The MID-SIPP Model

A Simulation Approach for Projecting Impacts of Changes in the Food Stamp Program

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Abstract

This report introduces the Monthly Income Dynamics, Survey of Income and Program Participation (MID-SIPP) model, developed to simulate the effects of changes in rules on eligibility, participation, and costs in the Food Stamp Program (FSP). Drawing on data from the Survey of Income and Program Participation (SIPP), the simulation framework of MID-SIPP expands considerably the range of FSP policy options that can be analyzed with currently available FSP microsimulation models. The MID-SIPP model also tracks administrative activity associated with certification and reporting requirements. The simulated total of FSP benefits paid under a version of quarterly reporting is $17.1 billion, $1.0 billion more than the simulated total under monthly reporting. Quarterly reporting results in an estimated 37-percent reduction in the total number of administrative reports.

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1.   Introduction

In this paper, we introduce the *Monthly Income Dynamics, Survey of Income and Program Participation (MID-SIPP)* model, developed to simulate the effects of changes in Food Stamp rules on eligibility, participation and costs in the Food Stamp Program (FSP).   Drawing on data from the Survey of Income and Program Participation (SIPP), the simulation framework of MID-SIPP expands considerably the range of FSP policy options that can be analyzed with currently available FSP microsimulation models. In addition to estimating impacts of changes in eligibility rules or the FSP benefit formula, the MID-SIPP model tracks administrative activity associated with certification and reporting requirements such as the reporting period (e.g. monthly, quarterly, semi-annual) and the type of report (fixed interval reporting vs. change reporting). This report explains the construction of the MID-SIPP model and compares monthly and quarterly reporting in terms of FSP benefits paid and administrative activity for the FSP caseload as a whole and for detailed subgroups. Policymakers may weigh these outcomes among others when selecting the reporting plan for FSP offices and the clients they serve.

This base simulation framework relies on monthly data from the 1996 panel of the SIPP, a nationally representative sample of households and individuals. The 1996 panel provides extensive monthly information for the years 1996 through 1999, including data on income by sources, participation in public assistance programs, and demographic characteristics. Annually, the SIPP also gathers additional information about individuals' assets, medical expenses, and child support payments in topical modules. Combined, this information permits us to impute FSP eligibility and benefits on a monthly basis.

The MID-SIPP model has three key features:
- **Monthly Dynamics:** The implementation of the MID-SIPP model applies household data using an entire year of observations from SIPP, accounting for month-to-month variations in economic conditions for different types of families.
- **Food Stamp Units (FSU) as Units of Observation:** MID-SIPP creates FSUs from the family and household structure observed in SIPP on a monthly basis.
- **Incorporation of Administrative Costs**: Through the interaction of income volatility and FSP reporting rules, the model provides insight into how FSP policies differentially affect spells of eligibility, benefit payment histories, and the cost of caseload administration based on the level and types of administrative activities.

This paper describes how these features are implemented in our simulation approach, laying out the methodology and presenting an example case of the use of the MID-SIPP model.

We start in Chapter 2 with a step-by-step description of the MID-SIPP model methodology. As part of this discussion, we also describe our approach to address known issues with the SIPP data. Chapter 3 presents examples of the descriptive statistics on Food Stamps eligibility and participation developed using the MID-SIPP model for 1997. In Chapter 4, we demonstrate the use of MID-SIPP to assess a policy change designed in part to reduce administrative costs: shifting from monthly to quarterly reporting. Finally, Chapter 5 compares MID-SIPP to other FSP simulation models. We provide concluding comments in Chapter 6.

2.   MID-SIPP Simulation Approach

Our simulation approach involves seven steps, described in this section. As a model for simulating the effects of FSP policies, the central element of our approach is to construct a representative sample of "food stamp units" (FSUs) drawn from SIPP and to use the information available for each FSU to emulate its FSP eligibility and participation over designated time horizons. We infer eligibility assuming particular assignment rules governing FSU formations, eligibility rules, benefit levels and FSP reporting requirements.

After allocating all individuals in SIPP into FSUs – essentially structuring the SIPP sample into a sample of FSUs -- we create monthly data for each FSU describing its economic and demographic circumstances. For a given simulated policy regime, we calculate FSP eligibility for each FSU for each month.

A policy regime is a set of eligibility and benefit rules that determine:

- Benefit/eligibility determination criteria including:
    - Gross and net income cutoffs
    - Treatment of income by source
    - Deductions and exclusions
    - Work and immigration status
    - Asset limitations
    - Treatment of housing and utility costs
- Reporting plans
    - Retrospective or prospective budgeting
    - Budget period
    - Reporting period (monthly, quarterly, semi-annual)
    - Reporting type (fixed interval or change)
    - Recertification period

If eligible, we use these monthly data to calculate benefits for which the FSU is eligible. The assignment algorithms for eligibility maintain the critical assumption that FSUs do not change their behavior – altering their earnings or family structure – in response to changes in FSP reporting regimes. A model of FSP participation then determines whether an FSU takes up food stamp benefits. If it does, we track monthly changes in circumstances relevant for continued eligibility.

In doing so, our analysis creates a longitudinal data set depicting the FSP eligibility and participation experiences for individual FSUs. These data can be used to project outcomes in four domains:

1. Eligibility for program benefits,
2. Duration of eligibility and ineligibility,
3. Collection of food stamp benefits, and
4. Administrative activity as measured by number of mandated reports.

These outcomes produce a rich description of FSUs' experiences under each policy regimes. Comparison across regimes using our MID-SIPP model allows policymakers to weigh the differences in outcomes associated with different policy regimes.

Figure 2.1 in Appendix D provides an overview of how these simulation tasks are accomplished in the seven steps. The remainder of the chapter describes each of these seven steps.

2.1   Step 1: Classify Persons into Food Stamp Units and Reweight

The first step of our simulation is to convert the SIPP into observations based on FSUs, assigning all people in the SIPP to an FSU. We assign individuals to an FSU consistent with the way the Food Stamp Program would consider the household or family if they applied for Food Stamps. Thus, an FSU is a group of people, not necessarily related, who purchase and prepare meals together. In most cases, an FSU includes all members of a household, but sometimes households composed of unrelated individuals or multiple families can split into more than one FSU when food expenses are not shared by all members.

Because the SIPP does not provide detailed information on how household members divide their food expenditures and activities, we make these assignments by applying the rules stipulated by the Code of Federal Regulations, 7 U.S.C 2012 3(I). In particular, we adopt the following assignment rules:

(a) A single family household forms one FSU;
(b) Unrelated subfamilies are assigned to different FSUs, except in the following cases:
 Unmarried couples, and
    Foster children younger than 19 years and their guardians;
(c) Related subfamilies are assigned to different FSUs, with the following exceptions:
     Parents and their children under age 22, and
     Guardians and children under age 18;
(d) Elderly and disabled persons are allowed to file separately when total income of the remaining household members is less than 165% of poverty;
(e) Post-secondary students working less than 20 hours per week are separated to form their own FSU.[1]

Given these allocation rules, MID-SIPP's default approach is to divide households into the maximum number of FSUs allowable by the FSP regulations. Of course, there are undoubtedly instances when more than one related family live in the same residence, buy meals together, and should be combined in one FSU. Hence, an alternative approach would be to aggregate all families living in the same household into a single FSU rather than separate FSUs as done in our base analysis. The simulation framework is flexible and could readily incorporate alternative FSU assignments. Our tests indicate that aggregating all families living in the same household into one FSU decreases the number of FSUs by nearly 8%. All findings presented here use the default FSU allocation described above.

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[1]   According to FSP rules, income from post-secondary students working less than 20 hours a week is not counted in FSU income and is excluded when calculating FSP benefits.

Because we follow FSUs over multiple months, the structure of an FSU can change over time. In the current simulation model, we treat any change in an FSU's composition that potentially alters its eligibility as the formation of new FSUs—or "split-offs"—each one with a different identity from the original unit. For example, if a husband leaves a husband-wife-child FSU, then two new FSUs are formed: an FSU composed of a mother and child and another composed of a male adult. Consequently, an individual can belong to more than one FSU over the course of the year.

For all FSUs appearing in our sample in any month covered by the sample period, we generate statistics on eligibility and benefits for subpopulations of FSUs distinguished by their characteristics, such as working-poor FSUs (those primarily supported by low-wage earnings) and female-headed FSUs with children. When examining these numbers, bear in mind that the length of time for which an FSU collects or remains eligible for Food Stamps does not necessarily reflect the length of time for which individuals within that FSU collect benefits or remain eligible.[2] The focus on FSUs, rather than individuals, and the particular strategy for assigning FSUs, are adopted as our base case. However, the MID-SIPP simulation framework can readily calculate statistics for individuals rather than for FSUs. As noted above, it can also accommodate a variety of other approaches for defining and tracking divided FSUs.

The empirical analysis for the baseline MID-SIPP relies on SIPP data from the 1997 federal fiscal year, incorporating complete histories for all available FSUs during this sample period. We exclude an FSU when (i) it is missing crucial data within the sample period—e.g., data exists for April and June but not for May; (ii) none of its members are in SIPP in the first month of the sample period, and (iii) the FSU leaves the SIPP through attrition (as opposed to splitting) before the end of the sample period. Thus, our simulations keep FSUs that stay in SIPP throughout the sample period or that are generated from a splitting FSU whose members remain in SIPP throughout the period.

The latter two exclusion rules preserve the SIPP's longitudinal sample design and avoid the need to make sophisticated adjustments to SIPP weights to account for sample attrition.[3] To account for the exclusion of units with missing crucial data (our first exclusion rule), we adjust the monthly household SIPP weights. We construct a common monthly adjustment factor equal to the number of FSUs in the SIPP observed in a particular month divided by the number of FSUs in our sample observed in the same month. We then apply this adjustment to all units in our simulation sample. This calculation essentially assumes that the crucial data are missing at random. This minor adjustment does not affect the composition of households in the sample. As shown in Table 2.1, the distribution of households in different categories in our sample using re-scaled weights approximates the raw SIPP distributions.

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[2] For example, assume the original FSU was eligible for FSP from January to March and that the new mother-child FSU remains eligible after the husband leaves in March until the end of the year. In this case, both mother and child would have a 12 month long eligibility spell. Instead, we assume these individuals constitute two different FSUs with durations of 3 and 9 months respectively. However, in both cases we calculate correctly each individual's number of months on FSP within a year.

[3] The original design of the SIPP called for an initial selection of a nationally representative sample of households, with all adults in those households being interviewed once every 4 months over a 32-month period. For subsequent waves, the SIPP includes in its sample all other adults living with original sample members. By including all FSUs ever formed by members who remain in the SIPP throughout the period, we are also including in our sample all original sample members and adults living with them through the period.

Even after controlling for attrition and missing data, we still need to ensure that the SIPP data yields a "representative" population of FSUs for projecting annual statistics. Given a revolving population of FSUs over time, including FSU split-offs that by definition are observed for only part of the sample period, there are many options for defining a representative population. For the analysis presented here, our simulations include the population of all individuals observed in September 1997 and all FSUs formed by these individuals during the fiscal year. In this way, including split-offs in our population permits computation of annual figures that account for families who were eligible for short intervals during the period of analysis. In the analyses below, we use weights for the latest month an FSU is seen in our sample period to create a sample of FSUs that would be nationally representative for the end of the period if no FSU split-offs had been created within the sample period.

2.2   Step 2: Determine Each FSU's Eligibility and Potential Benefits for Every Month

At the completion of Step 1, we have a sample of FSUs developed from the SIPP data. For each FSU specified in Step 1, the next step is to impute this FSU's program eligibility and the level of benefits it is eligible for on a monthly basis. As the second step in our framework, the eligibility and potential benefit imputation applies the set of Food Stamp rules defined under the policy regime to be simulated. Given a specification for FSUs and rules prescribed for an FSP policy regime, we impute each FSU's program eligibility and level of benefits from FSU level data on gross and net income, FSU size and composition, financial assets minus deductions, vehicle assets minus deductions, and categorical eligibility status.

SIPP supplies on a monthly basis much of the information needed to conduct monthly gross and net income tests and the resource test, as well as tests related to the demographic structure of the FSU (such as citizenship). We are also able to assign disability status on a monthly basis to apply the appropriate FSP rules for FSUs that contain disabled persons. We classified individuals as disabled if they received non-earned income due to disability, including non-elderly individuals receiving Supplemental Security Income (SSI).

Unfortunately, data on an FSU's assets and some deductible expenses are available only once a year in special topical modules (in Waves 3, 6, 9 and 12).[4] We adopt the following rules to assign assets and expenses to the other months in the panel:
  (a) Monthly averages reported in Wave 3 are assigned to all months comprising Waves 1, 2, 3, and 4;
  (b) Monthly averages reported in Wave 6 are assigned to all months included in Waves 5, 6, and 7;
  (c) Monthly averages reported in Wave 9 are assigned to all months making up Waves 8, 9, and10; and
  (d) Monthly averages reported in Wave 12 are assigned to all months included in Waves 11 and 12.

Income tests require information on both FSU-level gross income and admissible deductions. We calculate gross income by summing all sources of earnings and income for all adult members included in the unit. For earned income, we include all wages and salaries of employees, as well as any net income

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[4]   The sample in the model data set excludes households with incomplete asset information in the corresponding topical module. We excluded these households from the model data set during the year there was not topical module information available, but retained them in the remaining years. For example, a household missing asset information in only 1996 is not included in our sample for 1996, but it is included in our samples for 1997 through 1999.

from self-employment. For unearned income, we account for all types of financial and property income, social security, foster child payments, and all transfers from means-tested programs except Food Stamps. Similarly, we make the appropriate deductions to calculate net income, following the rules of the policy regime. To anchor our results in known FSP information, we start from existing policy, so to calculate net income, we deduct the following:

- A state-based standard deduction of $134,
- 20% of the FSU's earned income (the "earned income deduction"),
- Dependent care expenses up to a $175 maximum per dependent and up to $200 per child younger than two,
- Legally mandated child support payments,
- Medical expenses in excess of $35 if there is an elderly or disabled person in the FSU, and
- An excess shelter deduction. For the excess shelter deduction, we subtract the monthly rent and utility expenses above 50% of the FSU's net income after applying all remaining deductions. Following the rules, we limit the excess shelter deduction to a maximum of $250 if there are no elderly or disabled members in the FSU.

For an FSU passing the income and demographic-structure tests in a month, we assess whether the asset tests exclude it from benefits. In calculating assets, we aggregate amounts in checking accounts, savings accounts, stocks, bonds, and mutual funds for all members of the FSU, as well as savings in IRA and Keogh Accounts after deducting withdrawal penalties. Again, our example case uses existing rules, so we apply the follow tests: Eligible households with an elderly member (60 or older) cannot have counted liquid assets above $3,000, whereas eligible households without an elderly member are restricted to counted liquid assets of no more than $2,000.[5] Counted liquid assets include cash, checking and savings accounts, savings certificates, stocks and bonds, IRAs and Keogh plans (less early withdrawal penalties), and nonrecurring lump-sum payments like insurance settlements. In addition, the equity value of property not producing income consistent with its value (such as recreational property) is included in this measure. We accounted for vehicles by applying the following three rules: 1) for the first vehicle, or any vehicle used to commute to work, any market value above $4,650 was counted; 2) for other vehicles, the higher of either any fair market value above $4,650 or any equity was counted; and 3) for vehicles used to produce income or to transport disabled persons, all value was excluded from the resource test according to regulation 273.8, Section (e)(3)(I). A similar set of calculations is done for each alternative policy regime.

At this stage in the simulation, our benefit calculations assume that any eligible FSU applies and collects full potential benefits in that month. This is treated as a reference or baseline calculation, since not all eligible FSUs will in fact take-up benefits. At any take-up less than 100%, this reference case will by definition be an over-estimate of the benefits actually collected. (In Step 5, we address benefit take-up rates to simulate participation among those eligible.)

Reporting rules are handled as follows: When an FSU first becomes eligible or becomes eligible after a period of non-certification, we treat the first month of eligibility as the certification time and assign to the FSU the level of benefits calculated at the time of certification and certify it for the assumed reporting period. At the end of this certification period, we assume that FSUs remaining eligible reapply

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[5] In the case of units containing only persons on SSI, TANF, or General Assistance (GA), asset eligibility is automatic.

for the benefits and receive payments consistent with conditions at the time of recertification. If a reporting regime requires households to report changes, then we presume that FSUs perfectly abide by the prescribed rules and caseworkers immediately adjust eligibility and benefits accordingly. If an FSU becomes ineligible in a month, then we treat it as reapplying at its first opportunity if and when eligibility reoccurs.

These steps create a simulated panel of FSUs observed on a monthly basis, with eligibility status and benefit levels directly computed from the information contained in SIPP. The next step is to adjust this panel of data to account for SIPP reporting inaccuracies that cause distortions in the data.

2.3 Step 3: Correct Eligibility and Reported Participation Spells for the Seam Problem

The SIPP interviews households three times each year. At each interview, the respondent is asked about family members' circumstances during the previous four months. In a recall survey such as this, individuals are more likely to report that changes in circumstances occurred at the beginning of the first month or at the end of the last month of an interview period. Thus, the survey structure induces a disproportionate number of changes in income, asset levels, and program participation reported to occur at the 'seam' between two interview periods, yielding artificial breaks in the profiles of variables used to impute FSP eligibility and benefits, and also of the participation variable. Known as the seam problem, this factor potentially contaminates analyses of dynamic behavior estimated with data from longitudinal surveys. Thus we first adjust the eligibility, benefit level and participation variables for the seam problem.

To better understand the seam problem and our approach to address it, consider an eight month time line:

Month	1	2	3	4	5	6	7	8
Interview				I				I
Eligibility: Reported	E	E	E	E	NE	NE	NE	NE
Actual	E	E	E	E	E	NE	NE	NE

Suppose a SIPP family is interviewed (I) in months 4 and 8. In each month, a family is in one of two states: eligible for FSP (E) or not eligible (NE). A seam problem arises if the family in period 8 reports a change in circumstances as though it occurred in month 4, when in fact it occurred sometime after month 4 but before month 8. For the example above, we know from the interview that the family was in state E in month 4 and in state NE in month 8. Because of the seam problem, the family may report termination in month 4, even though the duration of the family's eligibility spell may have extended beyond month 4 (through month 5 in the above example). The seam problem can affect reported participation itself as well as reports on income and other information used to determine eligibility. In our simulation analysis, the seam problem is particularly an issue for the estimation of duration distributions for eligibility, denoted $f(\bullet)$. If the family's spell started in month 1 and the family misreports the spell ending in month 4, then the estimated value of $f(4)$ is too high, because we have counted the family as $f(4)$ instead of $f(5)$.

The MID-SIPP compensates for the distortions induced by the seams in SIPP.[6] In essence, the analysis adjusts for this estimation error by specifying a "smooth" functional form for f(•) that redistributes part of the occurrence of events in period 4 to periods 5, 6, and 7 in a way consistent with patterns in the data. In particular, we use a logit function to fit the probability that a spell that lasted $t-1$ months would end in the following month, allowing for a rich set of demographic covariates and a flexible function that captures duration dependence. This conditional probability is called the hazard rate at t. Using this logit specification, we constructed the likelihood function for all observed spells, distinguishing completed spells, censored spells and spells ending on a seam month. To account for potential misreporting of termination at the seam month, the likelihood of a spell that ended in a seam at $t-1$, is specified as the conditional probability that it will end at t, or at $t+1$ or at $t+2$, which is simply the sum of the hazard rates at t, $t+1$ and $t+2$.[7] The estimated hazard rates resulting from this method do not have the spikes at seam months (4, 8 or 12) followed by unusually low values in the subsequent months (5, 9 or 13) seen in the empirical hazard rates.

At the end of Step 3, we have a seam-corrected panel data set of SIPP FSUs observed on a monthly basis, with monthly estimations of eligibility and potential benefits. Because we want to make projections about the Food Stamp Program at the national level, before this data set is ready for analysis, we must derive weights so that our projections are nationally representative and match administrative totals.

2.4   Step 4: Calibrate SIPP Participation Rates to the FSP-QC Data

With the completion of Step 3, we have detailed information on FSP eligibility and potential FSP benefits – that is, the benefits resulting from 100% take-up rates. To translate these potential benefits into the actual program costs, we must account for FSUs that qualify for food stamps but do not collect them. That is, we need to adjust for participation, which we do by examining the rates of participation among eligible FSUs and the length of their participation spells. Our goal is to assign a take-up rate for each FSU, where the likelihood of take-up is determined by potential benefit levels as well as economic and demographic attributes of the FSU. SIPP, however, is known to underestimate both monthly participation and payment of FSP benefits, because respondents under-report or fail to recall their food stamp participation. Therefore, in this step we calibrate SIPP reported participation so the projected outcomes match those found in the Food Stamp Program Quality Control (FSP-QC) data.

Using our panel of FSUs created in Steps 1-3, we construct projections of the monthly average number of participants for a set of family groups identified in published administrative program data. To illustrate this procedure, suppose, for example, that administrative statistics are published for the monthly FSP participants categorized by two characteristics: Attribute A and Attribute B. Attribute A, for example, may refer to the age of the FSU head, and Attribute B may designate the FSU's income relative to poverty. We can develop a table of statistics from SIPP that are analogous to those reported from administrative data, using a structure such as that shown in Table 2.1. Across the top, we see column headings for Attribute A broken into the groups reported in administrative data. In our example, this would be a set of age groups for the FSU head, consisting of J age categories, designated

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[6] Appendix A demonstrates the relevance of the seam problem in SIPP and describes our approach to compensate for the distorting influence of artificial patterns induced by seams.

[7] See Appendix A for a detailed description of the estimation methods used to correct the seam problem.

$j = 1,.... J.$ Down the side, we see the row headings for the groups used to categorize FSUs according to Attribute B – assumed to consist of $k = 1,..., K$ individual categories. In our example, this would be K income groups.

