Managing Child Care Subsidy Program Enrollments

Determinants of Enrollment Levels in Maryland's Program, 1999-2006

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Among family support programs for lower-income families in the U. S., the purchase of childcare program is a relative newcomer. From the beginning of the Welfare Reform era in 1997, childcare subsidy funding streams increased from $4.5 to $11.8 billion nationwide by 2003, through the combination of Child Care Development Fund (CCDF) and Temporary Assistance to Needy Families (TANF) funds.[1] This 170% increase allowed subsidies to serve new groups of the population, most especially low-income families with children under the age of 13 who were not receiving TANF.

Because this increase has occurred only recently, because there was little familiarity with this newly defined population of subsidy users, and because of the distinctiveness of the welfare reform era compared to earlier periods of childcare expenditure, child care subsidy managers have faced a great challenge in managing their programs. Faced with the dilemma of too little money for too much demand, they have had to face difficult choices in deciding how to control expenditures while dealing with a subsidy-using population of new and unknown behavior. There was no history to guide them. They have been exploring *terra incognita*. And, to this point, research has not aided the cause in any substantial way.[2]

Now that we have six years of experience in this new land, however, it is time to distill some of the experiences into indications that can help program expenditure management in the future. There is now a historical record to examine. Maryland, in particular, has accumulated a wealth of enrollment data that can be used to investigate and form tentative conclusions about how best to manage program expenditures. Beginning in September of 1997, the state possesses an unbroken series of enrollment figures based on operation of the automated payment system, CCAMIS. This data can be linked to eligibility levels, the timing of policy changes and movements in the greater economy in the attempt to identify the determinants of program expenditure.

One caveat should be underlined here. This analysis is based solely on administrative data. No customer survey data on these subjects was available for Maryland during this time period. All the normal caveats for administrative data research thus apply. We can observe how people behaved, as recorded in this automated system, within the constraints of existing staff capability and data input procedures, in a very comprehensive

fashion. Explaining why they behaved as they did is challenging. The best we can do is link our data to the findings of customer surveys performed elsewhere in an attempt to understand the dynamics involved. Furthermore, we cannot observe what happens outside the system, so a full picture of the behavior of these families is invisible to us.

THE CHILD CARE SUBSIDY PROGRAM

While the details of childcare subsidy programs differ in detail from state to state, the funding streams of the federal government and the guidance in the use of those funding streams have kept a rough uniformity among state programs. Most state programs give subsidies (either via voucher, or sometimes in cash) to some portion of their poverty level populations, to be used with licensed child care providers. These subsidies ideally allow client families to choose among 75% of providers in childcare markets, and procure reasonable care for their children in family homes, centers or with relatives/babysitters. According to federal guidance, states may set eligibility criteria as high as 85% or state median income, although most states set criteria much lower. Sliding fee scales are required.

In a nationwide perspective, Maryland's child care subsidy program falls into the middle range of state programs, with lower income eligibility limits, less generous benefits and higher co-payments than wealthy states such as New York, California, Massachusetts and Pennsylvania, but still higher than many other states including Florida, Illinois and New Jersey.[3] The state boasts one of the lowest poverty rates in the nation. Only 9.2% of the population, according to an average of 2003 and 2004 estimates Current Population Survey estimates, falls under the federal poverty level, the seventh lowest percentage in the nation for those years.[4] But that average masks very large differences in poverty among the diverse regions of the state. According to the 2004 American Community Survey, Maryland included not only two of the wealthiest counties in the nation, with median household income in the low $80,000 range, but also one of the most impoverished, Baltimore City, with median household income near $34,000 per year.[5]

The child care subsidy is not an entitlement, but rather a block grant of fixed dimensions that differs little from year to year (given constant state commitment to the program). TANF dollars available to the program vary from year to year, but have been falling of late. But because federal

guidelines allow the promise of care to many, demand for subsidy services can easily exceed the funds available. As a result, most states limit the availability of subsidies. For example, according to the 50 state comparative policy database of the National Center for Children in Poverty, using 2005 data, only 13 of 49 states had their provider rates at the federally-recommended level of the 75th percentile of the market as determined by a recent local provider survey. Between 2004 and 2005, thirty states cut the amount of assistance offered for childcare.

