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The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) dramatically changed the financial arrangement between the federal government and the states concerning cash assistance for poor families. Previously, Aid to Families with Dependent Children (AFDC) was jointly financed by the two levels of government through a federal matching-rate grant at an average matching rate to the states of about 60 percent. Under this arrangement, when the economy contracted and AFDC spending rose, the federal government was responsible for 60 cents of each dollar in increased spending in the average state. Under the new arrangement, the federal government provides a fixed amount under a block grant set equal to the level of the federal AFDC grant amount in 1994. Because most states had relatively high case loads and correspondingly high spending in 1994, the block grant amounts are quite generous relative to Temporary Assistance for Needy Families (TANF) spending requirements in the prosperous years since passage of the 1996 act, but prosperous times will not last forever. Under this new arrangement, when the economy next contracts and the demand for income assistance increases, the states will be solely responsible for each dollar increase in spending on cash assistance.

Our purpose in this paper is to speculate on the cyclicity of state fiscal responses under this new regime. In particular, how will they respond during the next recession? We draw lessons from several strands of the literature, including estimates of the spending responses of governments to matching and block grants, and we consider some new evidence. We also summarize studies that examine the incentives states have to mimic their neighbors' spending levels, as well as studies

of the substitutability of spending across programs. We conclude that the “price effect” of the shift from matching grants to block grants is likely to be small, at least in the short run; that the strength of the “neighbor effect,” and thus the likelihood of a race to the bottom, is also small if not uncertain; and that the evidence that different welfare programs are close substitutes for one another in a state’s budget is suggestive, but tentative.

We also review the literature on how state revenues and expenditures vary over the business cycle and during contractionary periods. This research, although recent and sparse, generally finds that states that rely on progressive income taxes and narrowly based sales taxes have revenue systems that exhibit high cyclical variability. Thus, during economic contractions, such states are less able to maintain spending programs without adjusting tax rates upward. Definitive evidence on spending is more difficult to come by because of the difficulty of generating policy-free measures of expenditures. Still, part of the interest is in examining the decisions made by policymakers in the face of recession; preliminary evidence indicates that most states maintain or increase spending (and revenues) virtually across the board in contractions. While this finding of countercyclical spending is not surprising for the matching-rate program (AFDC), it is interesting that other state spending not stimulated by matching rates also tends to be countercyclical. Cautious speculation based on these findings, coupled with the emerging consensus that the price effect may be small in the short run, leads us to hazard a guess that state spending on welfare may not decline as greatly as some have predicted when the next recession occurs.

Trends in state and local welfare spending from 1980 to 1995 are displayed in Table 1. As shown in the first column, cash assistance as a share of total expenditures fell from 3.3 percent in 1980 to 2.2 percent in 1994. It is particularly notable that cash assistance declined as a share of the budget between 1990 and 1995, despite a sharp increase in the number of recipients. The decline reflects cuts in the maximum benefit over this period and the decision by a number of states to drop their General Assistance programs during the recession.¹

In contrast to cash assistance, total welfare expenditures grew as a share of state and local expenditures, from 10.5 percent in 1980 to 14.3 percent in 1995. The increase was particularly pronounced in the

Table 1 State and Local Outlays on Public Welfare^a

Year	Total state and local expenditures on public welfare			State and local own-source expenditures on public welfare ^b		
	Share of total state and local expenditures (%)		Public welfare share of personal income (%)	Share of own-source revenues ^c (%)		Public welfare share of personal income (%)
	Cash assistance	Public welfare		Cash assistance	Public welfare	
1980	3.3	10.5	2.0	2.0	5.6	0.9
1985	2.9	10.6	2.0	1.6	5.0	0.9
1990	2.5	11.3	2.3	1.4	5.6	1.1
1995	2.2	14.3	3.1	1.3	6.5	1.3

Source: Personal income. Economic Report of the President, 1998, Table B-2. Total state and local expenditures: *Statistical Abstract of the United States, 1998*, Table #499 and 1989, Table #446. Public welfare expenditures, own-source revenues, and public welfare from federal government. *Statistical Abstract of the United States, 1998*, Table #506 and 1989, Table #453. Cash assistance: *Statistical Abstract of the United States 1998*, Table #508, and U.S. House of Representatives 1996, Table 8-1.

^a Public welfare includes both cash assistance to needy persons and vendor payments for medical care and other services to needy persons; it excludes completely federal welfare programs, such as food stamps.

^b State and local expenditures on public welfare minus federal intergovernmental revenues for public welfare.

^c Own-source revenues include taxes and other non-intergovernmental grant revenue sources, such as charges and fines.

1990s, increasing from 11.3 percent to 14.3 percent. Welfare expenditures also grew as a share of personal income, increasing by almost a percentage point between 1990 and 1995. The increase in total welfare spending is due primarily to the rapid growth in Medicaid, reflecting an increase in mandated coverage, increases in utilization and reimbursement, and rapid medical price inflation (Coughlin, Ku, and Holahan 1994). State and local own contributions to cash assistance also fell from 1980 to 1995, while own contributions to total welfare spending increased slightly, from 5.6 percent of own-source revenues in 1980 to 6.5 percent in 1995.

LESSONS FROM THE LITERATURE ON GRANTS-IN-AID AND COMPETITION AMONG NEIGHBORING STATES

In this section, we describe federal and state cash assistance programs and we review the literature on the effects of matching and block grants on spending, neighborhood effects, and program substitution.

