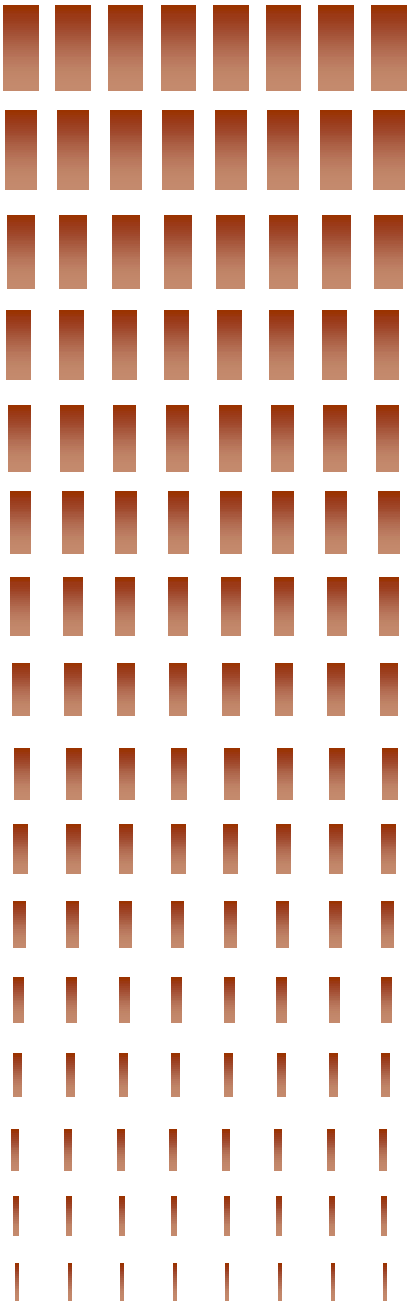

Welfare Savings from DSHS Fraud Investigations

Washington State Department of Social and Health Services
Management Services Administration
Research and Data Analysis Division

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Contents

Executive Summary

This report provides empirical estimates of the savings that result from DSHS investigations of alleged welfare fraud. The welfare fraud investigations are conducted by the department's Division of Fraud Investigations (DFI) generally at the request of local DSHS welfare offices.

Investigations completed during 1998 will cost less than $4.6 million during 1998 and will yield about $22.9 million in welfare savings over the subsequent two years.

During 1998 DFI completed about 19,010 welfare fraud investigations. Almost 40 percent of there cases (7,403) resulted in clear negative action by the referring Community Services Office (CSO). Most of the negative action cases were determined ineligible; some had their benefits reduced.

This report estimates that over the subsequent 23 months those 7,403 negative-action cases completed in 1998 yielded about $22.9 million in welfare costs avoided (savings). This amount of savings compares favorably with the cost of the entire DFI operation, about $4.6 million per year during the 1997-99 biennium. (The $4.6 million cost of DFI operations also pays for certain other investigative activities.)

Method

The analysis began with all 34,373 cases referred to DFI for investigation over the 21 months between April 1997 and December 1998. By early-January 1999, 29,327 of those cases had been completed, with 11,115 (38 percent) of the completed cases closing with negative action.

What welfare benefits did the members of those negative action cases actually get in the months after that negative action? Using the Automated Client Eligibility System (ACES), the state's new welfare information system, we determined the total dollar value of all welfare benefits (grants, Medical Assistance, and Food Stamps) each member of each case actually got, month by month, after the department's negative action. Cases could be followed for up to 23 months after action.

We then compared the total value of welfare benefits each negative-action case got with the total value of benefits gotten by similarly investigated cases from the same welfare program, but where eligibility was affirmed. Savings were inferred to the extent the negative-action cases later got fewer benefit-dollars than did the eligibility-approved cases.

Findings: Welfare savings per negative-action case

After investigation, the negative-action cases did indeed get appreciably lower welfare benefits than did comparable eligibility-affirmed cases. The benefit differences between the two groups persisted over the next 23 months, though the differences grew smaller with time and by Month 23 had become inconsequential.

Savings each month was defined as the difference between the benefits received by eligibility-approved cases and comparable negative-action cases. To estimate total savings over time we summed the 23 observed monthly differences (monthly savings) between the two groups. The table below shows for each negative-action group of interest the estimated cumulative savings per case over the 23 months after investigation.

Estimated cumulative savings per case over 23 months following negative action

For cases investigated in this program group:	Eligibility terminated	Eligibility-denied	Application voluntarily withdrawn	Benefits reduced
1-parent Temporary Assistance to Needy Families	$ 4,067	$ 5,049	$ 2,831	$ 295
2-parent Temporary Assistance to Needy Families	$ 7,000	$ 5,679	$ 6,771	$2,183
Food Stamps only	$ 1,607	$ 264	$ 1,082	$ 589
Other programs for children and families	$ 1,297	$ -1,630	(insufficient data)	$ 119
Other programs typically for adults	$ 1,807	$ 3,092	$ 2,642	$ -778

Total savings from 1998 investigations

The estimated $22.9 million savings for cases completed in 1998 is computed by multiplying each of the per case cumulative savings estimates in the above table by the numbers of such cases completed in 1998.

Fully half of the $22.9 million in savings came from terminations of eligibility in the 1-parent TANF program. This is because three-quarters of all cases investigated in 1998 came from the 1-parent TANF program (Temporary Assistance for Needy Families) and since three-quarters of all negative-action cases were terminations of eligibility.

Chapter 1

How to Estimate Welfare Savings from DSHS Fraud Investigations

This report provides empirical estimates of the savings that result from DSHS investigations of alleged welfare fraud.

Investigative responsibilities and procedures

Welfare fraud investigations are conducted by the department's Division of Fraud Investigations (DFI), mostly at the request of local DSHS welfare offices. The welfare offices are known as Community Services Offices, or CSOs.

These welfare fraud investigations comprise the bulk of DFI's work. DFI also does fraud investigations of DSHS contractors and follow-ups of tips phoned in through the state's Welfare Fraud Hot Line 1-800 number. This report concerns itself with DFI's welfare fraud investigations.

The requests for welfare fraud investigation are generally made by CSO financial eligibility workers. Each such "referral" identifies the person to be investigated and the concern or allegation. During 1998 DFI received about 1800-1900 investigation referrals per month.

DFI assigns each referral to an investigator. The investigator may then contact the referring CSO worker or other welfare staff, review data in ACES, the state's welfare information system, or in other state information systems, and may do field work. DFI staff are located in every DSHS region.

The DFI investigation is usually completed quickly but may take several months. When sufficient information has been gathered, DFI transmits its findings back to the referring CSO worker.

Decision authority remains with the CSO. The eligibility worker (along with his/her supervisor, sometimes) reviews the findings received from DFI and decides what eligibility action to take. Finally, the eligibility worker informs DFI of the action taken.

The SIRVIS database

SIRVIS data provide the starting point for this investigation.

The information exchange between CSO and DFI travels mainly on paper forms and by phone. For each new referral, DFI creates a case record on its SIRVIS database. That record is then updated as the case proceeds.

By the time a case is closed (action feedback having been received from the CSO) the SIRVIS record has gained sufficient data to summarize the investigation from start to finish. The final record includes: the identity of the referred person, their welfare program at referral, the allegation(s), the referring CSO and eligibility worker, referral date, DFI investigator, DFI findings and findings return date, CSO action and action date, and related data.

The SIRVIS records are used for administrative purposes, mainly for quickly checking the status and particulars of a case and for retaining important case details. DFI also uses the SIRVIS database to monitor its workloads and manage the program generally. And, relying on a formula it devised some time ago DFI uses the SIRVIS data to estimate the savings that result from its fraud investigations.

Fraud investigations can yield only moderate savings

Not all welfare fraud investigations result in negative actions and savings. Perhaps half of the investigations affirm eligibility, in which case there are no savings.

Even when an investigated case is determined ineligible for its welfare program, many of the members of that case may continue to get benefits. While one person may now be ineligible, the other members of the case, children often, may remain eligible for at least some welfare benefits, if not for all their previous benefits. Even the person found ineligible for that particular program may be entitled to continue receiving some benefits through another program, often the Food Stamps program.

Finally, family circumstances do change over time. A family determined ineligible may later become eligible once again.

The strategy for estimating savings

Our overall strategy for estimating savings was to determine what welfare benefits were in fact provided in later months to all the members of cases investigated and determined ineligible. Carrying out this strategy entailed four conceptual and data steps.

1. **Define the study cases**. We received from DFI a file of the SIRVIS records for all 34,373 cases referred for fraud investigation during the 21-month period April 1, 1997 to December 31, 1998. From this file we identified all cases that closed with a CSO reporting it took negative action. The negative actions were eligibility **t**erminated, eligibility denied, application withdrawn, or benefits reduced. There was no reason to sample the analyses were to be done by computer, so all cases with complete information were used.
2. **Identify all members of those negative-action cases**. The analysis used Washington State Welfare Information System (the Automated Client Eligibility System, or ACES) through its analysis database (Caseload Analysis and Reporting Database, or CARD). ACES-CARD identified each case, each referred person (the “target” of the investigation) and all their “associates.” Associates were defined as members (usually family members) of the target’s "assistance units" (the entire household or living unit being given assistance) at the time the investigation was requested. Any change in the target’s eligibility that resulted from the investigation might (or might not) have also affected the benefits those associates received in subsequent months.
3. **Determine the welfare benefits actually received by each target and all their associates during each month after CSO negative action**. For all persons identified in Step 2, benefit data was obtained from CARD. Benefits could include grants, Medical Assistance and Food Stamps. By adding together the welfare benefits provided each

target and all their associates, we established the value of the welfare benefits the negative-action case received in the months after the investigation was finished.

4. **Estimate savings**: Savings are not directly measurable, for they imply welfare benefits that were never issued. To estimate savings one has to come up with some way to infer the welfare benefits the negative-action cases would have gotten had their CSOs not taken those negative actions.

   The crucial assumption for this analysis is that the welfare benefits that the negative-action cases would otherwise have gotten are indicated by the welfare benefits that were in fact gotten by those other fraud-investigated cases in the same welfare program, but where the CSO **approved** continuation of benefits.

   The investigated-and-approved cases offer a picture of the non-existent benefits the negative-action cases would otherwise have gotten, a better picture than is given by the overall average case cost for that entire welfare program. The negative-action and investigated-and-approved cases from the same welfare program are likely more similar insofar as both showed circumstances warranting fraud investigation.

DFI management concurred in the use of this comparison group. Later we will examine whether the negative-action and approved groups were indeed equivalent in family size and other demographic characteristics.

The appendices provide details of the methods used to build the study cases and then to determine what welfare benefits each case actually obtained during the CSO action month and subsequently.

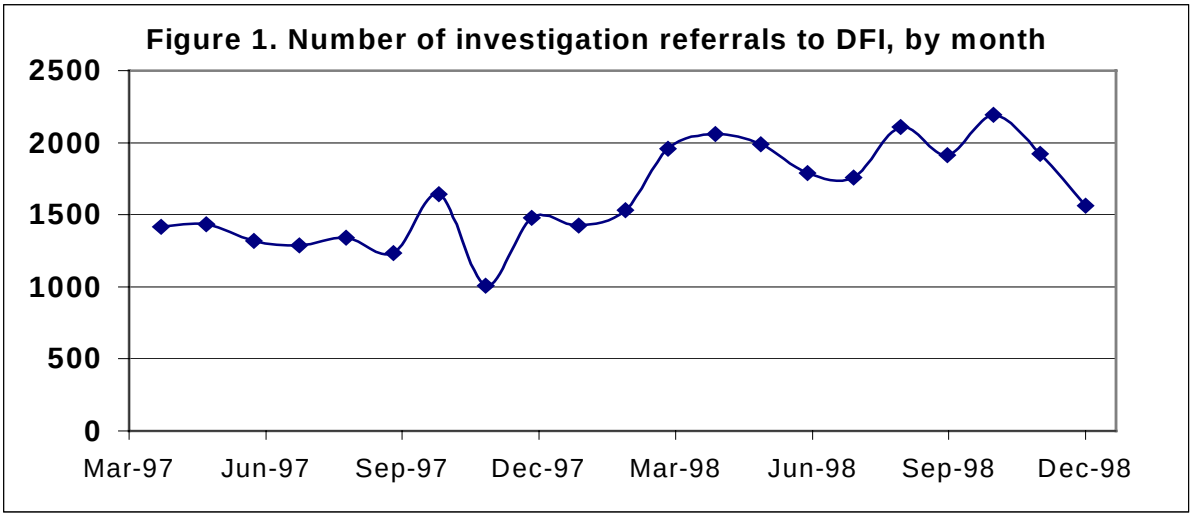
Chapter 2

Some descriptive data about the fraud investigation cases

Analysis of the 34,373 case records in the SIRVIS file provides background information about the fraud investigation program.

The referral rate increased appreciably in 1998.

Referrals received per month are shown on Figure 1. In 1998 the rate averaged 1800-1900 referrals per month, up a third from 1997.



Most of the referrals were TANF cases.

Some 78 percent of all 34,373 referrals were cases from the TANF program (Temporary Assistance to Needy Families). About 15 percent were Food Stamps-only cases. See next table for more detail.

The referrals involved seventeen programs - five program groups.

The 34,373 referrals were at the time of referral associated with seventeen different programs, with many of these programs contributing only small numbers of referrals. To simplify the analysis, and as reliable estimates could in any case not be developed for programs with only small numbers of cases, we collapsed the seventeen programs into five program groups: TANF 1-parent, TANF 2-parent, Food Stamps, other Child-and-family related programs, and programs typically for Adults. The programs in each program group are indicated next, on Table 1.

