemployment would provide considerable more aid than the use of the coincident

indicator but that in the case of the double dip recession of the early 1980s, only the coincident

indicator measure would have restarted aid to the states for that portion of the cycle.

Figure__. Countercyclical Federal Aid in millions using three differing triggers for Illinois

state	year	ur_tgrant	ur_tloan	tax_tgrant	tax_tloan	co_tgrant	co_tloan
IL	1980	201.5	86.4	210.0	90.0	69.0	29.6

IL	1982					174.4	74.8
IL	1991	117.5	50.3	80.5	34.5	53.7	23.0
IL	2001	156.0	66.9	148.8	63.8	99.8	42.8
IL	2008	135.5	58.1	187.3	80.3	87.5	37.5

It is also worth noting that Illinois average quintile ranking also changes across each cycle. For example if the coincident indicator trigger is used, in 1980 it falls into the fourth quintile and remains there in 1982. In 1991 its performance is somewhat better and it falls into the third quintile, but by 2001 it is back in the fourth quintile. In the current cycle Illinois falls into the third quintile.

A further refinement would be to also equalize the funding that states receive based on the size of the state. This can be done by taking the aid in each quintile and distributing it based on a per capita basis. Figure__shows the per capita distribution that would have occurred for each quintile in the most recent cycle.

	quintile rank rank	Unemployment Rate		quintile rank	Sales Tax		quintile rank	Coincident indicator	
		grant/$ per capita	loan/$ per capita		grant/per capita	loan/$ per capita		grant/ $ per capita	loan/$ per capita
IA	2.3	74.55	31.95	1.4	101.11	43.33	3	62.42	26.75
AL	3.7	110.72	47.45	1.8	112.78	48.33	4.2	85.17	36.50
IL	5.0	146.30	62.70	1.8	106.94	45.83	2.3	49.58	21.25
NC	5.0	146.30	62.70	1.8	105.00	45.00	2.7	56.00	24.00
SD	1.4	50.63	21.70	1.8	101.11	43.33	4.3	88.08	37.75
VT	1.4	50.63	21.70	1.8	103.06	44.17	5	101.50	43.50
WY	1.4	50.63	21.70	1.8	103.06	44.17	1.7	36.17	15.50
ID	2.3	74.55	31.95	2	114.72	49.17	5	101.50	43.50
IN	4.1	122.38	52.45	2	122.50	52.50	2.7	55.42	23.75
VA	4.1	122.38	52.45	2	116.67	50.00	1.7	36.17	15.50
WA	4.1	122.38	52.45	2.2	112.78	48.33	4.2	85.17	36.50
KS	2.4	78.05	33.45	2.4	132.22	56.67	3.2	65.92	28.25
NJ	4.1	122.38	52.45	2.4	130.28	55.83	2.3	49.58	21.25
UT	2.3	74.55	31.95	2.4	128.33	55.00	4.2	85.17	36.50
HI	2.3	74.55	31.95	2.6	134.17	57.50	5	101.50	43.50
MD	3.2	98.47	42.20	2.6	145.83	62.50	3.3	68.83	29.50
NY	5.0	146.30	62.70	2.6	145.83	62.50	1.7	36.17	15.50

State									
AR	1.9	61.72	26.45	2.8	151.67	65.00	4.2	85.17	36.50
ME	2.2	71.63	30.70	2.8	149.72	64.17	5	101.50	43.50
PA	4.9	142.80	61.20	3	155.56	66.67	2.5	52.50	22.50
RI	2.7	83.88	35.95	3	153.61	65.83	5	101.50	43.50
GA	5.0	146.30	62.70	3.2	163.33	70.00	3.3	68.83	29.50
TN	4.4	132.88	56.95	3.2	163.33	70.00	2.5	52.50	22.50
WV	1.7	57.63	24.70	3.2	159.44	68.33	2.3	48.42	20.75
CA	5.0	146.30	62.70	3.4	175.00	75.00	1.7	36.17	15.50
CO	3.7	111.88	47.95	3.6	178.89	76.67	3.2	65.92	28.25
LA	3.4	104.30	44.70	3.6	182.78	78.33	1.7	36.17	15.50
MS	2.9	90.88	38.95	3.6	184.72	79.17	3.3	68.83	29.50
SC	3.7	108.97	46.70	3.8	192.50	82.50	4.2	85.17	36.50
MA	3.4	104.30	44.70	4	194.44	83.33	1.8	39.08	16.75
MI	5.0	146.30	62.70	4	198.33	85.00	4.2	85.17	36.50
MO	4.1	122.38	52.45	4	194.44	83.33	2.5	52.50	22.50
NV	3.3	101.97	43.70	4	200.28	85.83	5	101.50	43.50
WI	2.7	81.55	34.95	4	200.28	85.83	2	43.17	18.50
NM	2.3	74.55	31.95	4.2	202.22	86.67	3.8	79.33	34.00
FL	5.0	146.30	62.70	4.4	202.22	86.67	2.5	52.50	22.50
KY	3.2	98.47	42.20	4.4	211.94	90.83	4.2	85.17	36.50
NE	1.8	59.97	25.70	4.6	217.78	93.33	3.3	68.83	29.50
OH	5.0	146.30	62.70	4.6	217.78	93.33	2.5	52.50	22.50
AZ	4.0	118.88	50.95	4.8	221.67	95.00	4.8	98.58	42.25
CT	3.2	98.47	42.20	5	233.33	100.00	3.3	68.83	29.50
MN	4.1	122.38	52.45	5	233.33	100.00	3.7	74.67	32.00
AK	1.4	50.63	21.70				3.8	79.33	34.00
DE	1.6	53.55	22.95				5	101.50	43.50
MT	1.4	50.63	21.70				5	101.50	43.50
NH	1.4	50.63	21.70				3.7	74.67	32.00
OR	3.1	94.97	40.70				5	101.50	43.50