This situation will no doubt worsen as the stresses of complying with new work requirements pressure states to decrease the TANF contribution to child care subsidy funds.[6] Pressures for higher rates from the provider community may be difficult to resist, driving state costs higher, while funds remain stable or even decline. Clearly, the need for fiscal control is a crucial item on every subsidy manager's agenda.

HOW TO CONTROL CHILDCARE ENROLLMENTS

There are always some human services program elements that can be used to make small adjustments in the expense of the program. Some of these fiscal details may even be so obscure as to be invisible in the normal course of program operations. A good example in the subsidy program is the co-payment requirement for fourth and subsequent children, which Maryland abolished with almost no fanfare in May of 2000. There were so few families with as many as four children in care that the fiscal impact was negligible. Unfortunately, such changes cannot solve expenditure problems of the magnitude that threaten the child care subsidy program.

Significant expense controls cannot be achieved without affecting enrollments—which also means that expense control cannot be achieved without addressing the fundamental provision of services that is the *raison d'être* of the childcare program. Thus, the challenge of controlling *expense* can be defined best as "how to control child care subsidy *enrollments*." It is on this topic that we must concentrate our attention.

The major instruments of control, or "policy levers," which lie within the power of childcare subsidy management, and which can be expected to have an effect within a short period of time, can be thought to include:

1. program structure and operations, including how difficult it is for families to enroll and remain enrolled in the program, and how well they are served by the workers handling their case;
2. reimbursement rates, or the amount paid by the state to child care providers for care. Reimbursement rates affect the payment system directly by increasing subsidies, but may also may have an indirect effect on enrollment levels by influencing providers' enthusiasm for the program;
3. co-payment amounts, which may affect enrollments by impacting families' ability to pay;
4. eligibility levels, which make more or fewer families eligible for the program, and thus directly affect enrollment levels; and
5. opening and closing admissions.

All but the first of these have been used by the state of Maryland over the last six years in the attempt to regulate expenditures. The results can be seen in the enrollment records over the period, and can be used to evaluate the power and efficiency of the various levers applied.

This paper attempts to do two things: first, to outline the steps taken to control childcare expenditure over the period from 1999 to the present; and second, to report on an ordinary least squares multiple regression analysis that identifies both the underlying factors influencing enrollment levels and the effectiveness of the various policy levers in controlling expenditure.

HISTORY AND ENROLLMENT CHANGES

Maryland, like many states, entered mid-1997 with a surplus of TANF-transferred childcare funds, a commitment to supporting the population of subsidy users traditionally termed "at risk" (of returning to welfare), and a lack of experience in managing expenditure among these newer, and much larger populations. While there had been some history in managing expenses for TANF (AFDC) child care and "recently-TANF" child care, the extension of the subsidy program to large "Non-TANF" populations was new. Here we will focus exclusively on enrollment of these "Non-TANF" or "at risk" populations, that is to say, on childcare subsidies for working families below certain income levels not enrolled in Maryland's version of the Temporary Assistance for Needy Families cash welfare program.

In order best to deploy newly available childcare funds, management made seven separate adjustments to control expenditures by expanding eligibility, raising payment rates, controlling co-payments, and in one case, closing new enrollments. Child Care management attempted to increase expenditure in September of 1999, May of 2000, and January of 2002, through a combination of rate increases, co-pay adjustments and increases in eligibility levels. Thereafter, expenditure reductions were pursued, including completely closing the Non-TANF child care subsidy program to new enrollments in January of 2003, and increasing co-payments in February of 2004. Finally, thirty months of closed enrollments reduced expenses to the point that a reopening of the program and liquidation of the waiting list was approved, in two stages, starting in July of 2005. The table below shows the details of these changes.