Table 1. Welfare programs of the cases referred for investigation

Program group for this analysis	Program code	Welfare program	Number	Percent
		All	34,373	100.00
TANF 1-parent	C	TANF 1 parent	25,760	74.94
TANF 2-parent	E	TANF 2 parent	1,136	3.30
Food Stamps	F	Food Stamps	5,046	14.68
Child Programs			582	
	D	?	19	0.06
	G	GA-Preg (?)	62	0.18
	H	Child health – fed $	343	1.00
	K	Emergency assistance	3	0.01
	V	Child health – state $	45	0.13
	R	Refugee	19	0.06
	S	GA – pregnant	91	0.26
Adult Programs			1849	
	A	GA/SSI Aged	68	0.20
	M	Medically indigent	617	1.80
	P	GA/SSI disabled	152	0.44
	U	GA – unemployed	877	2.55
	W	Alcohol-drug abuse tx grant	19	0.06
	X	Presumptive SSI	115	0.33
(N=1; case not used)	T	Elderly psychiatric	1	0.00

Eligibility approvals and negative actions about equally prevalent

CSO final actions were recorded for 85 percent of the 34,373 referrals (see Table 2). Most of the cases without final action cases had been referred only recently and presumably were still in process.

About 39 percent of the CSO final actions were eligibility approvals, 34 percent were eligibility terminations, denials or withdrawals. Adding in also benefit reductions, total negative actions accounted for 39 percent of all final actions.

Table 2. CSO eligibility actions after investigation

Type of action	Code	CSO eligibility action	Number of cases	Percent
		All	34,373	
Approve	APP	Approve	11,506	39%
Negative	DEN	Deny	1,042	4%
	TRM	Terminate	8,520	29%
	WDR	Withdraw	297	1%
	RDU	Reduce benefits	1,627	6%
(other)	CHG	Change	209	1%
	DNA	Info does not affect eligibility	1,942	7%
	MGR	Mgr determined not actionable	1,310	4%
	OTH	Other	295	1%
	PFW	Investigation time elapsed	1,828	6%
	TRN	Case transferred to other CSO	751	3%
		No CSO action shown	5,046	

Family size

"Family size" was defined as the number of associates found for each target, plus one for the target. (The analysis omitted 70 cases that could not be matched to CARD and 32 where case members could not be determined.)

The results, shown next on Table 3, seem reasonable. Family size was largest for 2-parent TANF cases, also Refugee cases and Emergency Assistance, and next largest for 1-parent TANF cases. Food Stamp cases were next smaller, and smallest were cases in adult (no children) programs.

Table 3. Family size in different programs

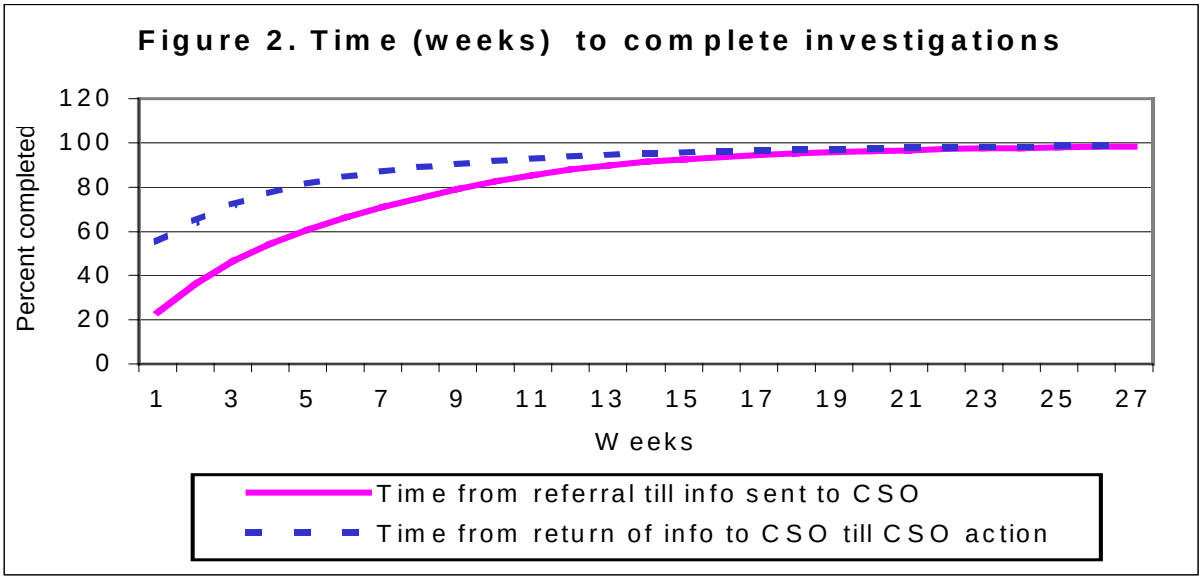
Program group for this analysis	Program Code	Welfare Program	Family Size
		All	3.37
TANF 1-parent	C	TANF 1 parent	3.49
TANF 2-parent	E	TANF 2 parent	4.81
Food Stamps	F	Food Stamps	2.90
Child	D	?	3.53
	G	GA-Preg (?)	2.02
	H	Child health - fed $	3.35
	K	Emergency assistance	5.00
	V	Child health - state $	3.18
	R	Refugee	4.00
	S	GA – pregnant	2.29
Adult	A	GA/SSI Aged	1.52
	M	Medically indigent	3.22
	P	GA/SSI disabled	2.01
	U	GA – unemployed	1.76
	W	Alcohol-drug abuse tx grant	2.00
	X	Presumptive SSI	2.18
(N=1; case not used)	T	Elderly psychiatric	(N=1)

Over 80 percent of the persons referred for investigation were already on welfare.

Among the 34,303 cases matched to CARD, in 80 percent we found the person referred for investigation had received some welfare benefit (grant, Medical Assistance eligibility, and/or Food Stamps) in the month immediately prior to the referral for investigation. This is a low estimate; some of the others could have been already on welfare, though not receiving a benefit that immediately previous month.

Duration of investigation and duration of subsequent CSO decision-making

Duration of DFI investigation (time in weeks from referral till information was sent to CSO) and duration of CSO decision-making (time in weeks from time DFI sent information till CSO action date) are shown on Figure 2, below.



DFI completed a quarter of its investigations in less than a week, half in three weeks, three-quarters in seven weeks. Of the cases DFI returned to the CSOs, the CSOs took action on half the cases in less than a week and on three-quarters in three weeks.

Thirty percent of referrals were repeat referrals

Some 16 percent of the persons referred for investigation had been referred more than once during the 21 months covered by the SIRVIS referrals file. As shown next, in Table 4, the referrals for these multiply-referred persons comprised 30 percent of all referrals.

These figures likely underestimate the true numbers of repeat referrals as the figures do not take into account referrals made before April 1997 or after December 1998.

Table 4. Repeat referrals

Number of referrals seen for same Client ID	Number of Client IDs	Percent of all Client Ids	Number of referrals	Percent of all referrals
1	23993	83.97	23993	69.94
2	3659	12.81	7318	21.33
3	738	2.58	2214	6.45
4	144	0.50	576	1.68
5	35	0.12	175	0.51
6	2	0.01	12	0.03
7	1	0.00	7	0.02
8	1	0.00	8	0.02
All	28573	100.00	34303	100.00

We did not investigate why multiple referrals happened. Even so, we note that in 39 percent of the multi-referred cases, the first referral we could see in our time-truncated data set had closed with an eligibility approval. In another 31 percent the case closed the first time with an eligibility termination, denial or withdrawal

Chapter 3
Benefits received and inferred savings

Concepts used in analyzing benefits

In this section we briefly describe the concepts used to develop the benefits analysis. Details on how the benefits data were obtained and processed are provided in Appendix 2: Methods used to identify welfare benefits, and Appendix 3: Analysis example.

The members of a case include the person referred for fraud investigation (the "target") plus any other persons who were on any assistance unit with the target during the month of referral. These other persons we call "associates."

Benefits received by a case in some month is the total of all benefits received that month by all members of that case: the target and all associates. Benefits include grants, medical assistance eligibility, and Food Stamps.

Elapsed months: The time measure used for the benefits analysis is Elapsed Months since CSO action. The month of a case's CSO action is designated as Elapsed Month 1. For benefits provided in any later month, Elapsed Month = that Benefit Month – CSO Action Month + 1.

As benefits data for all cases were available through February 1999, a case could have up to 23 elapsed months of benefits data. For a case where CSO action had occurred in April 1997, benefits provided during April 1997 would be designated as benefits provided during Elapsed Month 1. Benefits received during February 1999 by this case would be designated as received during Elapsed Month 23. For cases where CSO action occurred in later month fewer months of benefits data would be available.

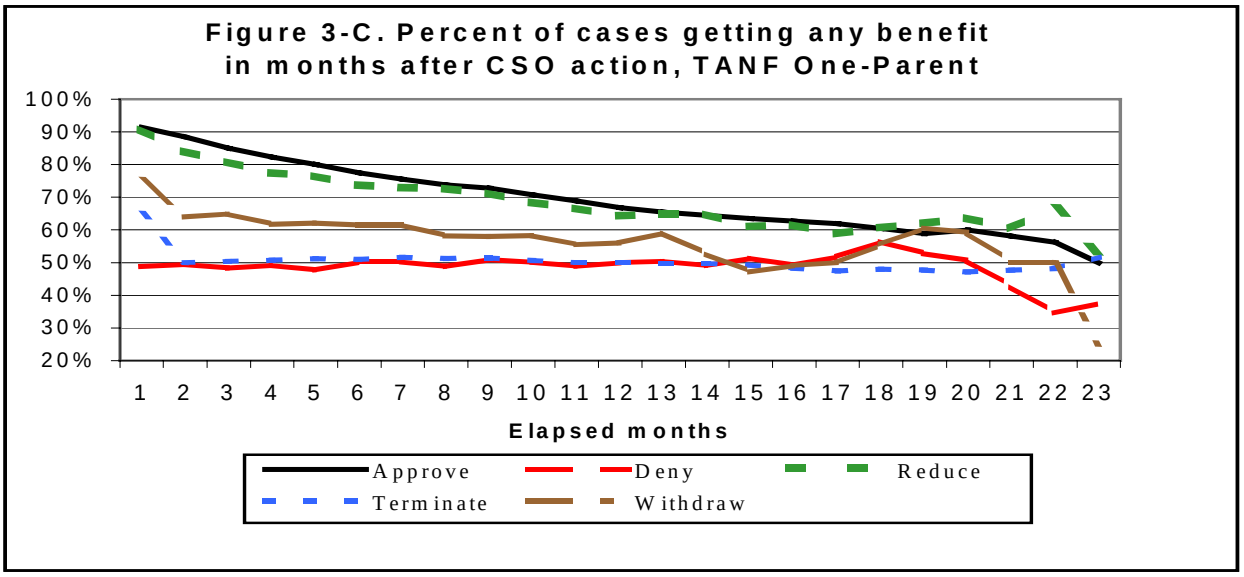
Groups of Interest: The benefit analyses examine 25 groups of interest. For each of the five program groups we examine separately the benefit patterns for Approved cases and for the four negative action groups: Terminated, Denied, Withdrawn, and Reduced.

The savings analyses will examine only 20 groups of interest, as there can be no savings estimates for the Approved cases. The Approveds serve as the comparison group for imputing the savings for the four negative-action groups.

The benefit and savings patterns are quite similar for all five program groups, particularly in the first 18 or so elapsed months, when the data are clearest as there are sizeable numbers of cases available. To keep the discussion brief, in the text that follows we review the benefits and savings data only for the one parent TANF program (Program C). The benefits and savings data for the other four program groups (two parent TANF [code E], Food Stamps [code F], other Child programs, Adult programs) are available in Appendix 4. The analysis of total savings from fraud investigations will, of course, take into account all five program groups.

Per case benefit and savings patterns

Proportions of cases getting any benefits: The first graph, Figure 3, shows the proportions of cases getting any benefits. A case is considered as having gotten a benefit if even one person in that case got even $1 of benefit during that month. Again, there is one graph available for each program group (Figures 3-C, 3-E, 3-F, 3-Child, 3-Adult). The text reviews only the data for cases in the TANF one-parent program (Figure 3-C). The graphs for the other four program groups are shown in Appendix 4.



Approved cases: It is clear from Figure 3-C that even cases determined eligible (the Approveds) do not all draw benefits month after month. Even in Elapsed Month 1, the very month their eligibility was affirmed, only about 90 percent of Program C Approved cases drew an actual benefit. Beyond Elapsed Month 1, the proportion of the Approveds actually drawing a benefit drops gradually, down to about 50 percent at Elapsed Month 23.
One can speculate that the observed drop off of utilization over time occurs as some cases begin to earn more income on their own. For others their youngest child may reach age 18, resulting in welfare ineligibility. Some may go without welfare, some marry, some move out of state, some die. (The far right hand portions of these curves grow more error-prone (wobbles a bit) as the number of cases available for benefits data shrinks in the higher Elapsed Months.)

The Negative action groups, relative to the Approveds, all show lower proportions drawing any benefit, especially in the earlier months. The shapes of these curves in the first two elapsed months strongly suggest that the observed (lower) rates of welfare use are indeed due to the CSO negative action taken during Elapsed Month 1. For the Terminated and Withdrawn cases, receipt of any benefits drops off even more sharply in Month 2 than in Month 1. This second-month drop, from Month 1 to Month 2, is likely the result of some of the eligibility terminations or withdrawals having come too late in Month 1 to stop that month's benefit issuances. For continuing cases, benefits are generally issued automatically on the first day of the month.

