Beneficial Impacts of Child Support Services on Custodial Family Self-Sufficiency

Summary

Findings

Services provided by the Washington State Division of Child Support, in establishing compliance with child support orders which leads to regular payments of child support for families and medical support coverage for children, create indirect benefits to custodial families. Custodial parents who receive regular payments, compared to similar custodial parents who receive irregular payments, are less likely to use government assistance – in TANF, Medicaid, or Food Stamps – and are more likely to be employed and generating higher earnings when employed. Children with either or both medical support coverage and custodial parents receiving regular payments are less likely to use Medicaid and more likely to be employed, compared to similar children who have neither medical support coverage nor custodial parents receiving regular payments.

The impacts are substantial and make large contributions to family self-sufficiency and thus to reducing public expenses for families:

for custodial parents –

- about 3,000 custodial parents per month, who would otherwise have used TANF, do not use TANF saving an estimated $1.3 million per month;

- an estimated Medicaid savings of $1.8 million per month, with about 95% of savings arising from about 5,000 custodial parents per month who do not use Medicaid, and would otherwise have used Medicaid; about 5% of savings arises from reductions in cost when Medicaid is used;

- an estimated Food Stamps savings of $0.9 million per month, with about 99% of savings arising from about 4,000 custodial parents per month who do not use Food Stamps, and would otherwise have used Food Stamps; about 1% of savings arises from reductions in cost when Food Stamps are used;

- estimated additional earnings of $11.6 million per month, with about 70% of additional earnings arising from more working hours for those employed and about 30% arising from about 3,000 custodial parents per month who would otherwise not be working, being employed;

for children –

- an estimated Medicaid savings of $2.7 million per month, with about 80% of savings arising from about 16,000 children per month who do not use Medicaid, and would otherwise have used Medicaid; about 20% of savings arises from reductions in cost when Medicaid is used;

- estimated additional earnings of $0.6 million per month, with about 85% arising from about 1,300 children per month who would otherwise not be working, being employed.

Thus the two child support services, regular payments and medical coverage, lead to more self-sufficiency, demonstrated by less use of expensive public services and higher employment. The estimated impacts total to $6.7 million per month in saved government expenses and $12.2 million per month in additional earnings for custodial families - a yearly effect of $80.4 million saved and $146.4 million additionally earned.

For custodial parents the study also examines simultaneous use of multiple services, again comparing parents with regular parents to similar parents with irregular payments. Custodial parents with regular payments are less likely to be using any single service or any combination of the three services, whether working or not working. Examining the dynamic interchanges between service classifications, the study finds that custodial parents with regular payments show dramatically slower rates of entry into TANF, and when not on TANF dramatically slower rates of entry into Medicaid or Food Stamps. The study also finds dramatically reduced rates of increasing the number of services used for custodial parents with regular payments.

Rationale

In early work we selected regularity of payment as an indicator of successful child support services. As defined regularity of payment indicates nearly complete compliance with ordered child support, and we also felt that regularity of payment, even if it is a small amount, could give custodial families an element of stability, which could in turn allow them to build additional elements of stability

into their lives. Our early work examined welfare cohorts in follow-up studies, where we found that regular payment decreased the likelihood of subsequent welfare use and increased the likelihood of subsequent employment. But we also found that the effects of regular payment occurred only after welfare exit, when the custodial family actually receives the child support paid. Once off welfare custodial parents with regular child support stayed off welfare longer, they found employment faster, and they stayed employed longer.

This suggested that even parents who had not recently exited welfare might also be less likely to enter welfare when they had regular child support payments. In the present work we have included the entire caseload of custodial parents, and expanded the analysis to include a broader range of public assistance services.

It should be noted that in our definition of regular payments the requirements on amount of payment are only that there be some amount of child support due and that is very nearly paid in full. The results strongly suggest that the effects we are seeing are not the result of moving clients off TANF due to ineligibility. It has been consistently shown in our studies, covering the period from late 1993 to late 2002, that this is not the case. Custodial parents with regular payments tend to exit welfare at the same rate as parents with irregular payments. Eligibility may be a factor, however, in retarding TANF entry rates for segments of the full case load of custodial parents with regular payments.

Additional employment and earnings when the custodial family is receiving regular payments clearly can not be an eligibility effect. But by providing a dependable, even if small, income stream regular child support payments can lead to more employability of custodial parents. For example, regular child support payments may allow the custodial parent to arrange more reliable child care, or to have better transportation, or a better wardrobe – or improve any of the elements which increase the chances of successful job search and the chances of keeping a job and being promoted. We believe that regular child support payments act as a multiplier – a dependable income stream allows additional earnings to be generated, contributing to greater self-sufficiency. It's the old law of "them that has, gets."

Study Details – Separate Outcomes Analysis

Study results are based on comparing similar individuals. All comparisons were adjusted for other factors which may affect outcomes. The comparisons are thus made, as much as possible, on the basis of 'other things being equal.' But because we are dealing with a very large number of people the other factors are often not really very important - doing comparisons without consideration of any other factors shows nearly the same results. For example, in January 2000 the adjusted Medicaid savings estimate for children differed by only fourteen percent from the unadjusted estimate. Using several different approaches in adjusting for other factors usually made very little difference in the final results. Thus we are confident that the results show the real impacts of child support services in increasing family self-sufficiency and reducing reliance on publicly funded family assistance services.

The study includes all identifiable custodial parents from January 1998 to November 2002 – 417,870 custodial parents - and all identifiable children with identifiable custodial parents in the same period – 602,918 children.

Custodial parent child support payment status is defined for each month as "regular" (CR) when the monthly ordered payment is greater than $0 and total arrears due are less twice the monthly ordered payment. Custodial parents are classified with "irregular" payments (CI) when they have an active case that month and do not meet the CR criteria. A third classification is allowed when there is no active case in the month (CN).

All results discussed are statistically significant at the 0.05 level or better.

TANF

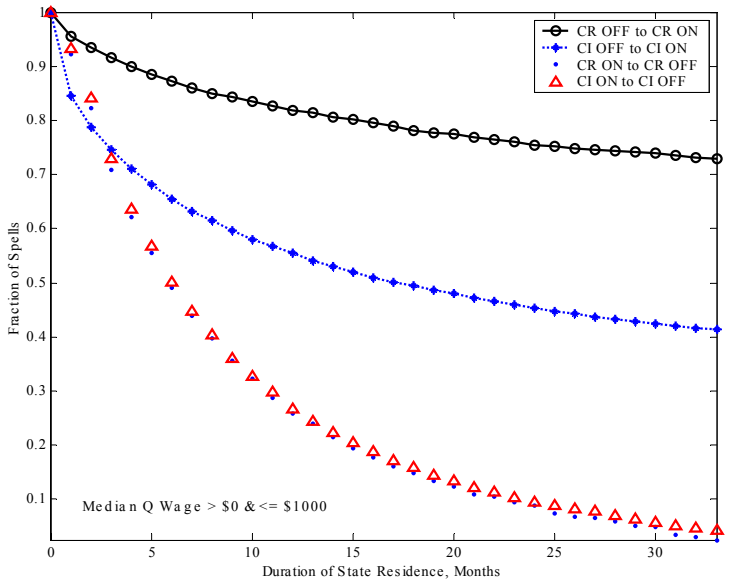
In the first part of the study we wanted to verify that the main effect of regular child support payments was to retard welfare entry flow, and that the effect on welfare exit flow was very small or non-existant. Probably the most important other factor affecting client flow is earning capacity. Custodial parent identifiers were matched to Employment Security Department (ESD) wage records. Earning capacity was estimated as median quarterly wages for 1998 through 2001. Ten levels of earning capacity were defined, being $1,000 increments of median quarterly wages, except for the lowest and highest categories. Clients with regular support payments were then compared to clients with irregular support payments within each earning capacity level.

