C. Analytic Methods

This appendix presents a brief description of some of the analytic methods used to derive the results reported in the text. Further information on analytic methods can be found in the underlying technical reports cited in the opening footnotes of each section.

Q5-Based Approximation to the Federal Participation Rate

The Q5-based approximations to the federal participation rate were computed pursuant to discussions with staff at CDSS and reflect their suggestions about how to approximate the official federal rates from the Q5 data. The official rates are 42.2 percent for all families and 54.3 percent for two-parent families. This approximation yields estimates of 42.4 and 54.2. Imposing a more natural interpretation of the federal regulations yields slightly lower estimates, 40.1 and 53.6.

Specifically, in our approximation, all cases participating 25 or more hours per week are included in the numerator and the denominator. Unlike the PRWORA requirements shown in Table 2.1, single-parent cases with a child under six years of age that are participating between 20 and 25 hours per week are not considered to participate. Disabled, sanctioned, and caretaker families participating less than 25 hours per week are excluded from the numerator and denominator. Two-parent cases in which either parent is disabled are excluded from the numerator and denominator.

Approximation to the National One-Parent Rate in FFY 1999

The approximation for the nation as a whole is computed using estimates of the shares of cases derived from the FFY 1999 TANF Report to Congress (Tables 2:5.B and 2:6.A). The caseload counts there imply that California’s one-parent and two-parent cases are, respectively, 19.7 percent and 4.2 percent of the national total, and the corresponding figures for the balance of the nation are 73.1 percent and 3.1 percent.
Using these weights, we can solve for the all-families rate among one-parent families in the rest of the nation as a function of the all-families rate among two-parent families. Assuming that the all-families rate among two-parent families in the rest of the nation equals the corresponding rate in the nation as a whole yields an estimate for the rest of the nation of 35.7 percent. Taking the weighted average of the one-parent rates for California and the rest of the nation yields the national one-parent rate reported in the text.

The basic conclusion of the text is not very sensitive to the assumption that the all-families rate among two-parent families in the rest of the nation is equal to the rate for California. To see this, note that the all-families rate among two-parent families is bounded from below by the true two-parent rate (i.e., any case that is “participating” according to the two-parent definition is also “participating” according to the all-families definition, and some two-parent cases that are not participating according to the two-parent definition are participating according to the all-families definition). For example, our computations from the Q5 data imply that 54.2 percent of the two-parent cases are participating according to the two-parent definition, but a higher fraction, 63.2 percent, are participating according to the all-families definition.

Similar weighted-average calculations imply that the two-parent rate for the rest of the nation is 55.2 percent, slightly higher than the rate for California (54.3 percent). Thus, the possible range of all-family rates among two-parent cases is between 55.2 percent and 100.0 percent. The implied range of national one-parent rates is only 36.5 percent to 35.0 percent. Given California’s all-family rate among two-parent cases of 63.2 percent, and since in the rest of the nation, the all-families rate computed on the two-parent cases is 0.9 percentage points higher than in California, perhaps a better estimate would be 64.1 percent. This value also yields the estimate of 36.0. Over the range 60.0 percent to 70.0 percent, the range of national all-families rates computed on the one-family cases is only 36.1 percent to 35.7 percent.

**Bias in the EDD-Based Approximation to Hours Worked**

The text imputes full-time work based on earnings greater than the equivalent of full-time work at the minimum wage ($5.75 per hour prior to January 2001). This estimate is only a proxy. The error could be in either direction. There are several issues.
First, these tabulations include only people on aid for all three months of the quarter, because the data do not indicate in which months the work occurred. Someone who came on aid in the third month of the quarter, for example, could have worked prior to being on aid and lost her job, or she could have found a job by going on aid. Employment rates tend to be lower in the quarter in which someone entered aid and higher in the quarter in which they left. However, alternative tabulations including anyone who was on aid even for one month of the quarter are similar.

Second, for individuals with a wage greater than the minimum wage (and the limited available evidence suggests that more than half of working recipients are in this group), the true number of hours worked is lower than our proxy.