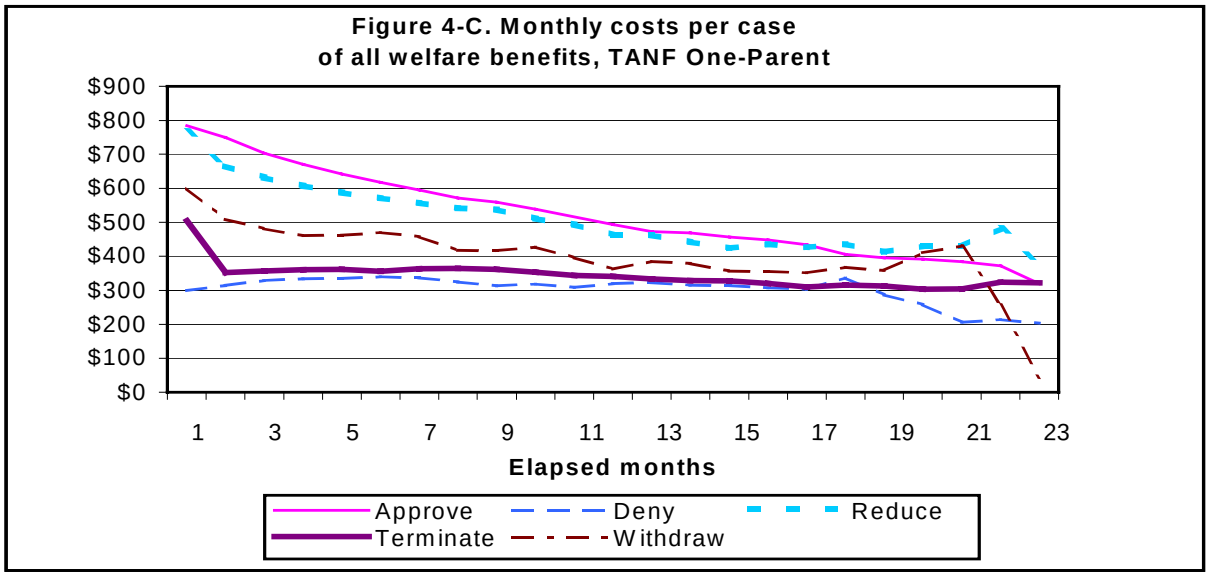
Almost all these eligibility terminations would have been in effect by the time Month-2 issuances were prepared. (though ACES eligibility terminations processed the very last days of a month may miss the closing date for even next month's issuances.)

Denied cases show no Month 1-2 decrement. Denieds are generally new applicants, and the system would not have been set to automatically issue them benefits at the start of Month 1. For Reduced cases, the utilization rate is only slightly below the rate for the Approveds. This is exactly what one would expect, given that the eligibility action here was a benefit reduction rather than a termination. Here again we see a sharp drop between Months 1 and 2, presumably because often the Month-1 benefit would already have been issued by ACES before the CSO-instituted reduction could take effect.

Note that in later months welfare utilization rates for the Approveds continue to drop, while the rates level off for the negative action groups. The utilization rate between the Approveds and the negative-action groups narrows, therefore, over time. More about this later.

Monthly cost of all welfare benefits

The second graph, Figure 4, shows the average per case monthly value of all welfare benefits provided all members of that case each elapsed month after the month of CSO action.



For Approved cases, total cost of benefits per case drops off steadily with time as some of the cases in the initial cohort leave the welfare rolls.

The four Negative-action groups all show lower costs per investigated case, especially in the earlier months. For the Terminated and Withdrawn cases, presumably all previously eligible, even in Elapsed Month 1 average costs are sharply lower than for Approveds.

Costs for the Negative-action groups drop even further by Month 2, again probably because some of the terminations of eligibility came too late to stop that month's benefit issuances. The Denied group shows no Month 1-2 decrement. Denieds are new applicants, and ACES

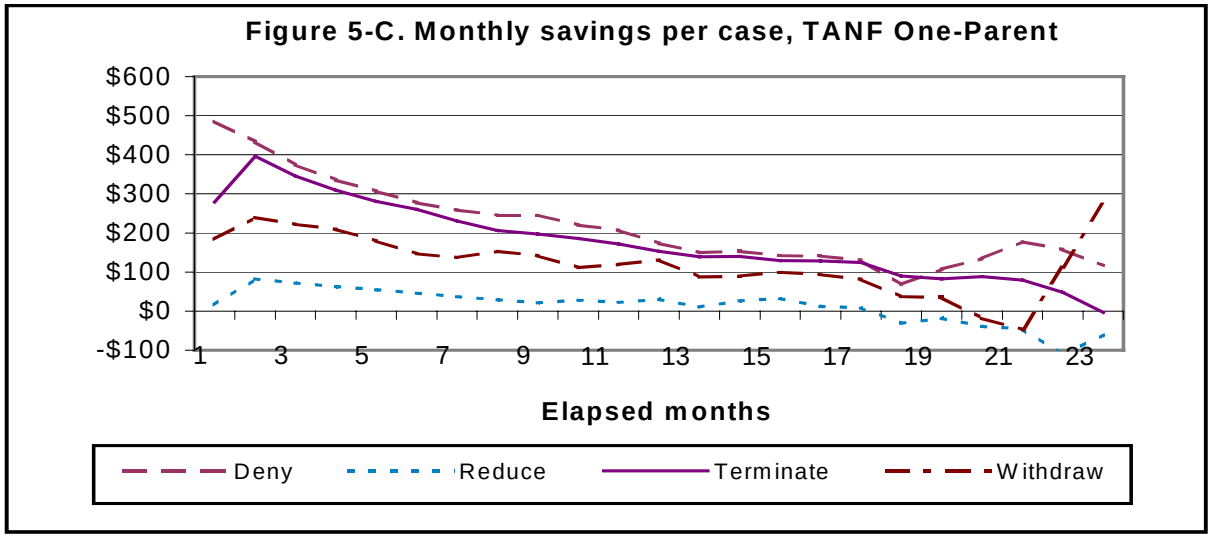
probably would not have been set to automatically issue them benefits at the start of Month 1.

For the Reduced group, average costs per case are only slightly below the Approveds, which is what one would expect, given that their eligibility action was a benefit reduction rather than a termination. Here too there is a sharp drop between Months 1 and 2, presumably because often ACES already issued the Month-1 benefit before the CSO-instituted reduction could take effect.

In later months, average costs for the negative action groups level out and may even appear to increase, while for the Approved group average costs continue to drop.
Thus, over time the Approved and negative-action cost lines converge somewhat. This indicates that in the outlying months incremental additional savings shrink. (The apparent increases in per case costs in the highest months should not be seriously interpreted. These may be due to data unreliability because of smaller and smaller samples.)

Savings per case per month

The next graph, Figure 5, shows savings per case per month. These savings data are computed as the difference in unit costs between the Approved group and each negative-action group. (No graph can exist for the Approveds.).



Savings per case for the groups made ineligible: The first two elapsed months show appreciable savings, over $200 per Program C case per month. Beyond Elapsed Month 2 savings drop off over time, as average welfare costs per Approved case decline more sharply and descend closer to the lower costs per case of the negative-action groups.

For the Reduced cases in Program C, per case savings are low after Month-1 and by Month-8 appear insignificant though still positive. After Month-16 savings per month turn negative. An explanation of sorts is available on Figure 2-C, from which Figure 3-C was computed. On Figure 2-C it appears that for many months monthly welfare costs for the Reduced group stayed just under costs for the Approveds. At Month-16 the lines cross, as

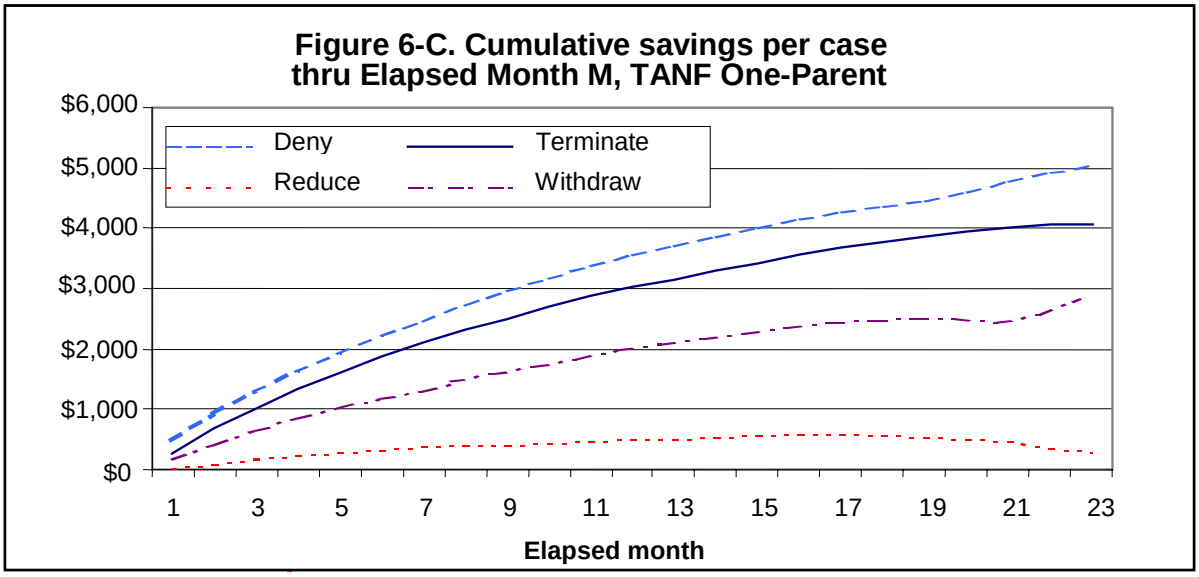
monthly costs for the Approved group continue to drop while costs for the Reduced group stay level.

Cumulative savings per case

The last graph in the series, Figure 6, shows cumulative savings per case. Cumulative savings is simply the sum of that Elapsed Month's savings plus all prior Elapsed Months' savings.

The cumulative savings curves steadily increase, for almost always each next month brings some additional savings, even if small. Note that these cumulative savings estimates are all **per case**. To estimate total savings we will later multiply these per case figures by the numbers of cases processed in that group of interest.

(In the TANF one-parent program group, an exception occurs with the Reduced benefits group. Here, savings in later months go slightly negative, causing cumulative savings to dip slightly from that time out)



For the TANF One-Parent families made ineligible, appreciable cumulative savings are seen over 23 months: $5049 for each Denied case, $4067 for each Terminated case, $2831 for each Withdrawn case. Over a shorter span of elapsed months savings would, of course, be lower.

For the Reduced group cumulative savings peak at Month-16 at $598 for each case, then drop to half that by Month-22.

Results for the other four program groups per case cost and savings graphs for the other four program groups are shown in Appendix 4. The savings patterns are pretty much the same as those reviewed above for the 1-parent TANF program.

Savings per case are negative, however, for two small groups of interest: the Child program – Denied group and the Adult program – Reduced group. In both cases the monthly costs for

the negative-action groups are higher than for their eligibility-Approved comparison groups, thus savings are negative. (We did not investigate why the negative-action groups should have higher monthly welfare costs than their Approved comparisons.)

Summary of the 23-month cumulative savings per case estimates the 23-month cumulative savings estimates per negative-action case that are shown in Graphs 6 (above and in Appendix 4) are a principal product of this analysis. To estimate total savings from investigations done over some time period, one can multiply each 23-month cumulative savings figure by the number of negative-action cases of that sort processed during the time period in question.

Federal shares of savings

Table 5, next, gathers in one place the 23-month cumulative savings estimates per case that are shown on the several Figures 6. Table 5 also shows the federal portions of each of the 23-month cumulative savings figures per case. Per the state's accounting convention, TANF grants and Food Stamps are considered 100 percent federal funds.

Table 5. Estimated cumulative 23-month savings per case for each of the groups of interest

Program group	CSO action	23-month cum savings per case	Cases completed in 1998	23-month cum savings from 1998 cases ($ 000)	Federal percent of savings
All	**All**	$ 3096	7403	$ 22,917	
1-Parent TANF (C)	**Denied**	5049	386	1,949	89
	Terminated	4067	4102	16,681	90
	Withdrawn	2831	141	399	88
	Reduced	295	858	253	88
2-Parent TANF (E)	**Denied**	5679	26	148	89
	Terminated	7000	147	1,029	89
	Withdrawn	6771	6	41	84
	Reduced	2183	58	127	89
Food Stamps (F)	**Denied**	264	193	51	97
	Terminated	1607	888	1,427	94
	Withdrawn	1082	34	37	103
	Reduced	589	121	71	94
Child	**Denied**	-1630 *	7	-11	34
	Terminated	1297	48	62	79
	Withdrawn	(insufficient cases)	3		83
	Reduced	119	9	1	39
Adult	**Denied**	3092	62	192	36
	Terminated	1807	264	477	37
	Withdrawn	2642	7	18	31
	Reduced	-778 *	43	-33	36

* See text for discussion of negative savings

Comparability of the negative-action cases and the Approved cases with which they are compared. Before working further with the savings estimates it is helpful to pause and examine whether the cases in the investigated-and-Approved comparison group were indeed similar to the cases in the four investigated-and-negative-action groups. A material difference in the compositions of the Approved and negative-action cases could bring into question the preferred interpretation that any observation that the negative-action cases go on to get lower levels of benefits than Approved cases can be attributed to the negative actions per se.

For example, if negative-action cases had smaller families on average than did Approved cases, then an observation that the negative-action cases got fewer benefits after investigation could as well be attributed to their smaller family size as to the negative-action.