The results show that at all earning capacity levels custodial parents with regular payments have a much slower TANF entry rate, with no reliable difference in TANF exit rate.

As an example Figure 1 shows the results of survival analysis at earning capacity level 2. The Figure plots the fraction of spells that lasted a particular length of

time against that length of time. This shows the tendency to remain in the given state with the specific termination event. Thus the top curve (black solid line with

Figure 1: Dynamics of Welfare Entry and Exit



circles) shows how long custodial parents with regular payments stayed off welfare and reflects their welfare entry flow. The point where the curve meets the right hand vertical axis tells us that about 73% of the spells off welfare lasted about 33 months. The second line (blue dashed line with + markers) reflects the welfare entry flow of custodial parents with irregular payments, and tells us that it only took about 4 months to reach 73%. The TANF entry flow of custodial parents with regular payments is very much slower – they are spending considerably more time off TANF.

On the other hand when we look at welfare exit flow (the blue • markers for regular payments and the red △ markers for irregular payments) there is no difference in spell durations. This is in keeping with previous findings. Regular payments of child support appear to have an effect only when the custodial family is actually receiving the money – that is, when they are not using TANF.

The results shown in Figure 1 are verified at all earning capacity levels. At higher earning levels the welfare entry flow is, of course, much slower, but the relative effect of regular payments is about the same. In fact if we determine the relative reduction in welfare use, custodial parents with regular child support payments use between 50% and 75% less TANF at all earning capacity levels across 59 months of data.

To provide a better estimation we then used a different analytical approach and incorporated additional client characteristics into the analysis. The analysis began with January 1999 and used a 12 month sliding window of history for each client. That is – the analysis for January 1999 incorporated the client's history from January 1998 to December 1998, the analysis for February 1999 incorporated the client's history from February 1998 to January 1999, etc.

Custodial parent characteristics which did not change over the time frame of the study were classified as shown in Table 1.

Table 1: Fixed Characteristics of Custodial Parents

Characteristic	Classification
Year of Birth	
	No DOB data
	DOB in '30s or before
	DOB in '40s
	DOB in '50s
	DOB in '60s or later
Earning Capacity*	
	No Earnings 1/98 – 12/01
	> $0 & <= $2,000
	> $2,000 & <= $4,000
	> $4,000 & <= $6,000
	> $6,000 & <= $8,000
	> $8,000
Gender	
	Female
Tribal	
	Any tribe indicated
Non-English	
	primary not English

** based on median quarterly wages 1/98 – 12/01*

Custodial parent characteristics which may have changed during the time frame of the study, determined from the sliding 12 month window, were classified as shown in Table 2.

Table 2: Time-Varying Characteristics of Custodial Parents

Characteristic	Classification
Death	
	DOD prior to current month
Location history	
	No location data
	Mostly in-state
	Mostly out-of-state
CR history	
CR0	No months with CR
CR1	1 – 9 months CR
CR2	10 – 12 months CR

The classifications in Tables 1 and 2 are not arbitrary, but are chosen to best fit the way outcomes depend on each characteristic or on joint characteristics (for example, the effect of earnings has a complex dependence on age). The levels of classification were collapsed to reduce the number of possible combinations. The original ten levels of earning capacity are reduced to six. Age is reduced to five classifications. Location is reduced to three levels. While location within Washington State does make a difference, the effect is quite small compared to the classifications chosen.

It was necessary to reduce the number of levels because a stratified analysis was chosen to accommodate non-linear interdependencies. But as the number of strata increases, more and more strata will not provide comparisons because no clients fall into the appropriate categories.

Three approaches were used – linear regression, logistic regression, and stratified averages – with essentially identical overall average results. We have chosen to use stratified averages because it gives more consistent month-to-month results. In this analysis we are only making comparisons within a given stratum – that is, between people who are about the same age, have about the same earning capacity, are the same gender, have a similar tribal status, have a similar language status, have the same death status, and about the same location history. While there are 1,440 possible strata that arise from the combinations of the listed characteristics, only 480 to 500 strata are populated for each month.

Within each stratum the average use of TANF in each analysis month was determined for the three levels of CR history (let us call these values f0, f1, and f2 corresponding to CR0, CR1, and CR2 in Table 2) and also the number of clients in each level of CR history (let us call these values N0, N1, N2). Then the reduction in TANF use in each month due to CR is calculated as

$$\triangle TANF = \text{Sum over all strata} \{ N1*(f1 - f0) + N2*(f2 - f0) \}$$

(*Equation 1*).

This estimates the number of custodial parents who would otherwise have used TANF, but did not use TANF because of regular child support payments.

To estimate cost savings we determine the fraction of TANF clients who are working each month (from TANF records and ESD records) and use average monthly TANF costs of $509 for non-working clients and $307 for working clients (information provided by Valinda Scheibert and Deb Fogarty of the Office of Financial Management (OFM)). If we call the fraction working in a particular month "fw" then the cost savings are calculated as

$$\text{Savings} = \triangle TANF*\{ (1 - fw)*509 + fw*307 \}.$$

This allowed us to calculate, for each of the 36 months of the analysis period, the number of custodial parents who did not use TANF and the associated cost savings due to child support services in establishing regular child support payments. The average over the 36 months was a use reduction of 3,400 custodial parents per month and a cost avoidance of $1.3 million per month.

Medicaid

Custodial Parent

The analysis for custodial parents Medicaid use is essentially the same as the TANF analysis, except that data provided by the Medical Assistance Administration (MAA) allows us to use the actual Medicaid expenses.

The same strata are established, but now within each stratum for each month the average use and the average cost of Medicaid are determined for each level of CR in Table 2. The calculation of use reduction and cost savings then both use the form of Equation 1 in the TANF section.

The average over the 36 months was a use reduction of 4,700 custodial parents per month and a cost avoidance of $1.8 million per month. Since we have the actual costs we can also determine the portion of cost avoidance which is due to a reduction in costs when Medicaid is used. This was only $0.1 million, so that about 95% of cost avoidance is due to non use of Medicaid.

Child

The analysis for children's use of Medicaid was necessarily more complex because two different sets of child support services impact children's Medicaid use, and in some cases children contribute significant earnings to family income.

The second complexity is easily handled by combining the child's and custodial parent's earnings.

The two child support services considered are regular payments of child support (with classifications CR, regular, and CI, irregular), and medical support coverage (with classifications COV, covered or partially covered, and No COV, not covered). Most children in each month have neither services established (No COV & CI), with about 35,000 to 40,000 children in each of the other possible combination classifications (COV & CR, No COV & CR, and COV & CI).

The age characteristic is classified appropriately for the children as shown in Table 3.

Table 3: Age Characteristics of Children

Characteristic	Classification
Year of Birth	
	No DOB data
	DOB before '75
	DOB from '75 to '86
	DOB from '87 to '94
	DOB after '94

This provides the same number of possible strata, 1440, as in the custodial parent analyses, though the classifications are different. Because we are dealing with a larger number of individuals 670 to 700 strata are populated in any given month.

As before we compare only individuals within the same stratum, but now we determine average values for each of the four categories of child support services defined above. The calculation is similar to Equation 1 above, but with three terms in the calculation and the "0" designation referring to "No COV & CI."

This then allows a determination of reduction of Medicaid use and costs associated with child support services. But because we have the actual costs we are also able to estimate cost impacts for only those times when Medicaid is used.