Federal Financial Incentives for Cash Assistance Programs

Under the TANF program, states receive a block grant that is approximately fixed in nominal terms. TANF replaced the AFDC program, which provided open-ended matching assistance to states. To receive its full block grant allocation, a state is required to contribute overall state funding equal to at least 80 percent of the sum of FY 1994 expenditures on AFDC, JOBS, emergency assistance, and welfare-related child care programs; this is known as the Maintenance of Effort (MOE) requirement.² Not only do states lose a dollar of TANF funds for every dollar they fall below the MOE requirement, but they are then obliged to raise spending beyond the MOE level to offset the federal penalty.

In the AFDC program, the mean federal matching rate was 60 percent, with states paying 40 cents for an additional dollar of cash assistance. With TANF, the marginal price has risen to 1. If the stimulative price effect of open-ended matching aid exceeds the lump-sum grant

effect for nonmatching categorical assistance, then over time one would expect TANF to induce a substantial reduction in state spending on cash assistance.

Given the price increase, the crucial parameters in predicting and explaining the expenditure response of states to the TANF block grants are the elasticity of benefits and of total expenditures with respect to the matching rate. These elasticities must be compared with the expenditure response per dollar of nonmatching categorical aid for welfare. The price elasticity can, in principle, be estimated using variations in state matching rates. However, we have no direct experience with cash assistance as a block grant, so to predict the effect of the block grant, we must also examine the state spending response to nonmatching aid for other categories of welfare spending.

State spending on AFDC or TANF is also influenced by the availability and benefit levels of other federal welfare programs. The existence of multiple programs with overlapping coverage and differential federal financial sharing rules provides a fiscal incentive for states to substitute among programs, with the goal of maximizing the federal contribution per dollar of own resources. The strongest incentive for substitution is between the federally funded Food Stamp and Supplemental Security Income programs and cash assistance. Almost all recipients of cash assistance are eligible for and receive food stamp benefits. Because food stamps are close to cash in their effect on recipient budgets, state policymakers are likely to view the two forms of assistance as fairly close substitutes. Food stamps are indexed to inflation and impose an implicit tax on recipients in terms of reducing food stamps by 30 cents for each additional dollar of cash benefits provided by the states. This tax implies that, so long as the level of cash assistance under AFDC or TANF exceeds the food stamp disregard of \$134 per month, the cost to the states of raising total cash benefits by a dollar is approximately \$1.43.³

At any point in time, few AFDC/TANF recipients also receive benefits under the federal Earned Income Tax Credit (EITC) (Liebman 1996). Hence, for any given recipient, states cannot directly substitute the EITC for cash benefits, as they can in the case of food stamps. However, the expansion in EITC benefits in the 1990s has substantially increased the value to TANF recipients of moving from not working to part-time work (Coe et al. 1998). The lower a state's cash benefit level,

the greater the increase in family income from part-time work. By contrast, a low-benefit reduction rate as earned income increases tends to reinforce the EITC work incentive. Thus, the decisions of a number of states to both decrease their maximum benefit levels and increase their income disregards may be partly a response to the EITC.⁴

Previous Estimates of Matching-Rate Price Effects

Benefit Levels

Many studies attempt to explain variation among states and over time in AFDC benefit levels, caseloads, total spending, and spending on welfare more broadly defined. AFDC benefits (total expenditures) are assumed to depend on state income, the federal matching rate, demographic controls, and, in some models, other welfare programs and benefit levels in neighboring states.

The major studies have been summarized in several review papers (Chernick 1998; Ribar and Wilhelm 1999). Results from some frequently cited studies are shown in Table 2, which reports estimates of the income and price elasticities and of the food stamp substitution effect. There is considerable variation in the estimated elasticities. The price elasticity is relatively large in Baicker's (1998) analysis of the period 1948–1963, in the Gramlich and Laren study (1984), and in a Craig and Inman (1986) analysis of total welfare expenditures. By contrast, price elasticities are small, and sometimes positive, in Moffitt (1990) and the Ribar and Wilhelm papers (1994, 1999).

Ribar and Wilhelm (1994, 1999) provided a careful econometric review and replication of most of the studies of AFDC benefit level determination. They concluded not only that matching rate effects are small, but also that, controlling for unobserved characteristics of states through state fixed effects and common national trends through year dummies, income elasticities are substantially less than 1. For example, in an OLS specification, they found that the income coefficient is reduced from 0.593 to 0.357 with the addition of state fixed effects. The general implication of the Ribar-Wilhelm analysis is that state AFDC benefit levels are much less sensitive to economic variables than earlier studies indicated.