The data in the next table, Table 6, compare the negative-action and Approved cases on family size, sex, and ethnicity of the person referred for investigation. The data shows that any differences between the negative-action and Approved cases are small in magnitude and not systematic. These small differences cannot account for the substantially lower benefits negative-action cases have received after investigation in every program and negative-action category.

Table 6. Demographic comparisons of the Approved and negative-action cases

CSO action	Family size	% Female	% Hispanic	% Asian	% Black	% Nat Am	% White
Approve	3.41	82.2	10.6	3.1	11.7	4.9	80.3
Deny	3.20	74.0	18.1	4.1	8.0	5.4	82.6
Reduce	3.52	84.8	7.0	3.4	11.0	4.7	80.9
Terminate	3.26	80.8	10.2	2.5	9.9	5.5	82.2
Withdraw	3.39	80.1	10.8	4.2	11.2	3.8	80.8

Total savings from cases investigated in 1998

Using the per case 23-month cumulative savings estimates in Table 5 we estimate total savings from all fraud investigations that resulted in a CSO negative action in 1998. Further columns in Table 5 show the number of cases of each group of interest that were completed in 1998, and the 23-month savings estimated for each group of interest. The conclusion from Table 5 is that the 7,403 cases completed in 1998 with negative actions resulted in some $22.917 million in welfare costs saved (avoided).

The contributions of each of the five program groups to this total $22.917 million savings are shown on Figure 7. Figure 7 shows the cumulative savings for the 7,403 negative-action cases completed in 1998, from Elapsed Month 1 out to Elapsed Month 23.

Figure 7 uses a logarithmic savings scale to allow one to see the very modest savings from the Adult and Child program group cases and the small savings from Two-Parent and Food

Stamp cases as well as the substantial savings from One-Parent cases. An ordinary plot would show the One-Parent savings but squash the other lines together, at the bottom of the graph.

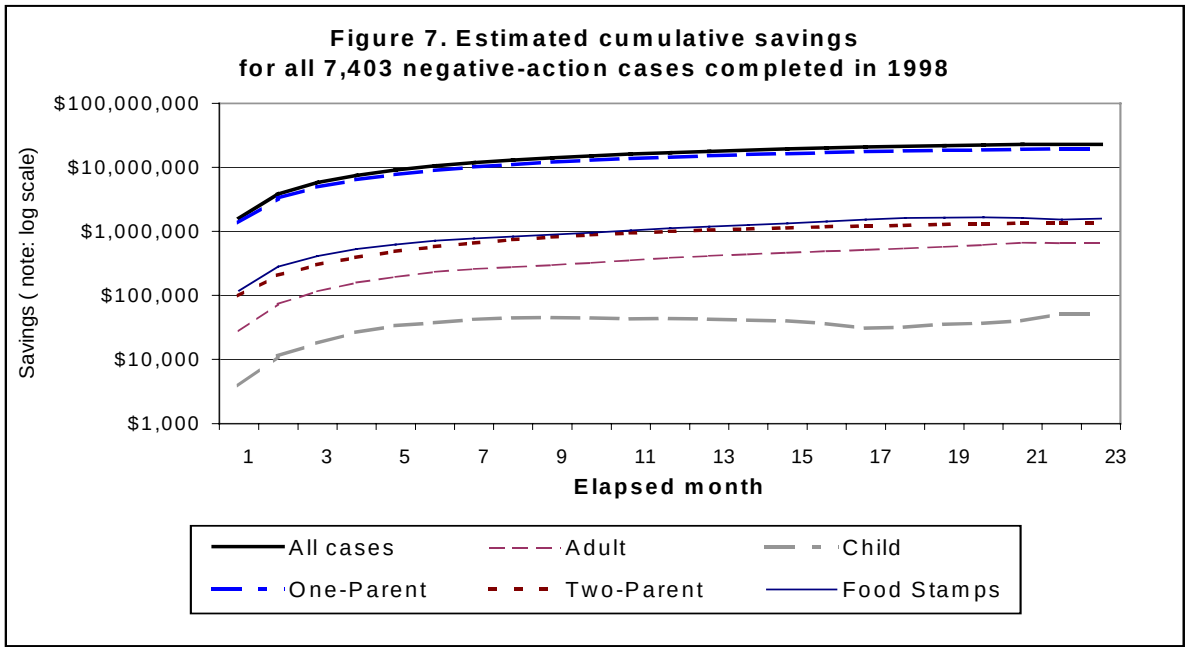


Figure 7 indicates capture of $1.62 million in savings during the first elapsed month after negative action (the month the negative action was taken), the savings then increasing sharply to $3,849 million (cumulative) for the first two elapsed months, then continuing to grow more gradually but consistently through Elapsed Month 23. By Elapsed Month 23 cumulative savings for all 7,403 cases reaches $22.917 million.

Note that after Elapsed Month 19 cumulative savings remain more or less flat, indicating little additional savings gained for additional elapsed months beyond that time.

This pattern of gradually though continually increasing savings over elapsed months, certainly for more than a year, is evident for each of the five Program Groups, except that for the miscellaneous Child program group cumulative savings drop a bit after Elapsed Month 10. At that time per case benefits provided to the Child program group negative action cases begin to exceed benefits paid out to the Approved comparison group.

Chapter 4

Comparing these empirical savings estimates with DFI's current savings models

DFI's currently used models for estimating savings trace back to a time when it was impractical to determine from administrative data systems what welfare benefits were actually provided over time to large numbers of identified cases. The assumptions that had to be made to estimate savings are not plausible in light of the data we provide in this study. Recognizing their savings models may be outdated, DFI asked DSHS Research and Data Analysis to develop a better method for estimating savings. The objective was to develop a method which DFI could use on its own to periodically estimate savings, using investigation production data from the SIRVIS data base.

The common assumption behind all three DFI savings models is that when a CSO declares a case ineligible, the members of those cases indeed cease receiving all welfare benefits. The model values all foregone benefits, grants, Medical Assistance and Food Stamps, at the average value of such benefits provided to all cases in that same program.

For cases where benefits were reduced, the model values the reductions at the actual reduction amounts.

DFI prepares three estimates. Model 1 provides a **first-month savings estimate**. Model 1 assumes that all members of all negative-action cases get no benefits during the first month after negative action.

Model 2 provides a multi-month estimate based on **average length of stay** in each program. It assumes that, if not for the negative action each case would have continued to draw its full welfare benefits for the full average length of stay of cases in that program.

Model 3 provides a second multi-month estimate, this time assuming that, if not for the negative action, each case would have remained on the welfare rolls until the next **eligibility review** required in that program.

Models 2 and 3 recognize that cases need not remain ineligible forever. Both models allow the equivalent of about 11.6 percent of initially ineligible cases to return to full benefits after the first month.

From the Economic Services and Medical Assistance Administrations DFI gets the needed data for each program on average costs per case for grants, Medical Assistance and Food Stamps, average lengths of stay and eligibility review periods.

How valid are these models? The benefits data reviewed in this report make it convincingly clear that the logic behind the DFI models is simply wrong. The data show that for most cases made ineligible, many members of those cases continue to get benefits for some long time, often without interruption. The average welfare cost per case made ineligible does drop but only by half or so.

Nor do the DFI models recognize natural attrition in the welfare rolls. The benefits data we have reviewed here demonstrate substantial natural attrition in both Approved and negative-action cases. As a result of attrition, monthly savings from ineligibility dwindles over time for the number of cases still receiving welfare shrinks naturally with time...

The savings overestimates that these biases introduce are offset by yet another bias, which underestimates savings. Both DFI multi-month variations underestimate the number of months that the savings from ineligibility continue to accrue. For example, in the length-of-stay model (Model 2) the lengths of stay values now used to compute multi-month savings are 11.1 months for TANF one-parent cases, 5.4 months for TANF two-parent cases, and six months for Food Stamps cases.

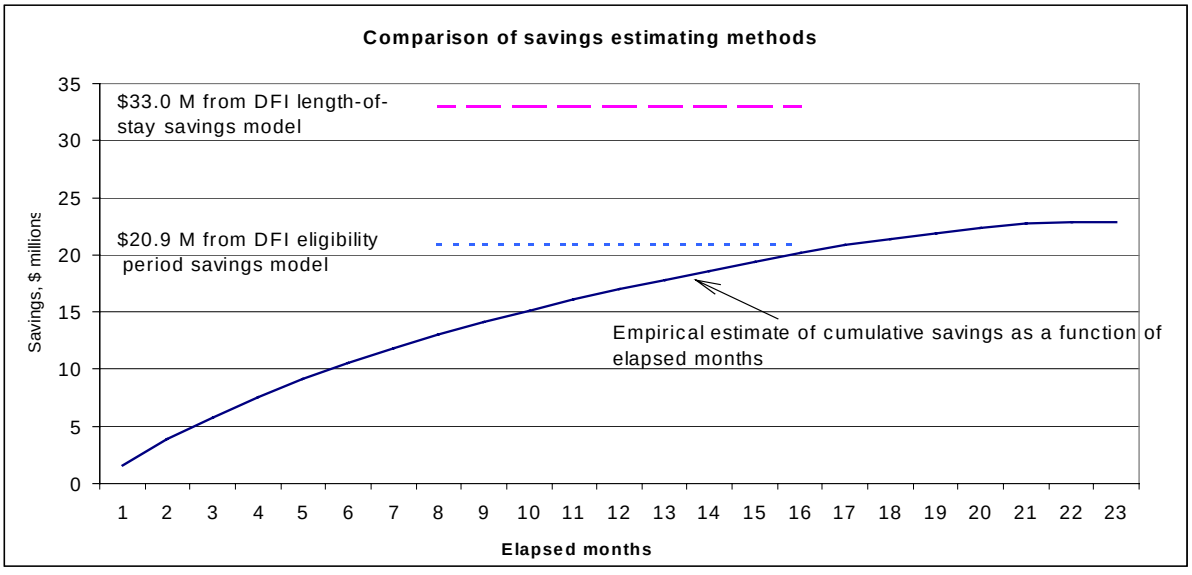
These figures may correctly estimate unbroken length-of-stay on a particular program, but they do not recognize that the members of the case may continue on welfare by going on to other programs or by leaving then returning to the same welfare program. If case members stay longer on welfare, then the savings from making them ineligible should be that much greater.

The data in this study have amply shown that monthly incremental savings continue for many months beyond these length-of-stay time periods, albeit at dwindling rates.

Comparison of savings estimates

On the graph below we compare the savings estimates produced by DFI's two multi-month models with the more empirical method used in this report. The DFI model estimates are based directly on the data in the SIRVIS file we received. Happily, the DFI model results we ourselves generated match almost perfectly with the month-by-month savings reports DFI itself prepares.

The estimates shown are all for the 7,403 negative-action cases completed in 1998. The numbers thus estimate the annual savings that resulted from DFI fraud investigations in 1998.



Neither of the two present DFI multi-month models proves a good estimator. The DFI length-of-stay model estimate of $33 million is substantially too high.
The $20.9 million estimate from the DFI eligibility review period model comes closer to our own estimate of $22,917 million for 23-month cumulative savings, This is something of a coincidence, however. For single groups of interest, such as TANF one-parent – Reduced benefit, or Food Stamps – eligibility Denied, the model seriously overestimates or underestimates savings (data not shown). That the overall savings estimate comes close is largely an accident, and this good fortune may not repeat in the future.

Switching to the new method for estimating savings

The method developed in this study offers a simple way to estimate savings for Terminated, Denied, Withdrawn and Reduced cases in each program group. The method is credible for it is heavily empirically based and developed from large numbers of recent cases. (The model is not entirely empirical. It relies on the crucial assumption that the unknowable welfare benefits that the negative-action cases would have gotten had they not been investigated can be estimated by the benefits in fact gotten by equivalent investigated and eligibility approved cases.)

The per case 23-month cumulative savings figures would have to be updated every several years to keep up with changes in welfare costs and the nature of cases referred for investigation. In today's low inflation economy the per case savings figures would likely remain reasonably correct for five to eight years, perhaps longer. But come a high inflation environment, the figures would more quickly grow stale, underestimate savings and lose credibility.

It is more difficult to anticipate the future administrative and political environments for fraud investigations or future changes in welfare programs and the families that use them. If caseloads continue to drop in size as they are now, the mix of cases remaining on welfare will change accordingly, and this in turn may bring an interest in revisiting the savings from fraud investigations.

The computer programs developed for this project are well documented and saved. To re-run the analyses to update the figures would require perhaps four-five person-months of work.

APPENDICES

Appendix 1: Methods used to build study group

Appendix 2: Methods used to identify welfare benefits

Appendix 3: Analysis example

Appendix 4: Per case benefit cost and savings graphs for the other four program groups

Appendix 1: Methods used to build study group

Records from the SIRVIS file. In early January, 1999, DFI provided us the SIRVIS records of all 34,373 cases referred by the CSOs for fraud investigation during the 21 immediately prior months: April 1997 through December 1998. (We did not request cases referred before April 1997 because the ACES benefits file we intended to use could not provide quite all welfare benefits prior to that April.)

The descriptive program statistics provided in this report are based on this entire group of 34,373, wherever possible.

To create the study group, we deleted inappropriate cases. We needed cases where the CSO final action was either to approve eligibility or a clear negative action: either denying eligibility or reducing benefits. (The codes we relied on have already been described.) The result is summarized in the following table.

Table A-1. Number of SIRVIS cases available for the study group

Case records received on SIRVIS file		34,373
No CSO Action Date	5,046	
CSO Act Dt = Jan 99	802	
CSO Action not Approve or negative-action	6,226	
Cases available for the study group		22,299

Some 5,046 cases were excluded from the study group as they had no CSO final actions or action dates. (Most were recent referrals, presumably still in process.) We excluded 6,226 cases where the CSO action was other than to approve eligibility or deny it or reduce benefits. The deleted CSO action codes were **CHG** (Enrolled in other program), **DNA** (Information does not affect eligibility), **MGR** (Manager decided not actionable), **PFW (**Investigation time lapsed), **TRN** (Transferred to other CSO), and **OTH** (Other).