Over the 36 months of the analysis an average 16,000 children per month who would have otherwise used Medicaid did not use Medicaid due to child support services. The average cost avoidance was $2.7 million per month. The category

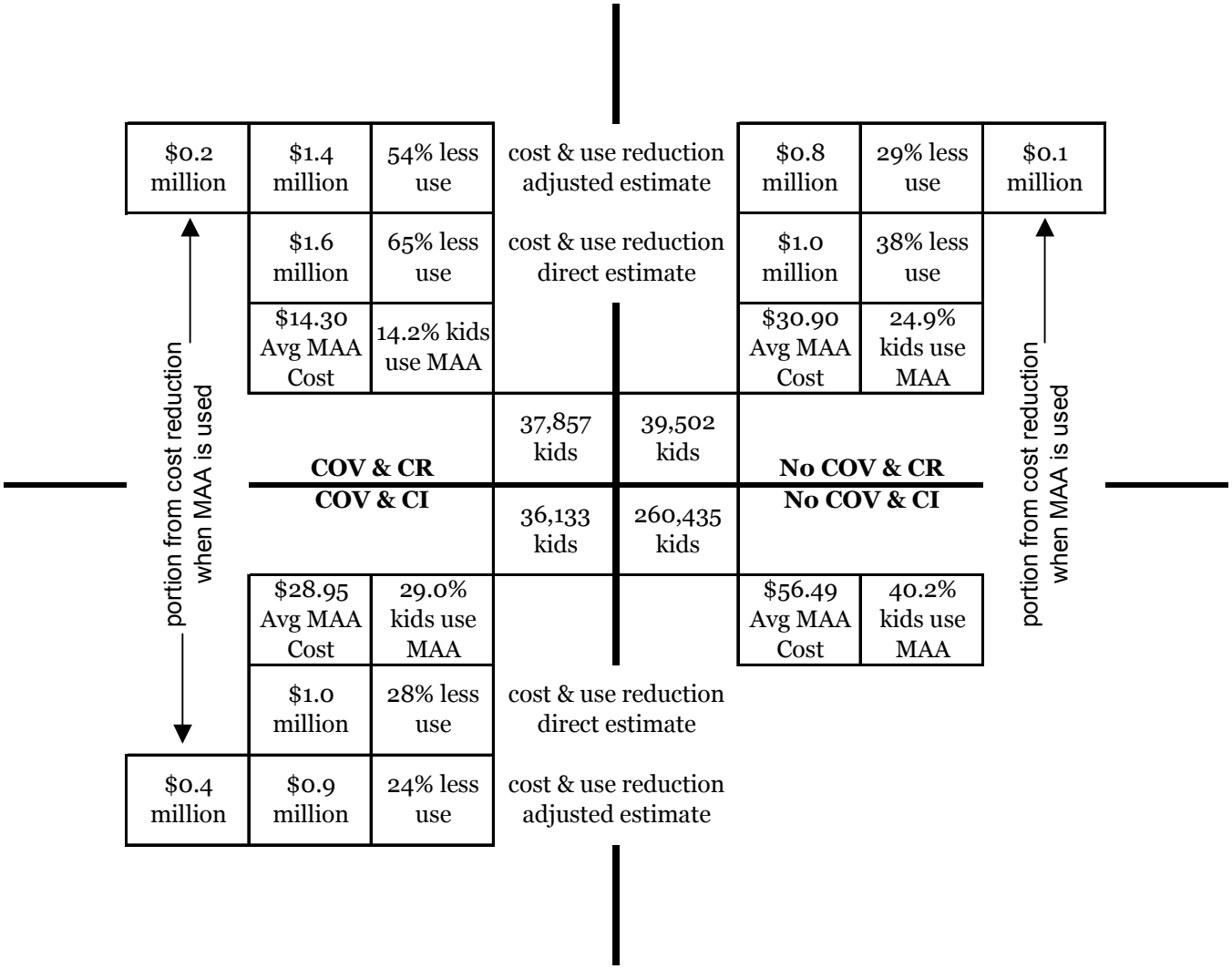
"COV & CR" contributes $1.3 million and the categories "COV & CI" and "No COV & CR" each contribute $0.7 million. About 80% of cost savings comes from a reduction in use of Medicaid, and about 20% arises from a reduction in costs when Medicaid is used.

MAA also tracks Medicaid cost avoidance for children, but they only include claims rejected or post-payment recoveries attributed to insurance provided by the noncustodial parent. For the 36 months covered by the analysis in this report, MAA has recorded a total of $7.5 million in cost avoidance, or $0.2 million per month. This is somewhat less than 10% of our estimate of $2.7 million per month. But this is reasonable because clients will generally not approach MAA to be counted if they do not need, or do not want, MAA services.

Diagram 1 summarizes results for January 2000 as an example. The four quadrants represent the four categories of service, with the lower right hand quadrant being the "no service" reference. In this quadrant there are 260,435 children with an average cost of $56.49 per child and 40.2% of the children using Medicaid in January 2000. Compare this with the upper left quadrant representing 37,857 children who have both child support services, where the average cost is only $14.30 per child and only 14.2% of the children used Medicaid that month – a big difference. If we assume that with neither service those 37,857 children would have cost $56.49 per child this gives us the direct cost savings estimate of $1.6 million. The adjustments created by comparing only within strata reduces the cost estimate to $1.4 million, and the use reduction estimate to 54% less use of Medicaid for children with both regular payments and medical coverage. The final block in the top left shows the portion of the $1.4 million saved that is due to a reduction in costs when Medicaid is used.

The other two quadrants with child support services are laid out in a similar way and show the cost and use reduction for "COV & CI" and "No COV & CR." Notice that while the adjusted cost estimates are similar, a much larger portion of cost savings for "COV & CI" comes from a reduction in cost when Medicaid is used. For this category 44% of the cost savings comes from a reduction in cost when Medicaid is used, but it is only 12.5% of savings for "No COV & CR" and 14% of savings for "COV & CR." It appears that children who have only medical support coverage may not have complete coverage and Medicaid is still providing some assistance. The data suggest that this less likely to occur with regular payments or regular payments combined with medical coverage.

Diagram 1: Estimates of Children's Medicaid Cost and Use



Data and Comparisons for Jan 2000

Food Stamps

The analysis for custodial parent's Food Stamps cost and use is the same as the custodial parent Medicaid analysis, with the actual Food Stamps expenses available.

Once again individuals are only compared within each stratum for each month and the calculation of use reduction and cost savings both follow the form of Equation 1 in the TANF section.

The average over the 36 months was a use reduction of 4,300 custodial parents per month who did not use Food Stamps, but without regular payments of child support would have used Food Stamps, and a cost avoidance of $0.9 million per month. Since we have the actual costs we can also determine the portion of cost avoidance which is due to a reduction in costs when Food Stamps are used. This was only $5,000, so that about 99% of cost avoidance is due to non use of Food Stamps.

Employment

The analysis of employment outcomes related to child support services is more complicated than the analyses for TANF, Medicaid, and Food Stamps outcomes. In the results presented in previous sections the method of analysis or inclusion of control covariates made very little difference in the final average results. But in examining custodial parent earnings related to regular payment of child support, different methods of analysis lead to very different results. Simply taking the average earnings of those with regular payments compared to those with irregular payments showed an average total incremental earning of about $35 million per month, while taking averages within earning capacity levels showed an average total incremental earning of about $3 million per month. There are reasons why the first method would be biased towards high values, and reasons why the second method would be biased towards low values. But they probably do reflect the outside limits of the true value. We chose an approach, described below, which we felt was less likely to be biased and which gave the result of $11.6 million per month. An important point is that while the exact value may be somewhat uncertain, it is clear that custodial parents with regular child support payments do work more and earn more than comparable custodial parents with irregular payments.

Earnings records from the Employment Security Department (ESD) are only available in quarterly summation. While it is unknown how the earnings and hours worked were distributed over the three months of each quarter, we allocated one-third of quarterly earnings and hours to each month of the quarter to convert to monthly records. Thus any earnings in the quarter translated into employment for all three months of that quarter.