Third, this approximation also assumes that hours worked are constant over the three months of the quarter. Someone working only part of the quarter might have worked more than the cutoff number of hours in some months, but not in others. Thus, we may classify some people as working more than the cutoff number of hours in all three months of the quarter when in fact they only worked more than the cutoff number of hours in some of the months. Conversely, some people whom we classify as not working the cutoff number of hours in the quarter may have worked the cutoff number of hours in some of the months.

Fourth, not all employment is covered by the UI system. As noted earlier, those working for the federal government, the self-employed, those in the ambiguous independent contractor category (before 2001), and those working out of state have no earnings shown in the UI data.

This last issue would lead us to expect that UI earnings would be lower than true earnings. Yet UI earnings appear to be higher than earnings reported to the county welfare department (and presumably used in computing benefits) as established by the Q5 manual record check. We also note that this is the federal (DHHS-approved) method for “increasing its actual work participation rate” (letter, M. Howland to S. Fujii, July 6, 1999; see also reply of A. Collins to M. Howland, July 28, 1999). In earlier years, it yielded a higher (by 2.2 percentage points for FFY 1997) estimate of participation rates than did the case files.

**Dynamic Decomposition of Caseload Changes and Effects on the Caseload**

In Section 3, we analyze the change in the caseload in terms of changes in the underlying flows. This analysis is based on the model in Klerman and Haider
Briefly, the model includes flows onto aid (the entry rate), flows off aid (the exit rate), and flows back onto aid (the reentry rate). Generically, the flows can be aggregated to simulate changes in the stock using conventional Markov process results:

$$S_t = M_t(Y_t, \theta) S_{t-1}$$

The model we use here (with entry, exit, and reentry, and the assumptions needed to handle the initial-conditions problem) can be represented as

$$\begin{bmatrix}
S(r,1,t) \\
S(r,2,t) \\
S(r,3,t) \\
S(r,4,t) \\
S(o,1,t) \\
S(o,2,t) \\
S(o,3,t) \\
S(o,4,t) \\
S(n,t)
\end{bmatrix} =
\begin{bmatrix}
0 & 0 & 0 & 0 & b^1 & b^2 & b^3 & b^4 & e \\
c^1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & c^2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & c^3 & c^4 & 0 & 0 & 0 & 0 & 0 \\
1 - c^1 & 1 - c^2 & 1 - c^3 & 1 - c^4 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 - b^1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 - b^2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 - b^3 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 - b^4 & 1 - e
\end{bmatrix}
\begin{bmatrix}
S(r,1,t-1) \\
S(r,2,t-1) \\
S(r,3,t-1) \\
S(r,4,t-1) \\
S(o,1,t-1) \\
S(o,2,t-1) \\
S(o,3,t-1) \\
S(o,4,t-1) \\
S(n,t-1)
\end{bmatrix}$$

The decompositions into the effects of entry/exit/reentry are done using this model, holding some of the rates fixed at their values at the peak (1995) and allowing the other flows to follow their observed paths.

### Table C.1

#### Classification of Counties by Urbanization

<table>
<thead>
<tr>
<th>Designation</th>
<th>Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>San Francisco, Orange, Alameda, San Mateo, Santa Clara, Contra Costa, Sacramento, San Diego</td>
</tr>
<tr>
<td>Mixed</td>
<td>Santa Cruz, Marin, Solano, Ventura, San Joaquin, Stanislaus, Sonoma, Riverside, Napa, Yolo, Santa Barbara, Placer, Fresno, Butte, Sutter, Monterey, Merced, Yuba</td>
</tr>
<tr>
<td>Rural</td>
<td>Nevada, El Dorado, Kings, San Bernardino, Kern, Tulare, San Luis Obispo, Amador, Madera, Lake, Shasta, Calaveras, Humboldt, Imperial, Del Norte, San Benito, Mendocino, Tuolumne, Glenn, Tehama, Colusa, Mariposa, Plumas, Siskiyou, Lassen, Trinity, Mono, Sierra, Alpine, Inyo, Modoc</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>Los Angeles</td>
</tr>
</tbody>
</table>

**SOURCE**: Based on population per square mile in the 1994 County and City Data Book.