Last, we excluded 803 cases with early-January 1999 CSO action dates. The SIRVIS extract, prepared in early January 1999, provided a very incomplete set of January 1999 action date records. That left in the study group an appreciable 22,299 cases.

Matching each target's identity with records in ACES.

We next had to identify in ACES the welfare records for each case in the study group. We called the person referred for investigation the "target" of that case.

To be precise, we did not use ACES itself but rather an ACES-derivative database called CARD. ACES itself is designed to support critical business functions, in particular, large volumes of real-time transactions, periodic benefit issuances in bulk, plus certain other purposes. ACES does not easily support ad hoc analyses of selected cases and their intricately related individual characteristics and benefit records. To protect against

inadvertent degrading of critical functions, ACES itself may not be used for the latter analytic purpose.

To provide this valuable analysis capability, DSHS in 1997 developed CARD: an ACES-derived but analysis-friendlier and separately maintained file of welfare history data. CARD is updated from ACES monthly, and carries cumulative historical data about ACES individuals, cases and benefits. Each monthly update adds the latest month's data to previous data, also any late-arriving updates of previous months' data.

The first full month of CARD data came available in April 1997, but that first file was not built retroactively and thus did not have prior months' benefits histories. By December 1998 CARD had accumulated sufficient months of data to allow one to follow for at least twelve months all cases that had been investigated by DFI for fraud during any month in 1977.

To find the target in CARD, we matched their SIRVIS identity data with identity files in CARD. The identity fields used were: **Client ID**, **First Name, Last Name**, **Birth Date**, **and Social Security Number**.

As the table below shows, we successfully matched 99.8 percent of all 34,373 targets with CARD. The table shows all 34,373 cases in the original SIRVIS file, as we actually ran the matching algorithms on all the SIRVIS cases we had gotten, not only those in the study group. This high degree of matching success indicates simply that CSO and DFI staff do keep careful note of each investigation target's identity.

Table A-2. Methods used to match SIRVIS and CARD identities, and results

	Cases in initial SIRVIS file	34,373	
1	Matched using Client ID + exact First Name	31,700	92.4 %
2	Matched using Name + SSN + Birth date	1,066	3.1 %
3	Matched using exact First and Last Names + SSN	58	0.2 %
4	Matched using SSN + Birth date	1216	3.5 %
5	Matched using exact First and Last Names + Birth date	109	0.3 %
6	Matched on Client ID, then by inspecting Name, SSN, Birth date	154	0.4 %
	Cases left unmatched, thus unusable	70	0.2 %

To avoid false positive matching of Client Ids (Client Ids are issued consecutively and thus even with a data error two Client Ids could inadvertently match), the first and most productive match (step 1 in the table) required also an exact match on First Name.

No doubt, some false matches were made. For example, two percent of the SIRVIS records matched to more than one CARD, and we kept only one CARD record, chosen

randomly. Some of these random match choices are undoubtedly the wrong ones, but we had no ready way to identify them. (We could have inspected them.) Such matching errors add random error and reduce precision, therefore, but such errors should be equally prevalent in the negative-action and Approved comparison group, and thus should not bias the results.

Identifying the target's "associates" (family members, mostly) whose welfare benefits might also be affected

A CSO declaring the target ineligible could often affect benefits to others. We called those others "associates" of the target, and we defined such associates as all persons who were members of any assistance unit to which the target had belonged during the referral month (had an eligibility span spanning the referral month). Our thinking was that any eligibility change made that referral month could have affected these associates as well.

Assistance unit memberships and span dates were determined from CARD. We retained the associate's Client ID and the identity of the target that they were associated with.

Because targets had sometimes been referred for investigation more than once, the same associates could show up in the file more than once. We treated each DFI referral as a separate event. Thus a case referred to DFI three times (during three different months) would appear in the resulting data set three times, but with different referral dates.

(We later recognized that CSO eligibility action often occurred a month or more after the referral month. In retrospect, it might have been preferable to define a target's associates as those others associated with the target's assistance unit(s) during the month of CSO action. But it was too late to rebuild the associates data set. The difference between the two definitional months is likely not important. Inspection of sample data indicates that assistance unit member-ships tended to be stable over two or three months and often for much longer periods.)

Other cases dropped: We dropped 50 cases from the study file because we could not match them to CARD. For 20 additional cases, we could find no eligibility spans covering the referral month, not for any associate or for the target. Concerned that we may have erroneous Client IDs (false-positive matches, perhaps) we dropped the 20. Later, we would also drop one other case (Program T, eligibility terminated) because this was the only Program-T case in the entire file. Having no Program-T eligibility approved cases there would be no way to infer savings.

In summary, we successfully matched with CARD and carried out the benefits analysis with 99.8 percent of all 22,299 cases suitable for this analysis. These figures are summarized in the next table.

Table A-3. Success in matching study group cases to CARD

Cases in study group		22,299
Could find no CL_ID	50	
Could find no span	20	
Had no APP comparison case for one Prog=T (Aged-psychiatric)	1	

Study group cases available for benefits analysis	22,228

Table A-4 shows the programs and CSO action categories for all 22,228 cases that went into the benefits analysis. Note that for many of the adult and child-related programs we had only small numbers of case in certain CSO action cells. Hence we collapsed these low-N programs into two "program groups:" Other **Child or family-related**, and programs typically for **Adults.**

Table A-4. Numbers of cases in the final groups of interest, by Program and CSO action

		CSO Action						
Program group	**Prog**	**Approve**	**Deny**	**Reduce**	**Terminate**	**Withdrawn**	**Total Neg-action**	**Grand Total**
All		11113	1015	1582	8231	287	11115	22228
1-Parent "C"		8497	607	1244	6285	211	8347	16844
2-Parent "E"		406	34	86	238	11	369	775
Food Stamps "F"		1563	264	177	1216	51	1708	3271
Adult		527	94	59	404	10	567	1094
	A	20	9	1	14	0	24	44
	M	174	34	12	116	2	164	338
	P	38	5	2	24	2	33	71
	U	249	34	40	216	3	293	542
	W	7	2	0	7	0	9	16
	X	39	10	4	27	3	44	83
	(T)	0	0	0	(1)	0	0	0
Child		120	16	16	88	4	124	244
	D	4	1	0	3	0	4	8
	G	18	0	4	15	0	19	37
	H	57	9	9	34	3	55	112
	K	1	1	0	0	0	1	2
	R	1	2	0	2	0	4	5
	S	26	3	3	24	0	30	56
	V	13	0	0	10	1	11	24

Appendix 2: Methods used to identify welfare benefits

Using the Client IDs now available for every target and every target's associates, we searched CARD for the benefits issued to each Client ID from the month of CSO action through February 1999, the most recent month in our benefits file. We retained all benefits for all associates, regardless of which program(s) they later used or whether they had or had not continued in the target's assistance unit.

Allocating benefits to individuals. ACES (hence CARD) associates benefits with assistance units, not with the individual members of those units. It was necessary, therefore, to allocate the benefits associated with an assistance unit to the "beneficiary" members of that assistance unit.

Not all assistance unit members are considered beneficiaries according to welfare program rules and their implementation in ACES. To identify the beneficiaries, we used an algorithm already developed by Research and Data Analysis. The algorithm seeks certain combinations of assistance unit-level and client-level data fields: AU-status, Client-status, Head-of-household relationship, and Financial responsibility.

In effect, the algorithm simulates the program eligibility and benefit-determination program rules implemented in ACES. Once the beneficiaries are identified, the algorithm allocates each issued benefit **equally** among all the beneficiary members of the assistance unit: adults and children alike.

Applying the RDA algorithm to the March 1999 CARD benefits file, we obtained benefits data from referral month through February 1999 for every target and associate. We retained cash grant amounts, Medical Assistance eligibility flags and Food Stamps amounts.

We did not retain the program codes associated with each benefit. Undoubtedly, many persons enrolled in one program at time of investigation referral would later be getting benefits from some other program(s). Our focus was to determine actual costs and from that to estimate savings, not to understand what happens programmatically to cases determined ineligible. Thus we retained only the benefit fields needed to estimate costs.

Nor did we study which individuals in negative-action cases continued to get benefits (were they the targets? child associates?). Still, it will be clear from the data that many members of cases determined ineligible do continue on welfare to some degree. Benefits for a case for a given month was defined as all grant, Medical Assistance eligibility and Food Stamps benefits issued that month to the target and all associates. Because of the substantial additional work involved, recoveries of overpayments are not taken into account.

Valuing benefits

The benefits file provided direct dollar values for all Grant and Food Stamps benefits (and for a handful of cash payments associated with medical eligibility). Medical Assistance benefits were identified only by an eligibility flag (Yes/No). Dollar value had to be imputed.

The cost to the state of underwriting each medical eligibility was not empirically determined. That would have required extensive work with the department's Medical Management Information System. Instead, for valuing purposes we relied on program-specific averages of Medical Assistance costs per eligible case per month. These values had already been provided to DFI by the Medical Assistance Administration, and they are the exact values DFI uses in its own savings estimating model.

If only some of the members of a case had medical eligibility during a particular month we proportionately lowered the value of that case's medical eligibility benefits. If a case consisted of the target and three associates, for instance, but in a particular month only three of these four persons had Medical Assistance eligibility, we imputed a Medical Assistance cost of 3/4 of the average cost of Medical Assistance per month in that case's particular program.

To estimate the federal shares of grant and Medical Assistance benefits, we used allocation proportions provided by the Economic Services Administration and Medical Assistance Administration. The proportions are shown in the table below. Per the state's accounting convention, TANF grants are considered 100 percent federal funds. Food Stamps costs are 100 percent federal. (Shares are shown in italics where the program does not provide the benefit shown. In later months persons may have gotten that benefit, had they then shifted to another program.)

Table A-5. Federal shares of welfare benefits

	Program	**Federal share of income grant**	**Federal share of Medicaid costs**	**Federal share of Food Stamps**
	TANF One Parent	100 %	53 %	100 %
	TANF Two Parent	100 %	53 %	100 %
	CEAP	0 %	53 %	100 %
	SSI	0 %	53 %	100 %
	GA-S, GA-U, GA-W	0 %	53 %	100 %
	Child Health – Medicaid	*100 %*	53 %	100 %
	Child Health –state only	*0 %*	0 %	100 %
	Refugee	100 %	53 %	100 %
	Medically indigent	*0 %*	0 %	100 %
	Food Stamps only	*100 %*	*53 %*	100 %

In summary, for every case each month we retained the total and federal share of grant benefits Medical Assistance and Food Stamps.

Elapsed months and Available cases

The intent in this analysis is to describe benefits actually received as a function of **months since the CSO took its action** based on the results of the fraud investigation. Our data set included 21 months of investigation referrals (April 1997 - December 1998)

and up to 23 months of benefits data (April 1997 - February 1999). For each case we also had the CSO action date.

The most recent benefit data we had were for February 1999. February 1999 benefit data represented the 22nd month after CSO action for cases acted on in April 1997, but only the 2nd month after CSO action for cases acted on in December 1998.

Since month after CSO action was the desired time metric we converted all benefit dates to **months elapsed since CSO action**, which we call “Elapsed Months”. The earliest acted-on cases, those acted on in April 1997, were available for 23 months of benefit data (benefit data for Elapsed Months 1-23). Cases acted on in December 1998 were available for only 3 months of benefit data (data for Elapsed Months 1-3) because our benefits file did not go beyond February 1999. Thus a December 1998 action case was “not available” to have gotten benefits for Elapsed Month-4 and higher benefit months. Those higher-numbered benefit months could not be observed for these cases since the benefit data did not go beyond February 1999.

Table A-6 shows how benefit calendar month was converted to Elapsed Month. Elapsed Month = Benefit Calendar Month - CSO Action Month + 1.

Table A-6. How Elapsed Month is determined from CSO Action Month and Benefit Month (Elapsed Month = Ben-Mo – CSO-Action-Month + 1)

Benefit Month

CSO Action Month		1997									1998												1999	
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1997	Apr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	May		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Jun			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	Jul				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Aug					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Sep						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Oct							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Nov								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Dec									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1998	Jan										1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Feb											1	2	3	4	5	6	7	8	9	10	11	12	13
	Mar												1	2	3	4	5	6	7	8	9	10	11	12
	Apr													1	2	3	4	5	6	7	8	9	10	11
	May														1	2	3	4	5	6	7	8	9	10
	Jun															1	2	3	4	5	6	7	8	9
	Jul																1	2	3	4	5	6	7	8
	Aug																	1	2	3	4	5	6	7
	Sep																		1	2	3	4	5	6
	Oct																			1	2	3	4	5
	Nov																				1	2	3	4
	Dec																					1	2	3

Available Cases

A case is “available” for an Elapsed Month group if the case has a CSO action date early enough to have allowed the case to reach that Elapsed Month by February 1999. As the above table shows, all cases are available for benefits during Elapsed Months 1, 2 and 3, but beyond that the numbers of cases available for benefits drops off. Only the April 1997 Action Date cases are available for Elapsed Month 23.

The analysis of benefits actually received must take into account the diminishing number of cases available for getting benefits each Elapsed Month. If we found, say, $5,000 of benefits were provided to some group of cases, it is crucial to also know how many of those cases were available to get those benefits that Elapsed Month. Knowing how many cases were available to get benefits, one can readily compute average benefits in fact gotten by each available case.