Custodial Parent

The chosen analysis is a sliding window analysis similar to that described for TANF above. However, the Earning Capacity characteristic defined in Table 1 is removed as a factor since this includes data for the entire time frame and hence incorporates the outcome variable. In its place earnings history in the 12 month sliding window is included for each analysis month. So that earnings history was not required to be collapsed into a few categories a linear regression analysis was used for earnings or hours worked and a logistic regression analysis was used for employment. In keeping with a regression analysis approach we used dichotomized versions of the characteristics classifications listed in Tables 1 and 2, except the actual number of months of CR in the 12 month history window was used as a continuous variable.

The outcome variable for each analysis month was either the earnings, hours worked, or employment in that month, or the average earnings, average hours, or average employment in the remaining time frame of the analysis (both methods gave almost identical overall average results).

The results of these analyses suggest that because of regular payments of child support custodial parents worked an additional 500,000 hours per month and earned and additional $11.6 million per month more than their comparable counterparts with irregular payments. The bulk of the additional earnings, $8.3 million or 72%, comes from earning more when they are working.

Restricting the analysis to only those who are working showed that regular child support payments were associated with 330,000 additional hours worked per month. Thus 66% of the total increase in hours worked comes from custodial parents with regular payments working more hours when they are employed. This coincides nicely with the 72% value given above – nearly all of increased earnings when they are working appears to result from working more hours.

In addition, about 3,000 additional custodial parents with regular payments are employed each month, who otherwise would not have been working. The results suggest that these 3,000 individuals worked an average 170,000 hours per month (the difference between the 500,000 and 330,000 values) and earned an average $3.3 million per month (the difference between the 11.6 and the 8.3 values).

It should be noted that ESD reported hours worked are generally not as accurate as reported earnings. Thus the exact magnitude of the effect on hours worked is less certain than the magnitude of the earnings effect. But there can be no doubt that the effect is a large increase in hours worked.

Child

In some families the children's earnings can make a significant contribution, and many of the children included in this study do have ESD earnings records. The analysis here is similar to the earnings and employment analysis for custodial parents. However earnings history is the earnings of the child, the age characteristic is that given in Table 3, and medical support coverage is also included as an explanatory variable for child support services – as it was in the analysis of children's use of Medicaid.

The results of the analyses show about $0.6 million per month in additional earnings for the children. A small portion, $99,000 or about 16%, comes from earning more when they are working. The results show about 1,300 additional children per month working, who would not be working without child support services.

Study Details – Dynamics of Child Support Classification

In this study custodial parents are observed for 48 months. Beginning with their initial child support classification (CR, CI, or CN), in January 1998, many custodial parents change classification during the observation period.

About 21 percent of active custodial parents (not CN) will be classified CR in an average month. Table 4 shows the range and averages for the number of clients in each of the child support classifications.

Table 4: Number of Clients in Child Support Classifications

	Min	Mean	Max
CI	191,839	200,900	204,540
CR	48,425	53,771	58,166
CN	137,487	141,520	146,519

We examine, using the techniques of survival analysis, the expected times in each initial classification for each of the possible transitions. Thus we are only using information from each client's first classification spell. Table 5 shows results, where, for example, it can be seen that 48,633 clients started in the CR category and 27,602 of these clients ended their CR spell with a transition to CI and an average expected CR residence time of 50 months. This means that the regular payment status will be maintained for about 50 months on average, and the transition from CR to CN will be relatively unimportant.

Table 5: Dynamics of Clients in Child Support Classifications

Start	Spell	Event	Number	Expected time, months
203,600	CI	CR	29,524	260
	CI	CN	73,424	100
	CI	end*	100,017	-
	CI	death	635	-
48,633	CR	CI	27,602	50
	CR	CN	4,160	350
	CR	end*	16,827	-
	CR	death	44	-
143,955	CN	CI	114,529	40
	CN	CR	20,172	140
	CN	end*	9,171	-
	CN	death	83	-

** end of observation period*

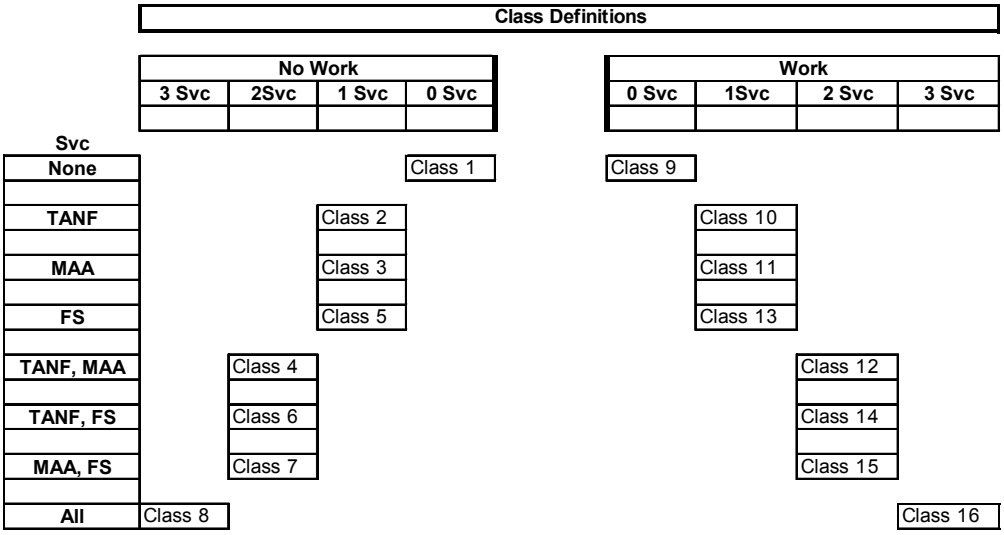
The transitions out of the CI classification are slow, and 49% of those who start in CI do not experience an event before the end of observation. The transition from CR to CI is much quicker than either of the transitions into CR. However 35% of those who begin in the CR classification do remain until the end of observation.

Some clients maintain their CN status through the observation period because clients who had open cases in 2002 were also included in the study, and about 9,000 clients did not have an open case in the period 1998 to 2001.

Study Details – Joint Outcomes Analysis

Many custodial parents use multiple public services and it can be important to understand the relationships between services used and outcomes. In this analysis we consider only two levels for each outcome – use or no use, and work or no work. This creates 16 possible outcome classes as defined in Grid 1.

Grid 1: Joint Outcome Definitions



The analysis covers a 48 month period, from January 1998 to December 2001. While 417,870 custodial parents were identified in DCS records for the study, only 396,188 custodial parents are included in this analysis because some data from different sources could not be matched. Over the 48 months the average custodial parent populations in each class are shown in Grid 2, and the percentage distribution, or class probabilities, are shown in Grid 3.

On average nearly 77% of custodial parents use none of the three services. Use of Medicaid predominates with clients who use one service and with clients who use two services. Use of TANF as a single program is minimal, and less than 40% of clients using two services are on TANF. On average there are 47.1% working clients.

Grid 2: Joint Outcome Populations

Class Average Populations								
	No Work				Work			
Svc	3 Svc	2Svc	1 Svc	0 Svc	0 Svc	1Svc	2 Svc	3 Svc
None				158,497	145,261			
TANF			795			591		
MAA			10,632			12,717		
FS			6,303			6,286		
TANF, MAA		2,770					2,145	
TANF, FS		2,195					1,684	
MAA, FS		11,393					6,789	
All	16,908							11,222

Grid 3: Joint Outcome Probabilities

Class Average Distribution								
	No Work				Work			
Svc	3 Svc	2Svc	1 Svc	0 Svc	0 Svc	1Svc	2 Svc	3 Svc
None				40.01%	36.66%			
TANF			0.20%			0.15%		
MAA			2.68%			3.21%		
FS			1.59%			1.59%		
TANF, MAA		0.70%					0.54%	
TANF, FS		0.55%					0.43%	
MAA, FS		2.88%					1.71%	
All	4.27%							2.83%

We next ask how the child support service of regular payments affects class probabilities. While we are mainly interested in comparing regular payments (CR) with irregular payments (CI), for completeness we include the third level which indicates the custodial parent is not in DCS records with an open case (CN) for the particular month. The child support classification is taken from the month prior to the determination of class distributions, and then the average over 47 months is determined. The results are presented in table form in Table 6.

