

FEDERAL FISCAL POLICY AND THE SPEED OF STATES' CONVERSIONS FROM INSTITUTIONAL TO COMMUNITY-BASED MENTAL HEALTH SERVICE SETTINGS*

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INTRODUCTION

A GREAT DEAL OF STUDY HAS BEEN DEVOTED to the effects of fiscal federalism on state policies. A fundamental question is whether federal fiscal incentives change state policy in meaningful ways, or whether apparent changes are merely accounting-driven “relabeling” exercises, undertaken solely for the sake of cost-shifting to the federal government. Prior work has focused on the level of state spending for various services provided and often fails to detect a positive “price effect” of federal matching schemes, such as Medicaid.

As Kousser (2002) emphasizes, there are problems with the aggregated expenditure data used by past researchers to study this issue. First, state spending for many services has a large mandatory component. It is therefore unreasonable to expect “behavioral” responses to fiscal incentives when the scope for such responses is limited. Second, many federal incentives apply to narrow categories of spending within service areas, and aggregated expenditure data intermingle these categories, masking incentive effects when they do exist. Prior work by the authors (Powers and Powers, 2006) indicate that when spending categories are sufficiently disaggregated, evidence emerges that the availability of federal Medicaid matching funds raises spending in some narrowly defined service areas and leads to pure crowd-out in others.

OTHER GOALS OF FISCAL FEDERALISM

While the question of how federal fiscal incentives influence spending levels has been of primary concern in the literature to date, the federal government may wish to pursue additional goals through

fiscal incentive mechanisms. For example, Powers and Powers (2006) provide evidence that the states' *allocation* of spending to qualitatively different mental health (MH) services is altered by federal fiscal incentives. Even if states naively follow the federal money trail to determine their service mix, the changes that are being effected, in the case of MH, go beyond relabeling exercises, profoundly differing in location and mode of delivery, as well as population served.

In this paper, we expand consideration of fiscal policy goals further, to ask whether states' *speed of adoption* of new policies is influenced by federal fiscal schemes. Speed is important for preventing enduring costs when a harm cannot be easily undone (e.g., in the case of children's development, damage done in early years is exceedingly costly or impossible to undo later). Society also places a high value on civil rights; it is unpalatable to phase in policies that protect civil rights slowly. Finally, federal fiscal incentives may offer states sufficient financial benefits to overcome political barriers thrown up by entrenched interests intent on deliberately forestalling change. In this paper, we study the shift from providing MH services largely through state institutions to a community MH model. The federal government may have intended to speed this conversion for all of the aforementioned reasons.

FEDERAL FUNDING OF MENTAL HEALTH SERVICES

The care of persons with mental illness was the sole responsibility of states in the post-World War II era.¹ States met this duty by establishing an extensive system of state-operated institutions (a.k.a. state-operated institutions for persons with mental diseases or state-operated psychiatric hospitals) for the care and rehabilitation of persons with serious mental illnesses. Prior to 1960, the federal government's involvement in the MH arena was largely limited to research-related activities.

In the early 1960s, the federal government expressed an intent to fund MH services in a man-

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ner that promotes community-based MH services. Early efforts amounted to little, however; some block grant funds were available for developing state-operated community MH centers. Broad MH services failed to be meaningfully incorporated into Medicaid for many years. Only in the early 1990s did the Center for Medicare and Medicaid Services (CMS), the federal agency responsible for reviewing and approving state Medicaid plans, begin putting procedures in place that ensured approval of a wide array of MH services under Medicaid.

Medicaid cannot be used to pay for inpatient care provided at a psychiatric hospital (e.g., state psychiatric institution) for persons between the ages 22 and 64. (For persons outside these ages, inpatient care provided at a psychiatric hospital is an optional service provided at the state's discretion.) In contrast, many MH services provided in a community setting are potentially covered Medicaid services, including physician services (including psychiatrists), psychologist services, medical social worker services, occupational therapy, prescribed drugs, and rehabilitative services. Of these, only physician services is mandated for inclusion in the state Medicaid plan; the remaining MH services are offered through Medicaid at the state's option.