Table A-7 illustrates with Program C case counts the diminishing numbers of available cases as Elapsed Month increases. As Program C contributes 16,844 cases to the analysis, a goodly number are available for analysis even out to Elapsed Month 23. In programs starting with fewer cases referred and acted on, the numbers of cases available for benefits dwindle by Elapsed Month 17 or 20 or so.

As cases dwindle the data become unreliable or altogether non-existent. If at higher Elapsed Month values the numbers of cases available for benefits in a particular program and CSO action group shrank too low to allow confidence in the findings, we assumed no further savings that month or in subsequent months, and we merely carried forward the cumulative savings estimated through the prior month.

Table A-7. Example: Numbers of Program C cases in each CSO action category that were available to get benefits each Elapsed Month

	CSO action				
Elapsed month	**Approved**	**Terminated**	**Denied**	**Withdrawn**	**Benefit reduced**
1	8497	6285	607	211	1244
2	8497	6285	607	211	1244
3	8497	6285	607	211	1244
4	7883	5885	572	196	1143
5	7394	5493	545	185	1069
6	6947	5060	506	169	996
7	6477	4715	488	156	924
8	6088	4324	457	141	854
9	5525	3961	420	131	785
10	5000	3627	397	115	724
11	4544	3286	356	101	666
12	4049	3006	324	91	592
13	3627	2735	296	83	514
14	3247	2479	253	76	435
15	2885	2194	222	70	388
16	2399	1860	191	57	325
17	2046	1657	166	52	289
18	1575	1300	131	36	229
19	1220	1031	106	33	192
20	847	749	79	22	143
21	529	495	54	12	86
22	270	247	29	6	51
23	78	85	8	4	15

Appendix 3: Analysis example

Available cases and cases getting benefits

Each program contributes a certain number of cases to the overall savings analysis. In the table below we show the TANF One-Parent Program (C) as the example. Program C contributes 16,844 cases to the entire analysis. (Recall, that Program C contributes a sizeable three-quarters of all cases referred for investigation.)

The study group is further divided into 25 "Groups of Interest." The 25 are the combinations of the five program groups, Adult, Child, One-Parent (C), Two-Parent (E) and Food Stamps only (F) by the four negative-action categories (Deny, Reduce, Terminate, Withdrawn) plus Approveds. Program C, for instance, contributes five groups of interest: C-eligibility approved, C-eligibility denied, C-eligibility terminated, C-application withdrawn, and C-benefits reduced). The numbers of Program-C cases in each group of interest are shown in Column A of Table A-8, next.

Table A-8. Example continued: TANF One-Parent Program C: Numbers of cases available for benefits and numbers seen actually getting benefits

	A	B	C	D	E
Group of interest	**Total cases in the group**	**Cases available in first benefit month (Elapsed Month 1)**	**Cases getting benefits in first benefit month (Elapsed Month 1)**	**Cases available in final benefit month (Elapsed Month 23)**	**Cases getting benefits in final benefit month (Elapsed Month 23)**
C - All Groups	16844	16844	13435 (80%)	190	95 (50%)
C - Approved	8497	8497	7763 (91%)	78	39 (50%)
C - Terminated	6285	6285	4087 (65%)	85	44 (52%)
C - Denied	607	607	296 (49%)	8	3 (38%)
C - Withdraw	211	211	159 (75%)	4	1 (25%)
C - Reduced	1244	1244	1130 (91%)	15	8 (53%)

Columns B and D show the numbers available for benefits by elapsed month. Only Elapsed Months 1 and 23 are shown. Columns C and E show the number of cases for whom we observed in the CARD benefits file some benefit(s) actually issued during those Elapsed Months to member(s) of that group's available cases.

A case is considered to have gotten a benefit some month if in that month even a single benefit was provided to even one member of the case. Thus the Column C and E figures will almost always be lower than the corresponding Column B and D figures; not all cases available for benefits in some month would actually have gotten benefits.

Columns C and E also show in parentheses the percent of available cases that actually got benefits that month. Some 91 percent of the C-Approved available cases actually got some benefit(s) their first elapsed month. Note that even in Elapsed Month 1, the very month that the CSO approved eligibility, not all C-Approved cases actually got benefits.

As for the C-Terminated, C-Denied, and C-Withdrawn groups, the percentages of available cases actually getting benefits in Elapsed Month 1 (65. 49, and 75 percent, respectively) are all lower than the 91 percent for the C-Approveds. This decrement simply reflects the fact that in the latter cases a CSO had taken negative action.

It is important to note that benefits have by no means ended for members of these three groups of interest, even though they were categorized as eligibility terminated or denied or withdrawn. Finally, for the C-Reduced group, the percent actually getting benefits during their first month (91%) is not lower than for the C-Approveds. This is sensible: The negative action here was to reduce the benefit but not end it.

By the final benefit month available in the data set, Elapsed Month 23, the number of available cases has dwindled. The only Elapsed Month 23 cases available for searching in our benefits file which has benefits through February 1999 are the cases where CSO action was in April, 1997. Thus the counts in Column D, above, are considerably lower than those in Column B. Even so, because Program C starts out with so very many cases, at Elapsed Month 23 there are still fair numbers of cases left, at least for the largest-sized groups of interest: C-Approved, C-Terminated, and C-Reduced.

Column E shows the number and percent of cases actually getting some benefits during Elapsed Month 23, from among the cases available that Elapsed Month (Column D). For the C-Approved group, after 23 months, only 50 percent (39) of the 78 available cases got some benefit(s) that many months out. This reduction from 91 percent getting benefits in Elapsed Month 1 to 50 percent in Elapsed Month 23 simply reflects the fact that for a defined cohort of welfare cases, over time fewer and fewer actually get benefits.

For the C-Reduceds the 53 percent getting benefits at Elapsed Month 23 is about the same as the 50 percent figure for the C-Approved group. No surprise here: The C-Reduceds were not made ineligible. But for the C-Terminated group, at Elapsed Month 23 some 52 percent of available cases got benefits - this percentage no lower than for the C-Approved group. The decrement we had seen at Elapsed Month 0 in the percent of C-Terminated cases getting benefits relative to the C-Approveds has evaporated by Elapsed Month 23. We see this same pattern often in the main data.

In summary: For each group of interest, the number of cases available to get benefits depends on Elapsed Month. For Elapsed Months 1, 2 and 3, all study group cases are available to get

benefits. From Elapsed Month 4 through 23 the number of available cases drops off monthly. By Elapsed Month 23 only a small proportion of all cases remains available. Because the Program Group C of interest (especially C-Approved and C-Terminated) start with large number of cases, useable numbers of cases remain available even at Elapsed Month 23.

Example continued: Benefits provided and imputed savings

The estimation of benefits provided is straightforward. Table A-9 continues the example.

Table A-9. Example continued for TANF One-Parent Program Group C: Benefits issued (actual data) and savings (imputed)

	A	B	C	D	E	F	G
Group of interest	**Total cases in study group**	**Cases available in Elapsed Month 23**	**Cases seen getting benefits in Elapsed Month 23**	**Total benefits seen**	**Average benefit per available case**	**Average savings per available case**	**Total savings for entire study group**
C – Approved	8497	78	39	$ 24,880	$ 318.97		
C – Terminated	6285	85	44	27,374	322.05	$ - 3.08	$ - 19,327
C – Denied	607	8	3	1,622	202.75	116.22	70,548
C – Withdraw	211	4	1	170	42.50	276.47	58,336
C – Reduced	1244	15	8	5,679	378.60	- 59.63	- 74,174

Columns B and C repeat data from Table A-8. Column D shows the total of all benefits actually seen in CARD for some Elapsed Month (we show data for Elapsed Month 23) for the targets and associates of all cases available for benefits that 23rd month in that group of interest. Column E computes the average total benefit per available case.

Column F then imputes the savings this Elapsed Month per average case in this group of interest. Savings are imputed as (Average benefits for Approved cases) - (Average benefits for the group of interest). Last, Column G computes imputed total savings for the entire group of interest: (Average savings per case) x (Number of cases in the entire group of interest).

The savings estimate assumes that the yet-unobservable Elapsed Month 23 costs for more-recently acted-on cases, those that had not yet matured to their 23rd elapsed month, would be the same as the costs actually seen for earlier-acted-on cases in the same group of interest, those that had already reached Elapsed Month 23.

Interestingly, the average costs shown in Column E suggest that, at least by Month 23, costs for the Terminated and Reduced groups of interest in Program C may now exceed costs for C-Approved cases. This apparent anomaly is not a serious issue. It will be easier to understand when in the next section we review the actual data on costs and savings for groups of interest over their entire 23-month periods.

Appendix 4: Per case benefit cost and savings graphs for the other four program groups

Percent of cases getting any benefits

Figure 3-E. Percent of cases getting any benefit in months after CSO action, TANF Two-Parent Program Group E

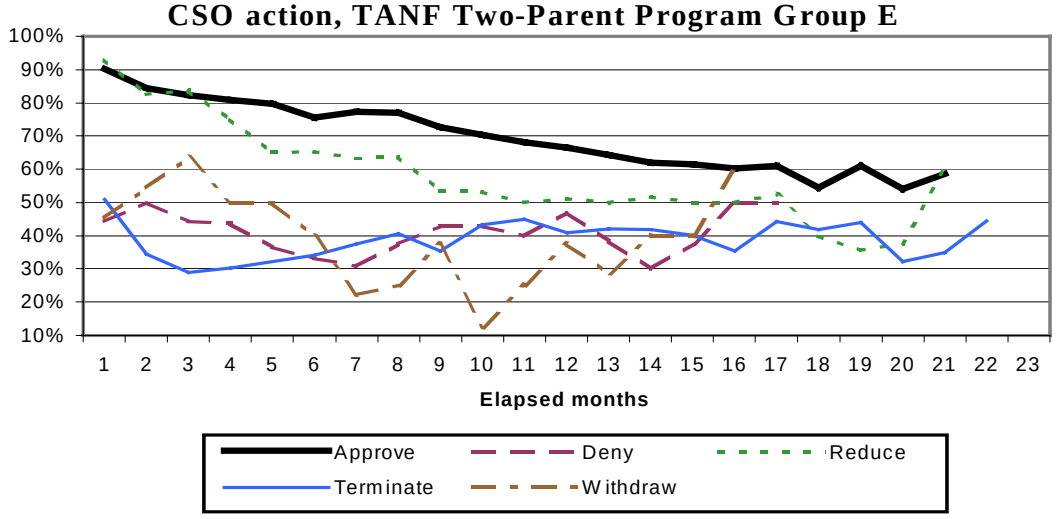


Figure 3-F. Percent of cases getting any benefit in months after CSO action, Food Stamp Only Program Group F

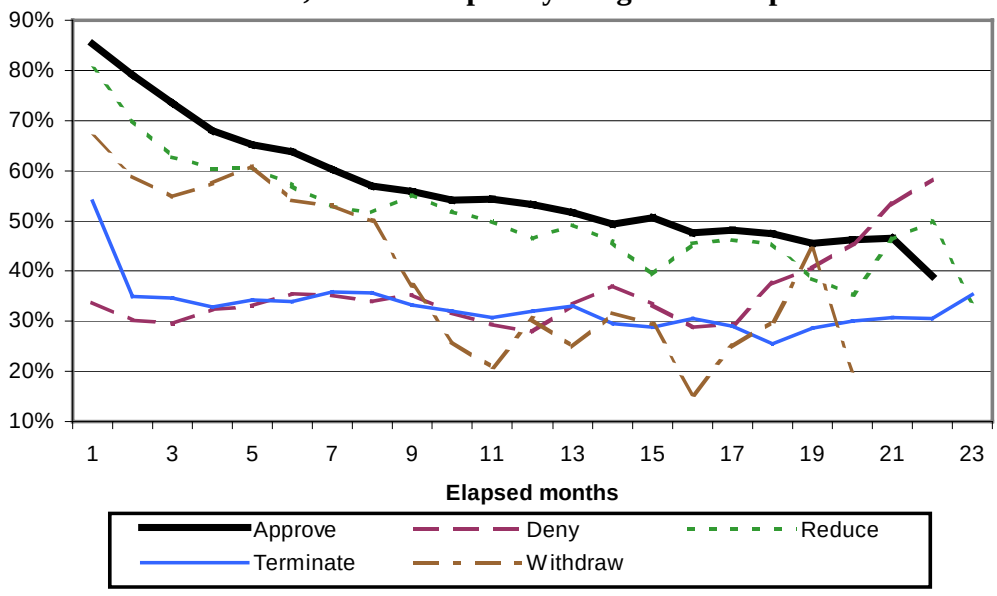


Figure 3-Child. Percent of cases getting any benefit in months after CSO action, Child Program Group