Table 6: Child Support and Joint Outcome Probabilities

	No Work			Work		
	CI Prob	CR Prob	CN Prob	CI Prob	CR Prob	CN Prob
No Svc	33.95%	33.11%	51.26%	34.85%	53.37%	33.10%
TANF	0.32%	0.07%	0.08%	0.24%	0.06%	0.06%
MAA	2.83%	1.71%	2.88%	3.94%	2.41%	2.53%
FS	1.02%	0.32%	0.38%	0.83%	0.26%	0.23%
TANF, MAA	1.81%	0.91%	1.51%	1.93%	1.10%	1.26%
TANF, FS	0.88%	0.21%	0.21%	0.68%	0.18%	0.15%
MAA, FS	3.36%	1.69%	2.64%	2.33%	1.13%	1.09%
All	6.53%	2.11%	1.69%	4.50%	1.35%	0.95%

It is clear from Table 6 that custodial parents with regular payments are much less likely to be found in classes which use public services, and much more likely to be found in the work with no services class, compared to custodial parents with irregular payments. But for a fair comparison we must adjust the class probabilities for custodial parents with regular payments for other factors which can influence outcomes.

The class probabilities for regular payments shown in Table 7 are adjusted for custodial parent fixed factors gender, tribal indication, non-English primary language indication, and date of birth; and for the previous month's outcome class, location, and death indication. Also included in Table 7 is the relative impact of regular child support payments. In every service category the impact is to reduce the likelihood that a custodial parent will be found in that category. For example, non-working clients with regular payments are 33% less likely to be using TANF as a single program and 20% less likely to be using TANF combined with Medicaid. The impact of regular payments also increases the likelihood of the "work no services" category, but there is essentially no impact on the "no work no services" category.

Table 7: Adjusted Probabilities for CR and the Relative Impact of CR

	No Work			Work		
	CI Prob	CR Prob*	Impact**	CI Prob	CR Prob*	Impact**
No Svc	33.95%	34.01%	0%	34.85%	40.20%	15%
TANF	0.32%	0.21%	-33%	0.24%	0.16%	-31%
MAA	2.83%	2.46%	-13%	3.94%	3.14%	-20%
FS	1.02%	0.91%	-11%	0.83%	0.73%	-12%
TANF, MAA	1.81%	1.45%	-20%	1.93%	1.36%	-30%
TANF, FS	0.88%	0.60%	-32%	0.68%	0.49%	-28%
MAA, FS	3.36%	2.91%	-13%	2.33%	2.07%	-11%
All	6.53%	5.79%	-11%	4.50%	3.50%	-22%

* *Probability adjusted for gender, tribal indication, non-English primary language indication, date of birth; and for the previous month's outcome class, location, and death indication.*

** *Impact is calculated as (CR Prob – CI Prob)/CI Prob.*

Study Details – Joint Outcomes Dynamics Analysis

The previous section presented a static view of outcomes, but the populations in the sixteen classes are not constant over the time span of the study. In this section we will examine how interchanges in class occur over time. For each class there are fifteen possible entry events and fifteen possible exit events which contribute to the level at any particular time. While client flow streams generally connect each class to every other class, many of the possible events occur infrequently and are not very important. We include only the first spell in the time span of the study, recording the duration, in months, of the spell and the event which terminates the spell. Looking at the important exit events will help us understand the dynamic flow patterns of client service use and employment.

For clients who began in the CI category, Tables 8 and 9 show the five most prominent exit events for all classes. For example Table 8 shows that 67,560 CI custodial parents began in Class 1 with 15,394 exiting to Class 9, and Table 9 shows that 61,527 CI custodial parents began in Class 9 with 22,237 exiting to Class 1.

Table 8: First Spell Exits for Those in the CI Category & No Work
- see Grid 1 for Class Definitions -

start	67,560 Class 1		859 Class 2		3,725 Class 3		4,719 Class 5	
Exits To	*Class*	*Count*	*Class*	*Count*	*Class*	*Count*	*Class*	*Count*
	9	15,394	1	517	1	2,042	1	1,704
	5	4,003	4	180	7	730	7	1,472
	3	2,309	10	34	11	406	13	623
	7	913	5	32	4	111	6	397
	13	369	6	30	5	74	8	269

start	2,966 Class 4		2,670 Class 6		6,477 Class 7		23,502 Class 8	
Exits To	*Class*	*Count*	*Class*	*Count*	*Class*	*Count*	*Class*	*Count*
	12	903	8	1,744	5	2,218	16	10,320
	2	532	2	326	3	1,695	4	4,224
	8	528	5	195	8	763	6	3,857
	3	410	14	175	15	665	7	1,971
	1	389	4	78	1	387	2	1,572

Table 9: First Spell Exits for Those in the CI Category With Work

- see Grid 1 for Class Definitions -

start	61,527 Class 9		529 Class 10		5,060 Class 11		4,630 Class 13	
Exits To	Class	Count	Class	Count	Class	Count	Class	Count
	1	22,237	9	330	9	3,477	9	2,950
	13	5,044	12	91	15	738	15	607
	11	2,987	11	27	3	485	14	340
	15	718	13	24	13	96	5	309
	5	368	14	19	12	88	16	194

start	1,776 Class 12		1,552 Class 14		3,531 Class 15		12,517 Class 16	
Exits To	Class	Count	Class	Count	Class	Count	Class	Count
	11	686	16	902	11	1,360	12	3,089
	9	362	10	217	13	759	15	3,023
	16	221	13	175	16	720	8	2,618
	10	184	12	70	7	277	14	1,559
	4	160	9	59	9	208	11	739

Tables 10 and 11 show the same information for clients who began in the CR category.

Table 10: First Spell Exits for Those in the CR Category & No Work

- see Grid 1 for Class Definitions -

start	15,734 Class 1		45 Class 2		649 Class 3		650 Class 5	
Exits To	Class	Count	Class	Count	Class	Count	Class	Count
	9	4,732	1	27	1	380	1	280
	5	495	4	13	7	116	7	163
	3	414	5	2	11	89	13	130
	7	89	7	2	9	16	6	23
	13	56	8	1	5	8	8	21

start	278 Class 4		178 Class 6		760 Class 7		2,173 Class 8	
Exits To	Class	Count	Class	Count	Class	Count	Class	Count
	12	89	8	121	3	258	16	924
	3	50	5	19	5	206	4	377
	8	50	2	15	15	119	7	329
	1	34	14	9	8	64	6	268
	2	34	1	5	1	40	2	131

Table 11: First Spell Exits for Those in the CR Category With Work

- see Grid 1 for Class Definitions -

start	24,661 Class 9		46 Class 10		858 Class 11		672 Class 13	
Exits To	Class	Count	Class	Count	Class	Count	Class	Count
	1	8,058	9	35	9	622	9	475
	13	877	12	5	3	97	15	60
	11	694	2	2	15	95	5	55
	15	112	11	2	1	11	14	31
	5	64	1	1	7	9	16	19

start	174 Class 12		121 Class 14		478 Class 15		1,156 Class 16	
Exits To	Class	Count	Class	Count	Class	Count	Class	Count
	11	82	16	64	11	215	12	313
	9	37	10	26	13	101	15	313
	16	20	13	15	16	63	8	194
	4	14	12	4	7	43	14	100
	10	12	9	3	9	32	11	88

Many clients show no change in class during the entire 48 month observation period, mostly those who began in Class 1 or Class 9. Table 12 shows the numbers and percentages of clients in each child support category in each starting class with no observed exit event.