Each "cell" in Table 2.2 – identified by the (k, j) pair – reports the number of FSP participants per month, Y_{kj}, that fall into group k of Attribute A (e.g., FSU is elderly household) and group j of Attribute B (e.g., FSU has income below half of the poverty level).[8]   Summing a row in the table yields

(2.1)
$$Y_{k\bullet} = \sum_{j=1}^{J} \omega_{kj} Y_{kj} = \sum_{j=1}^{J} \omega_{kj} a_{kj} N_{kj}$$

which corresponds to SIPP reports for the monthly number of participants in FSUs making up group k. The quantities ω_{kj} constitute sample weights required to compute nationally representative statistics from SIPP data. Summing a column produces

(2.2)
$$Y_{\bullet j} = \sum_{k=1}^{K} \omega_{kj} Y_{kj} \ ,$$

which designates the SIPP estimate for the monthly number of participants in all FSUs included in group j.

Table 2.2
FSP Outcomes by Subgroups Projected by SIPP

FSU Characteristics		Attribute A				Total
		1	**2**	**…**	**J**	
Attribute B	**1**	Y_{11}	Y_{12}	…	Y_{1J}	$Y_{1\bullet}$
	2	Y_{21}	Y_{22}	…	Y_{2J}	$Y_{2\bullet}$
	…	…	…	…	…	…
	K	Y_{K1}	Y_{K2}	…	Y_{KJ}	$Y_{K\bullet}$
Total		$Y_{\bullet 1}$	$Y_{\bullet 2}$	…	$Y_{\bullet J}$	Y

Published caseload statistics computed from FSP-QC correspond to the quantities $Y_{k\bullet}$ for the groups $k = 1,..., K$ and the quantities $Y_{\bullet j}$ for the categories $j = 1,..., J$ in Table 2.2. Table 2.3 presents a flexible approach for linking SIPP and caseload statistics. The quantities $X_{k\bullet}$ and $X_{\bullet j}$ appearing in the

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[8] As we describe in Section 5.3, an identical structure can be applied to instead account for the dollar amounts of benefits collected by FSUs in each (k,j) cell. $Y_{\bullet j}$ would then designate the total benefits paid to all FSUs included in group j, and so on.

last rows and columns of the table represent the known administrative data comparable to the SIPP $Y_{k\bullet}$ and $Y_{\bullet j}$ appearing in Table 2.2. The coefficients φ_{kj} represent "calibration" or "raking" factors that weight SIPP take-up rates in a way to produce aggregate values close to published caseload statistics. Summing a row in the table yields

$$(2.3) \qquad X_{k\bullet} = \sum_{j=1}^{J} \varphi_{kj}\, \omega_{kj}\, Y_{kj} \quad,$$

which corresponds to the total number of FSP participants reported by program data in FSUs comprising k. Summing a column produces

$$(2.4) \qquad X_{\bullet j} = \sum_{k=1}^{K} \varphi_{kj}\, \omega_{kj}\, Y_{kj} \quad,$$

which gives the monthly participants by administrative data for all FSUs included in group j.[9] One can interpret the factors φ_{kj} as indicating how much individual SIPP components must be weighed to yield aggregated sums that match administrative quantities.

Table 2.3
Calibrating FSP Projections from SIPP to Administrative Totals

FSU Characteristics		Attribute A				
		1	2	...	J	Total
Attribute B	1	$\varphi_{11} Y_{11}$	$\varphi_{12} Y_{12}$	...	$\varphi_{1J} Y_{1J}$	$X_{1\bullet}$
	2	$\varphi_{21} Y_{21}$	$\varphi_{22} Y_{22}$	...	$\varphi_{1J} Y_{2J}$	$X_{2\bullet}$
	...	...	...	...	...	...
	K	$\varphi_{K1} Y_{K1}$	$\varphi_{K2} Y_{K2}$	...	$\varphi_{KJ} Y_{KJ}$	$X_{K\bullet}$
Total		$X_{\bullet 1}$	$X_{\bullet 2}$	...	$X_{\bullet J}$	X

Table 2.3 shows the relationships that the factors φ_{kj} must satisfy to produce a set of SIPP-sample weights appropriate for yielding aggregate FSP caseload quantities. To exploit these relationships, define the scalar functions $f_m(\varphi)$ as

$$(2.5) \qquad \begin{aligned} f_1(\phi) &= \sum_{j=1}^{J} \phi_{kj}\, \omega_{kj}\, Y_{kj} - X_{k\bullet} \\ &\vdots \\ f_n(\phi) &= \sum_{k=1}^{K} \phi_{kj}\, \omega_{kj}\, Y_{kj} - X_{\bullet j} \end{aligned}$$

where φ denotes a vector incorporating all of the factors φ_{kj} as its elements; and stack these functions into the vector

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[9] Again, this strategy could be applied to other published administrative data, such as benefits paid to different groups of FSUs.

$$(2.6) \qquad f(\phi) = \begin{pmatrix} f_1(\phi) \\ \vdots \\ f_n(\phi) \end{pmatrix} \equiv \Omega\, Y^* - X \,.$$

The second expression in (2.6) writes f (φ) as a linear relationship of the factors φ_{kj}; the matrix Ω includes the factors φ_{kj} and zeros as its elements; the matrix Y^* incorporates all the individual cell measures $\omega_{kj} Y_{kj}$ arranged in a fashion compatible with the construction of Ω; and, finally, the column vector X contains the administrative quantities $X_{k\bullet}$ and $X_{\bullet j}$ as its elements arranged in the same order as (2.5). Solving the system of equations

$$(2.7) \qquad\qquad\qquad\qquad f(\varphi) = 0$$

computes values for the factors φ_{kj} that weight SIPP measures to yield administrative values. If this system just-identifies the parameters φ, then familiar methods for solving nonlinear equations offer procedures for computing φ. If, instead, this system over-identifies the parameters φ, then method-of-moment estimation methods provide a natural approach for computing values of φ. The challenge is to find a parsimonious parameterization for the elements of φ that applies uniformly to all FSP outcomes.

We select five sets of mutually exclusive groups to match: FSUs with or without children (two groups), FSUs with or without at least one elderly member (two groups), FSUs with or without at least one disabled member (two groups), FSUs by income relative to poverty level (six groups), and FSUs by average monthly benefits (six groups). Thus, instead of two attributes as in Tables 2.2 and 2.3, we are using five attributes, with 18 total quantities - equivalent to $X_{\bullet j}$ described above. The interaction of the five sets creates 288 family group classifications (or cells such as those in Table 2.3). In doing so, we create a system of 18 equations and 288 "raking" or "calibration" factors (φ's) to estimate. The calibration factors adjust the average predicted participation probability for each of the 288 cells so that the projected number of participants converges to the population benchmarks.

To solve this system we rely on iterative raking[10], an algorithm used by the Census Bureau to adjust sample weights to match population totals. In terms of Equation 2.7, iterative raking approximates a method-of-moments estimation [11], where the "raking" factor takes the form of

$$(2.8) \qquad\qquad \ln(\phi_{ij}) = \alpha + \beta_k + \gamma_j \,.$$

Table 2.4 presents the projections of participants in FY 1997 produced by this procedure. It shows the shares of FSUs by various characteristics making up the FSP caseload during the year, with the first row giving the total number of FSUs collecting benefits. For the listed FSU characteristics, the table provides the official statistics for caseload shares reported from FSP-QC; the "calibrated SIPP" shares calculated by our iterative raking procedure; and the "raw SIPP" participation numbers computed directly from SIPP using weights. As Table 2.4 shows, the unadjusted SIPP underestimates participation: the number of monthly participants counted in SIPP is only 84% percent of total

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[10]　　See Appendix B for a detailed description of the raking procedure and its application in calibrating take-up rates.

[11]　　Stephan (1942), "Iterative Method of Adjusting Sample Frequency Tables when Expected Margins are Known", *The Annals of Mathematical Statistics*, 13, 166-178

participants according to administrative records. SIPP has good matches for the percent of FSUs with and without children and percent of families with income below 75% of poverty. On the other hand, SIPP overestimates the percent of FSUs with disabled members, FSUs with income above 130% of poverty and the share of participants receiving a small allotment. As the middle column shows, our calibration creates predicted distributions that approximate those in the administrative sample. This arises by construction since our procedure minimizes discrepancies in this match.

Table 2.5 shows estimates of the benefit payments produced by our calibration approach. In contrast to results in Table 2.4, our calibration procedure does not automatically match these numbers, so the closeness of our estimates to FSP-QC published figures supports our optimism that our approach will lead to a valuable algorithm for translating SIPP participation rates and benefit payments into predictions of administrative quantities. The top two rows of Table 2.5 give predictions for total annual FSP expenditures and the average monthly benefits paid to participant FSUs. The remaining rows report shares of total pay out going to various FSU groups.   When there exists a discrepancy between raw SIPP numbers and official statistics, our calibration procedure substantially closes the gap.

2.5   Step 5: Simulating Participation Spells from Take-Up Rates

Once we have calibrated SIPP to overcome under reporting of FSP collection, we use the calibrated data to estimate two empirical models to relate FSU characteristics and benefits with FSP collection. We first estimate the likelihood that an FSU will begin a participation spell with a logit model that takes as input an FSU's characteristics (i.e. FSU type, participation in FSP and other mean tested programs, poverty status according to their annualized income and potential FSP benefits over a predetermined period), characteristics of the head of the FSU (i.e. education, citizenship status, disability status, gender and age) and gives as output the probability that the FSU will start participating in the FSP program during that month.   The second empirical model estimates the relationship between FSU characteristics and potential FSP benefits and the length of a seam-corrected participation spell.

The participation algorithm takes as input all the FSU characteristics used in the empirical models, and gives as output a simulated participation spell. The FSP participation algorithm has two building blocks. The first building block takes as input an FSU's characteristics and potential FSP benefits over a predetermined period, and gives as output the probability that the FSU will start participating in the FSP program during that month.   These take-up probabilities, by definition, are numbers between zero and one. Next, we use the participation probabilities to assign each FSU a value of one (participant) or zero (non-participant). We do this by giving each eligible FSU a randomly drawn number between zero and one. Then, we compare the estimated probability of participation assigned to each FSU to this randomly drawn number. If the FSU's participation probability is greater than the random number, we assign the FSU a value of one (participant). For those FSUs who are simulated to participate, we simulate the length of their participation spell using either one of the following two methods: a) We assume that the FSU will participate during all of the months in which it is eligible to do so, or b) We randomly draw a spell length from the distribution of spell durations conditional on FSU characteristics and potential benefits[12]. This method creates a simulated group of participants with qualities that resemble those of actual participants. Upon completion of this

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[12]   Figures in this report were calculated following the first method. That is, a FSU that was simulated to participate in FSP did so for every month it was eligible during that spell.

step, we have a simulated panel of FSUs with monthly information on take-up status and FSP benefit payments.

2.6 Step 6: Simulate Administrative Activity

Our simulation goes beyond examining the impacts of policy changes on eligibility and benefit costs to address the costs of administering the program, by mapping the eligibility and participation information captured in the previous steps to the administrative process conducted by FSP agencies. In particular, our simulation tracks monthly changes in eligibility and benefits to determine each month if an FSU files a report, and, if it does, which report type it files. Our analysis distinguishes among six types of reports that may occur in each participation spell: initial applications, change reports, fixed interval reports which may be actionable (changing benefits) or not actionable, recertifications and case closures. To count these reports, we must compare an FSU's eligibility and participation status in a given month to circumstances in the previous month. Initial applications occur whenever a non-certified FSU becomes eligible and participates after at least one month of ineligibility. Change reports arise only when certain changes in FSU income, asset levels, or size occur and meet pre-specified thresholds for required reporting. Fixed interval reports occur when a certified FSU reaches the end of the reporting period and is mandated to file a report. Recertifications are a more extensive version of these fixed interval reports and in our analysis, we approximate them to require the same level of administrative activity as initial applications. Finally, case closures occur when a participating FSU becomes ineligible. Every FSU filing a report will fall into one of these categories, or it will not contribute to administrative activity.

2.7 Step 7: Summarize FSP Outcomes and Administrative Activities

Finally, as the last step, our framework produces a broad array of statistics projecting four categories of outcomes: eligibility for program benefits, duration of eligibility and ineligibility, the take-up of benefits, and administrative activity and costs as measured by the number of mandated reports. By comparing the statistics produced for different policy regimes, we can answer the following questions:

(1) How do the characteristics of eligible FSUs change across policy regimes?
(2) How do the distributions of benefits differ?
(3) If the regime includes alternative reporting plans, how do these impact the number and types of reports submitted?
(3) How large are the administrative costs associated with the submission of reports?

Because the statistics are developed for a variety of beneficiary groups defined by a wide range of measured characteristics, these answers can be examined separately for different beneficiary groups, permitting policymakers to understand how some groups may be more or less advantaged or disadvantaged by different policy regimes.

3. MID-SIPP Tables: Characterizing FSP Participation Using SIPP

Although the MID-SIPP model can be structured to produce output in a variety of ways, we have developed a set of core tables to present outcomes for selected categories of FSUs that

are particularly relevant from a policy perspective. As a background for the simulation results presented in Chapter 4, we have two goals for this chapter: (1) to describe the structure of the basic tables and (2) to provide an overview of the SIPP 1997 data through the FSP lens.

To meet these two goals, we review the table structure using intermediate outcomes from the MID-SIPP calculations – the results derived from SIPP alone. In practice, tables like these are produced to guide the take-up rate calculations and FSP-QC calibration described in steps 4 and 5.   To produce the numbers in Table 3.1, we classify persons into FSUs and adjust the weights for our sample to be nationally representative (step 1), determine potential benefits (step 2), and apply the seam corrections (step 3). The table presents an array of statistics characterizing the receipt of Food Stamps in 1997 using all available observations in SIPP, with the self-reported participation data in the SIPP.

3.1   Structure of Tables

Under "family characteristics" in the first column of Table 3.1, we list the groups of families whose experiences are summarized in our analyses—a total of 33 demographic/ economic subgroups of the population, five of which refer to the working poor.[13] The first line, "All Families," reflects the full sample of all FSUs. In each set of rows, an indented line in the first column indicates a subgroup of the group in the preceding non-indented row. That is, the characteristic in the indented row is considered in addition to the characteristics listed in the non-indented rows above. For example, the 4th row reads "Married" and the 5th line is further indented, reading "With Children." This structure indicates that row 4 refers to all families with married couples, while the 5th row refers to only those families with married couples who also have children.

The table groups rows into five categories:

- Family Structure
  The first set of rows separate the population into various types of families. The first row in this set refers to all families (i.e. the entire population). The second row narrows the sample to families with at least one child, with children being defined as anyone younger than 18 years of age. Families with children are further restricted to "large" families—those with three or more children. We also look at family structures differentiated by marital status, classifying families into those with married couples, with single women, and with single men. For the first two of these, we also look at only those families with at least one child.

- Family Income Relative to Federal Poverty Threshold
  The next set of rows breaks down families according to the ratio between family *annual* income and the federal poverty threshold for the family type. Families are divided into four categories: those with income between 0% and 70%, 70% and 130%, 130% and 185%, and 185% or more of the federal poverty level.

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[13]   The number and nature of these subgroups could change with an alternative specification of MID-SIPP.

• Family Income/Asset Status and Family Structure

The third set of rows relates the family structure information described above to poverty, welfare, and asset categories. The first group broken out is families with income below the poverty threshold. This group is further broken down by marital status and the presence of children. The second major group broken out is families receiving welfare. We define welfare recipients as those receiving TANF, SSI, or GA at any time during the calendar year. We then make the classification more specific by restricting it to those families with children. Lastly, we classify families by financial assets ($0 to $2000 and $2000 or more in assets) and vehicle assets ($0 to $10,000 and $10,000 or more).

• Hourly Wages

The fourth set of rows categorizes working families into four mutually exclusive groups according to their hourly wages. The row designated "Jobs paying below $7/hour" includes families who receive 50% or more of their earnings from jobs paying no more than $7 per hour. The row "Jobs paying $7/hr - $9/hour" designates families who receive 50% or more of their earnings from jobs paying more than $7 per hour, but no more than $9 per hour. Likewise, the row "Jobs paying $9 - $12/hour" identifies families who receive 50% or more of their earnings from jobs paying more than $9 per hour, but no more than $12 per hour. Finally, the row "Jobs paying $12/hour or over" signifies families who receive 50% or more of their earnings from jobs paying at least $12 per hour.

• Family Annual Hours Worked

To capture the notion of "working poor" more accurately, the final set of rows divides families by the total number of hours worked. This total sums all hours worked in the year by all members of the family. Associating 2,000 hours with full-time work for one person, we classify families into those not working (0 hours), those working less than 500 hours per year (but still working), between 500 and 1,000 hours per year, 1,000 and 2,000 hours, 2,000 and 3,000 hours, 3,000 and 4,000 hours, and more than 4,000 hours per year.

The last row in the table shows total numbers for the populations, including the estimated number of families participating in the FSP at any time during the year and the total amount of Food Stamp grants given during the year projected by our simulation.

The results in the columns of Table 3.1 present four categories of statistics for each of the FSU groups specified under family characteristics:

• Composition of Families

The second column—or the first data column—labeled "% of All Families" lists the percentage of all families (defined by FSU rules) that fall into the given demographic category. For example, the 5th row shows that 23% of all families consisted of a married couple with at least one child.

• Measures of FSP Participation

The next two columns, "% Collecting Benefits" and "% All Recipients," are easily confused. "% Collecting Benefits" is the *percentage of families* in the demographic group

receiving FSP benefits for at least one month of the year. In contrast, "% All Recipients" is the percentage of *participating FSUs* that are in the demographic group. Referring to results for married families with children as an example, the third column ("% Collecting Benefits") shows that 7% of married families with children received FSP benefits and the fourth column (% All Recipients) shows that 19% of all participating FSP families are married families with children.

- Levels and Shares of Benefits

   The fifth column—labeled "Share of all FS"—answers the question: "Out of all the Food Stamp dollars that go to families, what percentage goes to families that fall into this demographic category?"

   The next column, "Mean," is the average annual amount a family receives from the FSP. This average is expressed in 1997 dollars and is computed across recipient families only. For example, among families with married couples and children who participate in the FSP, the average benefit amount was $1,549.

   The next three columns summarize the size of the FSP benefit in percentiles. Looking at married families with children, these columns show that 20% of participating families of this type received no more than $400, 50% received at most $1,115, and 80% received $2,542 or less.

- Months of FSP Collection

   The last group of columns shows the months of FSP participation during a given period. The column labeled "Mean" is the average number of participating months for a family in a particular group. The next three columns show the distribution of the length of participation spells with percentiles. Returning to married families with children, the average length of participation was seven months, with 20% of these families participating for no more than three months, 50% participating for six months or less, and 80% participating for up to 12 months.

3.2   Portrait of Food Stamp Receipt in SIPP

According to Table 3.1, 9% of all families received Food Stamps for at least one month during 1997. Participating families received on average $1,246 in 1997 and collected benefits for eight months. This average, however, masks the remarkable variation in FSP dependency. In particular, more than 20% of participating FSUs collected benefits each month of the year at the same time that another 20% received no more than three months of FSP benefits.

Participation Rates. Families consisting of single mothers with children had the highest participation rates in 1997 (37%), whereas married-couple families had the lowest participation rates (5%). Measuring participation by a family's poverty level (in the second set of rows) reveals that only 40% of the poorest families—with annual income below 70% of the poverty level—received Food Stamps. At the same time, 7% of families with annual income between 135% and 180% of poverty reported FSP collection, suggesting some families do experience

poverty some time during the year despite having annual income above the FSP gross income threshold.

Composition of Food Stamps Families. In 1997, 59% of participating families had children and about two-thirds of the participating families with children (38% of the total) were headed by single mothers. The distributions of caseloads and benefits (the fourth and fifth columns, respectively) indicate that families with children and families headed by single mothers represented the largest groups of beneficiaries. In 1997, families with children received 80% of the Food Stamp dollars, while benefits collected by single mothers with children accounted for 54% of the budget. A closer look into the distribution of benefits reveals that even though married couples had the lowest participation rates, they received 28% of all Food Stamp benefits.

Benefits. The average annual benefit received by families in 1997 was $1,246, which when divided by the average number of months of participation yields a monthly benefit of $159. About 80% of participating families received annual benefits greater than $244. The highest annual benefits were given to families with three or more children (average of $2,333), single women with children ($1,779), and poor families with children ($2,124 for married and $1,993 for single). Differences between the 80th and 20th percentiles (columns 7 and 9) highlight substantial dispersion in the receipt of Food Stamps within all family types: average benefits received by the highest 20th percentile were more than eight times the average benefits received by the lowest 20th percentile. Families with annual income below the poverty level, who represented 68% of Food Stamps beneficiaries, collected 81% of Food Stamps dollars. Families receiving other forms of public assistance represented 60% of all participating units and received 67% of total FS payments. The distribution of benefits across different levels of work effort shows a large fraction of working families were eligible for and participated in FSP. For example, families working more than 2,000 hours a year received $1,279 on average and accounted for 18% of total benefits granted.

FSP Utilization. The last set of columns summarizes variation in the intensity of FSP participation, measured by the number of months a family received Food Stamps during the year, and it suggests that participating families depend on Food Stamps on a regular basis. Fifty percent of FSP families participated nine or more months during the year. Poor single adults and families with no working members had the highest level of dependence: 50% of families with poor single adults collected benefits in at least 11 months during the year, and 50% of families with no working members received Food Stamp benefits in every month of the year. Moderate FSP users, or families relying on the FSP at most four months during the year, were more likely to be families working more than 3,000 hours a year, families with relatively higher financial and auto assets, and families with the highest-paid jobs.

Aggregate FSP Participation and Program Expense. The bottom row of Table 3.1 reports the total number of FSUs collecting any Food Stamps in 1997, along with the total annual amount received in benefits. The estimated number of FSUs participating some time during 1997 is 11.1 million, a number that counts FSU split-offs separately. Estimated annual FSP payments equal $13.9 billion and underestimate the official amount of $19.5 billion. Differences between total payments predicted by the SIPP and actual expenditures suggest that participating households under-report FSP collection. To prevent this misreporting phenomena from biasing our results in

the next section, we will adjust our simulated participation numbers using the procedure described in section 2.6.

4. Simulation of Monthly Fixed Reporting Versus Quarterly Fixed Reporting

In this section, we apply the full MID-SIPP simulation approach outlined in Section 2, including the calibration to FSP-QC, to infer how a change in policy would affect the months of eligibility, rates of participation and levels of benefits for families of different characteristics, as well as the amount of administrative activities. This example focuses on a change in reporting rules, switching from monthly fixed reporting to quarterly fixed reporting.