Focusing on the coincident indicator trigger, states with the most severe downturns (quintile 5) would have received $101.50 per capita in aid and $43.50 per capita in loans. This is in contrast to states in quintile 1, where aid would have only been $36.17 per capita and loans of $15.50.

Conclusion

This paper examines the use of three automatic triggers for starting and stopping counter-cyclical aid to state governments over a recession. While none of the triggers is perfect, it appears that the use of the

Philadelphia Fed's Coincident Indicator would do a better job a timing aid to reflect both the local intensity of the business cycle in individual states as well as the duration of the recession on a national level. The use of such a trigger would insure that the aid is designed to reduce the stress related to the business cycle and not stress caused by structural imbalances in the underlying states economy or fiscal system.

What this paper does not address is whether there should be a standing Federal policy of providing recessionary aid to the states. The use of any automatic stabilizing policy assumes that maintaining state government programs should be a primary concern of federal policy. While the current structure allows for an arbitrary decision as to when the Federal government does intervene, creating a federal insurance policy for state fiscal behavior clearly should raise some concerns. Some might argue that periodic budget crisis may be necessary to re-examine state government spending priorities and bring them in line with what taxpayers are willing to pay.

A related issue is a closer examination of the efficiency with which states might spend recessionary aid. States will always prefer unrestricted aid which permits them to substitute new federal dollars for state dollars but should federal aid come with strings attached? Further, is the state the proper recipient of the money? State funding formulas are often criticized for distributing aid to less populated areas where the greatest effect might be felt if money were directed to large metropolitan areas. Should the federal government take a larger role in targeting the aid to promote the efficiency of aid spending?

---

[i] Throughout this article, I refer to official periods of recession as identified by the National Bureau of Economic Research.
[ii] Comptroller p i.
[iii] P.19
[iv] CBO P.60
[v] GAO-04-736R Temporary State Fiscal Relief
[vi] GAO p.7
[vii] Sawicky, EPI Issue Brief #187, p.2.

[viii] Sawicky, "Summary of the Previous Methodology for Estimating Total Taxable Resources". Sawicky suggests a modification from the original 1985 formula where:

       a=income both produced and received in a state

       b=income just received in a state

       c=income just produced in a state

TTR= a+.5b+.5c

See Office of Economic Policy, U.S. Department of Treasury, July 21, 1991.

[ix] The business cycle refers to the periodic but irregular up-and-down movements in economic activity, measured by fluctuations in real gross domestic product and other macroeconomic variables.

[x] The American Recovery and Reinvestment Act of 2009 was enacted by Congress and signed into law by President Obama on February 17, 2009.

[xi]U.S. Government Accounting Office, 1977, *Antirecession Assistance: An Evaluation*, report, No. PAD-78-20, Washington, DC, November 29, pp. 6–7, available at www.gao.gov/products/PAD-78-20.

[xii] U.S. Government Accounting Office (2004), p. 2.

U.S. Department of the Treasury,1985, *Federal–State–Local Fiscal Relations:Report to the President and the Congress*, Washington, DC, September

U.S. General Accounting Office, 2004,"Federal assistance: Temporary state fiscal relief," report, No. GAO-04-736R,Washington, DC, May 7, pp. 3–4, available at www.gao.gov/products/GAO-04-736R.

Edward M. Gramlich, 1997, "State and local budgets the day after it rained: Why is the surplus so high?," in *Financing Federal Systems: The Selected Essays of Edward M. Gramlich*, Studies in Fiscal Federalism and State–Local Finance, Cheltenham, UK, and Northampton, MA: Elgar, pp. 57–80.

Congressional Budget Office, 1978, "Countercyclical uses of federal grant programs," background paper, Washington, DC: U.S. Government Printing Office, November, available at www.cbo.gov/ftpdocs/92xx/doc9257/78-cbo-046.pdf.

Max B. Sawicky, 2003, "Altered states: How the federal government can ease the states'fiscal crisis," *EPI Issue Brief*, No. 187, February 26, available at www.epi.org/publications/entry/issuebriefs_ib187/.

U.S. Government Accounting Office, 1977, *Antirecession Assistance: An Evaluation*, report, No. PAD-78-20, Washington, DC, November 29, pp. 6–7, available at www.gao.gov/products/PAD-78-20.