Date	*Co-pay Change*	*Rate Change*	*Eligibility Levels**
9/99	16%	5%	raised 18% to $22,463 for new customers only**
5/00	7%	-***	raised 12% to $25,140 for all
1/02	-30%	17.6%	raised 16% to $29,990 for all
1/03	*Wait list imposed, no new family enrollments*		
2/04	52%	-	-
7/05	*Wait list reopened to families with incomes up to $16,470**		
11/05	*Wait list reopened to families with incomes up to $29,990**		

* income shown is maximum annual gross income eligibility for a family of three.

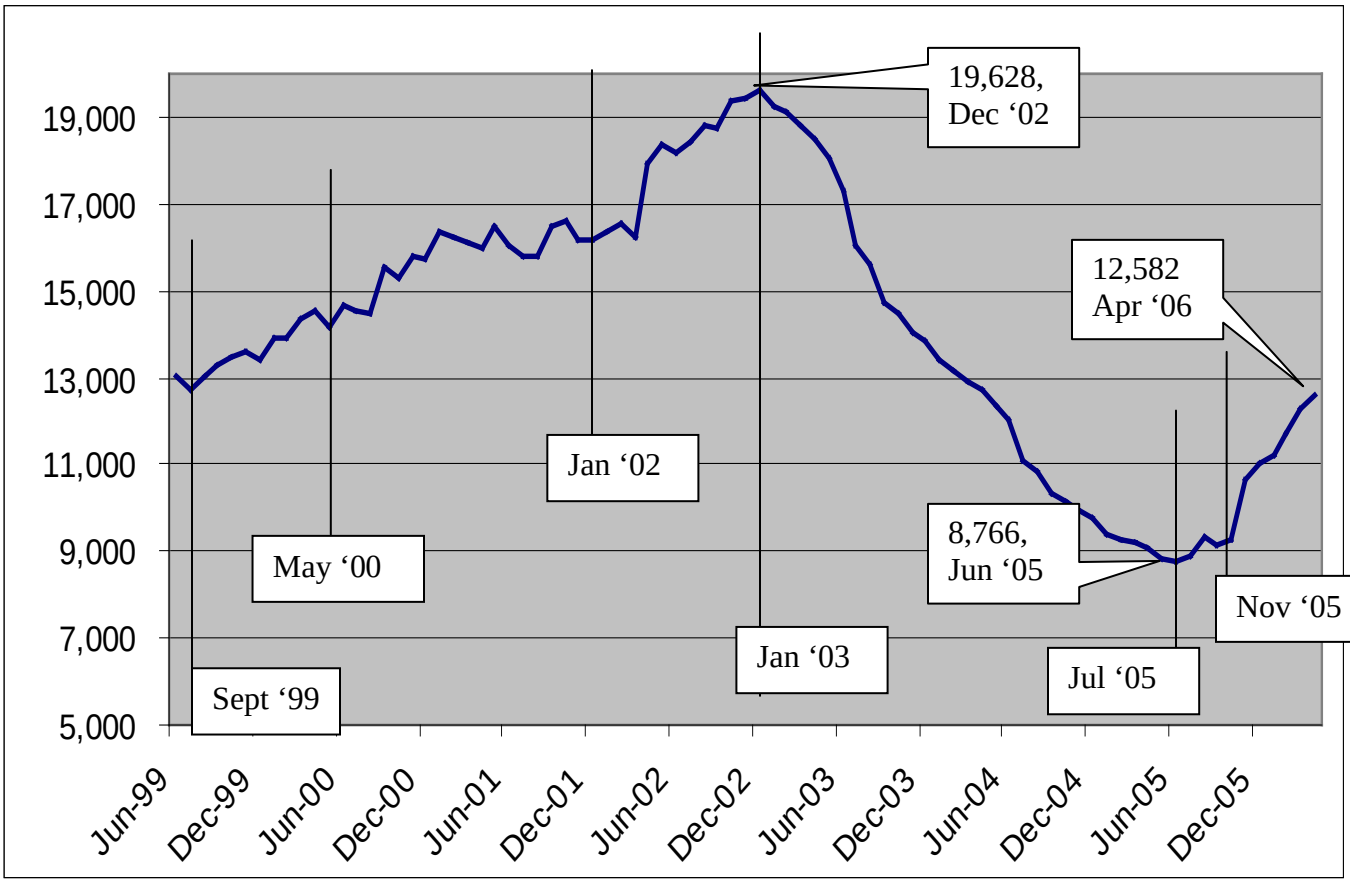
** income limit for redetermination stays at $22,463.