The Gramlich and Laren (1984) estimates, which received considerable attention, found large effects of federal matching rates and sub-

Table 2 Estimates of the Price and Income Elasticity of Welfare Benefits

Study	Dependent variable	Sample	Price elasticity with respect to state share	Income elasticity	Food stamp substitution
Baicker (1998)	AFDC spending	48 states, 1948–63	[-0.48, -0.92]	[-0.9, -0.2]	Not applicable
	AFDC recipients, AFDC benefit per recipient		-0.55 -0.37	-0.98 - 0.08 (insignif.)	
Gramlich and Laren (1984)	AFDC guarantee, adjusted for state implicit tax rates	33 states on Medicaid formula, 1974–81.	-0.67 Migration parameter: elasticity of benefits w.r.t. neighboring state benefits: 0.61	0.15	Not considered
Craig and Inman (1986)	Total state welfare spending (AFDC, GA, Medicaid, Other)	States using Medicaid formula, 1965–80	-0.17 Long run impact: spending per grant dollar = \$1.35	0.45	Additive to total welfare spending, i.e, low substitution
Moffitt (1990)	AFDC guarantee, family of four	48 states, 1960, 1984	-0.17* (not significant)	0.98	Full substitution of food stamps and Medicaid

(continued)

Study	Dependent variable	Sample	Price elasticity with respect to state share	Income elasticity	Food stamp substitution
Craig (1993)	Total state welfare spending, AFDC spending, AFDC average benefit level	48 states, 1965–89	No effect on total public welfare spending	0.31	Partial offset of AFDC expenditures for a dollar increase in food stamps Released funds remain in the total welfare budget
			No effect on total AFDC spending	0.33	
			Benefits increase by \$2.10 per dollar of matching aid	0.34	
Ribar and Wilhelm (1994)	AFDC benefit per recipient	50 states and District of Columbia	*		Little or no substitution of Food Stamps or Medicaid
		1969–75	[-0.043, -0.162]	[0.09, 1.35]	Food stamp offset only tested for period 1969–75
		1976–81	[-0.09, -0.19]	[0.33, 1.47]	
		1982–89	[-0.08, +0.239]	[0.23, 1.34]	
Ribar and Wilhelm (1999)	Same as above	1982–92	[-0.08, +0.02]	[0.35, 0.52]	Not directly tested

Moffitt, Ribar, and Wilhelm (1998)	AFDC benefits per recipient	50 states, 1969–92	[−0.05, −0.08*]	[−0.016, +1.867]	Not considered
	Public welfare share of state general expenditures	Same	−0.07 0.06*	−0.6	
	AFDC expenditures per capita	Same	−0.10 0.20	[−0.77, −1.05]	

* Price defined as state matching share × recipient ratio.

stantial neighbor effects. Their model is based on the concept that while more recipients increases the cost of raising benefit levels, higher benefits in turn increase the number of recipients, both from within a state and by encouraging migration from other states. The conventional way to estimate such a model is to find variables that affect benefits but not the number of recipients and other variables that affect recipients but not benefits. Such variables serve as instruments to identify the two equations. Given the difficulty in finding acceptable instruments, Gramlich and Laren estimated a reduced form model using the same variables (income, price, unemployment, and neighbor benefits) for each equation. They then used the model's structure to infer the extent to which the pure price and income effects on benefit levels are dampened by the fact that any increase in benefit levels brings with it an increase in the number of recipients.

Gramlich and Laren's model was estimated for the period 1974–1981 and used a restricted sample of 33 states that were on the open-ended Medicaid matching formula at that time. Chernick (1999) reestimates the Gramlich-Laren model for the period 1984 to 1995, using the full sample of states. This reestimation yields substantially lower price elasticities than in the earlier period, and higher income elasticities. Price effects are significant at conventional levels only when the dependent variable includes food stamps. In general, reestimation supports the conclusion of Ribar and Wilhelm that price effects are small in the 1980s and 1990s.

Total Welfare Spending

The evidence suggests that higher benefit levels lead to higher numbers of recipients (Blank 1997). Therefore, if higher federal matching rates do have a positive effect on benefit levels, we would expect matching rates to have a bigger effect on total spending than on benefit levels alone. While studies using data from earlier periods (Gramlich and Laren 1984; Craig and Inman 1986; Baicker 1998) support this expectation, more recent evidence does not. For example, Moffitt, Ribar, and Wilhelm (1998) found that the elasticity of AFDC expenditures with respect to the state share is -0.1 , while Craig (1993) found no effect of matching grants on AFDC expenditures. The small effects in the Moffitt, Ribar, and Wilhelm study reflect the very low estimated price elasticities for benefits; in the Craig study, they reflect

the offsetting effect of higher matching rates raising benefit levels but lowering caseloads. This evidence reinforces the conclusion that, on average, the short-run effects of eliminating matching rates will be small.

Estimation Issues

The AFDC matching rate (the Federal Medicaid Assistance Percentage) is inversely correlated with state personal income per capita. Collinearity is not perfect because the formula sets an upper bound for the state share at 50 percent. This collinearity makes it difficult to disentangle the true price and income effects. We can write the benefit equation as

$$\text{Eq. 1} \quad \ln B = a_1 \ln S + a_2 \ln Y(S)$$

where B is the benefit level, S is state share, and Y is state income per capita. $Y(S)$ is the inverse of the formula determining the relationship between state share and income. The estimated price effect will be equal to

$$\text{Eq. 2} \quad \varepsilon_{B,S} = a_1 + a_2 \varepsilon_{Y,S}.$$

Because $\varepsilon_{Y,S}$ is negative, the stronger the income elasticity a_2 , the smaller will be the estimated price effect. In typical specifications of the benefit model, both state share and income have significant positive effects on benefit levels. Once state fixed effects and time variables are controlled for, the coefficient on state share remains positive but has a much smaller size and is no longer significant.