Table 12: First Spells With No Exit Events

- see Grid 1 for Class Definitions -

start Class	% with no exit		number with no exit	
	CI	CR	CI	CR
1	64.9%	62.9%	43,817	9,898
3	6.4%	4.5%	238	29
4	0.4%	1.4%	11	4
5	0.5%	0.6%	25	4
7	6.5%	4.6%	422	35
8	0.7%	0.9%	161	20
9	48.3%	59.9%	29,746	14,771
11	0.6%	1.0%	30	9
13	0.2%	0.0%	8	0
15	0.0%	0.2%	1	1
16	0.1%	0.0%	7	0

Because of the small numbers in Table 12, CR and CI can be compared only for Class 1 and Class 9. There is a very small difference in the percentage of clients who remained in Class 1 for the entire 48 months, but a significantly higher percentage of CR clients remained in Class 9 for the entire 48 months.

As shown in the section "Dynamics of Child Support Classification" clients do not necessarily maintain their CI or CR category throughout the observation period. Table 13 shows the number of clients who started the observation in each child support category, the number who maintained that category for the entire duration of their first outcome Class spell, and the number who attained that category for any part of their first outcome Class spell.

Table 13: Custodial Parent Child Support Category During First Spell

	CR	CI	CN
@ Start	48,633	203,600	143,955
Whole Spell	26,623	145,557	88,818
Any in Spell	87,092	272,761	201,187

While 48,633 custodial parents start the observation period as CR, only 26,623 remain CR for the entire duration of their first spell. But 87,092 custodial parents attain CR status for at least part of their first spell. Of 87,092 with any CR 17,000 started in CI and 21,459 started in CN, or 44.16% did not start CR. These custodial parents may also provide data analyzable for the effect of CR. To select those spell/exit combinations where there are sufficient numbers of custodial parents with some CR status we used the 87,092 custodial parents who showed any CR status during their first spell in the observation period. Requiring that there be more than 100 custodial parents in a particular exit event for analyzability gave us 36 exit events (out of 240 possible events) that had the possibility of yielding useful analyses.

The analysis is limited to these 36 events because when client flow streams are small only a few client will exhibit exit events. Hence, the data available to estimate residence times and impacts on residence times will be very limited. In addition, with only 48 months of data, residence times longer than 48 months are statistically extrapolated, are less reliable, and results may be overly influenced by stronger client flow streams.

Table 14 shows the 36 analyzable exit events and the exit percentages of clients who began in each Class, for clients who started in the CI category and for clients who had the CR category for any part of their spell. For example Table 14 shows that of CI clients who started in Class 1 22.8% exited to Class 9 and 5.9% exited to Class 5; for "Any CR" clients who started in Class 1 23.5% exited to Class 9 and 2.6% exited to Class 5. Thus "Any CR" appears to have only a small effect on Class 1 exits to Class 9, but reduces Class 1 exits to Class 5 by about 50%.

Table 14: Compare First Spell Exits For Events With More Than 100 CR Custodial Parents

- see Grid 1 for Class Definitions -

start Class	exit to Class	exit Percentages	
		start CI	Any CR
1	9	22.8%	23.5%
1	5	5.9%	2.6%
1	3	3.4%	2.1%
1	7	1.4%	0.5%
3	1	54.8%	55.9%
3	7	19.6%	17.8%
3	11	10.9%	13.7%
4	12	30.4%	33.8%
5	1	36.1%	43.8%
5	7	31.2%	24.2%
5	13	13.2%	19.4%
6	8	65.3%	64.6%
7	5	34.2%	24.6%
7	3	26.2%	33.6%
7	15	10.3%	14.5%
8	16	43.9%	43.0%
8	4	18.0%	17.4%
8	6	16.4%	11.8%
8	7	8.4%	15.1%
8	2	6.7%	5.7%
9	1	36.1%	27.1%
9	13	8.2%	3.2%
9	11	4.9%	2.6%
9	15	1.2%	0.4%
9	5	0.6%	0.2%
11	9	68.7%	72.0%
11	15	14.6%	10.3%
11	3	9.6%	11.8%
13	9	63.7%	71.8%
15	11	38.5%	46.3%
15	13	21.5%	20.3%
16	12	24.7%	26.4%
16	15	24.2%	28.8%
16	8	20.9%	17.7%
16	14	12.5%	7.7%
16	11	5.9%	6.9%

While it is clear from Table 14 that differences exist between "Any CR" clients and CI clients, to evaluate these differences we must adjust for other factors which could influence exit events. We do this using the techniques of survival analysis and the factors defined in Table 15.

Table 15: Adjustment Factors for Regular Payment Clients

Time-Independent Controls		
Year of Birth		
	No DOB data	
	DOB in '30s or before	
	DOB in '40s	
	DOB in '50s	
	DOB in '60s or later	Reference
Gender		
	Female	
Tribal		
	Any tribe indicated	
Non-English		
	primary not English	
Time-Dependent Controls (determined for spell duration)		
Death		
	Include as spell exit event	
Earning		
	Average earning in spell	
Location		
	Mainly in-state	Reference
	Mainly out-of-state	
	Mainly unknown	
Explanatory Variables		
CR	Fraction of spell in CR	
CI	Fraction of spell in CI	Reference
CN	Fraction of spell in CN	

Table 16 shows the results in terms of the impact on Class residence time, and also specifies the service and employment components involved in each event.

Table 16: Impact of Regular Payments on Class Residence Times
- see Grid 1 for Class Definitions -

start Class	exit to Class	Event		res. time effect
		Add	Drop	
1	9	W		-20%
1	5	F		170%
1	3	M		40%
1	7	-	-	Naz*
3	1		M	0%
3	7	F		30%
3	11	W		0%
4	12	W		0%
5	1		F	0%
5	7	M		50%
5	13	W		0%
6	8	M		0%
7	5		M	50%
7	3		F	-20%
7	15	W		-30%
8	16	W		10%
8	4		F	10%
8	6		M	70%
8	7		T	-40%
8	2	M,F		30%
9	1		W	20%
9	13	F		150%
9	11	M		100%
9	15	-	-	Naz*
9	5	-	-	Naz*
11	9		M	0%
11	15	F		60%
11	3		W	0%
13	9		F	-10%
15	11		F	-30%
15	13		M	0%
16	12		F	-20%
16	15		T	-30%
16	8		W	0%
16	14		M	60%
16	11		T,F	-30%

**The event was not analyzable*

For example, the first row of Table 16 shows that for Class 1 exiting to Class 9 CR clients are expected to have a Class 1 spell residence time 20% less than CI clients. The exit to Class 9 is accomplished by adding work, and this result agrees with past findings that CR custodial parents find work at a faster rate when they

are not on TANF. Where 0% is listed for residence time effect there was no significant difference between CR clients and CI clients. Some events with dominating stronger events were not analyzable.

We reorganize the previous table by outcome added or dropped, and produce two tables, one for events which add a service or work and one for events which drop a service or work.

Table 17 shows that for events which add public service use CR clients have a much longer residence time before adding the service; 170% longer residence time in Class 1 before adding Food Stamps, 150% longer residence time in Class 9 before adding Food Stamps, and 100% longer residence time in Class 9 before adding Medicaid. CR clients are taking twice as much time, or longer, before entry into Food Stamps and Medicaid.