*** informal only rate increase of 5.5%.

The effects of these changes may also be seen in the graph below. After the two early changes, enrollments rose slowly and gradually (at annual rates around 15%) before stagnating during 2001. An ambitious change was implemented in January of ’02 in an attempt to end that stagnation. Enrollments then began growing in April, soaring upward at a rate of 22% annually through December of 2002.

Just as this successful expansion of enrollments was becoming apparent, a change of governor and a move toward lower human services spending produced a reversal in policy in the state. Enrollments were closed in early 2003, to remain closed for two and a half years. Families already on the rolls were allowed to stay in the program, but families seeking to enter the program were placed on a waiting list. Families who failed to pass re-eligibility examinations (or "redetermination") were dropped from the rolls. As a result, a rapid and steady drop took enrollments downward at an annual rate of roughly 30%.

Non-TANF Child Care Subsidy Families,
Sept 1997-April, 2006



Alarmed at the pace of change, which appeared slow at that point, management took an additional step to slow expenditure. Regulation

changes to raise co-payments were begun in the fall and took effect in the following February of 2004. Co-payment rates were increased across the board, at a magnitude of slightly more than 50% statewide, but the pace of decline did not change.

Local departments of social services began to take new applications for assistance on May 1 of 2005 for delivery of service starting July 1. Of the ten income levels that constitute the eligibility scale for Non-TANF childcare, only the first four were reopened (up to $16,470 per year for a family of 3), comprising some 40% of customers in the typical Non-TANF customer distribution. In November, the remaining income levels were reopened.

WHICH LEVERS WORKED AND WHICH DIDN'T

Naturally, it would be advantageous to be able to distinguish which of the levers produced the most powerful effects. To address this question, we used an ordinary least squares multiple regression analysis, using family data on Non-TANF child care subsidy enrollment as the independent variable.

For dependent variables, we used a variety of data series, details of which may be inspected below. All series were monthly.

Variable	*Details*
Employment levels	Total Non-agricultural employment for Maryland, seasonally-adjusted, from the Bureau of Labor Statistics
Eligibility levels	A composite series created by adjusting Census 2000 household counts corresponding to the eligibility requirements of the program, and adjusting upward for population growth and either upward or downward as necessary to reflect changes in program eligibility from year to year and the State Median Income. [7]
Population growth	Growth of households from Census and Maryland Department of Planning sources.
Inflation	Change in Maryland's State Median Income
Rates	Computation of the actual cost per child from a combination of Maryland fiscal and child care

	subsidy sources.
Co-payment rates	Computation of the official co-payment burden per child from Maryland child care subsidy sources.
Provider numbers	Counts of total licensed providers in the state.
Provider capacities	The estimated child capacity (in slots) of the state's licensed providers.

Because many of these time series are highly collinear, pairwise correlations proved of little value in estimating their usefulness. Instead, we began with employment and eligibility data as suggested by the regulatory structure of the program itself. Enrollments have been so heavily influenced by closing admissions, however, that progress could not be made without compensating for that fact in modeling. Thus three additional dummy variables were added from the earliest attempts. They were

Closure Period	A dummy series representing the number of months admissions were closed, counting from January of 2003.
Reopening 1 and 2	Two indicator variables representing the two phases of reopening, the first from July of 2005 through October of the same year, and the second from November of 2005 to the present.

The results were very gratifying, with an R^2 of .934, all coefficients significant, with proper signs, and the F-statistic probability of the whole equation significant at the 1% level.

With a stable model definition, then, the usefulness of alternative series could be explored. As the process continued, we considered and rejected all of the series listed above, except employment and eligibility. Thus all measures of rates, co-payments, inflation, population growth and provider numbers and capacity were eventually rejected. (Both inflation and population growth were incorporated into the eligibility variable, however, so their effects were incorporated in modified form.) An inspection of the residuals suggested several improvements, however, which were incorporated into the final specification.