Whether a given service is covered under Medicaid is not quite as simple as whether the service is delivered in an institution. Residential services for persons with mental illnesses are (in practice) not a covered Medicaid service regardless of state institutional or community setting. "Outpatient services" (including rehabilitative services) are covered optional Medicaid services regardless of whether the service is provided in a state institution or the community. Even so, there are likely important differences between community and state institutions' abilities to leverage federal dollars. State institutions are set up to provide highly specialized and intensive inpatient psychiatric services; outpatient services are presumably not very complementary to this core mission. Provision of outpatient services, on the other hand, is the *raison d'être* of community MH centers.

In summary, there are three important dimensions along which the impact of federal fiscal policy on state spending on MH may vary. The first dimension is whether an MH service area is subject to any federal fiscal incentives, be they federal Medicaid matching funds, block grants, or other schemes. The second dimension is time; there was not a sure process for gaining CMS approval

of MH services in state Medicaid plans until the early 1990s. The final dimension is the degree of state discretion in spending, which varies greatly across program areas (i.e., state institutions versus community), according to whether the provision of a service is federally mandated or not. Our data, described next, enable us to exploit variation along all three dimensions.

DATA AND DESCRIPTIVE INFORMATION

Raw data on state spending on, and funding sources for, public MH services are from the National Association of State Mental Health Program Directors Research Institute (NRI for short), which periodically surveyed all 50 states for 10 fiscal years between 1981 and 2003. NRI reports the expenditures and funding sources as compiled by each state's central authority for public MH services. Not all states report these data in the same way, and a great deal of effort has been invested in making the data more complete and comparable across states.²

Real per-capita total state spending on public MH services nearly doubles from 1981 to 2003, from \$47 to \$86 per capita. Community spending led the overall growth in state spending on public MH services, increasing more than fourfold from 1981 to 2003 (from \$13 to \$57 per capita). Most growth in community spending occurs after 1990, the era in which it became possible to "Medicaid-ize" nonresidential services provided in a community setting. State spending on state institutions declines over our sample period. While institutional spending grew slightly from 1981 to 1990 (rising from \$31 to \$35 per capita), it declines 25 percent from 1990 to 2003, falling from \$35 to \$26 per capita.

Commensurate with these changes, the share of MH service spending accounted for by community services grew rapidly, more than doubling between 1981 and 2003, from 28 to 67 percent. The bulk of the rise in the community expenditure share occurs in the post-1990 Medicaid era. However, only quite recently (since 1997) has the share of MH spending on community services surpassed the share spent on state institutions on average.

It is worth noting that the share of state institutional expenditures on outpatient services (also Medicaid-eligible optional services provided at the states' discretion) is generally quite small and constant over time (outpatient services declined from

just 5 percent of state institutional expenditures at the beginning of the sample to 4 percent in 2003). Despite the fiscal incentive provided by Medicaid for states to re-characterize state institutional services, state institutional expenditures on the optional Medicaid service area remain relatively small. A likely explanation is that such services lie outside the main mission of state institutions.

Corresponding to these expenditure changes is an overall shift in financial responsibility from state sources to federal Medicaid funds. Spending on MH services from all state sources fell from 80 percent of spending in 1981 to 63 percent in 2003, while the share of funding from the federal government through Medicaid alone rose from 8 to 24 percent over the same period.

We measure the timing of a state's conversion to community programs by the initial fiscal year that the state's community spending share reaches (or exceeds) alternative threshold values. The chosen threshold governs the number of states "successfully" converting to community programs in the sample time frame and whether this conversion occurs early or late in the sample frame. For example, if a low threshold value of 25 percent is chosen, all 50 states successfully convert to community programs by 2001 (the third-to-last data period), with a median year of conversion of 1983. Thirty-six states attain a community spending share of at least 50 percent by the end of the sample, with a median year of conversion of 1997. Finally, only 16 states ever reach a 75 percent threshold, with nearly all "successes" coming at the end of the sample period (the median year of conversion for successful states is 1997).