4.1 Description of Candidate Reporting Plans

In addition to rules governing FSP eligibility and benefit level criteria, there are five dimensions of reporting plans that can be stipulated in our simulation approach: (i) rules governing the assignment of individuals to FSUs, (ii) budgeting perspective (retrospective or prospective), (iii) reporting period (monthly, quarterly, or semi-annual), (iv) reporting type (fixed interval or change), and (v) recertification period.

For this example, we focus on one specification of reporting plans. Both plans are characterized by prospective monthly budgeting, which means that eligibility and benefit levels are determined by a family's income, assets, and demographics during the reporting month.[14] They both also have a certification period long enough so that no certification period ends during the year under study, and both have fixed interval reporting. The key difference between the plans is the reporting period:

G. <u>Monthly fixed-interval reporting</u>. An FSU is required to report total income and assets for all members each month (monthly reporting).

H. <u>Quarterly fixed-interval reporting</u>. An FSU is required to report total income and assets for all members every three months (quarterly reporting).

Table 4.1 demonstrates how the change in reporting plans can affect both eligibility (and by extension, participation) rates and the total benefits paid. The table portrays the experiences of a hypothetical FSU that was not eligible for the FSP in February, becomes eligible in March, has a slight improvement in its circumstances in April, and finally increases its income above the eligibility threshold by May. Under monthly reporting, because caseworkers observe FSUs' circumstances every month, this hypothetical FSU would be eligible for food stamps during March and April, with different levels of benefits (B2 < B1) in each month. Under quarterly reporting, on the other hand, because information is only available to caseworkers in March and June when the first and second quarterly reports are submitted, the same FSU would be eligible for food stamps in all three months, with benefits in each month corresponding to the FSU's circumstances reported in March. In this simplified example, the FSU would receive B1+B2 benefits under monthly reporting, but B1+B1+B1 benefits under quarterly reporting.

This report adopts monthly reporting as the standard for assessing the amount of FSP benefits that are "warranted" by an FSU. Under this standard, FSP benefits that are greater than the

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[14] We also projected benefits using retrospective monthly budgeting and found that the impacts on eligibility and benefits were remarkably similar.

warranted level are interpreted and labeled as "unwarranted" benefits; the term "overpayments" could be used were it not for the close association of the term "overpayments" with the Quality Control system in the FSP. In Table 4.1, unwarranted benefits under quarterly reporting equal B1+ (B1-B2), the difference payments under quarterly and monthly reporting. In this example, unwarranted benefits are due to the infrequent (quarterly) adjustment of FSP benefits.

As described in Section 2, Step 2 of our simulation process replicates the decisions of a caseworker in determining eligibility and calculating potential benefits for each FSU. Under monthly reporting, eligibility is calculated for each month. FSUs that choose to participate continue to participate as long as they are eligible. Under quarterly reporting, once a family is eligible and participating, eligibility is presumed for the next two months and benefits are continued at the same level as in the certification month, thus resulting in unwarranted benefits. However, we also track the reports required (Table 4.1) and demonstrate that quarterly reporting reduces the number of administrative reports. Thus, while quarterly reporting can result in some amount of unwarranted benefits, it has an advantage (relative to monthly reporting) of saving on administrative activity by the FSP office. Examination of benefit payments and administrative activity under alternative reporting plans is a central purpose of MID-SIPP and the focus of this chapter.

4.2   Projected Annual Maximum Potential FSP Benefits by Reporting Plan

A change in policy regime can change the number of eligible FSUs, change the likelihood that an eligible FSU participates or both. For this reason, our simulations of alternative policy regimes first consider changes in eligibility and the maximum potential benefits – the benefits that would be collected if all eligible FSUs participated and received all benefits to which they were entitled. Thus, Tables 4.2a and 4.2b project the number of months of eligibility and potential FSP benefits under our two policy regimes: (a) monthly fixed-interval reporting and (b) quarterly fixed-interval reporting.

Tables 4.2a and 4.2b differ somewhat from the format of Table 3.1 because they start from eligibility rather than recording participation (which is addressed in the next section and Tables 4.3a and 4.3b). In particular, the second, third, and fourth groups of columns summarize FSP eligibility. In addition, rather than focusing on participating months and expected benefits, these tables look at eligible months and level of potential benefits.

• Measures of FSP Eligibility
  The second column, "% Eligible," is the percentage of families in the particular group who are eligible for FSP benefits at least one month during FY1997. (The share of families participating will always be less than or equal to the share eligible.) In contrast, "% *of* Eligible" in the third column is the percentage of eligible FSUs that are in that demographic group.
• Levels and Shares of Benefits
  The column labeled "Share of all FS" answers the question: "Assuming that all eligible families participate, what percentage of all the Food Stamp benefit dollars go to families that fall in this category?" The next column, "Mean," is the average amount an eligible family in the relevant category would receive from the FSP. This is an average across

eligible families only. Lastly, the three columns to the right of the mean use percentiles to summarize the amount an eligible family would receive from the FSP.

• Months of FSP Eligibility

The last group of columns shows the months of eligibility during a given period. The column labeled "Mean" is the average number of eligible months for a family in a particular group. The next three columns show the percentile distribution of the number of months of eligibility in the year.

Table 4.2a describes FSP eligibility projections across families under the monthly reporting plan. It reveals several findings worth highlighting. First, the table shows that out of all family structures, single mothers with children are the most likely to be eligible for FSP benefits (61% of this group qualified), and almost all single parent families with incomes below the poverty threshold are eligible.

Second, following from FSP eligibility rules, there is an inverse relationship between family income relative to poverty and the percentage of families eligible for Food Stamps. That is, when we move down the rows that categorize families by income relative to the Federal Poverty Level, we observe decreasing rates of both FSP eligibility and mean benefits received as the family's financial status improves, as we would expect. The 9% of families with income in the lowest income bracket (as measured by share of Federal Poverty Level) account for 27% of total FSP eligibles, but due to their higher benefit levels, this group is eligible to receive 46% of all potential FSP benefits. In fact, the mean benefits that families with income less than 70% of the Federal Poverty Level are eligible to receive is nearly twice that of families with income between 70% and 130% of the Poverty Level ($1,718 and $925, respectively), and almost three times as large as the mean benefits that could be collected by families with income between 130% and 185% of the Poverty Level ($1,718 and $584, respectively).

Third, and also in line with the structure of the Food Stamps Program, the level of benefits largely reflects the size of the family; for example, families with three or more children are eligible for a larger benefit ($2,376) on average than all families ($1,019). Fourth, the amount of benefits and months of eligibility vary substantially within particular demographic groups. As a case in point, the median benefit for FSUs with incomes below 70% of poverty is $1,425, but 20% of those families are eligible for at least $2,754. Lastly, many of the working poor are eligible for FSP benefits under this reporting plan, a fact highlighted by the 56% of families receiving most of their earnings from jobs paying less than $7 an hour who are eligible.

The last row of Table 4.2a presents our projections for the total number of FSUs eligible for any Food Stamps during FY1997 under a monthly reporting plan, along with the total annual amount that could be collected in benefits (assuming all eligible FSUs collected benefits). According to our estimates, the projected number of FSUs eligible for benefits during the year equals 35.2 million, and total potential costs reach $35.8 billion. These amounts clearly overstate the actual costs in the FSP under this plan because only a portion of those eligible for Food Stamps actually collect the benefits.

The second reporting plan we consider in our analysis is the quarterly reporting plan. The plan we consider calculates eligibility and benefits according to a family's income and assets during

the month a family files a report (prospective monthly budgeting). To simulate eligibility under this reporting scheme, we assume that if a non-certified family becomes eligible, then it is certified for three months. At the end of the certification period, families that are still eligible are assumed to reapply for the FSP. If a family is not eligible at a given reporting time, then the family is assumed to reapply during the first month in which it becomes eligible again.

Table 4.2b summarizes eligibility and benefits under this quarterly reporting plan. Comparing the results to those presented in Table 4.1a shows that shifting from monthly reporting to quarterly reporting has a negligible effect on the number of families that were eligible at least once a year. Moreover, extending the reporting period increases the average number of eligible months by only one for most types of families. However, average annual benefits increase by 6% (from $1,019 to $1,084). The largest gains in benefits go to families with annual incomes higher than 130% of poverty. For instance, the benefits paid to FSUs in the 130–185% of poverty threshold category increase by 19% from $3.7 billion to $4.4 billion,[15] and the median number of months of eligibility for this type of family rises from five to six months. Nevertheless, this family group accounts for only 11% of all FSP benefits under quarterly reporting. In contrast, families with incomes below 70% of poverty are largely unaffected in terms of the average level of benefits and number of eligible months.

The projected number of FSUs eligible for benefits during FY1997 under quarterly reporting equals 35.5 million, and total potential benefits reach $38.5 billion. These numbers are reported in the last row of Table 4.2b, and they are slightly higher than the analogous number projected for the monthly reporting plan. The difference in the number of eligible FSUs results because a small number of FSUs qualify late in FY1996 for benefits in FY1997 under quarterly reporting, but these families would not qualify in this way under monthly reporting. (Recall that our analyses incorporate complete histories in conducting simulations over any period.) The difference in potential total expenditures between monthly and quarterly reporting is only $2.7 billion. This relatively small cost in potential extra payments suggests that the size of unwarranted benefits would be modest under a simple quarterly reporting plan, presuming that switching to such a regime would not significantly alter Food Stamp take-up rates.

4.3   Predicted Annual FSP Benefits Paid Out Under the Alternative Reporting Plans

Tables 4.3a and 4.3b present our projections of participation and FSP benefits under monthly and quarterly reporting. These projections are obtained by applying the participation algorithm (Step 5 in the simulation model) to the sample of FSUs who are simulated to be eligible in each regime. Structured like Table 3.1, these tables present statistics on the anticipated participation and collection of benefits after adjusting for the predicted benefit up-take behavior of those who are eligible.

As described in Section 2.5, we simulate participation among the eligible population resulting from the simulation model using their predicted take-up rate, which varies by demographic and economic characteristics and by potential FSP benefits. Comparing eligibility and benefits under monthly reporting in Table 4.2a with participation in Table 4.3a, we find that

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[15]   An FSU in this income group received 10.3% of $35.8 billion under monthly reporting and 11.4% of $38.5 billion under quarterly reporting.

accounting for the take-up of benefits greatly reduces the estimated cost of the FSP benefit payments. Among the 35.2 million families eligible for the FSP, only 11 million families participate, resulting in a drop in the total cost of the program from a potential $35.8 billion per year to an actual $16.1 billion.

Not surprisingly, however, the average participating FSU has higher annual benefits than the average eligible FSU. For example, an eligible FSU was eligible for $1,019 per year on average, whereas a participating FSU collects an average of $1,480. In part, this is due to longer stays on the FSP: among eligible FSUs, the median period of eligibility is seven months, while among participants, the median FSU collects benefits 12 months per year. Differences in average annual benefits and months of FSP collection between eligible and participating FSUs are explained by differences between the respective compositions of these two groups. Because take-up rates are higher among those with higher expected FSP benefits, the population of participants has a larger share of relatively poor families compared to the population of eligible FSUs. As a consequence, FSUs with the lowest income levels collect a larger share of benefits among participants than their share of benefits among all eligibles would suggest (68% of benefits to participants compared to 46% if all eligibles participated).

The same pattern holds for FSUs supported by the lowest paid jobs (40% of participant benefits compared to 32% of potential benefits). Among FSUs with any work activity, take-up rates decrease with number of annual working hours. For example, 16% of families working between 2000 and 3000 hours a year are eligible for FSP but only 3% participate. Lastly, there is still significant variation in FSP benefits within specified groups after accounting for the take-up of benefits. As a case in point, the median FSU with most of their earned income from jobs paying below $7 an hour collects $1,756 on Food Stamps, but 20% of these low wage families collect less than $502 a year.

Table 4.3b summarizes participation under quarterly reporting. Accounting for FSP take-up generates a different set of estimates for the impact of switching from monthly to quarterly reporting. First, average annual collected benefits remain largely unchanged from $1,480 to $1,488 compared to the 6% increase in average annual potential benefits that we saw previously. Much like with monthly reporting, this result is due to differences between the compositions of participating and eligible FSUs. For example, the share of FSUs whose eligibility and benefits are largely unaffected by the extension of the reporting period is larger among participants than among eligibles.

The family types that are most affected by the switch from monthly to quarterly reporting account for only a small percentage of the total benefit payments. For example, the FSUs with annual income in the range of 130%-185% poverty and annual income above 185% poverty show the biggest changes in average benefits collected between the two reporting regimes (increasing from $750 to $858 and from $581 to $746, respectively after adjusting for take-up rates), but these groups only account for 3% and 1% of total benefits paid to participants, and therefore have little effect on the total expenditures. On the other hand, families with most of their earned income coming from jobs paying at most $7 an hour, a group which accounts for 40% of total benefits, have their mean benefits virtually unchanged by the switch from monthly to quarterly reporting (going from $1,748 to $1,756).

Although the mean benefits do not change much between Tables 4.3a and 4.3b, it is interesting to see that 20th percentiles of benefits decrease for almost all family types and the 80th percentiles generally increase. In other words, the range of benefit values is increased by the switch from monthly to quarterly reporting. Thus under quarterly reporting, because benefits are not adjusted each month, some families get paid slightly higher benefits than they would under monthly reporting (i.e., they receive unwarranted benefits) while others get paid slightly lower benefits, and on average, these unwarranted benefits and non-payment of warranted benefits cancel each other out to produce similar mean benefits.

Lastly, the bottom rows in Tables 4.3a and 4.3b show that shifting from monthly to quarterly reporting increases the number of participating FSUs from 10.8 million a year to 11.5 million, and potential benefits increase by 6% to $17.1 billion. The budgetary cost of a small amount of unwarranted benefits for a given caseload under a simple quarterly reporting plan is largely offset by a small amount of non-payment of warranted benefits, presuming that switching to such a regime would not significantly alter Food Stamp take-up rates.[16] However, because families facing reduced reporting requirements may be more likely to take-up benefits, the estimates presented here may underestimate the total increase in FSP payments due to implementing a quarterly – rather than monthly – reporting plan.

4.4   Simulated Administrative Activity Associated with Alternative Reporting Plans

Since selecting the optimal reporting plan requires policymakers to consider both the effects on payments to beneficiaries and on administrative costs, we analyze the number of reports generated by our two policy regimes. As part of the simulation exercise, our analysis tracks whether an FSU files a report in each month, and, if so, which type of report it files. The model distinguishes among six types of reports:

9. Initial applications: reports that occur whenever a non-certified FSU starts participating in FSP after at least one month of no participation,
10. Actionable reports: fixed-interval reports that occur when a participating FSU reaches the end of the reporting period and benefits have to be changed according to the circumstances presented in the report,
11. Non-actionable reports: fixed-interval reports that occur when a participating FSU reaches the end of the reporting period and FSP benefits do not change,
12. Change reports: reports that arise under non-fixed interval reporting regimes when certain specified changes occur in FSU income, asset levels, or size, between reporting periods,
13. Case closures: reports filed to terminate a case, and
14. Recertifications: reports filed by a participating FSU to renew FSP eligibility.

Every report filed by an FSU falls into one of these categories. Note, however, that in this example, both of the reporting plans that we are comparing are fixed-interval reporting regimes.

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[16]   In estimating take-up rates, we controlled for various demographic and economic characteristics, including expected potential benefits, but we did not account for differences in reporting costs that each regime imposes on families and thus, the predicted participation probabilities incorporate only limited behavioral responses to reporting regime changes.

This means that no change reports are filed, so this category of activity can be dropped from the current analysis. Also, we do not study changes in re-certification activity because, assuming equivalent take-up under both reporting regimes and assuming that everyone's certification period is long enough so that none come due during the year, re-certification activity will not change. (However, the model can easily account for regimes that vary on certification or change reporting rules.)

4.4.1   Number of Different Types of Administrative Reports

Tables 4.4a and 4.4b present summary information on the number of mandated reports generated in the remaining four categories for the FSUs that are simulated to participate in our MID-SIPP model. For each type of report, the column "Share of Total," answers the question: "How many of the particular type of report filed were filed by families falling into a specific demographic/economic group?" Taking initial applications as an example, the first row under "50% Family Earnings from" in Table 4.4a shows that 42% of all applications were filed by families with the lowest paid jobs. The second column in each group, "Mean," shows the average number of the identified report types filed per FSU in a given group in a year, and the third and fourth columns of each group show the 50th and 90th percentiles of the number of reports per FSU.

Table 4.4a summarizes the amount of administrative reporting under monthly reporting. It shows that families with no working hours during the year account for the highest shares of all types of reports. Splitting FSUs in alternative ways, we see that 50% of all initial applications are filed by households headed by single women. Other groups that stand out are families with incomes at 70%–130% of the poverty threshold (who file 48% of initial applications), and working poor families, defined as those with the lowest paid jobs (who file 42% of initial applications). These four FSU categories also account for a large share of the other types of reports. For example, single-woman households file 63% of fixed-interval actionable reports, while families with most earnings coming from jobs that paid less than $7/hr generated 48% of this type of report. Initial applications and case closures are more frequent among relatively wealthy families. In particular, families with annual incomes of at least 185% of the poverty threshold file an average of 0.9 initial applications per year, while families with incomes below 70% of the threshold file only 0.3 applications. Such evidence merely reflects the fact that relatively higher income families are more likely to move in and out of the FSP. Likewise, families working more hours per year have higher rates of case closures and of initial applications.

Table 4.4a reveals that monthly reporting generates notable administrative activity, evidenced, for example, by the 65% of all filed fixed-interval reports that are non-actionable (on average, 3 out of 8.5 fixed reports—actionable plus non-actionable—are actionable). Families with the largest ratios of actionable reports to total fixed-interval reports are families with earning income coming from jobs paying between $7/hour to $9/hour (4.0 actionable reports out of 7.2 fixed reports) and families working more than 2000 hours a year (families working between 3000 and 4000 hours file an average of 3.5 actionable reports out of 5.5 total fixed-interval reports).

Table 4.4b shows that the frequency of administrative activity falls dramatically under quarterly reporting, with the largest projected impact on the number of non-actionable fixed-interval reports. In particular, the average number of fixed-interval reports (actionable plus non-

actionable reports) drops from 8.5 to 2.7, with non-actionable reports declining from 5.5 to 0.9 on average. Differences in the number of non-actionable reports between the two regimes are indicative of differences between the amount of administrative activity each reporting plan generates. These differences are largest among single-parent families with income below poverty (4.2 average non-actionable fixed-interval reports under monthly reporting and 0.8 average non-actionable fixed-interval reports under quarterly), families receiving welfare (6.5 compared to 1.0), and families working zero hours in FY1997 (7.1 compared to 1.3).

Differences in the number of actionable fixed-interval reports are indicative of the amount of unwarranted benefits. Considering all families together, FSP benefits are updated an average of 1.8 times a year under quarterly reporting, in comparison to an annual average of 3.0 times when circumstances are evaluated on a monthly basis. For some groups, the differences in the number of actionable fixed reports between monthly and quarterly reporting are larger. For example, under monthly reporting, poor working families with jobs paying below $7/hr change their benefits about 4.3 times in a year on average, compared to only 2.1 times under quarterly reporting. Likewise, families working between 1000 and 3000 hours a year, on average, have about half as many actionable fixed-interval reports under quarterly reporting as they would have under a monthly reporting regime.

There is only a modest decline in initial applications for most family types when switching from monthly to quarterly reporting, and there is a slight decline in the number of case closures. Intuitively, by increasing the reporting period to a quarter, eligibility spells separated by a couple of months could be joined in a single one, thereby reducing the number of initial applications and change closures.

4.4.2   Trigger Events Leading to Actionable Reports

Unwarranted benefits under fixed quarterly reporting occur when the reporting plan misses reports that would have initiated a change in benefits or eligibility levels in a monthly reporting regime. For this reason, it is helpful to understand the circumstances that lead to actionable reports and to case closures (in the absence of change reporting). Tables 4.4a and 4.4b show that overall, a quarterly reporting regime leads to 40% fewer actionable fixed reports than does a monthly reporting regime. In this section, we will examine the types of events that trigger such reports under monthly reporting. For the same family types considered in the previous tables, Tables 4.5a and 4.5b present summary statistics for five different events that trigger an actionable report:

15. Move to another state. (Moving to another state is a particularly uncommon event in our sample; on average, only 0.006 actionable fixed reports declare a change in state.)[17]
16. Change in FSU size.
17. Change in FSU earned income.
18. Change in FSU net income. (Changes in earned income are a subset of those events leading to changes in net income, which also includes deductible expenditures and non-earned sources of income.)

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[17]   It is possible that we underestimate this figure, as families moving to a different state are more likely to leave the panel sample.

19. <u>New fiscal year</u>. (Some actionable reports occur because benefits need to be updated to reflect the current fiscal year maximum benefit amounts and eligibility thresholds.)

We do not apply any hierarchical criteria in assigning changes in circumstances to various trigger events. Instead, when two events cause an actionable report, we classified this report under both events. Therefore, the sum of the average number of actionable reports of all events reported in these tables may be higher than the average number of reports presented in Tables 4.4. Lastly, the design of Tables 4.5a and 4.5b mirrors previous tables. The columns are divided into four groups, associated with each type of trigger event. Each group of columns consists of the "Share of Total" (for actionable reports filed due to this trigger event, the share of these reports filed by each type of FSU), in addition to the mean, median (50th percentile), and 90th percentile number of actionable reports filed due to a particular event.

Table 4.5a presents statistics for trigger events under monthly reporting. We find that a change in net income is the most common event leading to an actionable report. On average, an eligible FSU files 2.6 actionable reports stating a change in net income, of which, 1.7 reports are for a change in earned income. Changes in earned income are more frequent among families receiving most of their income from the lowest paid jobs and families working between 500 and 2000 hours per year. For example, families primarily supported by jobs paying less than $7 per hour report changes in earned income an average of 3.4 times, whereas families receiving most of their income from jobs paying more than $12 per hour report changes in earned income only 1.4 times while eligible for FSP. We also find that changes in earned income occasionally lead to actionable reports among families not working at all in FY1997, an event that occurs when families who are eligible at the end of the previous fiscal year (FY1996) become unemployed at the beginning of the current fiscal year (FY1997). Variations in deductible expenditures and sources of income other than earnings are the second cause leading to actionable reports.[18] Not surprisingly, the groups generating most of this type of activity are those groups relying heavily on non-earned income, such as welfare recipients (1.7 reports, on average) and families not working at all during FY1997 (1.4. reports). Changes in FSU size have a negligible contribution to the number of actionable reports under monthly reporting; however, this finding does not exclude the possibility that changes in FSU size are the primary events leading to changes in eligibility status.