Dependent Variable: NTCA_FAMS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-94283.98	28522.29	-3.305624	0.0015
Employment lag 1	0.045053	0.011917	3.780605	0.0003
Eligible Households	0.025091	0.01103	2.274715	0.0258
REOPENING 1	-11858.93	1296.795	-9.144797	0.0000
REOPENING 2	-10422.09	1382.213	-7.540143	0.0000
CLOSURE Period	-402.6196	41.2561	-9.759031	0.0000
CLOSURE lag 9	973.2878	261.8013	3.717659	0.0004
Eligibility Change Lag3	-635.4173	204.8976	-3.101145	0.0027
AR(1)	0.845693	0.066459	12.72505	0.0000

R-squared	0.988685
Adjusted R-squared	0.987462
S.E. of regression	348.4778
Sum squared residuals	8986321.
Durbin-Watson statistic	2.112908
F-statistic	808.2322
Probability (F-statistic)	0.000000

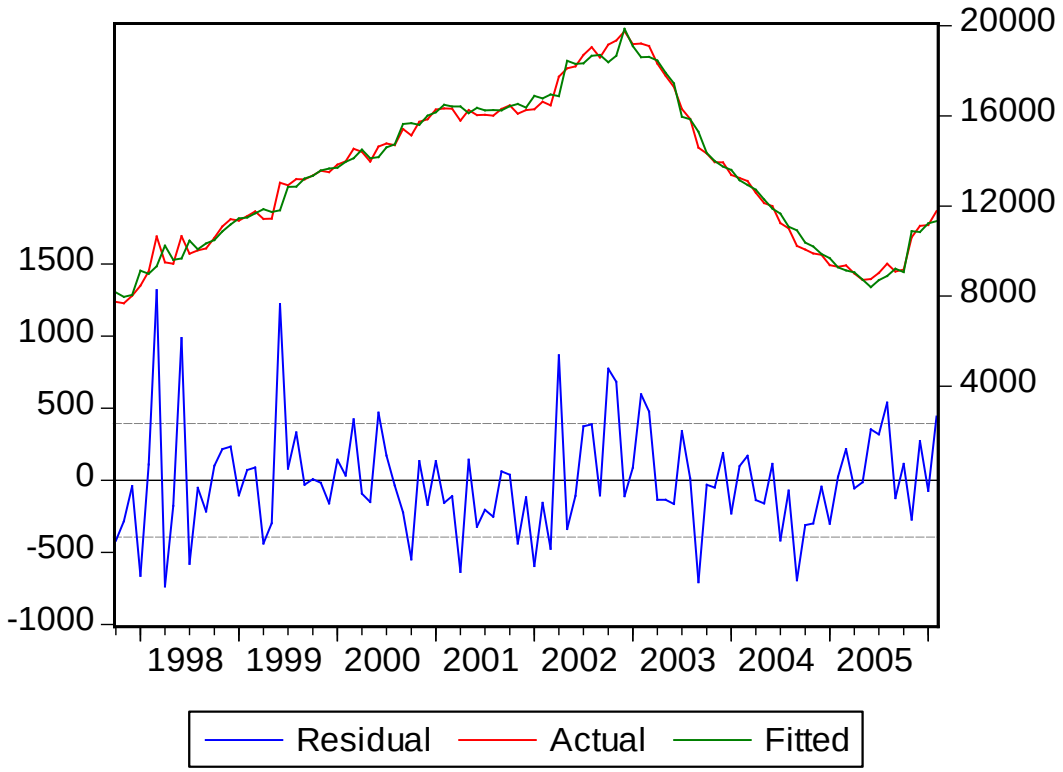
Inspection of the residuals suggested the importance of three more variables which were subsequently added:

- a lag variable of three months' duration for the three rate increase/co-pay adjustment/eligibility increase events of September 99, May 2000, and January of 2002, shown as "Eligibility Change lag3" above.
- a variable of nine months' duration, both an implementation anticipation effect and then an implementation lag, for the beginning of the waitlist period (from October 2002 through June 2003), shown as "Closure lag 9" above.
- First order lagged residuals, in order to counteract the typical auto-regression problem of working with time series data. Without this adjustment, coefficients would be biased.