The policy variables used in the estimation below are federal medical assistance percentage, or FMAP (*Federal Register*), federal grant and local and party payment funds for community services (NRI), the state's initial (1981) community spending share (NRI), federal grant and local and party payment funds for state institutions (NRI), and state spending on state institutions in fiscal year 1981 (NRI).³ Other variables used to explain the speed of conversion from state institution to community-based models are state human service expenditures (U.S. Census Bureau), state poverty rates (U.S. Census Bureau), state personal income (U.S. Bureau of Economic Analysis), and region (Midwest, Northeast, and South; West is the omitted category). All dollar variables are reported on a real, per capita basis. The deflator is the U.S.

Bureau of Economic Analysis's gross domestic product price index (GDP Price Index = 1.00 in 2000). The state-level population data are the U.S. Bureau of the Census's total resident population midyear estimates. Descriptive statistics are provided in the last column of Table 1.

ECONOMETRIC MODEL AND EMPIRICAL FINDINGS

We model the speed of the conversion process as a function of the costs and benefits to converting to a community-based system using a hazard framework. We then describe the variables that capture these costs and benefits before presenting the empirical findings.

THE HAZARD MODEL

The underlying empirical model is

$$y_{it}^* = \beta X_{it} + \varepsilon_{it},$$

where y_{it}^* is the net present value of "conversion" (i.e., achieving the target threshold) for state i in year t . This value is specified as a linear function of the explanatory variables, X . The error term is ε_{it} , and it is assumed to follow the exponential distribution, so the model is estimated using logit. We define $y_{it} = 1$, if state i experiences "success" in year t , else $y_{it} = 0$. A state that achieves success exits the sample (i.e., its subsequent observations in the sample are set to missing values). The hazard rate, or probability of "success" in year t conditional upon no "success" in all prior years, is $h_{it} = \text{prob}(y_{it}^* > 0) = \text{prob}(\beta X_{it} + \varepsilon_{it} > 0)$. This framework requires that a definite ending point (i.e., "success") be defined. Clearly, the choice of an exact threshold is arbitrary. Here, we define success as the attainment of a community spending share of at least 60 percent.

COSTS AND BENEFITS OF CONVERSION

The explanatory variables are grouped according to whether they are expected to boost or reduce the value of community services to the state. Beginning the benefits of converting to a community model, state human service expenditures convey the state's "taste" for social welfare spending. States with large social welfare sectors willingly devote resources to individuals so that they can maintain their own households, an attitude fundamentally

Table 1
Logistic hazard model regression findings for the dependent variable "success"^a