One way to identify the price effect is to define price as the (per capita) cost of raising benefits by a dollar for all recipients:

$$\text{Eq. 3} \quad p = (1 - m) \left(\frac{R}{N} \right)$$

where m is the federal matching rate, R is the number of recipients, and N is the population. This approach imposes the restriction that the

marginal effect of a change in the matching rate be the same as the effect of a change in the number of recipients. However, if the response to a matching rate change is not the same as a response to variation in the recipient ratio, then it is incorrect to infer the effect of matching rate changes from this multiplicative term. A second problem is that the recipient ratio is endogenous to benefit level decisions, imparting an upward bias to the estimated price effect. Ribar and Wilhelm (1999) presented an extensive set of tests of for price exogeneity. They concluded that their findings of modest income effects and weak price effects are not very sensitive to the choice of instruments.

An alternative approach to identifying the matching rate effect is to exploit the fact that the matching rate has a lower bound of 50 percent. For the 11 states at this lower bound (in 1996) it is possible to estimate a pure income effect. This method, proposed by Craig (1993), yields a significant matching rate effect on AFDC benefit levels for the period 1965–1989. However, in a replication of the Craig study for the period 1981–1995, Chernick (1999) finds that the matching rate has no effect on either benefits or total expenditures.

A Consensus of Sorts

A prior review paper (Chernick 1998) concluded that the appropriate range for the price elasticity estimates was from 0.2 to 0.3. These estimates imply a predicted decline in average benefit levels as a result of shifting from matching to block grants of somewhere between 15 and 30 percent, and a slightly higher decline in total expenditures. The high-end estimates from the literature, which would imply reductions in spending of as much as 75 percent, are rejected by Chernick because they used selected sub-samples of states and failed to identify the key parameters. Very low estimates are rejected on the grounds that the price term (state share times the recipient ratio) was misspecified.

The econometric evidence on matching rate effects is buttressed by considering state fiscal responses to the federal SSI program, established in 1974. SSI is similar in fiscal structure to a block grant. The analysis found that when public assistance to the aged, blind, and disabled (AABD) was converted from a matching grant to states to an indexed grant going directly to individuals, states responded by gradually reducing their share of total funding and their absolute dollar com-

mitment. By 1996, the value of state supplementation had fallen by 21 percent.

The most recent statistical analyses find lower matching rate elasticities, ranging from zero to about 0.15. Chernick (1999) attempts to replicate the major prior studies with data from 1983 to 1995 and finds that estimated elasticities were smaller than before. The reduced effects of matching could reflect a real behavioral change in how states respond to federal matching rate subsidies, or they could reflect an increase in the offsetting role of state income in determining benefits and expenditures. The implicit food stamp tax on AFDC, by raising the price of benefits in all states, may further obscure the role of matching rate variation in state spending decisions. Taken at face value, the matching rate estimates imply that the equilibrium reduction in average benefit levels from ending the matching subsidy would be no more than approximately 10 percent. This reduction would in turn imply a reduction in the state contribution to cash assistance of at most 25 percent.

However, this conclusion is subject to a number of caveats. First, the increase in the price of cash assistance under the block grant is far larger than the prior variation in price under the AFDC program. Our only recent experience with such a substantial change comes from the SSI program, and (as discussed above) this program has been accompanied by a substantial decline in state contributions. This decline is particularly telling in that SSI recipients are mostly viewed as the "deserving poor," and are likely to be treated more favorably by states than mothers on welfare. Historical analyses (Wallis and Oates 1998; Baicker 1998) suggest that matching grants played a crucial role in expanding state commitments to assist the needy. These analyses suggest that the relatively small predictions from the recent literature, while they may be a good guide to the short run behavior of states, probably underestimate the long-run expenditure adjustments that will take place under the TANF block grant.

A second caveat is that the TANF legislation gives states much greater flexibility in determining public assistance spending. Under AFDC, the main margin along which spending could be adjusted was changes in benefit levels, while under TANF there are more margins of response. For example, states can set shorter time limits and adjust income disregards. Some states have saved money by setting shorter time limits but spent money by allowing recipients to keep more of

each dollar earned. These changes make it more difficult to use fiscal response parameters estimated under the prior regime as predictors of behavior under the block grants.

The initial fiscal response to TANF has been dominated by a sharp drop in caseloads. Between 1994 and mid 1998, AFDC/TANF caseloads fell by 40 percent, and by June of 1998 were at their lowest level since 1972. This sharp drop, due partly to the strong economy and partly to state policy choices (Levine and Whitmore 1998; Blank 1997; Figlio and Ziliak 1998) means that public assistance costs have declined dramatically in most states. Because the state MOE requirement must be satisfied in each year, while federal TANF funds can be banked for use in future years, states have tended to use their own funds first to satisfy the MOE and then draw down TANF funds.⁵ Thus, the drop in state spending under TANF is primarily a reflection of declining caseloads rather than the long-run response to the price effect of the block grants.

Neighbor Effects

If there is significant mobility of potential recipients in response to benefit level differentials, then welfare spending in each state may be influenced by spending in neighbor or competitor states. Even if actual migration effects are small, state politicians may feel particularly vulnerable to the charge that the state is attracting indigents from other states by virtue of its generous benefits. This interdependence could be exacerbated by the fact that under TANF the federal government will no longer share in any increase in state expenditures, while states will realize 100% of the savings from reduced spending.

A simple test of whether competitive pressures have increased in recent years is to examine variation in benefit levels across states. Between 1984 and 1995, the mean of state maximum benefits adjusted for inflation declined by about 10 percent, but the coefficient of variation remained at 36 percent. However, the variation in AFDC benefits plus food stamps was not only lower than for AFDC alone but showed some decline, from 19 percent to 16 percent. This suggests that in the 1980s and 1990s there has been a small amount of convergence in the total benefit package across states.