Table 4.5b summarize events leading to actionable fixed reports under quarterly reporting. Several patterns observed under monthly reporting are repeated under quarterly reporting. First, under quarterly reporting a change in net income is the most common event leading to an actionable report for all types of FSUs. Second, actionable reports caused by changes in earned income are more prevalent among families receiving most of their earned income from jobs paying less than $7 per hour and families working between 1000 and 2000 hours a year, than among other families. Third, most of the activity generated by changes in other financial circumstances occurs for families working zero hours per year and families receiving welfare. Finally, few actionable fixed reports are associated with changes in FSU size.

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[18]   We find this number by subtracting the number of reports due to changes in earned income from the number due to changes in net income. For all families, on average 0.9 reports (2.6 minus 1.7) were filed due to changes in financial circumstances that did not involve a change in earnings.

4.5   Summary of Findings for Various Reporting Plans

Table 4.6 summarizes the findings on monthly versus quarterly fixed-interval reporting. The MID-SIPP simulation showed that the number of families eligible at least once over the course of the year is largely unaffected by the change in reporting regimes. However, if all eligible families collect their full benefits, then the FSP would be responsible for giving an additional $2.6 billion worth of benefits under quarterly reporting compared to what it would owe beneficiaries under monthly reporting. The families that would experience the largest gains in benefits are those in the upper income brackets, with families at 70% of the Federal Poverty Level or below being largely unaffected. Turning to *actual* FSP costs, applying take-up rates to determine participants and number of months of participation decreased the difference in expected total benefits in a given FY from $2.6 billion to $1.0 billion. Two facts explain the diminished impact of quarterly reporting among predicted participants compared to eligibles. First, families with the greatest change in benefits between the two regimes also had the lowest take-up rates, thereby having only a small effect on the overall benefit change between the two regimes. Second, while some families are projected to collect larger annual benefit packages under quarterly reporting, others are anticipated to collect smaller packages than they would under monthly reporting. Overall, the mean annual benefits for the various demographic groups are modestly affected by the tested policy change, and FSP participants have fairly comparable average projected benefits under both regimes.

Turning to administrative activity, we examined the numbers of various types of reports generated under the two regimes and found the number of reports (actionable, non-actionable and case closures) generated under quarterly reporting is about 37% of what it would be under monthly reporting. However, due to increasing participation under quarterly reporting, initial applications are slightly higher (4.6 million to 4.8 million). The decline in non-actionable fixed-interval reports is responsible for most of the change in report generation, the number of non-actionable fixed-interval reports dropped from 59.4 million under monthly reporting to 10.7 million under quarterly reporting. In contrast, actionable reports under quarterly reporting are still 63% of what they would be under monthly reporting. Still, certain demographic groups - particularly families in the lower paid jobs, and families working less than 4000 hours a year- generate half as many actionable reports under quarterly reporting than they do under monthly reporting. The overall impact on administrative costs, and particularly, on manpower requirements, depends on the cost to process each type of report. Appendix C examines how administrative activities correspond to administrative costs.

5. MID-SIPP Compared to Other FSP Participation Models

There are a number of existing models that simulate food stamp outcomes under different policy regimes. In this chapter, we will examine three of the best known models: the TRIM3, MATH SIPP, and MATH STEWARD. We contrast the features and construction of MID-SIPP with these models in terms of strategies to correct underlying survey data, treatment of history dependence, the policy options that can be considered, and the modeling of administrative activity.

5.1 TRIM Model

The Transfer Income Model (TRIM) is a static microsimulation model used to simulate major governmental tax, transfer, and health programs, including the Food Stamps Program. Since first operationalized by the Urban Institute in 1973, TRIM has undergone two major revisions, resulting in TRIM2 (1980) and TRIM3 (1997). Written in C++, TRIM3 simulates FSP activity on a monthly basis. TRIM3 follows the same basic steps as MID-SIPP: using information from a household survey, it groups the survey's population into FSUs, determines FSU eligibility, predicts participation and benefit uptake, calibrates results, and summarizes findings. In some cases, the user is allowed to decide between alternative methodology options, entering desired specifications through TRIM3's web interface. Unlike the MID-SIPP model, it does not simulate the dynamics (transition rates) of participation, nor does it simulate administrative activity. In the remainder of this section, we walk through TRIM3's methodology, emphasizing the ways it diverges from MID-SIPP.

TRIM3 uses data from the Current Population Survey (CPS) March Supplement for each year of interest. The data contains annual summary information on demographics, labor force activity, and income information for approximately 50,000 households. The advantages of the CPS data are that the CPS contains information on a greater number of households than does SIPP and the CPS is updated annually. However, the CPS data set has two main shortcomings when compared to SIPP. First, it does not contain detailed asset information relevant for determining FSP eligibility. These variables must instead be imputed: financial assets are imputed by dividing the FSU's asset income by the assumed rate of return on assets; vehicle asset levels are specified by the model's user. Second, CPS does not contain monthly measures. Because FSP benefits are calculated on a monthly basis, TRIM3 must create monthly measures using the yearly totals. To do this, a number of assumptions regarding the distribution of labor force activity and income throughout the year must be made.

TRIM3 also differs from MID-SIPP in its determination of FSUs. The default assumption in TRIM3 is that households that do not contain a TANF recipient file together as a single FSU. Those households that do contain a TANF recipient will split according to the splitting rule options selected by the simulation's user. The user can select a value for the "One Or Multiple Units" variable, and for the "Family Split Rate" variable: the One Or Multiple Units variable allows the user to decide among five options governing which households are permitted to split while the Family Split Rate allows the user to chose the percentage of households that are simulated to split of those permitted to do so (based on the selected One Or Multiple Units rule). The splitting rule options listed under the One Or Multiple Units menu do not capture all of the different splitting

options stipulated in the Federal Code of Relations, such as those applying to unrelated families living together, the elderly and disabled, and post-secondary students working less than 20 hours per week (all of which are covered by the MID-SIPP Model).

As in the MID-SIPP model, FSP eligibility in the TRIM3 is determined monthly through the application of FSP rules. The participation decision is simulated under alternative policy regimes by the assignment of participation probabilities and random numbers (as in MID-SIPP, FSUs are simulated to participate if their random number is less than their participation probability). TRIM3 uses a different method than MID-SIPP to determine the participation probabilities and assign random numbers. First, participation probabilities are determined according to unit type and benefit level, with adjustments made for the state of residency and citizenship status. MID-SIPP, in contrast, establishes participation probabilities by running a logistic regression with household type, education status of the household head, participation in other mean tested programs during the preceding six months, months of FSP eligibility during the year, and potential FSP benefits during the year as regressors. Second, in TRIM3, the random numbers are assigned to ensure that households reporting FSP benefits are always participants in the simulations using the FSP rules and regulations that applied at the time of the survey. That is, the random number is forced to be less than the participation probability. Among eligible households that do not report food stamps, a fraction are assumed to have reported correctly based upon the same benefit level and unit type categories used as groupings in the participation probability determination. For these households, TRIM3 assigns a random number greater than their participation probability. The remaining eligible households (those for which no determination of correct or incorrect is made) can have any random number between zero and one assigned. Similarly, households that have missing responses in CPS to the participation question get random numbers between zero and one. For all households, the baseline random numbers remain associated with the FSUs when simulations that assume different FSP policy regimes are run. Households that participated previously will always continue to participate unless their benefits fall (in which case they may or may not participate). In addition, eligible households that were counted as "correct" non-participants will not participate in future simulations unless their benefits rise. In this way, TRIM3 treats differently households that are identical in terms of unit type, benefit level, citizenship status, and state of residency but different in terms of reported participation or determined non-participation.

While TRIM3 allows FSUs to participate for all, none, or any fraction of months in which they are eligible, TRIM3 does not capture patterns of FSP participation. Rather, TRIM3 allows the user to specify one of four options for participation determination: (1) participation is based purely on the output from the food stamp simulation, treating each month j without regard to FSU behavior in month j-1, (2) FSUs that participate in month j-1 are assumed to participate in month j, if still eligible, (3) FSUs make the same participation decision in month j as they did in month j-1 if still eligible, (4) all eligible units participate. Though options 2 and 3 *do* consider prior participation decisions when simulating current participation, none of the options model the transitional behavior of FSU participation. For example, TRIM3 does not simulate the effect that participation in month j-1 has on the participation likelihood in month j aside from allowing participation (or non-participation) in month j-1 to either exactly predict participation in month j (options 2 and 3), or to not have any influence over participation in month j (options 1 and 4). None of these options will give output that accurately simulates actual FSU dynamics across time.

Like MID-SIPP, TRIM3 calibrates its simulated participation numbers so that they match administrative targets, but TRIM3 uses different criteria than MID-SIPP to do so. TRIM3, for example, uses SSI and TANF/AFDC status as well as citizenship status and state of residency, but does not use disabled member status nor income relative to poverty level as grouping criteria for matching.

While TRIM3 produces some of the same output as MID-SIPP, such as total annual benefits collected and annual number of months of eligibility, the month-to-month patterns are based on the assumptions selected rather than observed changes by month. Additionally, TRIM does not measure the administrative activity of the Food Stamp Program.

5.2   The MATH SIPP Model

The MATH SIPP model, generated by Mathematica Policy Research, Inc. has many components in common with The Urban Institute's TRIM3 model and MID-SIPP. Like MID-SIPP, MATH SIPP constructs FSUs from SIPP survey data, determines FSU eligibility, simulates participation, and summarizes results.

Still, MATH SIPP differs from MID-SIPP in some important ways. First, MATH SIPP creates a static cross-sectional data set containing the simulated eligibility and benefit levels of FSUs for one period in time (November 1999 in the case of MATH SIPP 1999) while MID-SIPP creates a dynamic longitudinal data set containing the simulated eligiblity and benefit levels of FSUs over multiple one-month time periods. Second, MATH SIPP uses different procedures to divide household members into FSUs, deal with missing data in SIPP, simulate participation, and use FSP-QC data for calibration. Additionally, MATH SIPP does not measure administrative burden differences among policy regimes.

Recall from section 2.2 that to group the individuals from SIPP into FSUs, MID-SIPP applies the unit formation rules from the Code of Federal Regulations, producing an upper limit for the actual number of declared FSUs (this is the maximum number of FSUs allowable by the FSP regulations.) To determine the maximum amount by which this number could differ from the actual number of FSUs in the SIPP data, we calculated the other extreme: the number of FSUs resulting from the assumption that individuals living under the same roof constitute one, and only one, FSU. The maximum margin of error (i.e. the difference between the number of FSUs calculated under the maximum break points assumption and the number of FSUs calculated under the one roof equals one FSU assumption) is eight percent. As mentioned previously, our FSU grouping rules are modifiable. The MATH SIPP model gives an alternative approach.

To group individuals into FSUs, MATH SIPP uses SIPP's reported participation status at the individual level, and information from FSP-QC on the frequency at which households split to form multiple FSUs. MATH SIPP first examines households containing at least one reported FSP participant, and then deals with the ones containing only reported non-participants.

For households with at least one FSP participant, MATH SIPP first groups persons within the household into FSUs according to participation; that is, all non-participating individuals are

placed into one FSU while participating individuals are placed into another (when all household members have the same participation status, the household constitutes one FSU). In this way, FSUs will be homogenous with regards to reported participation (i.e. participating and non-participating individuals will not be contained within an FSU). If one stopped here, MATH SIPP's method of FSU determination could lead to an under-estimation of total FSUs because it only makes "necessary" household splits (i.e. when a household contains both participants and non-participants), but does not make any of the *optional* splits (even if all members of a household are reported participants, the household could have divided into multiple FSUs in order to increase their benefit levels, but MATH SIPP does not, so far allow for these divisions). One way to improve upon this method of FSU determination would be to additionally divide households (or subsets of households) into different FSUs if all members are reported participants but have different benefit levels. This would still lead to an under-estimation of total FSUs, but to a lesser degree.

Next, MATH SIPP deals with the non-participating households (or subsets of households created by the procedure in the above paragraph) by assuming that a percentage of them split into two or more units while the remainder stay as one FSU. Only households with the potential to split (according to FSP rules) will do so, and the likelihood that a household will split depends upon its characteristics and is determined such that the resulting FSUs that are simulated to participate have characteristics similar to those recorded in the FSP-QC data. (The method by which MATH SIPP determines simulated participation is described below.)

As mentioned previously, not all persons appearing in SIPP are surveyed during each interviewing phase (wave). The MATH SIPP model deals with the missing information in SIPP that results from households being absent in certain waves by imputing the information using a statistical matching technique known as the hot-deck imputation method. This method consists of matching households with missing information to households with complete information, and replacing missing values with values computed according to household characteristics associated with the value of the missing variable. In contrast, MID-SIPP does not use households with missing topical module data; rather, it rescales SIPP weights every month to compensate for these missing data (section 2.5).

Like MID-SIPP, MATH SIPP imputes FSU eligibility based on established eligibility rules using the information from SIPP. Unlike MID-SIPP, however, it does not create a seam-corrected longitudinal data set that allows for the analysis of each month separately; rather, it looks only at households present in SIPP Wave 12 (November 1999 for the 1999 MATH SIPP) and uses the information reported in this month along with information reported in Waves 1 and 2 to compose a data set containing the necessary ingredients for imputing eligibility.

MATH SIPP simulates participation of eligible FSUs by using a probit maximum likelihood function in conjunction with a raking procedure that uses published FSP-QC as reference numbers. More specifically, MATH SIPP, like MID-SIPP, uses a regression model for dichotomous data to assign each eligible FSU a propensity score that indicates the likelihood that the FSU will participate. More importantly, whereas MID-SIPP models FSP participation in a dynamic setting, MATH SIPP does not predict or simulate participation spells. MATH SIPP then places all eligible FSUs into groups according to common characteristics (earnings, elderly status,

number of members, benefit level, etc.) and determines the proportion (the "quota") of each group that needs to be selected such that the resulting group of simulated participants resembles that which is known to have participated according to the FSP-QC data. FSUs are selected from each group in order of their propensity scores (FSUs with the highest scores are selected first) until the group's quota has been filled.

This algorithm to simulate participation differs from the one that MID-SIPP uses in three critical ways: first, the two models use different grouping variables ("raking" variables); second, MATH SIPP does not match all cell counts to administrative data in the raking procedure; and third, MATH SIPP systematically assigns participation to high propensity score FSUs and denies participation to low propensity score FSUs. MID-SIPP, in contrast, uses a random number generator in combination with participation propensity scores to assign participation statuses. In this way, MID-SIPP creates a group of simulated participants that more closely resembles actual participants because in reality, some FSUs with relatively low participation propensity scores participate, just as some FSUs with relatively high participation propensity scores do not participate. Finally, unlike MATH SIPP, MID-SIPP contains an intermediate step before the raking procedure to bring the SIPP data to nationally representative levels using re-scaled SIPP weights that are adjusted for survey attrition. In this way, MID-SIPP can more easily pinpoint which FSU characteristics are associated with under- (or over-) reporting of FSP participation.

Aside from the methodological differences mentioned above, MATH SIPP differs from MID-SIPP in two additional ways. First, MATH SIPP can only simulate policy effects on FSP eligibility and participation for one point in time; it does not simulate how policy changes effect, for example, the average length of time an FSU spends on food stamps, or the frequency at which FSUs transition in and out of the program. Second, MATH SIPP does not examine the administrative burden of different policies.

5.3   The MATH STEWARD Model

The MATH STEWARD microsimulation model (Micro Analysis of Transfers to Households/Simulation of Trends in Employment, Welfare, and Related Dynamics) was developed by Mathematica Policy Research, Inc. from 1996 through 1998. It is similar to MID-SIPP in that it models the behavior of FSUs over time. Both models simulate program eligibility and participation using SIPP data at the household level, and then aggregate across households to calculate overall consequences of FSP policy changes. Like MID-SIPP, MATH STEWARD also uses the FSP-QC database to adjust SIPP data such that aggregate participation numbers match published administrative data. Despite these similarities, though, MATH STEWARD differs from MID-SIPP in four important ways.

First, Unlike MID-SIPP, which seam corrects SIPP data so as to create a panel data set that more accurately contains information for each FSU on a monthly basis, MATH STEWARD avoids making the seam correction by using only data from months before the month in which a household was surveyed. Though this latter method does avoid recall bias, it also results in data loss.

Second, MATH STEWARD contains a set of 51 state-specific weights (including the District of Columbia) for each household such that simulations at the state level can be conducted using the entire SIPP sample, as opposed to using only those households in SIPP that actually resided in the studied state. These state-specific weights allow for the construction of a population of households with demographic characteristics identical to those of the state's population such that states with little representation in SIPP will have an alternative to using the small sample size resulting from their own state's FSUs. These state-specific weights are not useful for analysis at the national level, but do offer a strategy for state-level analyses.

Third, MATH STEWARD and MID-SIPP have different approaches to predicting food stamp participation. MATH STEWARD contains information on how economic conditions and state FSP characteristics are correlated with the household characteristics that determine FSP eligibility and benefit levels. MATH STEWARD allows for the examination of how, for example, a state's unemployment rate effects FSP participation by establishing a link between unemployment rates and income levels, and then between income levels and FSP participation. However, MATH STEWARD does *not* dynamically simulate FSP participation.

Finally, like the other alternative models mentioned above, MATH STEWARD does not estimate administrative activity levels nor administrative costs.

6. Concluding Remarks

In this paper, we have described the conceptual and methodological underpinnings of our MID-SIPP model. To demonstrate this model's capacity, we used it to examine the costs and benefits involved with switching from a monthly to a quarterly fixed-interval reporting regime. Finally, we summarized the differences between the MID-SIPP model and other models. In this section, we will conclude by presenting a summary of this paper's findings and by suggesting ideas for future research.

6.1 The MID-SIPP Model

The simulation framework developed in this report offers a powerful capacity for practitioners to undertake comprehensive evaluations of altering a wide range of policy rules of the Food Stamp Program. The capabilities of this framework for certain applications exceed those available from existing FSP micro-simulation models in several important dimensions:

- First, it provides analyses of the impacts of changes in all sorts of reporting rules and ways of defining FSP eligibility. Alternatives, such as MATH SIPP, integrate a broad set of rules specifying family units and measures of economic and demographic circumstances, but these models rely on a single-month sample to conduct all simulations and, therefore, cannot address policies involving the monthly dynamics of eligibility. Dynamics is at the heart of policies dealing with reporting rules and transitional benefits.

- Second, by formulating a multiple-month model that emulates actual changes in the economic and demographic circumstances of representative populations of family units, projections of our model fully account for sophisticated dynamics underlying FSP eligibility and take-up that are commonly overlooked in other models.

- Third, our simulation approach improves current methods by correcting for data idiosyncracies in the SIPP, notably the "seam problem" and reweighting to compensate for incomplete time-series observations on family units. To our knowledge, our simulation model is the only one that deals with the seam issue.

- Fourth, our simulation framework incorporates "calibration" factors that translate outcomes estimated using SIPP data into magnitudes comparable to those computed using official caseload data. By converting the model's projections into outcomes that are scaled to compare administrative data, the model facilitates evaluating policy options. We discover that a relatively simple calibration structure adequately links magnitudes calculated from SIPP with administrative data and the same structure applies for both participation and benefit measures.

- Fifth, our simulation framework provides information on many critical sources of costs incurred in operating the FSP, revealing not only how a policy influences levels and distributions of FSP benefits but also some of the manpower requirements and costs associated with administering the program. Moreover, projection of these costs can easily be done over any time horizon and for any group of food stamp recipients.

- Sixth, and finally, our simulation framework offers a flexible capability to assess the impacts of alterations in certain policy regimes prior to modifying the more elaborate structural micro-simulation models.

6.2   Monthly Versus Quarterly Reporting

To illustrate the workings of our simulation model, this report presents an analysis of the consequences of switching from fixed monthly to fixed quarterly reporting. The findings reveal that shifting from a monthly to quarterly reporting period results in higher payment of FSP benefits, but some savings are achieved in resources required to administer the program. Adopting quarterly in place of monthly reporting leads to a modest 7% increase in total annual potential FSP payments – the amount of benefits for which families are eligible and would collect if take-up rates were 100%. Accounting for empirical take-up rates drops the increase in benefits attributable to moving to quarterly reporting to only 6%. The family types most affected by the switch are those receiving a small percentage of the total benefit payments. In particular, FSUs with annual incomes at 130%-185% and above 185% of the poverty level would experience the largest increases in average annual FSP benefits in the switch from monthly to quarterly reporting – increasing from $750 to $858 for the 130%-185% group and from $581 to $746 for the 185%+ group after adjusting for take-up rates – but these groups respectively collect only 3% and 1% of total benefits paid to participants; there is, then, little effect on the total FSP payments. As expected, the amount of administrative activity is reduced in the move to quarterly reporting, with an 80% drop in the filing of fixed-interval non-actionable reports. This diminished administrative burden translates into a 42% decline in annual manpower hours required to perform certification activities associated with client reporting, which in turn implies a 17% savings in FTEs applied to these activities.

6.3   Future Research

The policy options capable of being evaluated within our simulation framework extend far beyond the example analyzed in this report. One can, for example, readily entertain alternative reporting policies with different criteria necessitating submission of a change report, with varying measurements of income and assets for eligibility tests, modifications to the FSP benefit formula, and with alternative rules specifying an FSU. For any candidate reporting plan, our simulation model develops a picture of how months of eligibility, potential benefits, participation and collected benefits shift over families. Comparing pictures across regimes offers an apparatus for judging the tradeoffs attributable to altering various dimensions of a policy regime, identifying differential impact by family type.