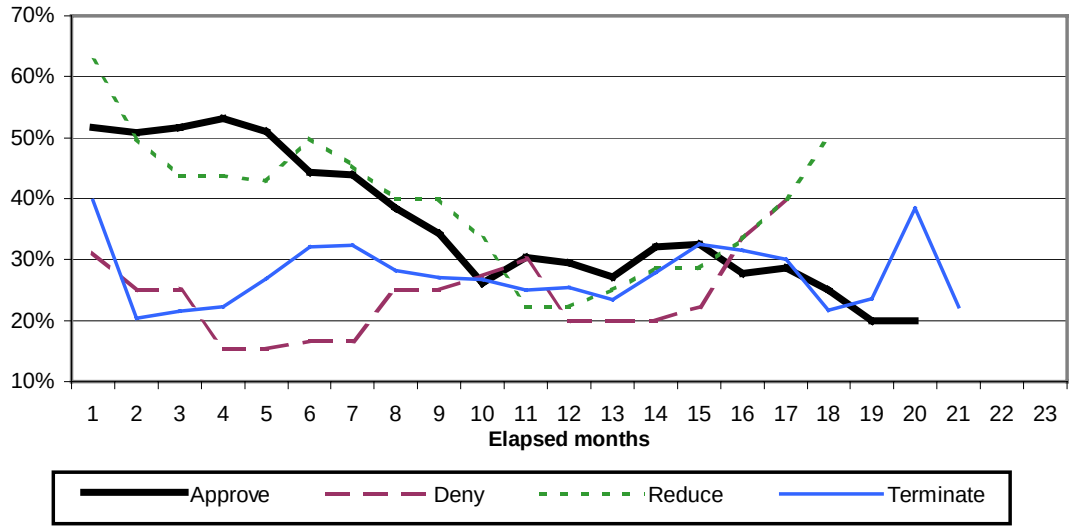
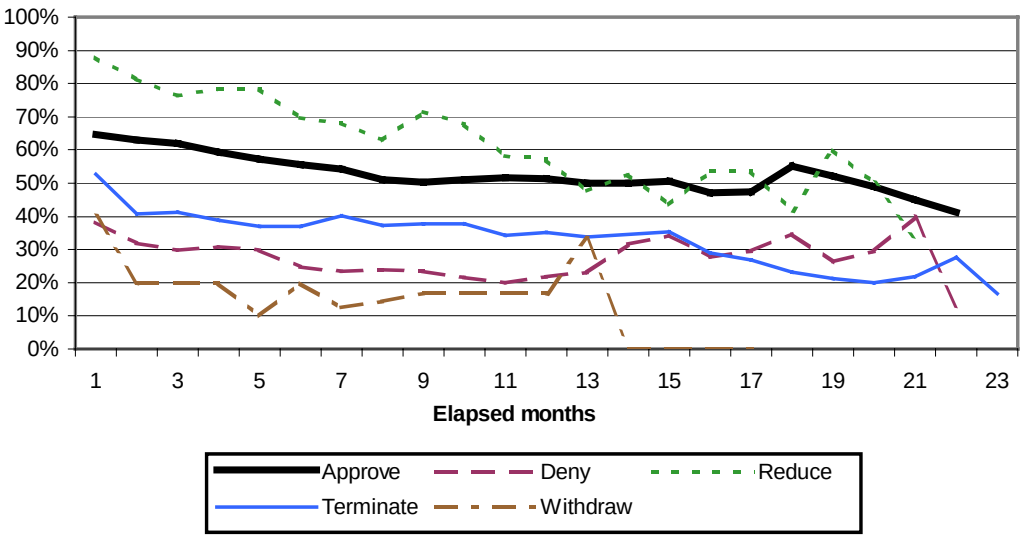


Figure 3-Adult. Percent of cases getting any benefit in months after CSO action, Adult Program Group



Monthly costs per case

Figure 4-E. Monthly costs per case of all welfare benefits, TANF Two-Parent Program Group E

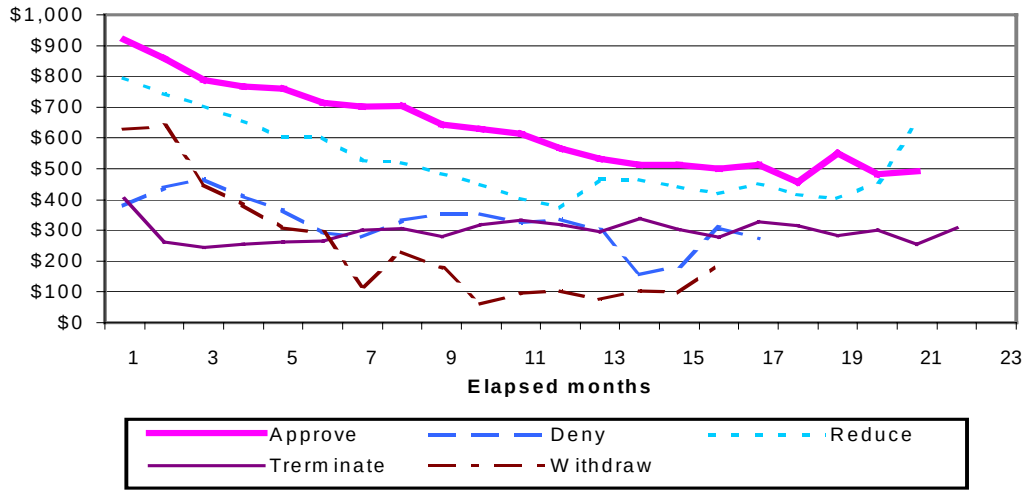


Figure 4-F. Monthly costs per case of all welfare benefits, Food Stamp Only Program Group F

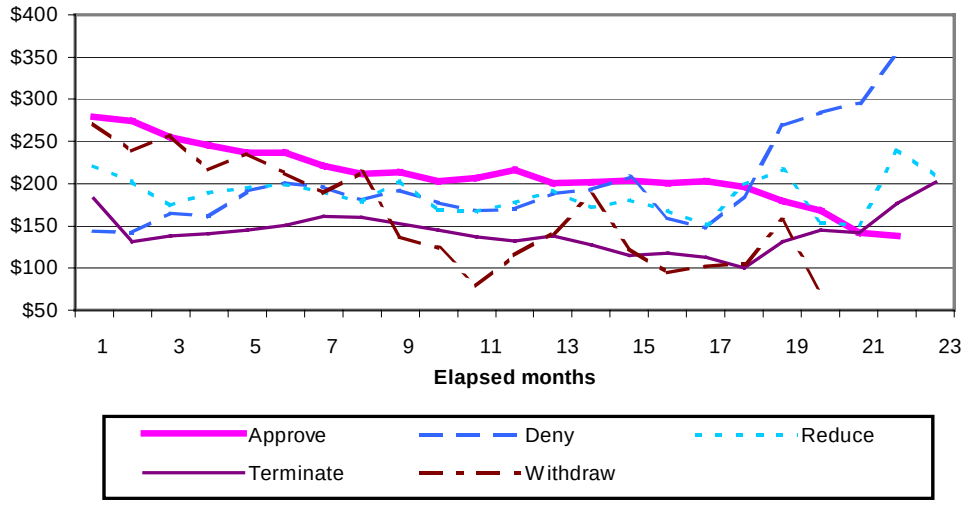


Figure 4-Child. Monthly costs per case of all welfare benefits, Child Program Group

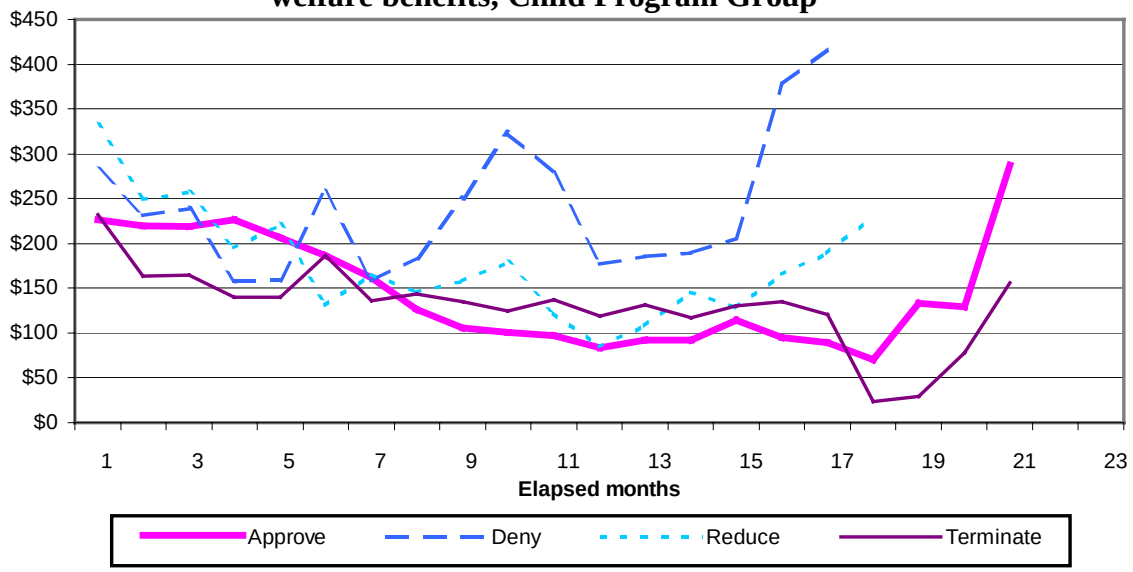
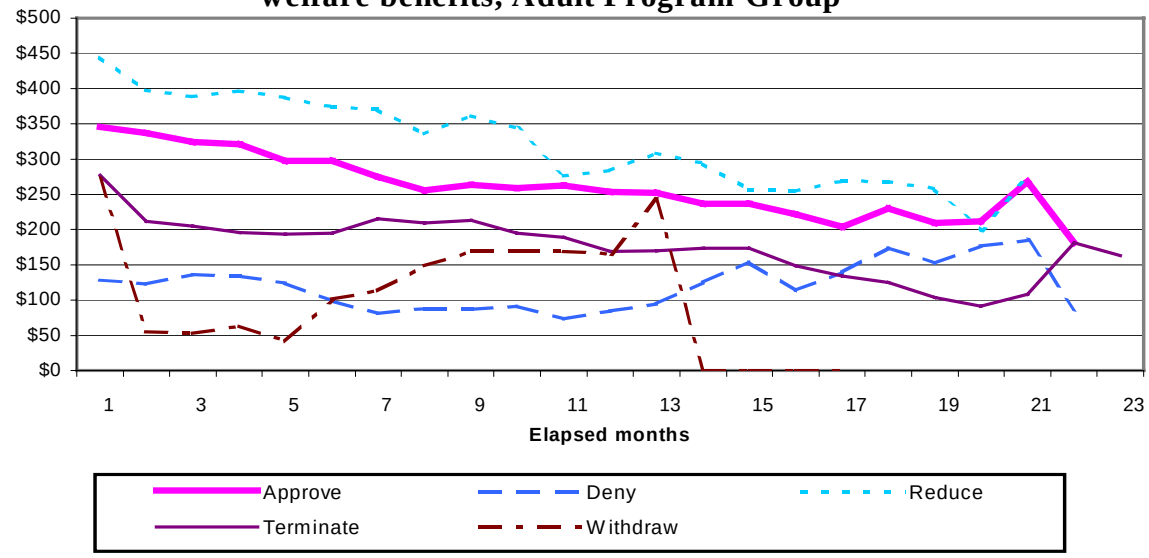


Figure 4-Adult. Monthly costs per case of all welfare benefits, Adult Program Group