Table 17: Impact of Regular Payments on Class Residence Times When Adding Public Service Use or Work

- see Grid 1 for Class Definitions -

start Class	exit to Class	Event		res. time effect
		Add	Drop	
1	5	F		170%
3	7	F		30%
9	13	F		150%
11	15	F		60%
1	3	M		40%
5	7	M		50%
6	8	M		0%
9	11	M		100%
8	2	M,F		30%
1	9	W		-20%
3	11	W		0%
4	12	W		0%
5	13	W		0%
7	15	W		-30%
8	16	W		0%

These are new and important results. Past work has clearly shown that CR custodial parents have a slower rate of TANF entry; the results presented in Table 17 suggest a broader effect on diminishing the rate of service entry.

In Table 17 both of the significant results for adding work support previous findings that CR clients become employed at a faster rate when not on TANF.

Table 18: Impact of Regular Payments on Class Residence Times When Exiting Public Service Use or Work

- see Grid 1 for Class Definitions -

start Class	exit to Class	Event		res. time effect
		Add	Drop	
5	1		F	0%
7	3		F	-20%
8	4		F	0%
13	9		F	0%
15	11		F	-30%
16	12		F	-20%
3	1		M	0%
7	5		M	50%
8	6		M	70%
11	9		M	0%
15	13		M	0%
16	14		M	60%
8	7		T	-40%
16	15		T	-30%
16	11		T,F	-30%
9	1		W	20%
11	3		W	0%
16	8		W	0%

As seen in Table 18 the effects of CR on events dropping service use are much smaller than the effects on events adding services. And, except for dropping Medicaid from Class 7 or Class 8, the effects indicate a shorter service residence time for CR clients – they are exiting services at a slightly faster rate than CI clients. In disagreement with past results TANF exits from Class 8 or Class 16 for CR clients appear to occur at a somewhat faster rate than for CI clients. While there may be an effect increasing CR TANF exit rates in particular service combinations, overall TANF exit rate do not show a CR effect as shown in the initial section of this paper. Unfortunately, there were no analyzable TANF entry events in the joint outcome analysis.

In agreement with past results residence time in Class 9 for exit to Class 1 is slightly longer for CR clients. They are dropping work at a slower rate than CI clients.

Study Details – Simplified Joint Outcomes Dynamics Analysis

While the above discussion and diagrams can lead to exact detail of client outcomes and movement dynamics, it is a complex system and not completely analyzable because of the low numbers of clients in some classes and the low numbers of client flows between some classes. Out of 240 possible events, only 34 events could be analyzed.

We can create a simpler system by classifying by the number of services used and work status. This loses some important details, for example that most clients with a single service are using Medicaid, and most clients with two services are using Medicaid and Food Stamps. But this classification gives a system that is more understandable and brings us closer to a complete analysis. Table 19 defines this simpler classification and gives average population levels in each category block.

Table 19: Simplified Classification and Average Populations for Joint Outcomes

	No Work	Work
0 Svc	158,497	145,261
1 Svc	17,730	19,594
2 Svc	16,358	10,619
3 Svc	16,908	11,222

With 8 categories and 7 possible exits per category there are only 56 possible events in this classification system. In this section we will specify the category by using the notation "NW" to indicate no work and "W" to indicate work, with a numerical value indicating the number of public services used. Thus "NW0" indicates no work and no services, and "W2" indicates work with 2 services.

Note that the classification NW0 is identical to Class 1 defined in Grid 1, NW3 is identical to Class 8, W0 is identical to Class 9, and W3 is identical to Class 16. Since results for these classes have already been presented and discussed they will not be specifically covered in this section.

Table 20 gives a complete accounting of first spell exits (except CP death, a relatively rare event) using this simplified classification system.

Table 20: Exits from First Spells With Simplified Classification

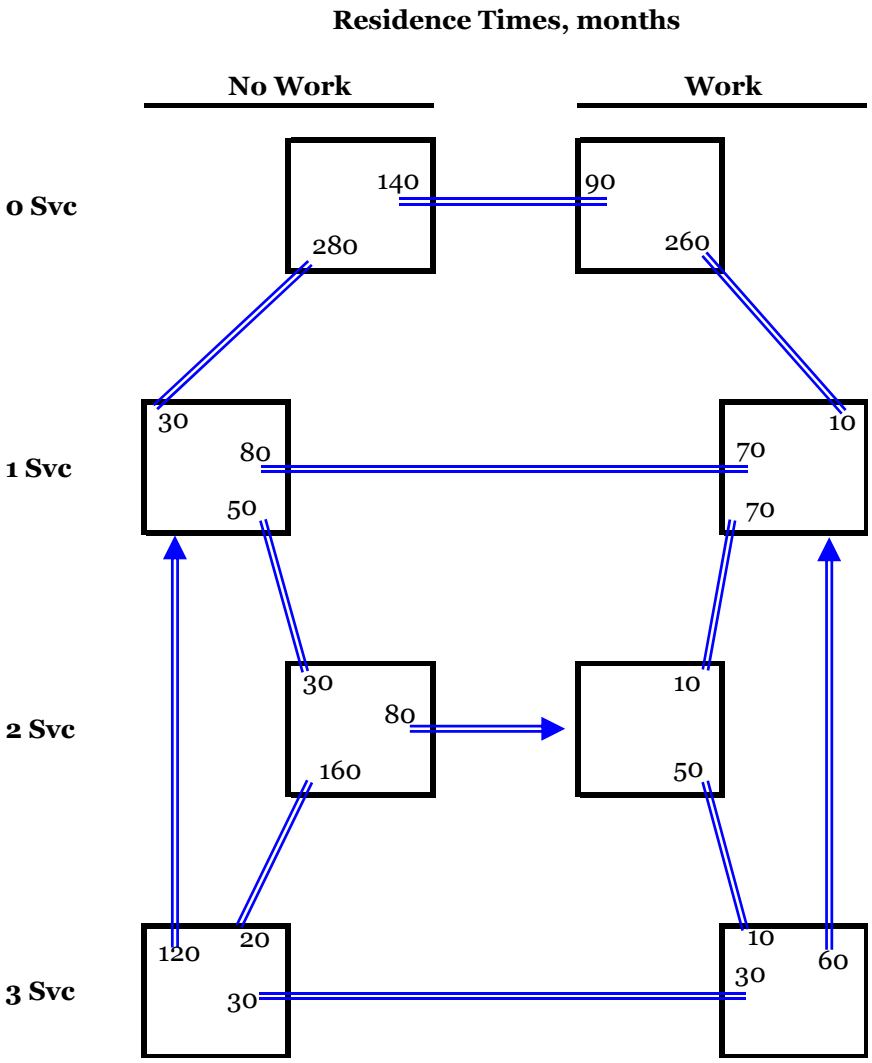
		From		
To	**NW0**	**NW1**	**NW2**	**NW3**
NW0		8,275	1,380	176
NW1	22,240		8,972	2,648
NW2	4,373	5,816		12,490
NW3	187	512	4,671	
W0	41,434	313	35	4
W1	2,029	2,481	256	140
W2	467	158	2,897	655
W3	30	27	149	12,571
No Exit	85,204	344	605	223
Total	155,964	17,926	18,965	28,907

	W0	**W1**	**W2**	**W3**
NW0	47,438	277	30	8
NW1	1,229	1,703	129	99
NW2	184	178	845	325
NW3	3	16	95	3,165
W0		11,247	907	199
W1	19,740		4,893	2,069
W2	1,871	3,382		9,259
W3	28	374	2,536	
No Exit	62,130	56	3	8
Total	132,623	17,233	9,438	15,132

Table 20 tells us, for example, that 17,926 custodial parents started in NW1, with 8,275 exiting to NW0, 313 exiting to W0 and 344 remaining in NW1 for the entire observation period.