Beyond the capabilities illustrated through the results presented in this document, we have identified a number of ways to enhance the capacity of our simulation framework. One enhancement to be pursued in future research involves introducing more sophisticated modeling of FSP participation rates. Also, in recognition that occasionally FSUs that appear ineligible when FSP rules are applied to SIPP data actually participate, another enhancement could involve allowing such FSUs to participate (in accordance with observed participation rates). To do so, we will estimate a separate logit equation predicting participation for these FSUs. Then, for those

predicted to participate, we will predict their benefits, replicating the conditional distributions found in SIPP. In addition, we intend to incorporate behavioral responses to policy changes in specifications of take-up rates. The model exploited in this analysis currently ignores the possibility that take-up rates might rise in response to the reduced cost of participation realized by simplification of a reporting regime. We can incorporate such behavioral responses in a natural way through formulations analogous to our introduction of "calibration" factors. Finally, we hope to be able to improve our estimates of the manpower required to complete various types of FSP administrative activities as well as accounting for other sources of administrative costs. Building upon the capacity of our simulation framework will not only enrich the factors one can consider when conducting program evaluations, but will also permit subsequent integration of results discovered in other studies.

Appendix A   Adjusting Eligibility Experiences for the Seam Problem

To illustrate our approach in investigating the basic consequences of a SIPP seam problem in our projections of months of eligibility, consider the time line:

1-----2-----3-----4-----5-----6-----7-----8

where each number represents a month. Suppose a SIPP family is interviewed in months 4 and 8, and there exist two states: income level A (A) and income level B (B). A seam problem arises if the family in period 8 reports a change in circumstances as though it occurred in month 4, when in fact it occurred some time after month 4 but before month 8. For example, for a family that was in state A in month 4 and in state B in month 8, this implies that the duration of the family's income level A spell may have extended beyond month 4, even though the family reports termination in month 4. As briefly mentioned above, our simulation analysis permits us to estimate duration distributions for various spells, denoted here by f (•), the probability that a spell ends after a given length. If the family's spell started in month 1, and they misreport it as ending in month 4, then the estimated value of f (5) is too high. Our analysis compensates for this estimation error by specifying a "smooth" functional form for f(•) that redistributes part of the occurrence of events in period 4 to periods 5, 6, and 7 in a way consistent with patterns in the data.

We estimated a logit hazard function using Maximum Likelihood methods. For each demographic group, we assume that the probability an individual in demographic group j moves from income level A to income level B after t periods follows a logit distribution of the following form:

$$(1) \quad h_j(t) = \frac{\exp g_j(t)}{1 + \exp g_j(t)},$$

where t is income level A's spell length, and $g_j(t)$ is a flexible function of t capturing duration dependence. The function $g_j(t)$ is a function of duration (t). The specification estimated in the analysis is given by:

$$(2) \quad g(t) = \sum_{k=1}^{K} w_k \varphi_k(t),$$

where $\varphi_k(t)$ represents a normal distribution with mean vector μ_k and variance-covariance s_k, and the quantities ω_k are weights that sum to 1 over k=1,...,K. (See Johnson and Kotz, 1970). Nonparametric methods allow K to become large as sample sizes increase. Small values of K offer a robust functional form for describing $g_j(t)$, and we selected K=3.

Using the above parameterization, we can derive the probability that a spell will last t periods:

$$(3) \quad f\varepsilon_j(t) = \frac{1}{\prod_{s=1}^{t-1}[1 + \exp g_j(s)]} * \frac{\exp g_j(t)}{1 + \exp g_j(t)}.$$

Equation (3) states the likelihood of a spell with duration t. For right-censored spells and spells ending at a seam, we do not know their exact duration. Thus, we have to derive their likelihood

based on limited information. For a right-censored spell, we only know that it lasted at least t periods, and the probability of that event is:

$$(4) \qquad 1 - F_{\varepsilon j}(t) = \frac{1}{\prod_{s=1}^{t}[1 + \exp g_j(s)]},$$

where $F(t)$ is the cumulative duration distribution.

For a spell ending at a seam, we only know that the spell ended sometime after the seam but before the most recent interviewing month (i.e. sometime after month 4 but before month 8 in our previous example). Since all possible events are mutually exclusive, the likelihood of such a spell is just the sum of probabilities associated with each one of all possible ending months. Therefore, the likelihood of a spell that ends after a seam is given by:

$$(5) \qquad f_{\varepsilon j}^{*}(t) = f_{\varepsilon j}(t) + f_{\varepsilon j}(t+1) + f_{\varepsilon j}(t+2).$$

We used Maximum Likelihood Methods to estimate the parameters of the logit hazard rates. Figure A.1 compares our estimate of $f(\cdot)$ with the empirical hazard before adjusting for the seam problem.

Appendix B   Iterative Proportional Raking to Calibrate Simulated Outcomes

We utilize iterative proportional raking to calibrate the distributions of participants by demographic, economic, and benefit levels to track administrative statistics. Iterative raking is a method used by the Census Bureau to adjust sample weights to generate national and state estimates that match population controls. The raking method, proposed by Deming and Stephan (1940) is an approximation of the weighted least squares estimator that minimizes the criterion:

$$\sum_i \sum_j \left(p_{ij} - \hat{\pi}_{ij} \right) / p_{ij}$$

subject to known marginals,

$$\sum_j \hat{\pi}_{ij} = \pi_{i.}$$

$$\sum_i \hat{\pi}_{ij} = \pi_{.j}$$

where

p_{ij} is the sample proportion of participating FSUs with characteristics I and j

$\hat{\pi}_{ij}$ is the estimated proportion of participating FSUs with characteristics I and j

In this study, we use iterative raking to adjust the baseline participation rate so that the predicted number of participants converges to the population benchmarks while minimally affecting the baseline participation rate. The first step in applying iterative raking in participation rates involves the selection of population controls for the FSP caseload. We selected caseload distributions from the FSP-QC data shown in Table 2.1. The selected population controls implied distinguishing FSUs by five grouping variables (called raking variables):

1.   FSUs with or without children,
2.   FSUs with or without at least one elderly member,
3.   FSUs with or without at least one disabled member,
4.   FSUs by income relative to poverty level, and
5.   FSUs by average monthly benefits.

For each iteration and for each raking variable, we compute an adjustment factor equal to the number of participants divided by the number of predicted participants and apply this factor to the estimate of that cell alternating grouping variables. This procedure is repeated until the estimated number of participants in each cell equals the population control. To illustrate this approach, consider the following simplified example using a three-way table of sample counts n_{ijk}. Given administrative totals for rows ($N_{i..}$), column ($N_{.j.}$) and layer ($N_{..k}$) from FSP-QC data, the iterative raking procedure adjusts cell counts $\tilde{n}_{ijk}$ such that:

$$\sum_{j,k} \tilde{n}_{ijk} = N_{i..}$$

$$(1) \quad \sum_{i,k} \tilde{n}_{ijk} = N_{.j.}$$

$$\sum_{i,j} \tilde{n}_{ijk} = N_{..k}$$

To derive $\tilde{n}_{ijk}$ we begin with a proportionate ratio adjustment by rows:

$$n_{ijk}^1 = \left[\frac{N_{i..}}{\sum_{j,k} n_{ijk}} \right] n_{ijk} = w_r^{(1)} n_{ijk}$$

followed by a column adjustment,

$$n_{ijk}^2 = \left[\frac{N_{.j.}}{\sum_{i,k} n_{ijk}^1} \right] n_{ijk}^1 = w_c^{(1)} n_{ijk}^1$$

and a layer adjustment,

$$n_{ijk}^3 = \left[\frac{N_{.j.}}{\sum_{i,j} n_{ijk}^2} \right] n_{ijk}^2 = w_l^{(1)} n_{ijk}^2$$

Each iteration repeats these three consecutive adjustments until all equations in (1) are satisfied and w_r^i, w_c^i, w_l^i are arbitrarily close to one.

Appendix C   Implications of Changes in Administrative Activity on Manpower Requirements

In Section 4.4, we projected the consequences of extending the reporting period from monthly to quarterly reporting on the number of reports of different types submitted to or processed by FSP agencies. We now turn to evaluate the impact of those changes on local FSP administration costs, beyond payments paid to participating families.[19] First, we describe the sources of the conceptual components of the total cost (monetary and non-monetary) associated with a reporting regime, identifying the sources of costs addressed in this study. Then, using manpower cost information from a time-use survey conducted for this report, we augment information on the administrative activities obtained from MID-SIPP to determine administrative expenses associated with the different policy regimes.

The flow diagram in Figure C.1 represents the process by which families interact with the FSP local agency to receive food stamps. Following this process allows us to identify the costs that both recipients (R) and FSP local agencies (A) incur in FSP administration. Each box in this panel represents a step in the process; the arrows indicate how steps are ordered. In the first step of the process (Step [R1]), the potential recipient completes an application to receive food stamps. To do so, he or she incurs monetary costs (such as lost work) and non-monetary costs (such as stigma and time). Next, the FSP local agency reviews the demographic and financial information in the application to assess eligibility (Step [A1]) and to calculate benefits along with establishing re-certification and reporting periods (Step [A2]). To do so, the local agency must pay staff wages for the time spent in this task and overhead costs. After a family is certified, the local agency provides food stamp payments to the recipient (Step [A3]). The recipient then uses these payments to buy food (Step [R2]). The recipient will not interact with the local agency until changes in his family circumstances triggers a change report (if in a non-fixed reporting regime) or when he comes to the end of a fixed time interval. At that time, the recipient needs to gather all documentation necessary to complete this report (Step [R3]) and send it to the local agency, again incurring non-monetary and monetary costs. The local agency will determine if this month is still within the certification period (Step [A5]). If this month coincides with the end of the certification period, then the local agency will initiate the re-certification process (Step [A6]), which involves additional staff time required to verify multiple income sources. Otherwise, the local agency will review the report and update benefits and eligibility accordingly (Steps [A7], [A8] and [A9]). These steps are costly in terms of manpower and overhead costs but also reduce unwarranted benefits (FSP benefits paid in excess of those that would be paid if monthly reporting were adopted; see Chapter 4).

Although each step of this process incurs costs for both recipients and agencies, our focus for this study is on the differences in staff costs – measured in terms of manpower requirements – implied by the findings on monthly and quarterly reporting shown in Section 4.4. To make the translation from our projections on the number of activities per year to manpower requirements, we rely on estimates of the amount of staff time required for the submission and processing of various types of FSP reports and certification procedures obtained from a survey of FSP agencies in California. First, we describe the survey instrument used to collect time use

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[19]   State agencies as well as the federal government may also experience different costs under alternative reporting schemes, but we do not consider those costs here.

information from caseworkers in local agencies in California. We then describe the methods used to estimate the amount of manpower implied in each type of activity. Finally, we use these estimates along with the simulated number of reports by type under monthly and quarterly reporting to project annual differences in manpower requirements.

C.1   Design of Time-Use Survey

We conducted a time-use survey on a random sample of caseworkers in three California counties: Sacramento, San Bernardino, and Shasta. California was a particularly good study area since most FSP cases used fixed monthly reporting at the time. The three counties within California were selected from a working group used by the California Department of Social Services in its efforts to assess various Food Stamp policy options. Based on consultations with county senior managers, these three counties were selected to be representative of the range of county demographics found in California. Table C.1 shows the demographic distribution of Food Stamp cases in each county as of July 2001. San Bernardino is in southern California, Sacramento is in northern California. Shasta County was selected as representative of the many smaller rural counties in the central and northern parts of the state. As such, it has a very different caseload than the other surveyed counties.

We selected a random sample of 177 caseworkers across the three counties and provided each person in the sample with a time record sheet and a beeper. Workers also reported the type of schedule they worked (e.g., 4-day 40-hour, 9-day 80-hour) so their observations could be weighted accordingly. The random beeper signals were set to arrive approximately twice per hour, and caseworkers were instructed to turn on the beepers upon arriving at work and to leave them on until they ended their work day. Each county' caseworkers were recorded for five consecutive work days before returning their survey forms.[20]

The time record sheet (Figure C.2) allowed caseworkers in the sample to describe their activities every time a random-time signal in their beeper sounded. Caseworkers were instructed to describe the task they were working at the signal moment according to three dimensions: (a) case type (program in which the case is enrolled), (b) activity (administrative process performed), and (c) method. (tasks involved in that particular activity). For case type, caseworkers selected among five programs: Pure (cash) Assistance, Cash and Food Stamps, Non-Assistance Food Stamps, Medi-Cal Only, or General Assistance. For activities, they were asked to select among 12 activities, which include several activities directly linked to the FSP mandated reports described in Section 4.4. These activities are *Certifying Initial Eligibility*, which occurs every time an FSU summits an initial application for FSP, *Reviewing Reports*, which includes standard activities associated with the review of reports, and *Processing Benefit and Eligibility Change*s, comprising activities required to process an actionable fixed-interval report and activities needed to execute case closures. To be clear, the report types specified in Section 4 map to these activities in the following manner, with some report types (actionable fixed-interval reports and case closures) requiring more than one activity type:

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[20]   Whenever a worker was out sick or took a vacation day, that fact was noted on the day's form to help ensure the validity of responses

1. Certifying Initial Eligibility: initial applications
2. Reviewing Reports: actionable fixed-interval reports, nonactionable fixed-interval reports, case closures
3. Processing Benefit and Eligibility Changes: actionable fixed-interval reports, case closures.

As shown above, actionable fixed-interval reports and case closures require report review (activity type 2) and processing of changes (activity type 3). For methods, workers were asked how they performed the selected activity: Documentation, Client Interaction, Consultation/Referral and Third-Party Contact, Budget Computation, or Property Determinations.   Unless on break, traveling, or participating in training at the time of the signal, workers were instructed to choose a single option for each of the three categories. Lastly, a separate survey page, provided for each day in the survey period, recorded the number of open cases for which they were responsible at the beginning of each day.

Out of the 177 time-use surveys administered across the three counties in California, all surveys were returned except two out of 93 surveys in one county. In each of two counties, two surveys were deemed invalid due to multiple responses within categories or exceedingly few observations. In total, there were 171 valid surveys and 11,085 observations obtained over the five-day survey periods. Table C.2 shows the number of valid surveys and observations by county (all analyses focus on all observations except "leave" time, defined as vacation and sick days). The results are generally consistent across the counties, with much of the difference explained by variation in work flow (e.g., use of specialized intake workers, underlying case mix).

The average number of non-leave observations per respondent corresponds reasonably well to the frequency of randomized beeps and the typical workday. Across all three counties, there was an average of 1.8 observations per official working hour, and there appeared to be longer than expected intervals around the lunch hour for many respondents. Table C.3 further distinguishes observations of actual casework from those covering break, travel, or training time, revealing significant variation across counties in the share of time spent on these activities. Since the time spent on breaks was almost exactly 10% in all three counties and travel was roughly 1%, the variation was driven by training. In particular, Sacramento workers reported 6% of their time in training, Shasta workers reported almost 10% of their time in this activity, and San Bernardino workers reported only 2% of their time for training purposes. Training time is often discontinuous so it is not necessarily the case that these distributions would show the same relative magnitudes across an entire fiscal year.

In order to estimate the level of effort expended on reporting activities for Food Stamp cases, we focused our analysis on observations about the Food Stamp caseload. Table C.4 presents the distribution of non-leave time spent in various activities in response to applications or reports submitted by FSP cases. We find that San Bernardino workers spent much more time on initial eligibility activity for Food Stamp cases than workers in other counties (31.9% of the time, in comparison to 12.2% in Sacramento and 6% in Shasta). Some of this difference is probably due to how workers in San Bernardino thought about employment services and intake; however, the gap holds when we remove from the calculations workers who described themselves as specializing on initial eligibility. Because San Bernardino County had a much more organized distinction between

intake workers and other caseworkers, the difference in activity distribution may represent some duplication of effort or perhaps more intensive scrutiny of new cases in this county than in Sacramento or Shasta Counties. Otherwise, the three counties' workers were similar in the amount of time spent on Food Stamp case activities.

Table C.5 reveals that San Bernardino workers also reported significantly more time on documentation and somewhat less time on budget computations than workers in the other two counties. The sum of these two method categories is more consistent across counties though, suggesting this likely represents some confusion about how to classify budget-related activity. Anecdotal evidence from the counties did not provide any reason to expect real differences in terms of budget computation. Moreover, because this distinction is not important for our estimates of the administrative expenditure implications of changes in reporting regimes, we did not pursue it further.

C.2 Estimates of Manpower Requirements for Types of Reporting Activities

Overall, activities involving Food Stamp cases represented 74% of the time observations across all surveyed workers in our three counties, as shown in the first column of Table C.6. Looking specifically at administrative activities, workers spent 27.5% of their time reviewing reports (applied to every report submitted), 22.6% certifying initial eligibility (applied to every application), 11% re-certifying for FSP benefits (applied to every re-certification), and 20.3% processing changes (applied to every actionable report and case closure). Combining these two columns, we can calculate the total share of aggregate full-time equivalent (FTE) worker-hours spent on such administrative activities for the FSP caseload, as shown in the last column of Table C.6.

Although this FTE calculation is the most relevant for understanding local agency administrative costs, these FTE shares may be integrally related to the case allocation and other staffing strategies employed in California, and as such, may not be as representative for the country overall. For this reason, we also translate these FTE into average time per report activity, which should be roughly comparable across states, given the consistency of Food Stamps reporting requirements. This calculation is presented in Table C.7. Using caseload information from the surveys, we know that workers carry an average of 89 FSP cases per month. Of the 89 cases that are active at some point during the month, we estimated that 91%, that is 81 cases, are ongoing cases generating a monthly (fixed interval) report. On average, 21 of these cases require processing changes to update benefits and/or eligibility. The remaining 8 cases are initial applications requiring eligibility certification. Using the average monthly work hours per worker and the share of time devoted to each of these activities (from Table C.6), we can calculate the average total number of hours devoted to each type of activity, as shown in column (5) of Table C.7. Since we know the number of cases requiring each type of activity, we can finally estimate the average number of hours per activity. Our estimates show that it takes on average 3.3 hours to process an initial application, 0.40 hours to review a report and 1.16 hours to process changes in eligibility and/or benefits.

Table C.8 summarizes these two alternative ways of understanding the time required by these administrative activities: hours per activity (from Table C.7) and FTE percentage estimates

(from Table C.6) of the time required to complete each of the activities that are most impacted by changes in the reporting regime. These estimates will be used with the simulation results to produce our desired estimates of manpower requirement changes under the two reporting regimes.

C.3 Implied Differences in Manpower Requirements for Alternative Reporting Plans

To understand the effect of monthly versus quarterly reporting on staff time required to administer the FSP caseload, we need to consider the number of reports of each type that are generated under the different reporting schemes. This information was summarized in Table 4.6, where the number of initial applications and the number of reports are listed, along with details on the number of actionable fixed-interval reports and case closures. With this information and the findings in Table C.8, we can calculate the total manpower required under each reporting plan according to the following equation:

(C.1) $L = L_1*(Total\ Initial\ Applications)+L_2*(Total\ Reports)+L_3*(Total\ Actionable\ Fixed$-$Interval\ Reports + Case\ Closures)$

where

L is the total number of administrative hours required for all FSP processing activity

L_1 is the average number of hours spent in *certifying an initial application*,

L_2 is the average number of hours spent in *reviewing a report*, including actionable fixed-interval reports, non-actionable fixed-interval reports and case closures.

L_3 is the average number of hours spent in *processing eligibility or benefit changes*. This activity is required whenever there is an actionable fixed-interval report or a case closure

L_1, L_2 and L_3 correspond to the time estimates from the Time Survey in California presented in the second column of Table C.8.

Table C.9 shows the numbers of applications, reports and case closures from Table 4.6 used as inputs into equation (C.1). The resulting estimate for L under each reporting plan is shown in the third column from the right, labeled "Total Labor Hours in FY." By dividing the total labor hours by the number of cases, we estimate the average labor hours per FSP case per year, shown in the last column of Table C.9.

According to our estimates, on average, caseworkers will spend 8.90 hours per year per case reviewing reports mandated under monthly reporting and processing the implied changes to update eligibility and benefits on a monthly basis. In contrast, caseworkers will spend on average only 5.08 hours per year per case doing these activities when reporting is mandated quarterly. These estimates imply a 42% reduction of the average time spent per case per year. To put this into context, consider a case that is on the FSP for an entire year. Under quarterly reporting, the FSU would submit only 4 reports per year instead of 12 – a 67% reduction in the number of reports. However, a larger share of the quarterly reports require processing benefit or eligibility changes, an activity that is much more time consuming than a non-actionable report. Therefore, the reduction in the time per cases is smaller than the reduction in the number of reports.

Lastly, we go back to the FTE calculations to examine how switching from a monthly to a quarterly reporting regime would reduce FTE time allocation for FSP reporting, at least under the staffing strategies used in our counties in California. As shown in Table C.10, we obtain this by multiplying the % FTE needed for each activity under monthly reporting (Table C.8) by the percentage change in the number of reports requiring that activity when switching to a quarterly reporting regime (Table 4.5). That is, we make the following calculation for each of the relevant activities (for initial application certifications, report reviews, and interim change implementations):

(C.2) $$\% \Delta FTE = \sum_{i} S_i * \% \Delta N_i$$

where:

I = Processing Initial Application, Reviewing Reports, Implementing Changes in Benefits or Eligiblity.

S_i= Share of FTE spent on Activity I

N_i= Number of reports triggering Activity I.

We find that quarterly reporting reduces FTE requirements for the three activity categories by 17% compared to monthly reporting. Again, this is lower than the reduction in time per case for two reasons. First, because at least in the counties we surveyed, workers are not solely devoted to FSP cases and even on these cases not all of their efforts would be affected by a change in reporting plans. Second, because, as reported in Table C.9, the total number of cases is projected to rise under quarterly reporting.

Figure 2.1a Steps in the Simulation Approach Part I

SIPP Households.

Assign individuals to FSUs.

Step 1

Rescale SIPP weights and use them to create a nationally representative sample.

Calculate monthly income and assets for each FSU.

Step 2

Calculate FSP eligibility and potential benefit levels for every FSU in each month.

Correct eligibility, benefit levels, and participation variables for the seam problem.

Step 3

Calibrate SIPP reported participation using FSP-QC data.

Step 4

Panel sample with eligibility and participation statuses based on SIPP data.

Figure 2.1b Steps in the Simulation Approach Part II

Panel sample with eligibility and participation statuses based on SIPP data.