The most powerful test for the race to the bottom would come from evidence that the number of recipients in a given state is positively affected by benefit differentials between that state and its "neighbors," however defined. A weaker test would be provided by evidence that benefit levels move in tandem with those of their neighbors. The latter evidence is more difficult to interpret. Such behavior could represent one state responding to the decisions of other states; alternatively, it could imply that both are subject to common economic or political influences.

Evidence on the migration effect is mixed. Aggregate studies covering the 1980s and early 1990s show no evidence that a state's ratio of AFDC recipients to population was sensitive to benefit level differentials, whereas there is some evidence of sensitivity in prior periods. (Gramlich and Laren 1984; Ribar and Wilhelm 1994; Shroder 1995). Among the aggregate studies, both Gramlich and Laren (1984) and Ribar and Wilhelm (1994) found that AFDC reciprocity ratios are sensitive to neighbors' AFDC benefit levels in the period 1976 to 1981. However, data from the 1980s (Ribar and Wilhelm 1994; Schroder 1995; Craig 1993) exhibit no such evidence. The lack of effect could reflect the narrowing of the combined AFDC-food stamp differentials referred to above.

Using micro data to study the interstate migration effect, Gramlich and Laren (1984) and Blank (1988) found that in the 1970s, though only a very small proportion of welfare recipients move between states in any given year, those moves are much more likely to be from low-benefit to high-benefit states. Levine and Zimmerman (1995), covering the period 1979–1992, and Walker (1994), using 1980 data, found little or no support for the welfare magnet theory. Borjas (1997) found that recent immigrants are disproportionately attracted by California's high benefit levels. Reviewing these papers, Brueckner (1998) noted the contradictory nature of the evidence on welfare migration. Except for the Borjas study of immigrants in a single state, the evidence does not indicate an increase in such migration in the 1980s.

The evidence on strategic interaction between states in benefit levels is stronger than the direct evidence on migration. For the 1980s, Ribar and Wilhelm (1994) found that a dollar increase in geographic neighbor benefits leads to an increase in own benefits that ranges from 23 to 55 cents. In a recent review paper, Brueckner (1998) cited papers

by Figlio, Wolpin, and Reid (1998) and Saavedra (1998) as providing “strong evidence that a given state’s benefit choice is affected by benefit levels in nearby states.” A consensus estimate from this literature would be that a dollar change in neighbor benefits leads to about a 30-cent change in own benefits.

In Chernick’s (1999) investigations of the neighbor effect, the neighbor results are found to be quite sensitive to specification. For example, when both own and neighbor benefits are measured by combined AFDC plus food stamp benefits and the model is estimated in first-difference form, neighbor effects have a negative rather than a positive effect on own benefits. When maximum AFDC benefits are adjusted for implicit tax rates, the neighbor effect is insignificant. Instrumental variables estimation yields similar results. It is only when published maximum benefits is the benefit measure that the strong strategic interaction effect is apparent. These preliminary results suggest that in the most visible aspect of welfare policy, the maximum benefit, changes are indeed copied by neighbor states. However, using a broader measure of state “generosity,” the links are much weaker.

Even if neighbor effects are important, it is not an automatic implication that the block grants will lead to a race to the bottom. A necessary condition for that race to occur is for the price elasticity to be of some reasonable magnitude. If the price response is small, then even if the interstate competition effects are potentially large, the leapfrogging effect of a race to the bottom will not be triggered. Because the consensus price elasticity estimates are rather low, this suggests that the block grant alone will not be sufficient to kick off a strong race to the bottom.

Program Substitution

As discussed above, the fact that most AFDC recipients are automatically eligible for food stamps and Medicaid provides an opportunity and an incentive for states to substitute both of these programs for cash benefits. Several studies suggest that this substitution is important.

Moffitt (1990) argued that observed declines in AFDC benefits could reflect a substitution of food stamps and Medicaid for AFDC, rather than a decrease in generosity towards the poor. To test this hypothesis, he compared combined benefits for AFDC, food stamps,

and Medicaid in 1984 to the benefit level that would be predicted based on an earlier year (1960), prior to the introduction of food stamps and Medicaid. He found that actual benefit levels for the sum of AFDC, food stamps, and Medicaid were within \$10 of predicted benefit levels. In a replication of the Moffitt approach for the years 1983 and 1993, Chernick (1999) finds that the 1983 structure overpredicts the 1993 combined AFDC, food stamp, and Medicaid benefits by between 7.5 and 9 percent. Thus, in the period 1983 to 1993, program substitution can explain most (but not all) of the decline in AFDC benefits.

The Moffitt and Chernick findings are relevant to PRWORA because they show substantial program substitution even when cash assistance was matched by federal dollars. With the conversion of federal aid for cash assistance from matching to lump-sum grants and the fact that states can now use a portion of the block grant money for in-kind expenses such as child care and training, we expect even stronger substitution in favor of Medicaid and food stamps under PRWORA.