Graphs of the actual, residual and fitted series may be seen below.

Employment, logically enough, turned out to be 12 times as important as eligibility in affecting enrollment levels. Eligibility, after all, must affect those families only at the top of the eligibility scale, whose program

participation is directly changed by raising the maximum income to qualify for the program. (The scale has never been lowered.) Employment, however, affects all who are enrolled in the program, since employment is a requirement for participation.



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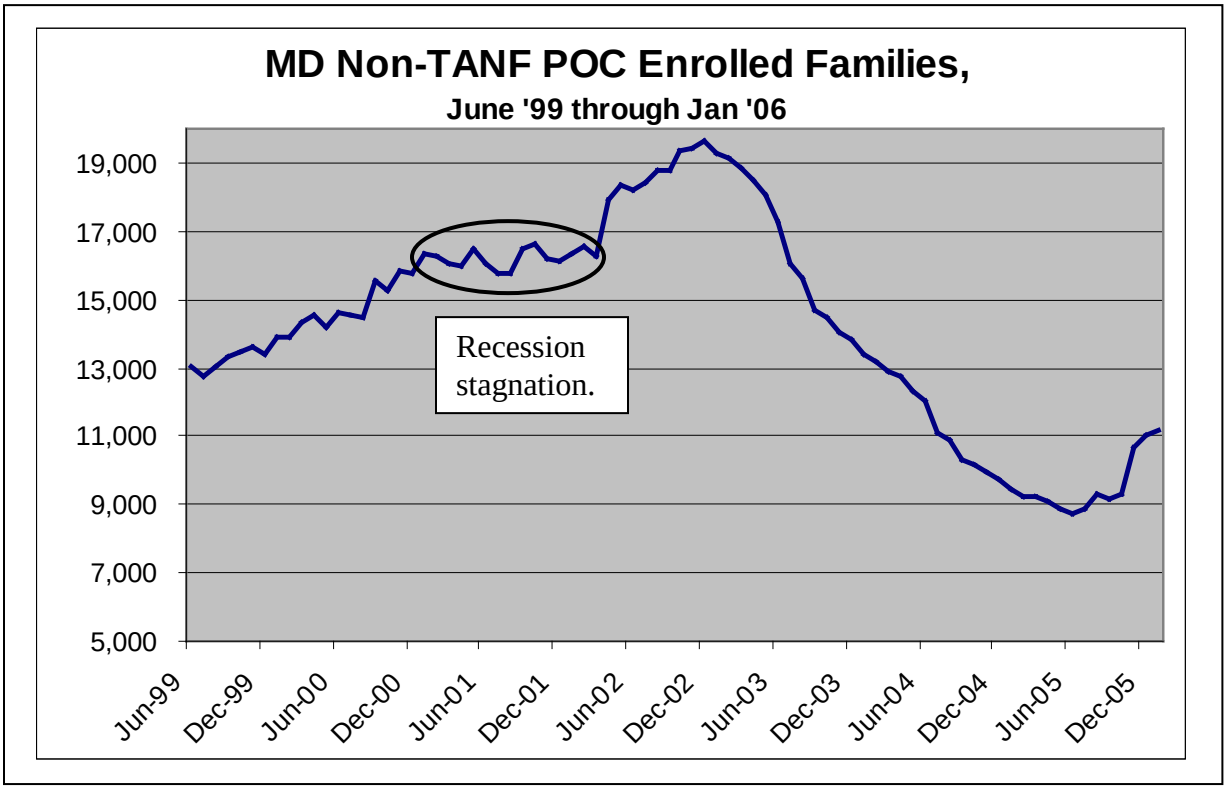
The signs of the variables are all as expected. Eligibility and Employment (variables 1 and 2 above) were both positive: the higher the employment and the higher the eligible population, the higher the enrolled subsidy population. Employment had twelve times the impact of eligibility. The "Closure Period" variable, with its negative 400 families compounding monthly, totaled 12,000 families lost to the program by the time the closure ended in month 30. The indicator variable "Wait List Recovery 2" was negative, as befits its status as correction to the wait list variable.[8] Of the other two indicators, "Elig Change lag 3" was negative, and properly so since its effect was to delay increases that should have come from eligibility increases; "WL Impl lag 9" was positive since it first increased enrollments in anticipation of the wait list implementation, and then delayed the declines from wait list effects.