Determine each FSU's probability (p) of participation using logit model.

Assign a random number (n) to each FSU.

Step 5

For each FSU, compare the randomly drawn number (n) to predicted probability of participation (p).

n > p

p > n

FSU is simulated to not participate.

FSU is simulated to participate and to collect all potential benefits during all months in which it is eligible during that spell.

Panel data with eligibility and simulated participation statuses from simulation.

Determine level of administrative activities resulting from each FSU's participation.

Step 6

Translate level of administrative activities to cost of administrative activities.

Summarize projected benefits and caseloads.

Summarize projected administrative activities and costs.

Step 7   49

Table 2.1

Monthly Average Number of FSUs in FY 1997 in Different Categories According to Raw SIPP and Our Sample Using Rescaled Weights

(SIPP 1997)

FSU Characteristics	Monthly Average	
	Raw SIPP	Our Sample with weights
All FSUs	109,723,587	109,723,587
With Children	35%	36%
3 or More Children	7%	7%
Married	51%	53%
With Children	24%	25%
Single Women	31%	30%
With Children	9%	9%
Single Men	18%	18%
FSU Poverty Level:		
< 0.7	10%	9%
0.7 – 1.3	12%	12%
1.3 – 1.85	11%	10%
1.85+	67%	69%
Income/Asset Status:		
Income Below Poverty Level	16%	15%
Married	3%	3%
With Children	2%	2%
Single	13%	12%
With Children	4%	4%
Welfare Recipient	9%	9%
With Children	5%	4%
Financial Assets		
< $2,000	50%	47%
$2,000+	50%	53%
Auto Assets		
< $10,000	62%	59%
$10,000+	38%	41%
50% Household Earnings from:		
Jobs paying below $7/hr	13%	12%
Jobs paying at most $9/hr	10%	10%
Jobs paying at most $12/hr	13%	13%
Jobs paying over $12/hr	36%	38%
Household Annual Hours:		
0	28%	27%
0 – 500	4%	4%
500 – 1000	4%	4%
1000 – 2000	13%	12%
2000 – 3000	23%	23%
3000 – 4000	11%	11%
4000+	18%	18%

Table 2.4
Demographic and Economic Characteristics of FSP Participants
Distribution of FSUs

Family Characteristics	FSPQC	Calibrated SIPP	Raw SIPP
Average Monthly Participants (Thousands)	9,452	9,453	7,915
Distribution of Caseload by FSU Types			
Adults Only	41.7%	41.7%	42.7%
With Children	58.3%	58.3%	57.2%
Elderly Living in Household	17.6%	17.6%	22.2%
Disabled Living in Household	22.3%	22.3%	36.2%
Distribution of Caseload by Poverty Status			
25% or less	17.5%	17.4%	24.0%
26% – 50%	21.8%	21.8%	15.0%
51% – 75%	25.6%	25.6%	22.2%
76% – 100%	26.3%	26.3%	16.1%
101% – 130%	8.3%	8.3%	7.9%
131% +	0.5%	0.6%	14.7%
Distribution of Caseload by Monthly Benefits			
$1 – $50	18.3%	18.3%	25.8%
$51 – $100	13.1%	13.1%	14.8%
$101 – $150	22.1%	22.1%	16.9%
$151 – $200	10.3%	10.3%	11.7%
$200 – $300	20.3%	20.3%	17.6%
$300 +	16.1%	16.1%	13.2%

Table 2.5
Shares of FSP Benefits Across Family Groups

Family Characteristics	FSPQC	Calibrated SIPP	Raw SIPP
Average Monthly Benefit	$169	$170	$155
Monthly Benefits (Millions)	$1,594	$1,605	$1,229
Household Characteristics			
Adults Only	19.1%	20.1%	20.1%
With Children	80.9%	79.9%	79.9%
Elderly Living in Household	6.6%	7.8%	9.1%
Disabled Living in Household	13.8%	16.4%	25.4%
Poverty Status			
50% or less	57.3%	57.0%	56.4%
51% – 100%	39.5%	39.6%	26.5%
100% +	3.2%	3.3%	17.0%

Table 3.1
Summary of FSP Participation Across Different Categories of Families
(SIPP 1997)

Family Characteristics	% of All Families	Participation		Benefits					Months of Participation			
		% Collecting Benefits	% All Recipients	Share of All FS	Mean	Percentiles			Mean	Percentiles		
						20%	50%	80%		20%	50%	80%
All Families	100%	9%	100%	100%	$1,246	$244	$837	$2,124	8	3	9	12
With Children	34%	15%	59%	80%	$1,685	$466	$1,384	$2,747	8	3	8	12
3 or More Children	7%	25%	20%	38%	$2,333	$682	$2,111	$3,742	8	3	10	12
Married	51%	5%	27%	28%	$1,297	$302	$872	$2,083	7	2	6	12
With Children	23%	7%	19%	23%	$1,549	$400	$1,115	$2,542	7	3	6	12
Single Women	31%	17%	60%	64%	$1,339	$260	$943	$2,352	8	4	10	12
With Children	9%	37%	38%	54%	$1,779	$525	$1,560	$2,896	8	4	9	12
Single Men	18%	6%	13%	8%	$726	$120	$462	$1,215	8	3	9	12
Family Annual Poverty Level:												
< 0.7	10%	40%	46%	66%	$1,777	$530	$1,446	$2,892	9	4	11	12
0.7 – 1.3	13%	23%	33%	22%	$830	$140	$556	$1,350	8	4	9	12
1.3 – 1.85	12%	7%	9%	5%	$713	$140	$414	$1,088	5	2	4	9
1.85+	66%	2%	12%	7%	$712	$209	$480	$1,106	5	2	4	9
Income/Asset Status:												
Income Below Poverty Level	16%	36%	68%	81%	$1,469	$316	$1,096	$2,544	9	4	11	12
Married	4%	28%	13%	18%	$1,763	$480	$1,410	$2,823	8	3	9	12
With Children	2%	43%	10%	16%	$2,124	$756	$1,864	$3,315	8	4	9	12
Single	12%	39%	55%	62%	$1,401	$280	$1,037	$2,460	9	4	11	12
With Children	4%	66%	31%	50%	$1,993	$754	$1,856	$3,037	9	4	11	12
Welfare Recipient	9%	60%	60%	67%	$1,400	$300	$996	$2,443	9	4	11	12
With Children	4%	75%	35%	54%	$1,920	$640	$1,718	$3,032	9	4	10	12
Financial Assets												
< $2,000	49%	17%	94%	96%	$1,276	$250	$875	$2,184	8	3	9	12
$2,000+	51%	1%	6%	4%	$805	$153	$498	$1,272	6	2	4	10
Auto Assets												
< $10,000	61%	13%	93%	95%	$1,271	$248	$871	$2,172	8	3	9	12
$10,000+	39%	2%	7%	5%	$903	$220	$534	$1,386	5	2	4	9
50% Family Earnings from:												
Jobs paying below $7/hr	13%	21%	31%	37%	$1,468	$336	$1,101	$2,508	7	3	8	12
Jobs paying at most $9/hr	10%	10%	12%	12%	$1,263	$277	$943	$2,111	6	2	6	11
Jobs paying at most $12/hr	13%	5%	7%	6%	$1,117	$360	$780	$1,634	6	2	5	12
Jobs paying over $12/hr	35%	2%	7%	5%	$989	$270	$569	$1,514	6	2	4	10
Family Annual Hours:												
0	29%	13%	43%	40%	$1,142	$190	$720	$1,977	9	4	12	12
0 – 500	4%	22%	9%	13%	$1,759	$438	$1,450	$2,656	8	4	10	12
500 – 1000	4%	19%	8%	11%	$1,667	$472	$1,410	$2,900	8	4	9	12
1000 – 2000	13%	12%	18%	18%	$1,279	$318	$922	$2,144	7	3	7	12
2000 – 3000	22%	5%	13%	12%	$1,139	$268	$772	$1,838	6	2	5	11
3000 – 4000	11%	3%	4%	3%	$943	$233	$569	$1,458	5	2	4	9
4000+	18%	2%	5%	3%	$900	$228	$558	$1,400	5	2	4	9
Projected Annual Totals		11.1 Million FSUs		$13.9 Billion in Total Program Expenditures								

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Table 4.1
Simulating Eligibility Spells in Two Reporting Plans

Month	Monthly Reporting			Quarterly Reporting		
	Eligible	Benefits	Admtve. Activity	Eligible	Benefits	Admtve. Activity
February	No	0		No	0	
March	Yes	B1	Initial Aplication	Yes	B1	Initial Aplication
April	Yes	B2	Fixed Report (Actionable)	Yes	B1	
May	No	0	Case closure	Yes	B1	
June	No	0		No	0	Case Closure

Table 4.2a
Description of FSP Eligibility Across Families Under Monthly Reporting
(Projections 1997)

Family Characteristics	% of All Families	Eligibility		Benefits					Months of Eligibility			
		% Eligible	% of Eligible	Share of All FS	Mean	Percentiles			Mean	Percentiles		
						20%	50%	80%		20%	50%	80%
All Families	100%	27%	100%	100%	$1,019	$188	$673	$1,510	7	3	7	12
With Children	34%	31%	38%	59%	$1,580	$365	$1,208	$2,650	7	3	7	12
3 or More Children	7%	42%	11%	25%	$2,376	$660	$2,152	$3,910	8	3	9	12
Married	51%	16%	30%	35%	$1,205	$236	$826	$1,988	6	2	5	11
With Children	23%	18%	15%	23%	$1,503	$321	$1,008	$2,551	6	2	5	11
Single Women	31%	43%	48%	51%	$1,074	$196	$746	$1,595	8	3	9	12
With Children	9%	61%	20%	33%	$1,688	$432	$1,401	$2,724	8	3	10	12
Single Men	18%	33%	22%	14%	$650	$121	$456	$1,124	7	2	6	12
Family Annual Poverty Level:												
< 0.7	9%	82%	27%	46%	$1,718	$482	$1,425	$2,754	9	4	12	12
0.7 – 1.3	13%	79%	38%	34%	$925	$177	$723	$1,447	9	4	10	12
1.3 – 1.85	11%	43%	18%	10%	$584	$119	$397	$931	5	2	4	8
1.85+	66%	7%	17%	9%	$566	$115	$362	$944	4	1	3	6
Income/Asset Status:												
Income Below Poverty Level	16%	84%	48%	68%	$1,427	$362	$1,115	$2,382	9	4	12	12
Married	4%	71%	10%	19%	$1,930	$482	$1,546	$3,136	8	4	10	12
With Children	2%	83%	5%	14%	$2,751	$1,386	$2,588	$3,963	9	6	11	12
Single	12%	88%	38%	49%	$1,299	$333	$1,065	$2,037	9	5	12	12
With Children	4%	97%	14%	31%	$2,215	$1,058	$2,108	$3,234	10	6	12	12
Welfare Recipient	9%	82%	26%	35%	$1,368	$207	$947	$2,442	9	5	12	12
With Children	4%	85%	13%	26%	$2,083	$677	$1,902	$3,327	9	5	12	12
Financial Assets												
< $2,000	49%	52%	93%	95%	$1,049	$192	$717	$1,566	7	3	8	12
$2,000+	51%	4%	7%	5%	$648	$124	$482	$985	5	3	4	8
Auto Assets												
< $10,000	60%	42%	93%	95%	$1,041	$191	$701	$1,546	7	3	8	12
$10,000+	40%	5%	7%	5%	$730	$153	$475	$1,166	4	2	3	6
50% Family Earnings from:												
Jobs paying below $7/hr	13%	56%	27%	32%	$1,217	$221	$821	$2,072	7	3	7	12
Jobs paying $7/hr - $9/hr	10%	33%	12%	11%	$894	$134	$496	$1,545	5	2	4	10
Jobs paying $9/hr - $12/hr	13%	17%	8%	6%	$807	$148	$482	$1,286	5	2	4	8
Jobs paying over $12/hr	35%	5%	7%	5%	$764	$187	$482	$1,196	4	2	3	7
Family Annual Hours:												
0	29%	44%	46%	46%	$1,013	$194	$723	$1,447	9	4	11	12
0 – 500	4%	54%	8%	11%	$1,530	$362	$1,138	$2,540	8	4	9	12
500 – 1000	4%	53%	7%	10%	$1,343	$288	$951	$2,291	7	3	8	12
1000 – 2000	13%	40%	19%	18%	$957	$167	$603	$1,586	6	2	5	11
2000 – 3000	22%	16%	13%	11%	$857	$121	$500	$1,430	5	2	4	9
3000 – 4000	11%	12%	5%	3%	$693	$161	$402	$1,113	4	1	3	6
4000+	18%	4%	2%	1%	$581	$126	$384	$921	3	1	3	5
Projected Annual Totals		35.2 Million FSUs		$35.8 Billion in Total Program Expenditures								

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Table 4.2b
Description of FSP Eligibility Across Families Under Quarterly Reporting
(Projections 1997)

Family Characteristics	% of All Families	Eligibility		Benefits					Months of Eligibility			
		% Eligible	% of Eligible	Share of All FS	Mean	Percentiles			Mean	Percentiles		
						20%	50%	80%		20%	50%	80%
All Families	100%	28%	100%	100%	$1,084	$247	$737	$1,602	8	3	8	12
With Children	34%	31%	38%	59%	$1,680	$488	$1,313	$2,721	8	3	8	12
3 or More Children	7%	42%	11%	24%	$2,499	$857	$2,258	$4,030	9	4	10	12
Married	51%	16%	30%	36%	$1,311	$350	$943	$2,144	7	3	6	12
With Children	23%	18%	15%	23%	$1,650	$464	$1,215	$2,736	7	3	6	12
Single Women	31%	43%	48%	50%	$1,120	$244	$783	$1,677	8	3	10	12
With Children	9%	61%	20%	32%	$1,755	$579	$1,469	$2,789	9	4	10	12
Single Men	18%	33%	22%	14%	$701	$161	$482	$1,198	7	3	6	12
Family Annual Poverty Level:												
< 0.7	9%	82%	27%	44%	$1,755	$597	$1,445	$2,769	9	4	12	12
0.7 – 1.3	13%	79%	38%	34%	$985	$197	$761	$1,520	9	5	11	12
1.3 – 1.85	11%	44%	18%	11%	$684	$151	$485	$1,085	6	3	6	9
1.85+	66%	7%	17%	11%	$670	$132	$473	$1,101	5	3	3	6
Income/Asset Status:												
Income Below Poverty Level	16%	84%	48%	65%	$1,467	$381	$1,153	$2,429	9	4	12	12
Married	4%	71%	10%	18%	$1,999	$580	$1,618	$3,267	9	4	10	12
With Children	2%	83%	5%	14%	$2,833	$1,447	$2,736	$4,031	9	6	12	12
Single	12%	88%	38%	47%	$1,332	$362	$1,086	$2,088	9	5	12	12
With Children	4%	97%	14%	29%	$2,268	$1,092	$2,155	$3,325	10	6	12	12
Welfare Recipient	9%	82%	26%	33%	$1,406	$220	$984	$2,485	10	6	12	12
With Children	4%	85%	13%	25%	$2,139	$781	$1,952	$3,400	10	6	12	12
Financial Assets												
< $2,000	49%	52%	93%	95%	$1,113	$256	$783	$1,681	8	3	9	12
$2,000+	51%	4%	7%	5%	$726	$162	$482	$1,104	5	3	4	9
Auto Assets												
< $10,000	60%	43%	93%	94%	$1,101	$249	$755	$1,640	8	3	9	12
$10,000+	40%	5%	7%	6%	$862	$238	$663	$1,325	5	3	4	6
50% Family Earnings from:												
Jobs paying below $7/hr	13%	56%	27%	32%	$1,288	$300	$883	$2,177	8	3	9	12
Jobs paying $7/hr - $9/hr	10%	33%	12%	12%	$1,011	$216	$663	$1,702	6	3	6	11
Jobs paying $9/hr - $12/hr	13%	17%	8%	7%	$925	$243	$663	$1,417	6	3	4	9
Jobs paying over $12/hr	35%	6%	7%	6%	$910	$284	$663	$1,325	5	3	4	8
Family's Annual Hours:												
0	29%	44%	46%	44%	$1,040	$238	$750	$1,447	9	4	12	12
0 – 500	4%	54%	7%	11%	$1,572	$419	$1,164	$2,647	9	4	10	12
500 – 1000	4%	53%	7%	9%	$1,431	$362	$961	$2,421	8	3	9	12
1000 – 2000	13%	40%	19%	18%	$1,051	$241	$696	$1,748	7	3	6	12
2000 – 3000	22%	17%	13%	12%	$980	$199	$663	$1,561	6	3	6	10
3000 – 4000	11%	12%	5%	4%	$843	$221	$595	$1,325	5	3	4	7
4000+	18%	4%	3%	2%	$700	$180	$507	$1,085	4	3	3	6
Projected Annual Totals		35.5 Million FSUs		$38.5 Billion in Total Program Expenditures								

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Family Characteristics	% of All Families	Participation		Benefits					Months of Participation			
		% Collecting Benefits	% of All Recipients	Share of All FS	Mean	Percentiles			Mean	Percentiles		
						20%	50%	80%		20%	50%	80%
All Families	100%	8%	100%	100%	$1,480	$339	$1,104	$2,517	9	5	12	12
With Children	34%	14%	55%	79%	$2,134	$820	$1,949	$3,237	9	5	11	12
3 or More Children	7%	20%	16%	34%	$3,154	$1,595	$3,140	$4,521	10	7	12	12
Married	51%	3%	21%	26%	$1,876	$482	$1,489	$3,106	8	4	9	12
With Children	23%	5%	15%	23%	$2,343	$872	$2,050	$3,516	8	4	10	12
Single Women	31%	17%	60%	63%	$1,546	$386	$1,205	$2,632	9	6	12	12
With Children	9%	35%	37%	52%	$2,084	$828	$1,943	$3,126	9	6	12	12
Single Men	18%	9%	19%	11%	$850	$195	$634	$1,370	8	3	10	12
Family Poverty Level:												
< 0.7	9%	46%	50%	68%	$2,013	$634	$1,563	$3,260	9	4	12	12
0.7 – 1.3	13%	28%	43%	29%	$994	$199	$803	$1,586	9	6	11	12
1.3 – 1.85	11%	4%	5%	3%	$750	$200	$496	$1,191	6	3	5	8
1.85+	66%	0.2%	2%	1%	$581	$195	$362	$790	4	2	3	5
Income/Asset Status:												
Income Below Poverty Level	16%	44%	82%	91%	$1,637	$411	$1,295	$2,673	9	5	12	12
Married	4%	33%	15%	22%	$2,202	$603	$1,898	$3,466	9	4	10	12
With Children	2%	47%	10%	19%	$2,946	$1,540	$2,758	$4,143	10	7	11	12
Single	12%	47%	67%	69%	$1,514	$362	$1,188	$2,586	10	6	12	12
With Children	4%	72%	34%	53%	$2,283	$1,104	$2,200	$3,309	10	7	12	12
Welfare Recipient	9%	41%	42%	49%	$1,741	$376	$1,377	$2,948	10	8	12	12
With Children	4%	52%	25%	42%	$2,457	$1,161	$2,338	$3,617	10	8	12	12
Financial Assets												
< $2,000	49%	17%	98%	99%	$1,491	$344	$1,115	$2,540	9	5	12	12
$2,000+	51%	0%	2%	1%	$961	$221	$723	$1,419	6	4	6	10
Auto Assets												
< $10,000	60%	14%	97%	98%	$1,492	$346	$1,115	$2,547	9	5	12	12
$10,000+	40%	1%	3%	2%	$1,051	$183	$603	$1,562	5	2	4	8
50% Family Earnings from:												
Jobs paying below $7/hr	13%	22%	34%	40%	$1,756	$502	$1,401	$2,854	9	5	11	12
Jobs paying at most $9/hr	10%	7%	9%	9%	$1,571	$469	$1,377	$2,457	8	4	9	12
Jobs paying at most $12/hr	13%	2%	4%	4%	$1,578	$427	$1,414	$2,575	7	4	7	12
Jobs paying over $12/hr	35%	1%	3%	3%	$1,280	$241	$938	$2,304	6	2	6	10
Family Annual Hours:												
0	29%	15%	51%	44%	$1,285	$241	$894	$2,208	9	5	12	12
0 – 500	4%	25%	11%	16%	$2,101	$733	$1,817	$3,406	10	6	12	12
500 – 1000	4%	23%	10%	12%	$1,704	$482	$1,357	$2,781	9	4	10	12
1000 – 2000	13%	12%	18%	19%	$1,547	$449	$1,224	$2,463	8	4	9	12
2000 – 3000	22%	3%	7%	7%	$1,482	$348	$1,141	$2,515	7	3	8	12
3000 – 4000	11%	1%	2%	1%	$1,271	$349	$1,104	$2,052	7	2	6	10
4000+	18%	0%	1%	0%	$1,053	$268	$749	$1,688	5	1	5	8
Projected Annual Totals		10.8 Million FSUs		$16.1 Billion in Total Program Expenditures								

Table 4.3b
Simulated FSP Participation under Quarterly Reporting across Different Categories of Families
(Projections FY1997)