Recent research by Katherine Baicker investigated federal mandates aimed at changing state spending on specific categories of welfare and their effect on state budget allocations across other categories of spending. This research is relevant to understanding the implications of PRWORA, because the act requires states to move recipients into employment, a requirement that is likely to involve increased spending by states on training, placement, and child care. In an examination of the effect of federal Medicaid expansions on state budgets over the period 1983 to 1995, Baicker (1998) found that states tended to accommodate required increases in spending for health care for the indigent by decreasing spending on other components of the broader state welfare budget. State tax revenues and spending on nonwelfare categories of the state budget were largely unaffected. These results should be treated with caution because of difficulties in interpreting the data on Medicaid spending. Nonetheless, the findings indicate some amount of "stickiness" in state budgets; i.e., federally mandated increases on one program for the needy are likely to result in state decisions to decrease spending on related programs, in some cases without much of an effect on overall welfare spending.

THE VOLATILITY OF STATE REVENUES AND EXPENDITURES OVER THE BUSINESS CYCLE

The federal welfare reform debate and the resulting legislation, as well as state-instigated welfare changes enabled by federal waivers, have occurred against the backdrop of one of the longest continuous economic expansions in modern U.S. history. The inevitability of a recession at some point compels the question of how state welfare spending under the new policies is likely to respond to the accompanying fiscal stress. Indeed, because of the strong economy, the switch from a matching grant under AFDC to a block grant under TANF will not have significant consequences for the states until the next recession occurs. A nascent literature examines the revenue-readiness of states to weather a turn in the business cycle, the fiscal experience of the states during previous recessions, and state spending on welfare over the business cycle.

Sobel and Holcombe (1996) used national measures of income and retail sales to proxy state revenue bases and estimated short-run elasticities to capture the cycle-related variation in the major state tax sources. They found that corporate income is the most volatile component of the tax base, followed by nonfood retail sales. Personal income and retail sales including food exhibit similar short-run elasticities of approximately 1, while motor fuel usage and liquor sales are the least volatile. The elasticity estimates are relatively stable over time and thus can be used to inform the design of tax policy to address future economic contingencies.

Dye and McGuire (1998) argued that the structure of state taxes is important to determining their volatility. They proxied the structures of the personal income and general sales taxes—the two largest revenue raisers for state governments—of each of the 48 states having these taxes and estimated state-specific cyclical elasticities, assuming that each state's income distribution and personal consumption patterns (the bases for the two taxes) are the same as those for the nation. Their analysis recognized that when the next recession occurs, the states will be responsible for any increase in spending beyond the level of the TANF block grant. Their aim was to assess which states are

likely to be the most resilient to economic downturns (i.e., to have the least volatile revenues over the cycle).

The most salient feature of state personal income taxes for determining short-run elasticity is the progression in their rates; thus the building blocks of an estimate of the volatility of a state's income tax consist of different income categories. Dye and McGuire found that the short-run elasticity rises monotonically from near zero for the lowest income group to over 4 percent for the highest income group. When they applied the different state tax structures to these income components, they found that the cyclical elasticity estimates for the individual income tax range from 0.95 to 1.68. Because of the monotonicity with respect to income brackets of the elasticity estimates, states with a greater degree of progression in their income tax systems (e.g., Connecticut and Nebraska) have more volatile income taxes.

A similar analysis for the general sales tax, where differential treatment of various categories of spending distinguishes the different state tax structures, results in cyclical elasticity estimates for the general sales tax in the range of 0.85 to 1.37. The states with the most volatile sales taxes have narrow bases that exclude food for home consumption (e.g., Maryland and Vermont). California has both a progressive income tax and a narrow sales tax base, resulting in the distinction of having the highest cyclical elasticity for the combined income and sales taxes. By this measure, California is the state most vulnerable to the next recession and thus least able to pick up where federal block grant dollars will leave off.

Mattoon and Testa (1992) examined the fiscal experience of state and local governments during each contractionary period over the last 50 years. They found that fiscal behavior is countercyclical (i.e., expenditures rise relative to revenues during downturns), indicating perhaps that elected officials are keen to maintain services in recessions. Blackley and Deboer (1993) attempted to explain the decisions by states to increase revenues during the most recent 1990–1991 recession. They found that both political and economic forces were behind the discretionary state revenue increases of the early 1990s and that the depressing effect of the recession explained a fair portion of the revenue increases.

Three recent papers examine welfare spending over the business cycle and during periods of contraction; they take quite different

approaches but present findings and conclusions that are mutually supportive. Powers (1998) simulated spending on AFDC/TANF over a recent 20-year period under different financing scenarios and calculated a measure of variability that relates each state's expenditures on welfare to its unemployment rates. Boyd and Davis (1998) also simulated spending on AFDC/TANF but restricted attention to the two recent recessionary periods. The third paper, by Dye and McGuire (forthcoming), examines actual state revenue and expenditure streams during state-specific business cycles and periods of recession.

Powers (1998) compared actual spending on AFDC over the period 1976–1995 to simulated spending on TANF programs under two different assumptions about state responses to the shift in federal financing from a matching grant to a block grant. The “lower bound” simulations assume that states are quite sensitive to the price increase associated with the financing change and that states will choose to spend only the bare minimum required by the federal government. The optimistic “upper bound” simulations assume that each state will choose to maintain total spending on TANF programs to the level under the AFDC program regardless of the declining support of the fixed federal block grant over time (declining because of inflation). Powers was most interested in comparing the overall level of spending on welfare of these two TANF regimes to the actual level of spending under AFDC over the period, but she also calculated a measure of variability for each state under each scenario from a regression of the log change in expenditures on the log change in the unemployment rate over the period 1976–1995. She found that the estimated relationship under each of the three scenarios is zero for most states, suggesting that AFDC/TANF spending is not related in a systematic way to the cycle. The reliability of this result is weakened by the fact that the effects of unemployment are estimated contemporaneously, while other studies show that the biggest effect of unemployment on case-load occurs some 18 months after an increase in unemployment.