Monthly savings per case

Figure 5-E. Monthly savings per case, TANF Two-Parent Program Group E

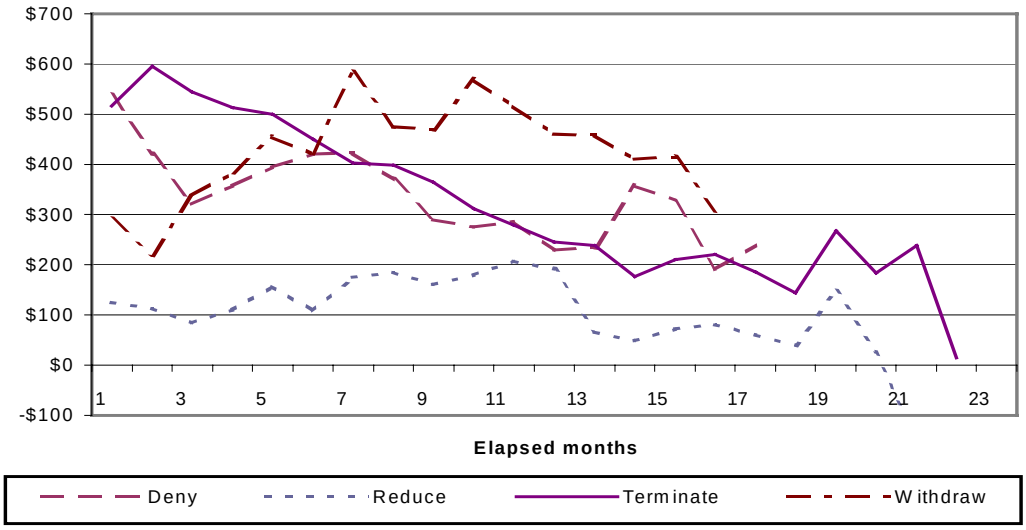


Figure 5-F. Monthly savings per case, Food Stamp Only Program Group F

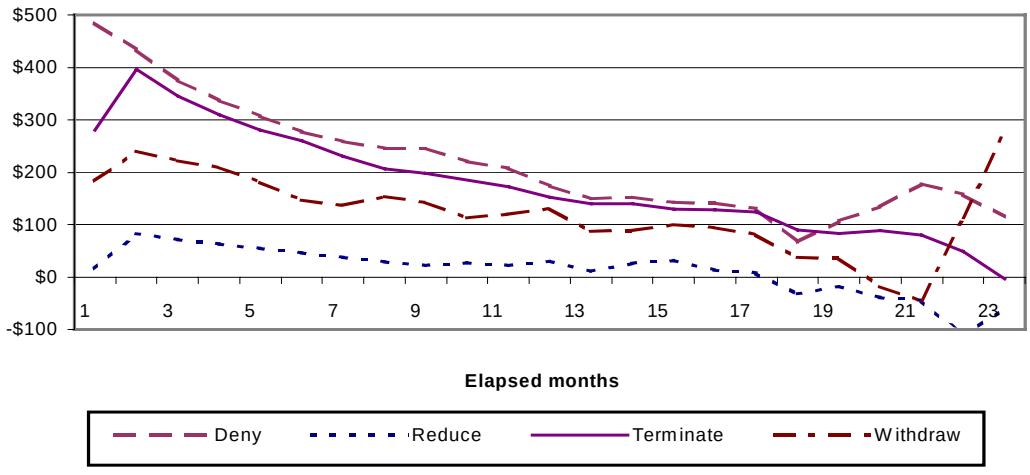


Figure 5-Child. Monthly savings per case, Child Program Group

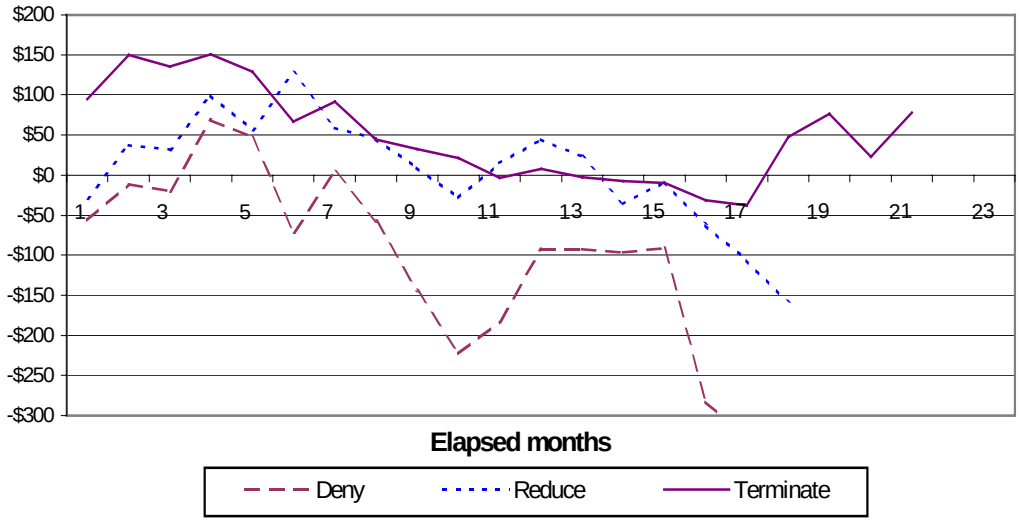
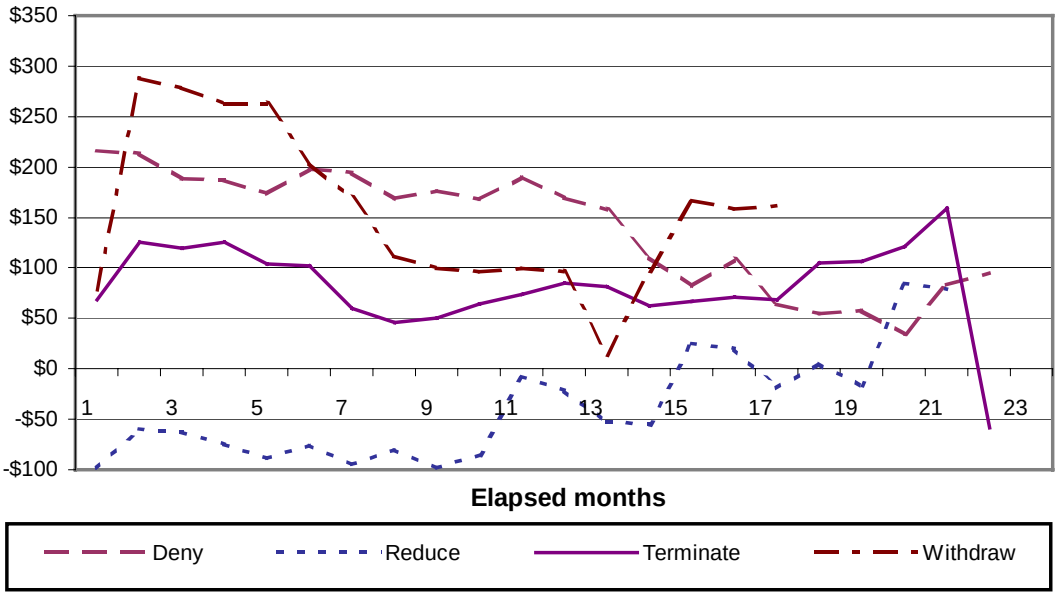


Figure 5-Adult. Monthly savings per case, Adult Program Group



Cumulative savings per case

Figure 6-E. Cumulative savings per case thru Elapsed Month M, TANF Two-Parent Program Group E

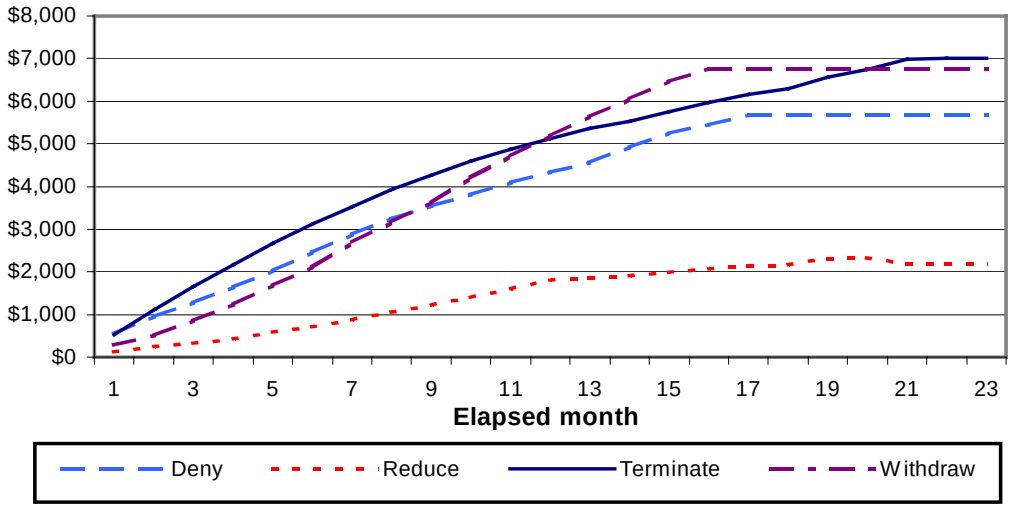
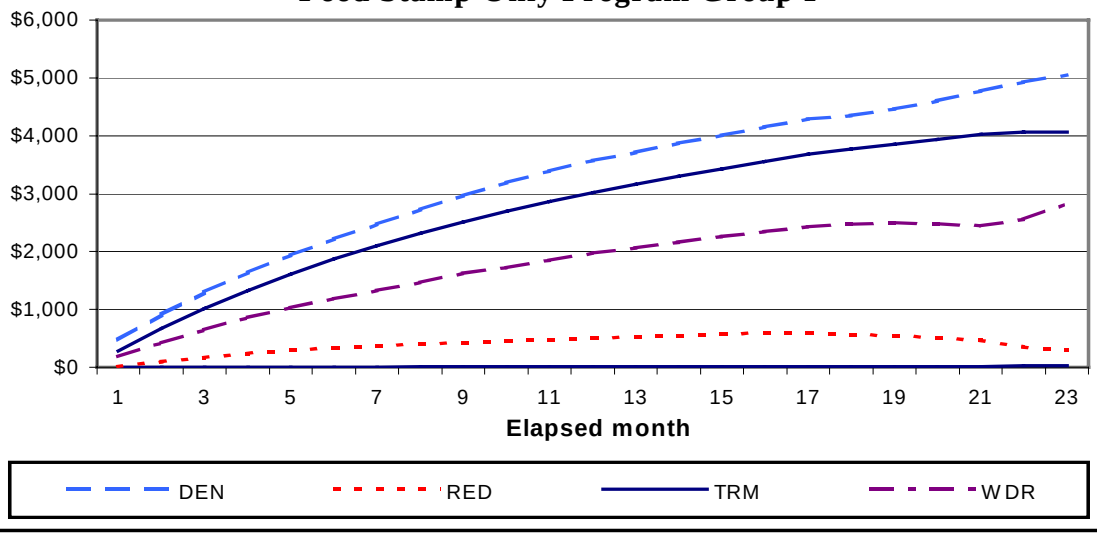


Figure 6-F. Cumulative savings per case thru Elapsed Month M, Food Stamp Only Program Group F



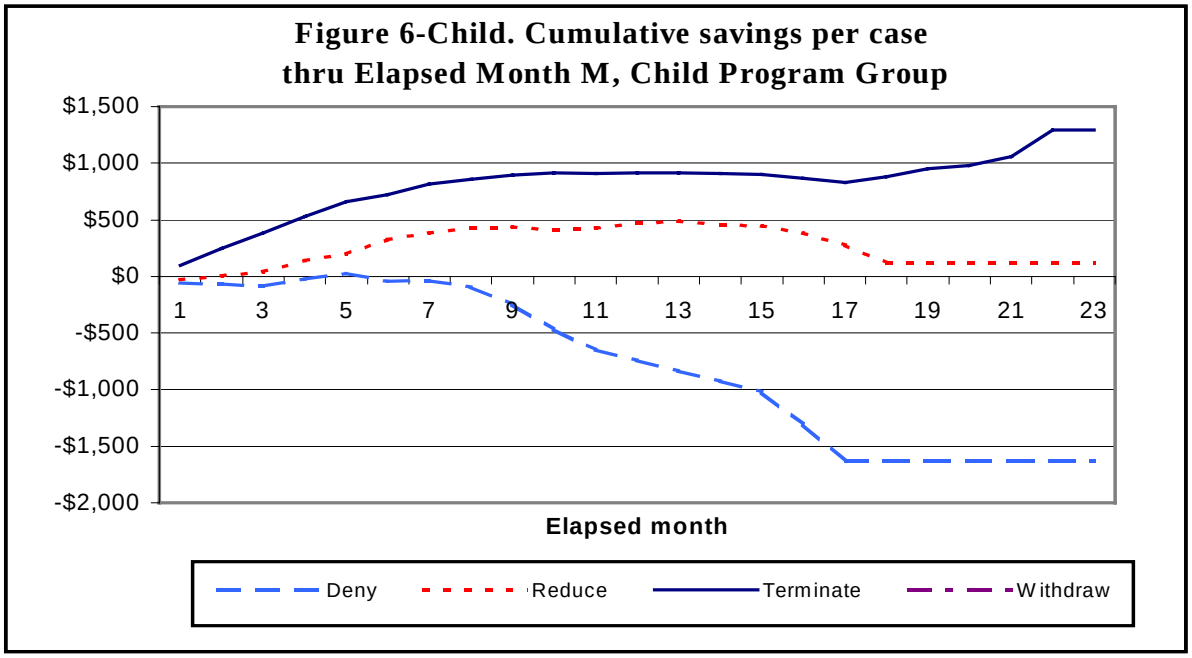


Figure 6-Child. Cumulative savings per case thru Elapsed Month M, Child Program Group
$1,500
$1,000
$500
$0
-$500
-$1,000
-$1,500
-$2,000
1
3
5
7
9
11
13
15
17
19
21
23
Elapsed month
Deny
Reduce
Terminate
Withdraw

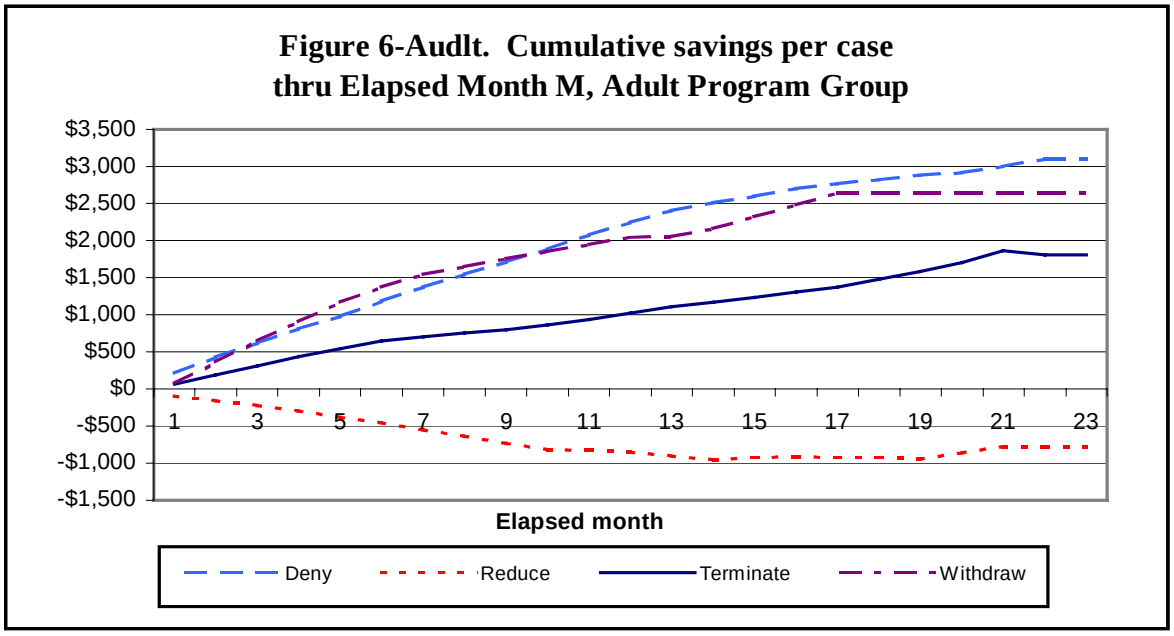


Figure 6-Audlt. Cumulative savings per case thru Elapsed Month M, Adult Program Group
$3,500
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
-$500
-$1,000
-$1,500
1
3
5
7
9
11
13
15
17
19
21
23
Elapsed month
Deny
Reduce
Terminate
Withdraw

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