<i>Explanatory variable</i>	(1)	(2)	(3)	(4)	(5)
Dependent Variable					6.5693 (24.8047)
<i>Benefit variables</i>					
State human services expenditure ^b	1.9645 (0.9036) ^c	1.8173 (0.7706)	2.2916 (0.8013)	2.1949 (0.8801)	0.6517 (24.8047)
Poverty rate ^d	-0.1899 (0.1382)				13.4612 (4.0452)
Personal income ^e	-0.0858 (0.1411)				22.3265 (4.7686)
FMAP ^f	-0.1145 (0.0627)	-0.1225 (0.0405)	-0.1442 (0.0383)	-0.1511 (0.0385)	60.8406 (8.6820)
FMAP*Post-1990*Trend ^g	0.0008 (0.0021)	0.0018 (0.0006)	0.0015 (0.0006)	0.0015 (0.0007)	472.7372 (596.0060)
Federal grant and local and party payment funds for community services ^h	0.1525 (0.0578)	0.1560 (0.0518)	0.1676 (0.0510)		3.0929 (3.4558)
State's initial (i.e., 1981) community spending share ⁱ	0.0143 (0.0308)				26.7071 (13.1576)
<i>Cost variables</i>					
Federal grant and local and party payment funds for state institutions ^j	-0.1440 (0.1238)	-0.1247 (0.1094)	-0.1281 (0.1148)		3.2312 (3.1591)
State spending on state institutions in fiscal year 1981 (inflation-adjusted \$ per capita) ^k	-0.0718 (0.0334)	-0.0864 (0.0257)	-0.0854 (0.0210)	-0.0637 (0.0173)	29.8754 (16.4407)
<i>Time-dependency effects</i>					
Time trend ^l	0.1125 (0.1816)				10.6302 (7.3395)
<i>Region effects</i>					
Midwest	-0.3378 (0.7296)	-0.4025 (0.5479)			0.2238 (0.4173)
Northeast	0.3777 (0.8088)	0.4873 (0.6861)			0.1679 (0.3742)
South	-0.7491 (1.0397)	-1.3259 (0.8382)			0.3723 (0.4840)
Intercept term	6.2683 (6.4734)	4.2439 (2.1355)	5.0224 (2.0909)	5.2266 (2.0814)	
Number of observations	411	411	411	414	
Pseudo R ²	0.34	0.32	0.30	0.24	

^a"Success" is defined as the year when the state's community spending share reaches 60 percent or more.

^bState expenditures on human services (inflation-adjusted \$1,000 per capita).

^cStandard errors in parentheses.

^dState poverty rate (percent).

^ePersonal income by state (inflation-adjusted \$1,000 per capita).

^fFederal medical assistance percentage by state (i.e., federal Medicaid matching rate by state).

^gFMAP interacted with a binary variable that equals "1" after fiscal year 1990 and "0" otherwise and time trend.

^hFederal grant and local and party payment funds for community services by state (inflation-adjusted \$ per capita).

ⁱState's community spending share in fiscal year 1981 (percent).

^jFederal grant and local and party payment funds for state institutions by state (inflation-adjusted \$ per capita).

^kState spending on state institutions in fiscal year 1981 (inflation-adjusted \$ per capita)

^lTime trend is 1981 = 1, 1982 = 2, ...

aligned with the philosophy of community-based MH services. The state poverty rate reflects the potential demand for community MH services, as it is a major determinant of the Medicaid-eligible population. This variable may also reflect a cost of community MH expansion, as a higher poverty rate means higher costs associated with service expansion due to the extensive margin. Personal income is a measure of the state's ability to afford more community-based spending. States with

higher personal income have more resources for funding community MH services. Federal grant and local and party payment funds also provide dedicated external funding for community services, encouraging their provision. The state's initial (1981) community spending share captures the state's commitment to community MH services. States with initial community shares closer to 60 percent are expected to convert to community MH faster.

The FMAP variable enters the model in two ways. Recall that the influence of FMAP is only expected to be operative post-1990, when changes in federal policy made it possible for states to “Medicaid-ize” services provided in community settings under the Medicaid “optional” services. The basic FMAP variable enters alone in order to capture any spurious relationship between it and the speed of conversion. The variable that reflects the policy effect of “Medicaid-ization” of community MH services is FMAP interacted with a post-1990 dummy. We include a further interaction with a post-1990 time trend, as states may not fully adjust to the availability of Medicaid funds for community MH services immediately.

Turning to the cost of converting, federal grants and local and party payment funds earmarked for institutions discourages program conversion. We also include the state’s initial (1981) institutional spending to indicate a state’s commitment to institutions. This variable captures potential political as well as administrative costs of changing the mode of MH service delivery. It is hypothesized that states with large initial institutional sectors have more powerful actors with vested interests in the preservation of state institutional operations. Such states therefore are expected to convert to a community model more slowly.