Family Characteristics	% of All Families	Participation		Benefits					Months of Participation			
		% Collecting Benefits	% of All Recipients	Share of All FS	Mean	Percentiles			Mean	Percentiles		
						20%	50%	80%		20%	50%	80%
All Families	100%	9%	100%	100%	$1,488	$352	$1,115	$2,529	9	5	12	12
With Children	34%	14%	55%	79%	$2,132	$808	$1,905	$3,290	9	5	12	12
3 or More Children	7%	21%	16%	34%	$3,135	$1,555	$3,126	$4,611	10	7	12	12
Married	51%	4%	21%	28%	$1,913	$519	$1,513	$3,155	8	4	9	12
With Children	23%	6%	16%	24%	$2,338	$874	$2,027	$3,597	9	5	9	12
Single Women	31%	17%	59%	61%	$1,544	$380	$1,204	$2,629	10	6	12	12
With Children	9%	36%	36%	51%	$2,078	$819	$1,905	$3,141	10	6	12	12
Single Men	18%	10%	20%	11%	$849	$194	$652	$1,343	8	4	10	12
Family Annual Poverty Level:												
< 0.7	9%	47%	48%	65%	$2,019	$634	$1,536	$3,290	9	4	12	12
0.7 – 1.3	13%	29%	43%	30%	$1,048	$201	$840	$1,696	10	6	12	12
1.3 – 1.85	11%	5%	7%	4%	$858	$238	$673	$1,358	6	3	6	9
1.85+	66%	0.4%	3%	2%	$746	$332	$557	$1,077	4	3	4	6
Income/Asset Status:												
Income Below Poverty Level	16%	45%	79%	88%	$1,655	$393	$1,300	$2,721	10	6	12	12
Married	4%	34%	14%	22%	$2,259	$603	$1,952	$3,609	9	5	11	12
With Children	2%	50%	10%	19%	$2,983	$1,540	$2,910	$4,227	10	7	12	12
Single	12%	48%	65%	66%	$1,522	$362	$1,200	$2,613	10	6	12	12
With Children	4%	74%	33%	51%	$2,296	$1,104	$2,211	$3,354	10	7	12	12
Welfare Recipient	9%	41%	40%	47%	$1,758	$369	$1,403	$3,002	10	9	12	12
With Children	4%	53%	24%	41%	$2,472	$1,215	$2,309	$3,712	10	9	12	12
Financial Assets												
< $2,000	49%	18%	98%	98%	$1,496	$352	$1,125	$2,548	9	5	12	12
$2,000+	51%	0%	2%	2%	$1,117	$328	$723	$1,447	7	4	6	12
Auto Assets												
< $10,000	60%	14%	96%	97%	$1,499	$356	$1,121	$2,561	9	5	12	12
$10,000+	40%	1%	4%	3%	$1,179	$288	$803	$1,837	5	3	5	9
50% Family Earnings from:												
Jobs paying below $7/hr	13%	23%	34%	40%	$1,748	$484	$1,369	$2,867	9	6	11	12
Jobs paying at most $9/hr	10%	8%	9%	10%	$1,607	$482	$1,359	$2,510	8	4	9	12
Jobs paying at most $12/hr	13%	3%	4%	4%	$1,561	$524	$1,167	$2,420	7	4	8	12
Jobs paying over $12/hr	35%	1%	4%	3%	$1,273	$362	$904	$2,088	6	3	6	10
Family Annual Hours:												
0	29%	15%	48%	42%	$1,291	$241	$911	$2,208	9	5	12	12
0 – 500	4%	25%	11%	15%	$2,114	$807	$1,791	$3,432	10	7	12	12
500 – 1000	4%	25%	10%	12%	$1,717	$482	$1,355	$2,928	9	4	11	12
1000 – 2000	13%	13%	18%	19%	$1,543	$440	$1,205	$2,514	9	5	9	12
2000 – 3000	22%	3%	9%	9%	$1,502	$423	$1,153	$2,437	8	3	8	12
3000 – 4000	11%	2%	2%	2%	$1,291	$460	$1,097	$2,253	7	3	6	11
4000+	18%	1%	1%	1%	$1,091	$464	$823	$1,834	6	3	6	8
Projected Annual Totals		11.5 Million FSUs		$17.1 Billion in Total Program Expenditures								

Family Characteristics	# of Initial Applications				# of Nonactionable Fixed Reports				# of Actionable Fixed Reports				# of Case Closures			
	Share of Total	Mean	Percentiles 50%	90%	Share of Total	Mean	Percentiles 50%	90%	Share of Total	Mean	Percentiles 50%	90%	Share of Total	Mean	Percentiles 50%	90%
All Families	100%	0.4	0	1	100%	5.5	5	10	100%	3.0	3	7	100%	0.4	0	1
With Children	59%	0.5	0	1	46%	4.6	4	9	72%	4.0	4	8	60%	0.5	0	1
3 or More Children	14%	0.4	0	1	13%	4.5	4	9	26%	4.9	5	9	16%	0.4	0	1
Married	30%	0.6	0	2	15%	3.9	3	9	24%	3.5	3	8	32%	0.7	1	2
With Children	23%	0.7	1	2	9%	3.4	3	8	20%	4.3	4	9	24%	0.7	1	2
Single Women	50%	0.4	0	1	65%	5.9	6	10	63%	3.2	3	7	48%	0.3	0	1
With Children	32%	0.4	0	1	35%	5.2	5	9	48%	3.9	4	8	32%	0.4	0	1
Single Men	20%	0.5	0	1	20%	5.8	6	11	13%	2.0	1	5	19%	0.4	0	1
Family Annual Poverty Level:																
< 0.7	35%	0.3	0	1	53%	5.8	6	10	49%	3.0	3	7	32%	0.3	0	1
0.7 – 1.3	48%	0.5	0	1	44%	5.6	5	10	48%	3.4	3	8	51%	0.5	0	1
1.3 – 1.85	13%	1.1	1	2	3%	3.0	2	7	3%	1.7	1	4	14%	1.1	1	2
1.85+	4%	0.9	1	2	1%	2.0	1	5	1%	0.9	1	2	4%	0.8	1	2
Income/Asset Status:																
Income Below Poverty Level	62%	0.3	0	1	88%	5.9	6	10	86%	3.2	3	7	60%	0.3	0	1
Married	15%	0.4	0	1	12%	4.4	4	9	18%	3.8	3	8	16%	0.5	0	1
With Children	9%	0.4	0	1	7%	4.2	4	8	16%	5.0	5	9	10%	0.4	0	1
Single	48%	0.3	0	1	76%	6.2	7	11	68%	3.1	3	7	43%	0.3	0	1
With Children	23%	0.3	0	1	34%	5.5	6	10	46%	4.1	4	8	21%	0.3	0	1
Welfare Recipient	21%	0.2	0	1	50%	6.5	7	10	49%	3.6	3	7	24%	0.2	0	1
With Children	15%	0.3	0	1	26%	5.7	6	9	36%	4.3	4	8	16%	0.3	0	1
Financial Assets																
< $2,000	97%	0.4	0	1	98%	5.5	6	10	99%	3.1	3	7	96%	0.4	0	1
$2,000+	3%	0.6	1	1	2%	4.3	3	9	1%	1.4	1	4	4%	0.7	1	1
Auto Assets																
< $10,000	95%	0.4	0	1	99%	5.6	6	10	99%	3.1	3	7	95%	0.4	0	1
$10,000+	5%	0.7	1	1	1%	2.7	2	8	1%	1.4	1	3	5%	0.7	1	1
50% Family Earnings from:																
Jobs paying below $7/hr	42%	0.5	0	1	25%	4.1	4	8	48%	4.3	4	9	42%	0.5	0	1
Jobs paying below $9/hr	15%	0.8	1	2	5%	3.2	3	7	11%	4.0	4	9	16%	0.8	1	2
Jobs paying below $12/hr	7%	0.9	1	2	2%	3.2	3	7	4%	3.3	2	8	7%	0.8	1	2
Jobs paying $12/hr or over	5%	0.7	1	1	2%	3.4	3	8	2%	1.9	1	6	6%	0.8	1	1
Family Annual Hours:																
0	31%	0.3	0	1	66%	7.1	8	11	35%	2.1	2	4	29%	0.2	0	1
0 – 500	8%	0.3	0	1	12%	5.8	6	10	13%	3.6	3	7	7%	0.3	0	1
500 – 1000	13%	0.5	0	1	8%	4.1	4	8	14%	4.0	4	8	12%	0.5	0	1
1000 – 2000	28%	0.7	1	2	10%	3.2	3	7	26%	4.5	4	9	28%	0.7	1	2
2000 – 3000	15%	0.9	1	2	4%	2.6	2	5	9%	3.8	3	9	18%	1.0	1	2
3000 – 4000	4%	1.1	1	2	1%	2.0	2	5	2%	3.5	3	7	4%	1.1	1	2
4000+	1%	0.8	1	2	0%	1.4	1	4	1%	2.8	2	7	2%	1.1	1	2
Projected Annual Totals	4.6 Million Reports				59.4 Million Reports				33.0 Million Reports				4.5 Million Reports			

Family Characteristics	# of Initial Applications				# of Nonactionable Fixed Reports				# of Actionable Fixed Reports				# of Case Closures			
	Share of Total	Mean	Percentiles 50%	90%	Share of Total	Mean	Percentiles 50%	90%	Share of Total	Mean	Percentiles 50%	90%	Share of Total	Mean	Percentiles 50%	90%
All Families	100%	0.4	0	1	100%	0.9	1	3	100%	1.8	2	4	100%	0.4	0	1
With Children	57%	0.4	0	1	39%	0.7	0	2	64%	2.1	2	4	57%	0.4	0	1
3 or More Children	14%	0.3	0	1	11%	0.6	0	2	22%	2.5	3	4	16%	0.3	0	1
Married	29%	0.6	0	1	13%	0.6	0	2	21%	1.8	2	4	30%	0.5	0	1
With Children	22%	0.6	0	1	7%	0.4	0	1	17%	2.0	2	4	22%	0.5	0	1
Single Women	48%	0.3	0	1	64%	1.0	1	3	64%	2.0	2	4	48%	0.3	0	1
With Children	31%	0.4	0	1	30%	0.8	1	2	44%	2.2	2	4	32%	0.3	0	1
Single Men	23%	0.5	0	1	23%	1.1	1	3	15%	1.4	1	3	22%	0.4	0	1
Family Annual Poverty Level:																
< 0.7	34%	0.3	0	1	52%	1.0	1	3	49%	1.9	2	4	32%	0.2	0	1
0.7 – 1.3	43%	0.4	0	1	44%	1.0	1	3	47%	2.0	2	4	42%	0.4	0	1
1.3 – 1.85	16%	1.0	1	2	3%	0.4	0	1	3%	0.9	1	2	17%	0.9	1	2
1.85+	7%	0.9	1	2	1%	0.3	0	1	1%	0.3	0	1	8%	0.9	1	2
Income/Asset Status:																
Income Below Poverty Level	58%	0.3	0	1	86%	1.0	1	3	86%	2.0	2	4	56%	0.3	0	1
Married	13%	0.4	0	1	10%	0.7	0	2	16%	2.1	2	4	14%	0.4	0	1
With Children	8%	0.3	0	1	6%	0.6	0	2	13%	2.5	3	4	8%	0.3	0	1
Single	45%	0.3	0	1	76%	1.1	1	3	70%	2.0	2	4	41%	0.2	0	1
With Children	21%	0.3	0	1	29%	0.8	1	2	42%	2.3	3	4	20%	0.2	0	1
Welfare Recipient	20%	0.2	0	1	43%	1.0	1	2	52%	2.4	3	4	22%	0.2	0	1
With Children	14%	0.2	0	1	20%	0.8	1	2	34%	2.6	3	4	15%	0.2	0	1
Financial Assets																
< $2,000	97%	0.4	0	1	98%	0.9	1	3	99%	1.8	2	4	96%	0.4	0	1
$2,000+	3%	0.6	1	1	2%	0.9	1	3	1%	0.9	1	2	4%	0.6	1	1
Auto Assets																
< $10,000	94%	0.4	0	1	98%	1.0	1	3	98%	1.9	2	4	93%	0.3	0	1
$10,000+	6%	0.7	1	1	2%	0.4	0	1	2%	0.8	1	2	7%	0.7	1	1
50% Family Earnings from:																
Jobs paying below $7/hr	40%	0.5	0	1	22%	0.6	0	2	40%	2.1	2	4	38%	0.4	0	1
Jobs paying below $9/hr	15%	0.7	1	2	5%	0.5	0	1	9%	1.8	2	4	16%	0.6	0	2
Jobs paying below $12/hr	7%	0.7	1	2	2%	0.5	0	1	3%	1.5	1	3	7%	0.6	1	1
Jobs paying $12/hr or over	7%	0.7	1	1	2%	0.5	0	2	2%	1.0	1	3	8%	0.8	1	1
Family Annual Hours:																
0	30%	0.3	0	1	69%	1.3	1	3	45%	1.7	2	3	31%	0.2	0	1
0 – 500	8%	0.3	0	1	12%	1.0	1	3	12%	2.0	2	4	7%	0.2	0	1
500 – 1000	13%	0.5	0	1	7%	0.6	0	2	12%	2.0	2	4	11%	0.4	0	1
1000 – 2000	27%	0.6	1	1	8%	0.4	0	1	21%	2.0	2	4	27%	0.5	0	1
2000 – 3000	15%	0.7	1	2	4%	0.4	0	1	8%	1.6	1	4	17%	0.7	1	1
3000 – 4000	5%	0.9	1	2	0%	0.2	0	1	2%	1.4	1	3	5%	0.8	1	2
4000+	2%	0.7	1	2	0%	0.2	0	1	1%	1.0	1	3	3%	0.9	1	2
Projected Annual Totals	4.8 Million Reports				10.7 Million Reports				20.8 Million Reports				4.1 Million Reports			

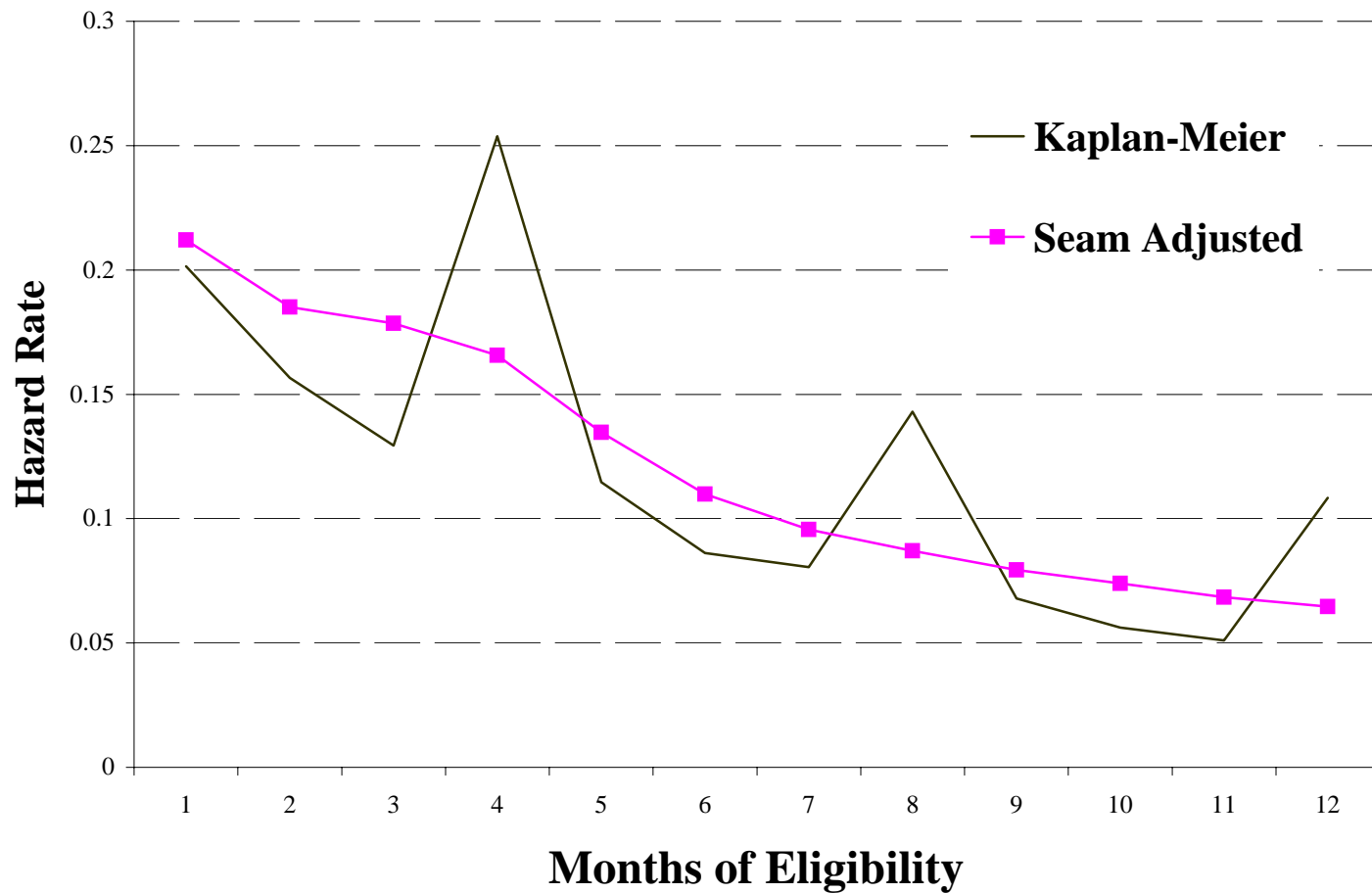| Family Characteristics	# of Actionable Fixed Reports by Reason Actionable																			
	Move to Another State				Change in FSU Size				Change in Earned Income				Change in Net Income				New Fiscal Year			
	Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles	
			50%	90%			50%	90%			50%	90%			50%	90%			50%	90%
All Families	100%	0.0	0	0	100%	0.1	0	0	100%	1.7	0	6	100%	2.6	2	7	100%	0.6	1	1
With Children	60%	0.0	0	0	95%	0.1	0	0	85%	2.6	1	7	75%	3.5	3	8	59%	0.7	1	1
3 or More Children	36%	0.0	0	0	39%	0.1	0	1	31%	3.2	3	8	27%	4.4	4	9	19%	0.8	1	1
Married	24%	0.0	0	0	28%	0.1	0	0	31%	2.5	1	7	25%	3.1	2	8	19%	0.6	1	1
With Children	20%	0.0	0	0	28%	0.1	0	0	29%	3.4	3	8	22%	3.9	3	8	14%	0.6	1	1
Single Women	70%	0.0	0	0	64%	0.1	0	0	58%	1.6	0	6	63%	2.7	2	7	64%	0.7	1	1
With Children	40%	0.0	0	0	62%	0.1	0	0	51%	2.3	1	7	49%	3.4	3	8	42%	0.7	1	1
Single Men	6%	0.0	0	0	8%	0.0	0	0	11%	1.0	0	4	12%	1.6	1	4	17%	0.6	1	1
Family Poverty Level:																				
< 0.7	51%	0.0	0	0	70%	0.1	0	0	45%	1.5	0	5	47%	2.4	2	6	55%	0.7	1	1
0.7 – 1.3	43%	0.0	0	0	30%	0.0	0	0	51%	2.0	0	7	49%	2.9	2	7	42%	0.6	1	1
1.3 – 1.85	6%	0.0	0	0	1%	0.0	0	0	3%	1.1	1	3	3%	1.4	1	4	3%	0.3	0	1
1.85+	0%	0.0	0	0	0%	0.0	0	0	1%	0.6	0	2	1%	0.7	0	2	1%	0.2	0	1
Income/Asset Status:																				
Income Below Poverty Level	89%	0.0	0	0	94%	0.1	0	0	82%	1.7	0	6	86%	2.7	2	7	89%	0.7	1	1
Married	19%	0.0	0	0	26%	0.1	0	0	23%	2.7	1	7	19%	3.4	3	8	15%	0.7	1	1
With Children	15%	0.0	0	0	26%	0.1	0	1	22%	3.9	4	8	17%	4.5	4	9	11%	0.7	1	1
Single	70%	0.0	0	0	67%	0.1	0	0	59%	1.5	0	6	66%	2.5	2	6	73%	0.7	1	1
With Children	40%	0.0	0	0	64%	0.1	0	0	48%	2.3	1	7	47%	3.5	3	8	41%	0.8	1	1
Welfare Recipient	24%	0.0	0	0	56%	0.1	0	0	34%	1.3	0	5	49%	3.0	3	7	51%	0.8	1	1
With Children	20%	0.0	0	0	54%	0.1	0	1	31%	2.0	0	6	37%	3.7	3	8	32%	0.8	1	1
Financial Assets																				
< $2,000	94%	0.0	0	0	100%	0.1	0	0	99%	1.7	0	6	99%	2.6	2	7	99%	0.6	1	1
$2,000+	6%	0.0	0	0	0%	0.0	0	0	1%	0.5	0	2	1%	1.1	0	3	1%	0.4	0	1
Auto Assets																				
< $10,000	100%	0.0	0	0	97%	0.1	0	0	98%	1.7	0	6	99%	2.6	2	7	99%	0.6	1	1
$10,000+	0%	0.0	0	0	3%	0.1	0	0	2%	1.0	0	2	1%	1.2	1	3	1%	0.3	0	1
50% Family Earnings from:																				
Jobs paying below $7/hr	33%	0.0	0	0	45%	0.1	0	0	70%	3.4	3	8	52%	3.9	3	8	34%	0.6	1	1
Jobs paying below $9/hr	14%	0.0	0	0	11%	0.1	0	0	17%	3.3	3	8	12%	3.7	3	8	7%	0.5	1	1
Jobs paying below $12/hr	8%	0.0	0	0	5%	0.1	0	0	6%	2.7	2	8	4%	3.0	2	8	3%	0.5	0	1
Jobs paying $12/hr or over	9%	0.0	0	0	1%	0.0	0	0	2%	1.4	1	4	2%	1.6	1	6	2%	0.4	0	1
Family Annual Hours:																				
0	37%	0.0	0	0	39%	0.0	0	0	4%	0.1	0	0	30%	1.5	1	4	54%	0.7	1	1
0 – 500	23%	0.0	0	0	16%	0.1	0	0	15%	2.2	2	5	14%	3.1	3	7	12%	0.7	1	1
500 – 1000	16%	0.0	0	0	18%	0.1	0	0	19%	3.1	2	7	14%	3.6	3	8	9%	0.6	1	1
1000 – 2000	4%	0.0	0	0	16%	0.0	0	0	42%	3.9	4	8	29%	4.2	4	9	16%	0.6	1	1
2000 – 3000	8%	0.0	0	0	11%	0.1	0	0	15%	3.4	2	8	10%	3.5	3	8	6%	0.5	1	1
3000 – 4000	12%	0.0	0	0	0%	0.0	0	0	3%	3.1	3	7	2%	3.2	3	7	1%	0.5	0	1
4000+	0%	0.0	0	0	0%	0.0	0	0	1%	2.6	2	7	1%	2.6	2	7	1%	0.6	1	1
Projected Annual Totals	0.1 Million Reports				0.6 Million Reports				18.0 Million Reports				27.9 Million Reports				6.9 Million Reports			