Boyd and Davis (1998) focused on the national recessions of 1980–1982 and 1990–1991 and calculated the amount by which state spending on welfare would have increased due to rising unemployment if TANF had been in place (i.e., if states had been solely responsible for increased spending at the margin) and states had provided benefits to the resulting new cases consistent with existing state-specific benefit

levels. In other words, they calculated the expenditure increase needed to maintain welfare spending during the past two recessions under a TANF-like regime. They allow the severity of recessions to vary from state to state according to actual experience, but the assumed responses under a TANF regime are not allowed to vary. Thus, their findings reflect how states with varying economic conditions, benefit levels, and caseloads might have reacted had TANF been in place during the past two recessions.

It is useful to compare these assumed responses under Boyd and Davis to actual state behavior during the most recent recession. California and Michigan both cut their nominal benefit levels substantially, though California had a big increase in caseloads (37 percent from 1990 to 1994) while Michigan's caseloads were approximately constant. New York and Texas kept nominal benefits unchanged despite substantial caseload growth. Thus, there was substantial variation in state responses to recessionary conditions.

Boyd and Davis found a wide range of expenditure increases across the states, reflecting the differences in the severity of recession and the generosity of welfare programs across the states. On average, the deeper recession of the early 1980s would have resulted in an increase in welfare expenditures (as a percentage of state general fund budgets) of 1 percent. This figure seems small, but when compared with an average of 3 percent for state expenditures on AFDC as a percentage of state general fund budgets, it can be viewed as important. Some states are hit much harder than others. California, in particular, was estimated to experience expenditure increases of over 2 percent in each of the recessions, due to its higher-than-average benefit levels, higher-than-average case loads, and higher-than-average increase in unemployment during the recession of the early 1990s. In contrast, states in the southeast (with the exception of West Virginia) were estimated to experience below-average increases in expenditures as a share of their budgets under recession, in large part because of their low benefits.

Extrapolating from these findings to the next recession, Boyd and Davis seem to assume that states will succumb to fiscal pressures and reduce spending on welfare, but it is still an open question whether states will, in fact, choose to cut back welfare spending when the next recession occurs in the brave new world defined by TANF.

Dye and McGuire's (forthcoming) analysis attempts to shed some light on this open question. They examine actual revenues and expenditures, with an explicit focus on years of recession for each of the 49 states that experienced contractions during the period 1977–1995 (Florida did not experience a decline in gross state product [GSP], the measure of recession employed in the study, for any year during this period). The use of actual revenues and expenditures (as opposed to measures free of policy changes) is dictated by the lack of policy-fixed data for expenditures. An advantage to using actual revenues and expenditures is that they reflect not only automatic changes due to changes in economic conditions, but also the discretionary decisions of state decision makers, which is of interest in a study of the responses of states to economic distress.

For each state, Dye and McGuire calculate an elasticity of actual revenues (or expenditures) with respect to (declines in) GSP as the ratio of the percentage change in revenues (or expenditures) with respect to the percentage change (decline) in GSP.⁶ They find that the calculated elasticity is negative for the individual income tax, the general sales tax, and total tax revenues for many states and on average, indicating that discretionary decisions are taken to counter the effects on revenues of the economic downturn. Similar calculations result in negative elasticities on average for total nonwelfare spending (–1.68), public welfare spending (–7.58), AFDC spending (–1.27), expenditures on K–12 education (–1.02), and expenditures on higher education (–3.01), indicating that states on average increase spending on these categories during contractionary periods.⁷ The fact that AFDC spending is countercyclical on average is not surprising given the nature of the program, but the fact that education and other nonwelfare spending is also countercyclical for most states is surprising. Dye and McGuire interpret this preliminary evidence as supportive of the idea that states tend to maintain spending across the board during recessionary times. Since spending on nonwelfare programs is not financed by federal matching grants, it may not be unreasonable to expect states to increase taxes in order to maintain spending (including spending on welfare) even under TANF.

Dye and McGuire caution that their results are preliminary and require greater exploration. In particular, state-specific behavior often differs from average behavior and is oftentimes not easily explained.

For example, in contrast with the countercyclical findings for education spending for the U.S. average, the elasticity during recessions for K-12 education spending in Massachusetts is calculated to be cyclical, while the elasticity for higher education is weakly countercyclical.

Taken together, the studies of actual state fiscal behavior during recessionary periods and the studies simulating state welfare spending under the new TANF block-grant arrangement point to a cautious conclusion that the next recession need not result in large cuts in welfare spending, and may well result in an effort by most states to maintain their welfare policies and programs even as new cases are generated by the economic contraction. This conclusion is cautious for several reasons: 1) simulations outside of actual experience are always subject to wide margins of error; 2) the federal funding change for AFDC/TANF programs is dramatic and not just a change at the margin; and 3) several states (for example, Mississippi, Idaho, and Pennsylvania in Dye and McGuire's analysis) do exhibit cyclical (as opposed to noncyclical) spending on welfare, even under the AFDC matching-rate funding arrangement.