EMPIRICAL FINDINGS

Column 1 of Table 1 presents the findings for the base model with a full set of controls for the benefits, costs, and time and region effects. Column 2 lists the findings when the benefit, cost, and time variables with insignificant coefficient estimates in Column 1 are dropped from the model. Column 3 presents further findings when the region variables with statistically insignificant effects in Column 2 are dropped. Column 4 shows the findings for the specification in Column 3, less the controls for federal grants and local and party payments.

In the specification with all of the controls, the estimated coefficients for the poverty rate, personal income, community spending share in the base year, and time trend are not statistically significantly different from zero (see Column 1). The state human services expenditure variable is likely collinear with poverty and personal income. States with a larger initial commitment to community spending experience “success” no faster (i.e., those that begin closer to the goal reach it

no sooner). The findings also indicate that there is no apparent trend in the hazard rate over time that cannot be accounted for by the included controls (i.e., no apparent “duration dependence”). The findings from the second specification, which omits the nonsignificant benefit, cost, and time controls, reinforces the absence of significant regional effects (see Column 2).

Column 3 presents the findings for a parsimonious specification that omits variables with insignificant coefficients. Looking across the specifications in Table 1, the estimated coefficients for the retained benefit and cost controls are stable, exhibit the expected signs, and are generally statistically significantly different from zero, regardless of inclusion or exclusion of the other variables. The general effect of FMAP is statistically significantly negative; as discussed, this likely reflects a spurious relationship between FMAP and the dependent variable, via the FMAP formula. The policy effect of FMAP is captured by the variable which interacts the FMAP with a binary variable for the post-1990 period and a time trend. The coefficient for this variable is consistently positive and statistically significant, with the only exception being the specification that includes all other insignificant controls (see Column 1). The coefficient of federal grants and local and party payments earmarked for community programs is positive. The coefficients for the two cost variables are negative, as expected. Column 4 indicates that the findings in the preferred specification are robust to exclusion of the grant variables.

In terms of the size of the ‘benefit’ effects, post-1990 FMAP effects are comparatively large. A one-standard-deviation increase in the key FMAP variable is associated with a 2.66 percentage point increase in the hazard rate in the post-1990 period. A one-standard increase in federal grants and local and party payments earmarked for community programs translates into a 1.44 point increase in the hazard. A one-standard deviation increase in state human services expenditures is concomitant with a 2.11 percentage point increase in the hazard rate.

The cost variables also have effects that are large in magnitude. States with large initial commitments to state institutions transition significantly more slowly to delivering MH services in a community setting. A one-standard deviation increase in state institutional spending in 1981 reduces the hazard rate by 1.7 percentage points. Non-state funding support for institutions reduces the speed of conver-

sion to community programs (but this effect is only marginally statistically significantly different from zero). A one-standard deviation increase in federal grants and local and party payments earmarked for state institutions is associated with a 0.61 percent-age point reduction in the hazard rate.

ADDITIONAL CONSIDERATIONS

We conclude this section with a discussion of two further empirical issues that space does not permit us to fully develop here. A longer version of the paper, which presents the relevant findings in full, is available from the authors upon request. First, the data we have are of varying periodicity. Unequal spacing of the observations poses serious empirical issues for the hazard model, since the risk of “success” is mechanically higher, the longer a state is observed. Second, as discussed previously, a 60 percent threshold for spending on community services as the standard of successful conversion in a state’s MH system is arbitrary. It is therefore important to determine if the key findings are robust with respect to alternatives.

The average time elapsed between observations is 2.4 years (with a standard deviation of 1.0 years), ranging over 1 to 4 years between subsequent observations. We took two approaches to addressing this problem. The first is to include a variable that indicates the time elapsed from one observation to the next to the specification presented in Table 1. The second is to eliminate sample-years in order to make the spacing over time more uniform.