In sum, the model shows that fluctuations in the employment market, along with the restrictions and recovery of enrollment from the wait list, largely determined enrollment levels over this period. A good example of the importance of employment's effects on enrollment levels can be seen in the period February of '01 through March of '02. To all outward appearances, that period should have been one of growth, reflecting the 12% eligibility increase of May of '00. A strong counter-current of falling employment, however, caused enrollment to stagnate as Maryland and the U. S. as a whole moved into the'01-'02 recession,.[9]



It is interesting to note the typical lags in implementation of policies, as indicated by the significance of the variables "Elig Change lag 4" and "WL Impl lag 7." Both childcare subsidy program management and research analysts have shared for some time the conviction that lags occur. But it has proved almost impossible to get information about the nature of these lags. Here, for the first time, we have estimations both of the duration and the magnitude of the lags.

Evidence here suggests that the normal delays in fully implementing the normal adjustments to eligibility were on the order of four months. The

magnitude of the effect was an average of 800 families—families that could potentially have been on the rolls sooner. We can only speculate about the cause of the lags, of course. Research has indicated deficiencies of knowledge about subsidy program policies among the urban poor, and if this situation is common on basic knowledge, how much more widespread must be able important changes in the subsidy program[10]? The clear differences in jurisdictional responses to the wait list reopening in Maryland demonstrates the pattern of quick response in rural areas, while urban and suburban areas responded two or three months later.[11] It may be that such patterns testify to different levels of communication among urban and rural subsidy users and potential users.

Another component may be the difficulty of changing levels of knowledge and awareness among eligibility workers. For example, the lag effect was particularly strong during the implementation of the wait list in early 2003, both in anticipating the closing of admissions (and thus raising enrollments right before the closing) and in resisting the imposition of the wait list (thus inflating enrollments temporarily). The waitlist was an unpopular policy move, and resistance among county eligibility staff was widespread and well recognized by management.

Just as significant is the list of variables that did not prove influential in affecting enrollment levels. That list included some factors thought to be quite important, such as the co-pay levels, provider reimbursement rates, the number of providers and their characteristics, and movements in the TANF-enrolled childcare subsidy population.[12] Rejection of these candidate variables was not decided quickly. When they failed to prove significant in the initial model-building phase, they were tried again and again in the context of the almost fully specified model.[13] Their failure seems definitive. They truly seem to have had no influence on enrollment levels.[14]

MANAGEMENT'S POWER TO INFLUENCE ENROLLMENTS

As we have seen, over 98% of the variation in this child enrollment series can be explained by a handful of factors, most notably employment levels. Eligibility has a smaller, but not insignificant effect on enrollments. Since Child Care Subsidy management can change eligibility criteria (within the constraints imposed by the political process, of course) but has no control over employment, there really is no choice. Eligibility, and its darker cousin, program closure, must be the levers of choice for controlling the program.

If we can assume that program closure should be a last resort, since it almost completely undercuts the function of the subsidy program—supporting work efforts of parents and safe, secure and educationally valuable child care settings for children—we are left with eligibility as the resort of choice. Maryland never attempted to restrict eligibility. As a result, closure of the Non-TANF subsidy program became necessary, and, once closed, the program remained closed for 30 months.

Conclusions

So, how can management control program enrollments and expenditures? Maryland's experience over the course of these seven years shows at least a piece of the answer to this question.

- Eligibility is the most powerful short-term control childcare management has for influencing program enrollments, and thus expenditures.
- While we have not observed the effects of reducing eligibility levels in the program, the full closure of intake to the Non-TANF portion of the program was very effective. Of course, the political cost of such closure must be a consideration in any calculus of program management.
- Rate changes and co-pay adjustments, at least within the limited bounds of Maryland's experience, cannot affect enrollments, and thus are powerless to effect important changes in program subsidy costs.