Using the techniques of survival analysis will allow us to determine residence times in each of the 8 categories defined in Table 19, for specific exit events. The resulting residence times indicate the expected times if all the other possible exits were not available. Diagram 2 below shows residence times for the indicated exit, based on each client's first spell in the 48 months. Reciprocal flows are connected by double lines. An arrow indicates that the reciprocal flow is either very slow or was not analyzable. The residence times shown in Diagram 2 are overall average times for all clients, including those in the CN category. For an example in reading Diagram 2, the block in the upper left shows the expected residence times in the category *No Work and No Services* for exits to the categories *Work and No Services* (140 months), and *No Work and One Service* (280 months). With both flows occurring this means that on average clients are finding work at about twice the rate of service entry.

Diagram 2: Overall Average Expected Residence Times for Predominant Exit Events



Service entry is on average very slow; over 200 months to enter one service, 50 to 160 months to enter the second or third service. Service exits are on average much faster; 10 to 30 months to exit any level of services. Service exits are particularly fast if the client maintains work; 10 months to exit any level of services. A client with three services who maintains work could be expected, on average, to exit service use completely in 30 months. On the other hand, a client with three services who does not find work could be expected, on average, to exit service use completely in 80 months.

The critical feature for CR analysis is the number of custodial parents who have any CR during their first spell, for each exit event. Table 21 shows this breakdown, and if we apply the rule of attempting analysis only when there are 100 or more custodial parents entering the analysis we have 25 exit events to examine. While this is fewer events than in the full analysis previously presented, it means that almost half of the possible events in this classification system are potentially analyzable.

Table 21: Number of Observed First Spell Exits for Clients with Any CR in Spell

		From		
To	**NW0**	**NW1**	**NW2**	**NW3**
NW0		813	102	20
NW1	1,401		792	257
NW2	163	398		1,392
NW3	6	31	293	
W0	6,894	35	5	2
W1	99	262	31	10
W2	16	7	305	61
W3	1	3	8	1,353
No Exit	20,734	65	110	45
Total	29,330	1,616	1,650	3,143

	W0	**W1**	**W2**	**W3**
NW0	12,755	34	3	1
NW1	171	195	13	12
NW2	24	15	73	36
NW3	0	0	10	266
W0		1,409	88	20
W1	2,781		543	223
W2	201	240		947
W3	3	23	166	
No Exit	31,082	21	1	0
Total	47,035	1,940	897	1,506

Table 22 shows the effects of regular payments as a percentage change in residence times. Table 23 shows the same information in a reorganized table, and Diagram 3 shows the same information in a flow diagram.

Table 22: Impact of Regular Payments; Percentage Change in Simplified Class Residence Times

		From		
To	**NW0**	**NW1**	**NW2**	**NW3**
NW0		0%	0%	
NW1	110%		0%	20%
NW2	Naz*	70%		0%
NW3			50%	
W0	-20%			
W1		0%		
W2			0%	
W3				0%

	W0	**W1**	**W2**	**W3**
NW0	20%			
NW1	Naz*	0%		
NW2				
NW3				0%
W0		0%		
W1	130%		-20%	-20%
W2	Naz*	80%		-20%
W3			50%	

**The event was not analyzable*

It can be seen from Table 23 that regular payments of child support retard any increased use of public services. Residence times in the lower service use category are increased by 50% to 130%. Particularly when no services are being used regular payment clients are expected to remain without service more than twice as long as irregular payment clients. There are only small differences in impacts for working and non-working clients.

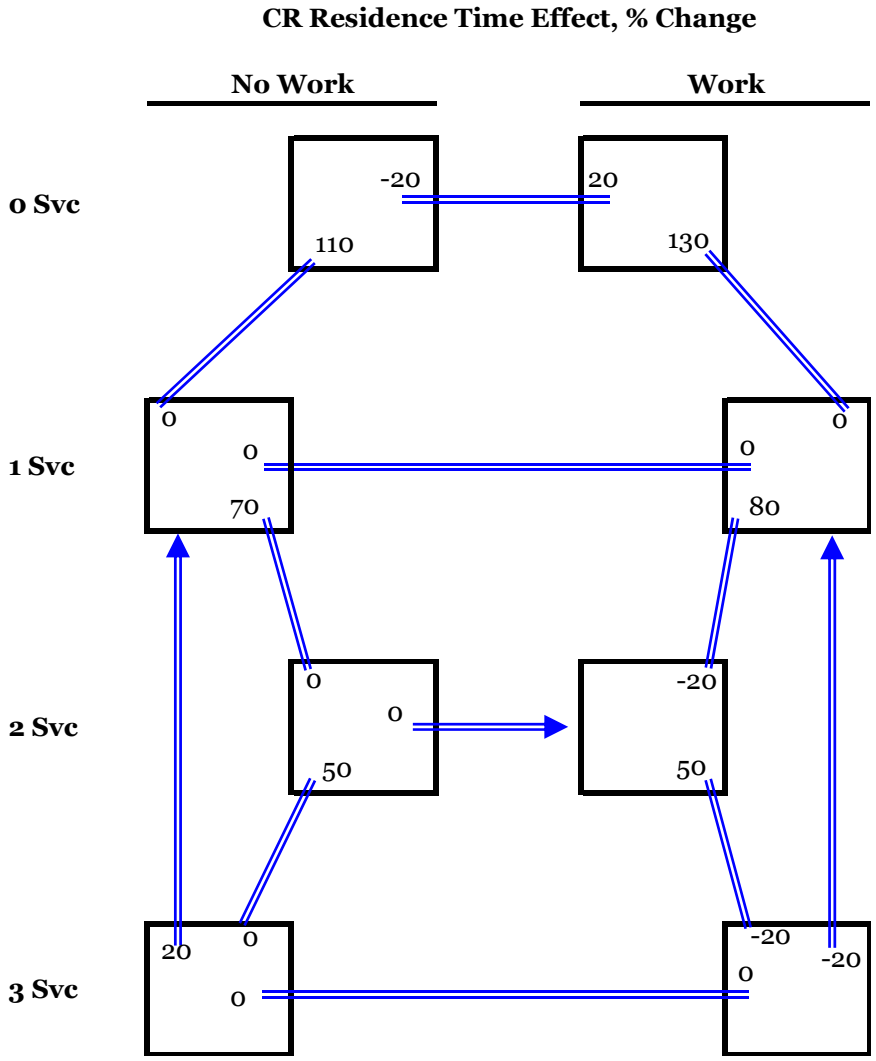
However, for decreasing service use the impact of regular payments is much smaller, and non-significant for five out of the nine analyzable events. The 20% figure is close to the limits of reliability, but if there is an effect we can say with confidence that the impact on retarding service entry is very much stronger.

Table 23: Impact of Regular Payments; Percentage Change in Simplified Class Residence Times - Reorganized

Increasing Service Use			Decreasing Service Use		
start Class	exit to Class	res. time effect	start Class	exit to Class	res. time effect
NW0	NW1	110%	NW1	NW0	0%
NW1	NW2	70%	NW2	NW0	0%
NW2	NW3	50%	NW2	NW1	0%
W0	W1	130%	NW3	NW1	20%
W1	W2	80%	NW3	NW2	0%
W2	W3	50%	W1	W0	0%
			W2	W1	-20%
			W3	W1	-20%
			W3	W2	-20%

Diagram 3 shows how flow patterns are altered by regular payments relative to irregular payments. Clients with regular payments show a strongly retarded downwards flow (towards more service use), and possibly small changes in upwards flow. An impact on cross-flow (between work and no work) occurs only at the top of the diagram for clients with no service use. Clients with regular payments stay employed longer, and stay unemployed for a shorter period. While the impacts appear small, it should be recalled from the Separate Outcomes Analysis section of this report that about 70% of additional earnings for CR custodial parents derive from earning more when working. In the entire discussion of joint outcomes we, of necessity, have been considering work as a yes/no outcome and thus we can not capture most of the impact of regular payments on custodial parent's work and earnings.

Diagram 3: Impact of Regular Payments on Simplified Class Residence Times



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