Table 4.5b
Description of Administrative Reporting Activity for FSP Participants under Quarterly Reporting
(Projections 1997)

Family Characteristics	# of Actionable Fixed Reports by Reason Actionable																			
	Move to Another State				Change in FSU Size				Change in Earned Income				Change in Net Income				New Fiscal Year			
	Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles		Share of Total	Mean	Percentiles	
			50%	90%			50%	90%			50%	90%			50%	90%			50%	90%
All Families	100%	0.0	0	0	100%	0.1	0	0	100%	0.8	0	3	100%	1.5	1	3	100%	0.6	1	1
With Children	56%	0.0	0	0	96%	0.1	0	0	82%	1.2	1	3	68%	1.9	2	4	59%	0.7	1	1
3 or More Children	35%	0.0	0	0	43%	0.1	0	1	29%	1.5	1	4	24%	2.2	2	4	20%	0.8	1	1
Married	15%	0.0	0	0	30%	0.1	0	0	31%	1.2	1	3	23%	1.6	1	4	20%	0.6	1	1
With Children	15%	0.0	0	0	30%	0.1	0	0	29%	1.5	1	3	19%	1.9	2	4	15%	0.6	1	1
Single Women	72%	0.0	0	0	61%	0.1	0	0	57%	0.8	0	3	63%	1.6	2	3	63%	0.7	1	1
With Children	41%	0.0	0	0	58%	0.1	0	0	49%	1.1	0	3	45%	1.9	2	4	41%	0.7	1	1
Single Men	13%	0.0	0	0	10%	0.0	0	0	12%	0.5	0	2	14%	1.1	1	3	17%	0.6	1	1
Family Annual Poverty Level:																				
< 0.7	48%	0.0	0	0	63%	0.1	0	0	44%	0.8	0	3	47%	1.5	1	3	53%	0.7	1	1
0.7 – 1.3	39%	0.0	0	0	36%	0.0	0	0	50%	1.0	0	3	49%	1.7	2	4	43%	0.6	1	1
1.3 – 1.85	13%	0.0	0	0	1%	0.0	0	0	5%	0.7	0	2	4%	0.8	1	2	3%	0.3	0	1
1.85+	0%	0.0	0	0	0%	0.0	0	0	1%	0.2	0	1	0%	0.2	0	1	1%	0.2	0	1
Income/Asset Status:																				
Income Below Poverty Level	83%	0.0	0	0	92%	0.1	0	0	80%	0.8	0	3	86%	1.6	2	4	87%	0.7	1	1
Married	15%	0.0	0	0	27%	0.1	0	0	22%	1.3	1	3	17%	1.8	2	4	15%	0.7	1	1
With Children	15%	0.0	0	0	27%	0.1	0	1	21%	1.8	2	4	14%	2.3	3	4	11%	0.8	1	1
Single	68%	0.0	0	0	65%	0.1	0	0	58%	0.7	0	3	68%	1.6	2	3	71%	0.7	1	1
With Children	38%	0.0	0	0	62%	0.1	0	0	45%	1.1	0	3	43%	2.0	2	4	39%	0.8	1	1
Welfare Recipient	17%	0.0	0	0	55%	0.1	0	0	33%	0.7	0	3	53%	2.0	2	4	49%	0.8	1	1
With Children	16%	0.0	0	0	53%	0.1	0	1	30%	1.0	0	3	36%	2.2	2	4	31%	0.8	1	1
Financial Assets																				
< $2,000	89%	0.0	0	0	100%	0.1	0	0	99%	0.8	0	3	99%	1.5	1	3	99%	0.6	1	1
$2,000+	11%	0.0	0	0	0%	0.0	0	0	1%	0.3	0	1	1%	0.6	0	2	1%	0.4	0	1
Auto Assets																				
< $10,000	100%	0.0	0	0	96%	0.0	0	0	98%	0.8	0	3	98%	1.6	1	3	98%	0.6	1	1
$10,000+	0%	0.0	0	0	4%	0.1	0	0	2%	0.5	0	2	2%	0.7	0	2	2%	0.4	0	1
50% Family Earnings from:																				
Jobs paying below $7/hr	35%	0.0	0	0	45%	0.1	0	0	69%	1.7	2	4	43%	1.9	2	4	35%	0.6	1	1
Jobs paying below $9/hr	11%	0.0	0	0	12%	0.1	0	0	16%	1.4	1	3	10%	1.6	1	4	8%	0.5	1	1
Jobs paying below $12/hr	7%	0.0	0	0	3%	0.0	0	0	6%	1.1	1	3	4%	1.3	1	3	3%	0.5	0	1
Jobs paying $12/hr or over	8%	0.0	0	0	4%	0.0	0	0	3%	0.7	0	3	2%	0.8	0	3	3%	0.4	0	1
Family Annual Hours:																				
0	39%	0.0	0	0	36%	0.0	0	0	5%	0.1	0	0	41%	1.3	1	3	52%	0.7	1	1
0 – 500	12%	0.0	0	0	15%	0.1	0	0	15%	1.1	1	3	12%	1.7	2	4	12%	0.7	1	1
500 – 1000	19%	0.0	0	0	16%	0.1	0	0	20%	1.5	1	3	12%	1.8	2	4	10%	0.6	1	1
1000 – 2000	8%	0.0	0	0	21%	0.1	0	0	41%	1.8	2	4	23%	1.9	2	4	17%	0.6	1	1
2000 – 3000	15%	0.0	0	0	12%	0.1	0	0	15%	1.4	1	3	9%	1.5	1	4	8%	0.6	1	1
3000 – 4000	7%	0.0	0	0	1%	0.0	0	0	3%	1.3	1	3	2%	1.3	1	3	2%	0.4	0	1
4000+	0%	0.0	0	0	0%	0.0	0	0	1%	0.8	0	2	1%	0.9	0	3	1%	0.4	0	1
Projected Annual Totals	0.1 Million Reports				0.6 Million Reports				9.4 Million Reports				17.5 Million Reports				7.3 Million Reports			

Table 4.6
Summarizing Impacts Under Monthly and Quarterly Reporting

Simulated Outcomes	Monthly Reporting (1)	Quarterly Reporting (2)	(2)-(1)	(2)/(1)
Projected FSP Eligible				
Total FSUs (In Millions)	35.16	35.50	0.34	101.0%
Total Potential Benefits (In Billions)	$35.8	$38.5	$2.6	107.4%
Projected FSP Participants				
Total FSUs (In Millions)	10.85	11.49	0.64	105.9%
Total Collected Benefits (In Billions)	$16.1	$17.1	$1.0	106.4%
Projected FSP Reporting Activity				
Total Number of Initial Applications	4.6	4.8	0.1	102.5%
Total Number of Reports	96.9	35.7	-61.2	36.8%
Non-Actionable Fixed-Interval	59.4	10.7	-48.7	18.1%
Actionable Fixed-Interval	33.0	20.8	-12.1	63.2%
Case Closures	4.5	4.1	-0.4	91.4%

Table A.1
Eligibility Hazard Rates Before and After Seam Correction

Figure C.1
Food Stamp Reporting Process

Recipient	Food Stamp Agency

R1 — Initial application

A1 — Review application

A2 — Eligible? — No → End

Yes

A3 — Certify recipient, determine benefit levels, reporting and certification interval.

R2 — Receive foodstamps

A4 — Provide benefits

[Reporting Interval]

R3 — Report income, assets and family status.

A5 — Recertificaton Necessary?

Yes

A6 — Review recipient material. Initiate recertification process.

No

[Reporting Interval]

A7 — Eligible? — No → End

Yes

R4 — Receive foodstamps

A8 — Benefit Adjustment? — Yes → A9 — Update benefits

No

A10 — Provide benefits

Figure C.2 – Survey Instrument for Sacramento County – Monday

Monday

TIME	1. CASE TYPE					2. ACTIVITY												3. METHOD				BREAK	TRAVEL	# of Open Cases
	Pure assistance (Cash)	Cash and food stamps	Non-assistance food stamps	Medi-Cal only	General assistance	Initial Eligibility	Redetermination/Recertification	Monthly Report	Interim Changes	Intercounty transfer	Employment services	Childcare	Other support services	Fraud referrals	Staff meetings/Training	Over- or Under- Payments/Issuances	Time-on-Aid (TOA) Determination	Documentation	Client Interaction	Consultation/Referral & 3rd Party Com.	Budget Computation	Property Determinations			
																								Survey #

When the beeper goes off, please write down the time and check one box in each of areas 1, 2, and 3. If you are on break or traveling, please check either the break or travel column.

Sphere Institute   Sacramento County
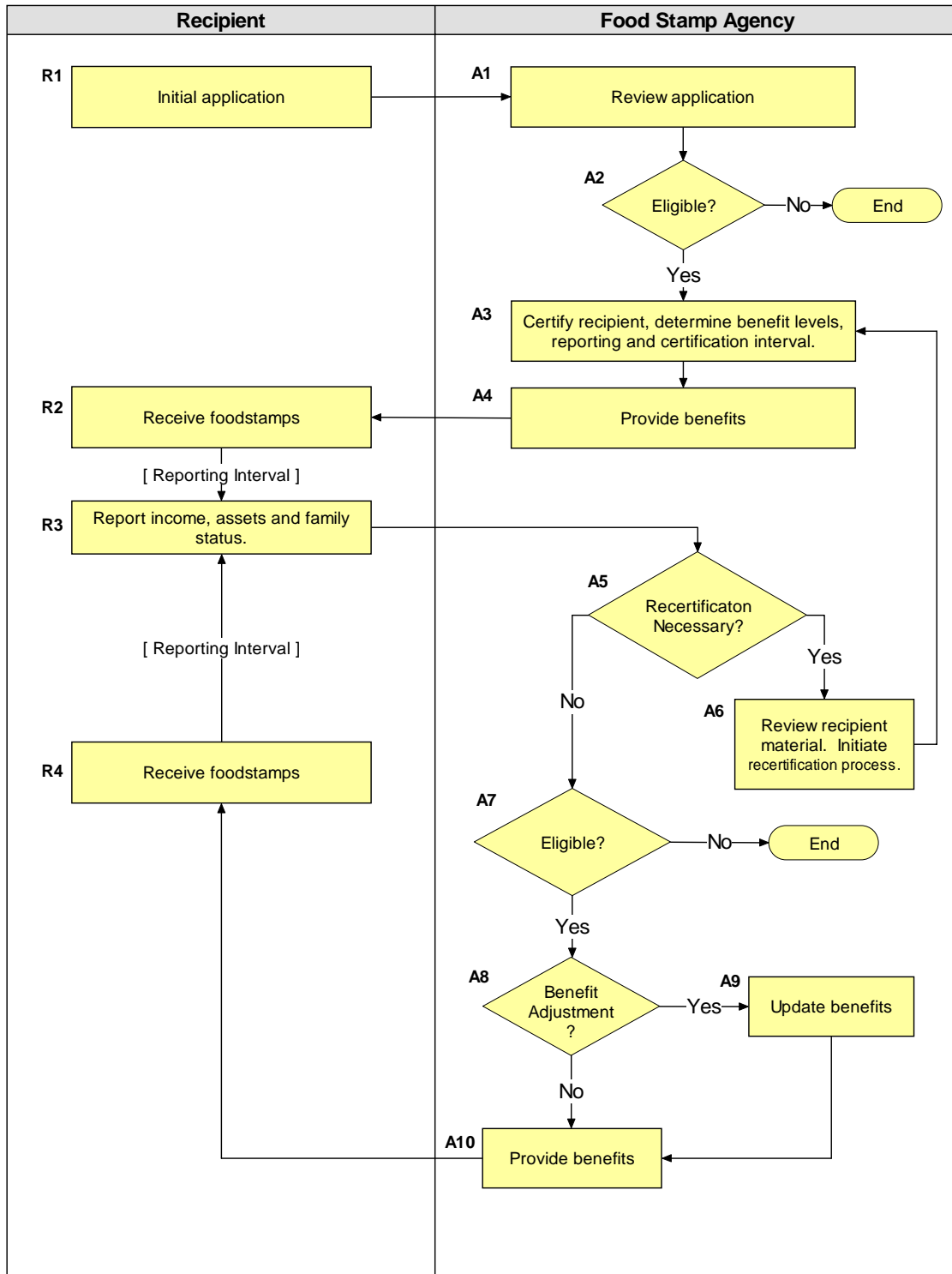
66

FIGURE C.3

TIME USE STUDY: SOME EXPLANATIONS AND EXAMPLES

Each time the reminder signals you, we ask that you record what you are doing using the survey sheet for that day. Please check one box in each of the three columns (case type, activity, and method). If you are traveling, in training, or engaged in non-work, please check one of those boxes. Non-work includes lunch, breaks, restroom trips, and doing anything not related to the job, such as talking to a friend on the phone, reading emails from spouses, etc. Please also note the number of cases you are responsible in the box to the right, and write the survey ID # in the box below it.

1. CASE TYPE: Please indicate the type of case you are currently working on

Pure Assistance:	Cash aid to families with children
Cash and Food Stamps:	Cases with both cash aid and food stamps
Non-assistance Food Stamps:	Food stamp cases that do not receive cash aid
Medi-Cal Only:	Cases that receive only Medi-Cal (no cash aid, no food stamps)
General Assistance:	

2. ACTIVITY: Please indicate what activity you are performing for the type of case you are working on

Initial Eligibility	Any activities associated with the application process. Includes screening applications, intake interviews, requesting verification, processing the application, denying/granting aid, sending the appropriate notices of action
Redetermination/Recertification	Any activities associated with the annual review of eligibility, including mailing the appointment notice and packet, interviewing the client, sending notices of action, and approving the renewal/recertification of eligibility.
Monthly Report	All activities associated with the processing of the monthly report. Activities include sending notices of action, Balderas reminder notices, requesting additional required verification, processing changes resulting from information reported on the CW 7 (including benefit calculations), and discontinuance actions for failure to submit a report form
Interim Changes	All activities associated with changes reported outside of the monthly report (CW 7) process. Includes receiving and acting on reports of household composition changes, new job, loss of job, RISP processing, interviews associated with adding household members, requesting verification, sending notices of action, and determining new benefit levels.
Inter-county Transfer	Any activities associated with processing an Inter-County Transfer. Includes all ICT activities performed for cases transferring into and out of the county

Employment Services	All activities associated with CalWORKs welfare-to-work and Food Stamp Employment and Training (FSET), including, but not limited to assessment, group/individual orientation, and referrals
Childcare	
Other Support Services	All activities associated with providing services (other than child care and employment services) such as WIC, mental health, family planning, dental, CHDP, and drug and alcohol services to clients. Includes referrals for services, verifying need for service, counseling/advising client about services, and providing payments/reimbursements for services
Fraud Referral	Activities associated with referring cases for fraud investigation, including receiving fraud complaints and researching case for appropriateness of referral
Over- or Under-/Payments, Issuances	Activities associated with researching, documenting, and computing over/under-payments and over/under-issuances.
Time-on-Aid (TOA) Determination	All activities associated with determining amount of CalWORKs/TANF time on aid a client has accumulated. Includes informing recipients of time limit exemptions, providing TOA notices, discontinuances related to time limits, and researching with other agencies, counties, and states to determine client TOA

3. METHOD: Please indicate the way in which you were performing the activity

Documentation	Case Dictations, correspondence with clients, contact logs, summaries, or sheet entries, filing, verifying eligibility
Client Interaction	Includes written, face-to-face and phone contacts with client.
Consultation/Referral and Third party contact	Referring a case for services (in and outside the agency); discussing case with others; responding to co-workers/staff request for help with cases; Discussion with non-case family members, verification (e.g. bank, DMV, employment)
Budget Computation	Includes budget changes and computations associated with income changes, and/or grant and benefit changes
Property Determinations	Activities associated with personal property reviews, vehicle valuation computations, and calculations related to property/resource eligibility

Table C.1

Demographic Characteristics of the FSP Caseload in CA and Surveyed Counties

(July 2001)

	Shasta	Sacramento	San Bernardino	California
Ethnicity				
Black	2%	28%	23%	24%
Hispanic	3%	25%	41%	41%
Asian/Pacific Islander	4%	6%	3%	3%
White	87%	40%	32%	32%
Not Available	4%	1%	1%	0%
Primary Language				
English Primary Language	97%	80%	83%	82%
Spanish Primary Language	1%	9%	15%	12%

Table C.2

Response Rates and Observations by County

Counties	Valid Surveys	Number of Observations	Number of Non-Leave Observations	Average Non-Leave Obs. per Respondent
Sacramento	60	3,735	3,703	62
San Bernardino	91	5,913	5,887	65
Shasta	20	1,437	1,434	72
All	171	11,085	11,024	65

Table C.3
Time Use Survey in California
Observations by Type of Activity

Counties	All Non-Leave Obs.	Casework Observations	% Non-Leave Obs.	Break/Travel/ Training Obs.	% Non-Leave Obs.
Sacramento	3,703	3,052	82.4%	651	17.6%
San Bernardino	5,887	5,228	88.8%	659	11.2%
Shasta	1,434	1,146	79.9%	288	20.1%
All	11,024	9,426	85.5%	1,598	14.5%

Table C.4
Distribution of Food Stamp Activity by County (July 2001)

Activities	Sacramento	San Bernardino	Shasta	All
Childcare	3.3%	0.1%	1.3%	1.2%
Employment services	10.5%	0.8%	13.4%	5.3%
Fraud referrals	2.1%	1.5%	2.1%	1.8%
Initial Eligibility	12.2%	31.9%	6.0%	22.6%
Inter-county transfer	1.5%	1.6%	1.2%	1.5%
Interim Changes	19.9%	19.1%	27.4%	20.3%
Monthly Report	26.2%	29.5%	21.3%	27.5%
No Response	2.2%	0.9%	0.6%	1.3%
Other support services	8.1%	2.5%	4.0%	4.5%
Over- or Under-Payments/ Issuances	1.3%	1.7%	1.6%	1.6%
Redetermination/ Recertification	10.1%	10.3%	17.6%	11.0%
Time-on-Aid Determination	2.7%	0.3%	3.6%	1.4%

Source : Author's calculations from California 2001 Time-Use Survey, applied to Sacramento, San Bernardino and Shasta Counties

Table C.5

Distribution of Food Stamp Monthly Reporting Procedures by County (July 2001)

% of Time Devoted to each Subtask

Methods	Sacramento	San Bernardino	Shasta	All
Budget Computation	50.1	36.9	42.2	41.5
Client Interaction	6.7	7.9	15.1	8.2
Consultation/ Referral & 3rd Party	1.2	1.8	1.6	1.6
Documentation	36.7	51.4	39.6	45.8
No Response	4.6	1		2
Property Determinations	0.7	1	1.6	0.9

Source : Author's calculations from California 2001 Time-Use Survey, applied to Sacramento, San Bernardino
and Shasta Counties

Table C.6
Calculation of FTE Share for Key Administrative Activities

Activities	% Total Time on Food Stamps	% FTE on Activity	% FTE on Activity for FSP Caseload
Monthly Reports	73.7%	27.5%	20.3%
Initial Eligibility	73.7%	22.6%	16.7%
Recertification	73.7%	11.0%	8.1%
Interim Changes	73.7%	20.3%	15.0%

Source : Author's calculations from California 2001 Time-Use Survey, applied to Sacramento, San Bernardino and Shasta Counties

Table C.7
Average Time Required to Process Various Reporting Activities

Activities	Average Monthly Number of Cases per Worker	Average Monthly Number of Actitivies per Worker	Average Monthly Hours per Worker	% FTE Devoted to activity type	Average Monthly Hours devoted to Activity Type	Average Hours per Activity
	(1)	(2)	(3)	(4)	(5)=(3)*(4)	(6)=(5)/(2)
Review Monthly Reports	89	81	161	20.3%	32.58	0.402
Certify Initial Eligibility	89	8	161	16.7%	26.78	3.306
Process Benefit and Eligibility Changes	89	21	161	15.0%	24.05	1.126

Source : Author's calculations from California 2001 Time-Use Survey, applied to Sacramento, San Bernardino and Shasta Counties

Table C.8
Time Estimates for Food Stamp Case Activities

Activity:	Hours/Activity	% FTE on Activity
Review Monthly Reports	0.402	20.3%
Certify Initial Eligibility	3.306	16.7%
Process Benefit and Eligibility Changes	1.126	15.0%

Source: Author's calculations from California 2001 Time-Use Survey, applied to Sacramento
San Bernardino and Shasta Counties

Table C.9

Average Manpower Hours Spent on Reporting Activity per FSP Case per Year

Monthly and Quarterly Reporting

Reporting Plan	Number of Initial Applications in FY [a] (millions)	Number of Reports in FY [a] (millions)	Reports Requiring Benefit and Elibibility Changes		Total Labor Hours in FY [b,c] (millions)	Total Caseload in FY[a] (millions)	Average Labor Hours per FSP Case per Year
			Number of Fixed Actionable Reports in FY [a] (millions)	Number of Case Closures in FY [a] (millions)			
Monthly Prospective	4.6	96.9	33.0	4.5	96.5	10.8	8.90
Quarterly Prospective	4.8	36.2	20.8	4.1	58.4	11.5	5.08

[a] Simulated Totals in Table 6.6

[b] L=L1*(Number of Initial Applications)+L2*(Number of Reports)+L3*(Number of Actionable Reports + Number of Case Closures)

L1 = Average time to review an application

L2= Average time to review a report

L3= Average time to process changes in eligibility and benefits

[c] Estimates L1, L2, and L3 are based on the Time Use Survey in three California counties (See Table 7.8)

Table C.10

Differences in FTE Requirement from Monthly for Quarterly Reporting

Acticity	% FTE per Activity under Monthly Reporting[a] (1)	% Change in # times activity is performed under quarterly reporting [b] (2)	% Change in FTE from Monthly to Quarterly Reporting (3)=(1)*(2)
Review Reports	20.3%	-62.7%	-12.7%
Certify Initial Eligibility	16.7%	2.5%	0.4%
Process Benefit and Eligibility Changes [c]	15.0%	-32.1%	-4.8%
Total % Change in FTE, from Monthly to Quarterly Reporting			**-17%**

Notes:

[a] FTE estimates from Time Use Survey in three California counties

[b] % Changes estimates from simulated totals in Table 6.6

[c] Interim Changes apply to Actionable Fix Reports and Change Reports