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Notes

[1] See Douglas Besharov and Caeli Higney, "Federal and State Child Care Expenditures (1997-2003): Rapid Growth Followed by Steady Spending," Maryland School of Public Policy, May, 2006, p. 5, www.welfareacademy.org

[2] See Stephanie Schaefer et al., "Predictors of Childcare Subsidy Use," Childcare and Early Education Research Connections series, NCCP of Columbia University, October 2005, 3; 13.

[3] Data from the NCCP 50 state policies database on http://www.nccp.org This result is similar to Maryland's ranking of 16th based on total public expenditures on child welfare as calculated by Kristen Harknett, et al., "Are Public Expenditures Associated with Better Child Outcomes in the U. S.? A Comparison across 50 States," Analyses of Social Issues and Public Policy, Vol. 5, No. 1, p. 112.

[4] Carmen DeNavas-Walt, Bernadette Proctor and Cheryl Lee, U. S. Census Bureau, Current Population Reports, P60-229, "Income Poverty and Health Insurance Coverage, 2004" (Washington, DC), 2005, p. 25.

[5] Peter Fronczyk, "Income, Earnings and Poverty from the 2004 American Community Survey," U. S. Census Bureau, August 2005, p. 5.

[6] NCCP 50 state policies database; also, Hannah Matthews and Danielle Ewen, "Toward a Decade of Indifference: Administration Budget Ignores Child Care Needs of Working Families" Center for Law and Social Policy, 2/06.

[7] This variable was constructed from the only reasonable data on the population corresponding to the exact eligibility guidelines of Maryland's POC program—families with children under 13, and incomes corresponding to the state's income scale—which is Census 2000 data. This data was then extended both backward in time, and forward to the present using household population forecasts of the Md. Planning Office, adjusted by the movement of poverty estimates of the Census Bureau's Small Area Income and Population Estimates (SAIPE) and an RESI forecast of those population estimates. The resulting series should be pretty accurate for the 1999 time frame corresponding to the Census measurements. The degree of bias in the present period depends on how well Maryland Planning Office, RESI and the Census Bureau perform in measuring and forecasting.

[8] This coefficient is negative because the Wait List in Effect variable drove down the enrollment level over 30 months, and the indicator variable maintains that lowered state compared to the pre-Wait List level, albeit on a lesser scale.

[9] See http://www.nber.org/cycles.html for the National Bureau of Economic Research's timing of this recession.

[10] See Anne Shlay, M. Weinraub, M. Harmon and H. Tran, "Barriers to subsidies: why low-income families do not use child care subsidies" Social Science Research, 33, 1, 134-157; also Gina Adams, Urban Institute; for a regional example, see Washington State.

[11] "Managing Child Care Subsidy Program Expenditures: Maryland's Experience in the Era of the Wait List," RESI Working Paper no. 26 (available from the author).

[12] See, for example, The Southern Institute on Children and Families, Building Momentum- Taking Action: (February, 2002), 13 for judgments of the importance of co-payment . Of course, co-payment increases can be absorbed by the provider and allegedly in many cases they are- personal communication from the Maryland Association of Family Childcare Providers, June, 2005. This echoes at least some nationwide experience as reported in Gina Adams and Kathleen Snyder, "Essential but Often Ignored: Child Care Providers in the Subsidy System," Urban Institute Occasional Paper Number 63, 2003, 27. http://www.urban.org

[13] Failure was defined as a t-statistic with greater than a .05 probability, or no improvement in the adjusted R^2, or an associated worsened t-statistic for another of the less-suspect independent variables, or no improvement in the adjusted R^2 and a worsened Durbin-Watson.

[14] It may be, of course, that influences could be detected beyond a certain point. It is hard to imagine that some rate level would not turn providers against the subsidy program, causing them to turn away subsidy parents as too expensive and troublesome to serve. Fortunately, that rate level was not reached during this period.