In assessing the impact of the change from federal matching grants to block grants on state spending and revenues, bear in mind the small share of total state expenditures attributable to AFDC/TANF spending. The largest state public welfare program by far is Medicaid, and it is still financed by a matching grant from the federal government. Thus, overall spending on public welfare programs is likely to continue to be highly countercyclical.

Finally, we comment on the likely efficacy of the contingency fund implemented as part of the 1996 welfare reform act and designed to provide additional federal funding for states experiencing dire economic conditions. Both Powers and Boyd and Davis note that states must spend at 100 percent of their 1994 levels in order to qualify for the contingency fund, a restriction that is likely to keep many states from qualifying. On the other hand, the argument that the fund at \$2 billion is insufficient to cover the increased spending of states in a recession is not wholly convincing, given Boyd and Davis's estimate of an expenditure increase for the aggregate of all states of \$2.5 billion due to the recession of the early 1990s.

Boyd and Davis' estimate of \$2.5 billion is significantly smaller than Levine's (1998) estimate of \$7.3 billion over five years. The

major reason for this difference is that Levine estimated a much larger expenditure response for a given increase in unemployment than the consensus estimates employed by Boyd and Davis. Second, Levine's estimates assumed sustained increases in spending over a longer period than Boyd and Davis. Levine's aggregate expenditure response appears implausibly high in light of the smaller state-specific responses simulated by Boyd and Davis. This conclusion is reinforced by the fact that Boyd and Davis assume that states would have maintained benefit levels and covered all eligible recipients with their own revenues, if TANF had been in place during the previous two recessions. This is a generous assumption about state spending behavior. If states choose instead to cut benefit levels, as some did during the most recent recession, then the aggregate spending increase would be even smaller.

CONCLUSIONS AND FUTURE RESEARCH

A consensus seems to have emerged concerning the likely impact on welfare spending of a switch from matching to block grants. Recent econometric estimates suggest that the elasticity of spending with respect to matching rates is small, ranging from zero to 0.15. If correct—and there remains considerable uncertainty about the exact magnitude of the price effects—these elasticities imply cuts in benefit levels of no more than 10 percent and declines in the state share of 25 percent at most. Even this relatively modest response will not occur immediately, because the sharp drop in welfare caseloads has yielded a block grant windfall and reduced the budgetary pressure on states from welfare spending.

With regard to competition with other states, states do seem to follow their neighbors in making adjustments to benefit levels. However, the results on this type of interdependency are weak enough—and the importance of unmeasured state characteristics strong enough—that we do not predict the dramatic convergence in benefit levels implied by the phrase “race to the bottom.”

Regarding program substitution, over a 20-year time period, evidence suggests that there has been considerable substitution between federal programs such as food stamps and SSI and shared state-federal

programs. This substitution should accelerate under the incentives of a fixed block grant. Thus, looking ahead, say, 10 years or more, we speculate that state-financed cash assistance will be lower as a share of total welfare expenditures, including food stamp and Medicaid outlays.

We stress that considerable caution is warranted in predicting government behavior under any radical change in institutional setting. We have had several decades of experience with federal financing of AFDC under a generous matching grant; we have had less than two years of experience of federal financing of TANF under a generous block grant. Patience and diligence in monitoring state responses are called for.

At the same time, analyses of actual state fiscal behavior during recent periods of economic contraction are somewhat sanguine about the ability of the state sector to weather the next recession under the new TANF regime. This literature is very new and many unanswered questions remain. In addition, much of the analysis has not adequately accounted for behavioral changes in response to the new financing arrangements. The most encouraging evidence that state spending on welfare may not be dramatically reduced during the next (and first post-TANF) recession is provided by Dye and McGuire (forthcoming), who find that, with notable exceptions, most states did not reduce spending on nonwelfare programs, including K-12 and higher education—programs not financed by matching grants from the federal government—during recent recessions. These results are provocative rather than definitive (there are some puzzling results state by state), but they suggest that state spending behavior during periods of declining gross state product (periods of economic and fiscal distress) may differ greatly from secular trends in spending and from state spending behavior in good times. Additional research is needed to understand the causes and consequences of decisions made by individual states concerning welfare spending in difficult economic times.

Notes

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1. Between 1991 and 1994, 11 states actually cut the nominal value of their maximum benefit level, while only 6 states increased benefits enough to maintain their real value.
2. The MOE requirement falls to 75 percent for states that meet federal work participation rate requirements.
3. Under the AFDC matching rate regime, if a state cut benefits by a dollar or moved a recipient from AFDC to SSI, it saved only 40 cents for every dollar of reduced spending. Under TANF, it saves a full dollar. If the recipient also gets food stamps, when the states cuts cash benefits by a dollar, food stamp benefits go up by about 30 cents.
4. Disregards still vary substantially across states. For example, in California a family gets to keep the first \$225 in earnings per month and loses 50 cents per dollar thereafter. In Washington state, TANF benefits are reduced by 50 cents from the first dollar of earnings.
5. In FY97, 28 states reduced their own expenditures to the MOE minimum, 18 states were below their 1994 level but above the minimum, and 5 states increased their expenditures relative to their 1994 levels of spending (Lazere 1998).
6. The authors experiment with different lag structures for spending and GSP and find the results to be fairly robust on average.
7. The findings of countercyclical spending on average are consistent with the results in Mattoon and Testa (1992).

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