The control for variable periodicity has a large positive effect on the estimated hazard rate, as expected. Overall, the findings for most other coefficients qualitatively parallel those presented in Table 1. As before, there is no evidence of a poverty or personal income effect, or of an effect of the state’s community spending share in the base year, or of a time-dependency effect. Nor is there evidence for region effects. The cost variables continue to have large effects on conversion speed. States with large initial commitments to state institutions transition to a community-based system much more slowly. Non-state funding support for institutions reduces the likelihood that states move to community programs (but this effect is only marginally statistically significantly different from zero).

However, the coefficient for the post-1990 FMAP effect (interacted with a time trend) is about one-half the size of the coefficients presented in Table 1, but its standard error is unchanged. As a consequence, the post-1990 FMAP effect is no longer statistically significantly different from zero when we control for variable periodicity in this way. Unavoidably, our identification strategy for the FMAP incentive effect is undermined by the inclusion of controls for periodicity, because the long reporting periods (of three to four years) occur disproportionately during the 1990s. This coincides with the exogenous change in federal Medicaid policy that constitutes our identification strategy for estimation of FMAP incentives.

An alternative approach, which does not obviously conflict with the identification strategy for the incentive effect of FMAP, is to construct a subsample of observations of more similar periodicity. We reestimate the hazard models using data from 6 years of similar periodicity (3 or 4 years); the disadvantage is that information is lost by dropping observations from 4 of the 10 sample years.

Signs and sizes of estimated coefficients are generally similar to those using the complete sample. As before, there is no evidence of a poverty or personal income effect or an effect from the state’s community spending share in the base year. There is some weak evidence of regional effects, which was not the case earlier. The other controls display the expected sign and are generally statistically significantly different from zero as before. The findings with the partial sample are also insensitive with respect to the inclusion of federal grants. In contrast to findings for the full sample, however, there is some evidence of duration dependence; a linear trend enters with a positive coefficient. The positive sign and statistical significance of the post-1990 FMAP effect is sensitive to the inclusion of the trend. In particular, the post-1990 FMAP effect is positive and statistically significantly different from zero when the trend is omitted. Again, this is perhaps not surprising when one considers that the identification strategy depends upon a sudden change in Medicaid policy during the sample period.

In assessing the robustness of the findings to alternative definitions of “success,” we repeated all analyses for alternative “success” thresholds of 40 and 50 percent of the state’s community spending share. The findings based on the lower “success” thresholds qualitatively parallel those

for the 60 percent “success” threshold in terms of expected signs and statistical significance of the estimated coefficients for the benefit and cost controls, including the post-1990 FMAP variable. Overall, changes in the benefit and cost controls have a larger effect on the probability of states transitioning to a community-based system (as compared with the effects based on the findings for “success” defined at the 60 percent threshold), with the largest effects for “success” defined at the 40 percent threshold. This finding is not surprising, as the mean hazard is higher, the lower the hurdle for “success” is set.

CONCLUSION

The evidence in Powers and Powers (2006) suggests that federal incentives significantly affect the composition of states’ MH spending. The findings here indicate that federal incentives may also influence the speed with which states convert from state institution to community-based programs. We provide some evidence that the federal Medicaid matching rate tends to speed up the conversion process post-1990, when it becomes possible for states to “Medicaid-ize” many MH services that are provided in a community setting. We find evidence that federal grants and local and party payments earmarked for community-based programs also lead states to more quickly move to provide MH services in a community setting. Federal grants and local and party payments targeted for state institutions slow states’ conversions to community-based programs, as expected. A state’s initial level of financial commitment to institutions strongly

affects how fast it transitions to a community-based system; states with large institutional sectors at the beginning of the sample move much less rapidly to a community-based system.

Notes

- ¹ See Grob (1994) for an interesting discussion of the history of public funding of MH services.
- ² Potential problems of mis-measurement and mis-interpretation when working with state budget data are serious. See, for example, Fossett, et al. (1996), for a discussion of appropriations issues. It is such problems that our data refinement efforts have addressed.
- ³ By federal Medicaid law, the state’s FMAP is inversely related to the state’s per capita income and is capped above at about 80 percent and below at 50 percent.

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