III. ISSUES FOR REVIEW CONCERNING THE ESTIMATES OF INCOME-ELIGIBLE INFANTS AND CHILDREN

This chapter reviews issues related to how USDA estimates the number of income-eligible infants and children--thus, the focus is on issues related to estimating *income eligibility*. These "core estimates" of income-eligible infants and children are the basis of the national estimates of fully eligible women, infants, and children, and of the state estimates. (Chapter IV reviews issues concerning other steps in the estimation procedure, including estimating the number of eligible women and estimating who is at nutritional risk.) As described in Chapter II, USDA uses the March CPS to estimate the numbers of infants and children with annual family incomes less than 185 percent of the WIC poverty guideline. In principle, there could be three ways to improve these estimates:

1. Changing ***what is being estimated*** to come closer to how WIC income eligibility is actually measured at the clinic level

2. Using ***a better data source*** (or otherwise adjusting for data-related problems with the CPS)

3. ***Improving the methods used*** to estimate annual income eligibility with the March CPS

This chapter identifies several issues that are worthy of detailed review related to what is being estimated and to the quality of the data used. However, no issues concerning the methods used in the current estimates were identified, given what is being estimated and the data source used.

Issues Related to What Is Being Estimated. Three important issues concerning what is being estimated are discussed in detail:

1. Should estimates be based on monthly income rather than annual income?

2. Should estimates adjust for the length of the certification period? Long certification periods imply that someone can be a legitimate participant even if not *currently* income-eligible, as long as the person was eligible when certified.

3. Should estimates be increased to account for infants and children who are adjunct-eligible through Medicaid but not otherwise income-eligible?

The next sections review these three issues.

Data Issues. Two key data issues are worthy of further review:

1. For a given measure to be estimated, would SIPP provide better quality data than the CPS?

2. Is it possible to determine whether estimates from either the CPS or SIPP underestimate or overestimate the number of infants and children who would be found eligible by local WIC clinics? If so, is it possible to place bounds on the likely magnitude of the bias?

The final section reviews these two issues.

MONTHLY VERSUS ANNUAL INCOME MEASURES

Issue Summary:

WIC clinics typically use income in the past month to determine eligibility, but USDA eligibility estimates are based on annual income. Poverty research suggests that fewer people are poor on an annual basis than in an average month. Thus, some have suggested that WIC eligibility estimates based on annual income are too low. However, a recent study indicates that the difference between annual and monthly measures of WIC income eligibility is much smaller than the difference between annual and monthly measures of poverty and is not statistically significant.

Should WIC Eligibility Estimates Be Based on Monthly or Annual Income?

As described in Chapter I, local WIC agencies have some flexibility concerning the time period used for determining income eligibility for WIC. However, FNS believes that most agencies rely primarily on income in the most recent month.

FNS initially adopted a procedure for estimating the number of eligibles based on annual income, because that was all that was available in the Census and the CPS. FNS has always recognized the discrepancy between these measures and what agencies actually use. In the late 1980s, SIPP became available, and it became feasible to construct estimates based on monthly income. Furthermore, research on measurement of poverty

rates showed that poverty rates based on monthly income were higher than those based on annual income. Thus, CBO used SIPP to estimate the number of people eligible for WIC on the basis of monthly income (U.S. Congressional Budget Office 1990 and 1993). Advocates for WIC expansion also argued that FNS was underestimating the number of eligible people by using annual rather than monthly income (Lazere et al. 1991). FNS commissioned research that examined this issue briefly in 1990 (Heiser and Doyle 1990; and Doyle 1990) and in considerable depth in a later report (Gordon et al. 1997).

The choice between monthly and annual measures is harder to assess than it might appear. The development of monthly estimates requires the use of a new database–SIPP. If SIPP eligibility estimates based on monthly income are compared with CPS estimates based on annual income, the difference in the time period of measurement is confounded with other differences between the two data sets (see "Data Issues" at the end of this chapter). This problem has typically been addressed by comparing monthly versus annual poverty or income measures that are both computed from SIPP.

Existing Research

This section reviews both the poverty research that raised the issue of monthly versus annual income measures and research on monthly versus annual measures of WIC eligibility specifically. The poverty research clearly finds higher poverty rates in an average month than annually. The WIC research suggests that the use of monthly versus annual income in WIC eligibility estimates for infants and children makes very little difference. The WIC results are different from the results in the poverty research for two reasons: (1) the WIC threshold is higher than the poverty threshold, so that "dips below" for one or two months are more or less balanced by "bumps above"; and (2) young children live in families with incomes less variable than those of other low-income people.

a. Research on Monthly Versus Annual Measures of Poverty

Research clearly indicates that average monthly measures of poverty from SIPP are higher than measures based on annual income. For example, a recent Census Bureau study shows that the annual poverty rate for 1994 was 12.9 percent but the average monthly poverty rate was 15.7 percent (Naifeh 1998). Data for 1993 presented in the same study are similar (12.6 percent versus 15.4 percent). These figures imply that 22 percent more people are poor in a typical month than on an annual basis. This study is based on the 1993 SIPP panel.

Ruggles and Williams (1986) pioneered this line of research with tables that show similar patterns, using data from the 1984 SIPP panel. In addition to examining poverty measures for all families, Ruggles and Williams also examined differences between monthly and annual measures of poverty for people in four types of families: (1) married couples with children; (2) single parents with children; (3) unrelated individuals; and (4) others, including couples without children (see Table III.1). Ruggles and Williams found that, for all four groups, average monthly poverty rates were higher than annual poverty rates by 2 to 3 percentage points. However, the *relative* difference in the rates was smallest for people in single-parent families (for whom the monthly rate was only about 107 percent of the annual rate) and largest for persons in married-with-children families (for whom the monthly rate was 138 percent of the annual rate). This suggests that the relative size of differences between the monthly and annual rates is sensitive to family composition.

In both these studies, the monthly and annual poverty rates are calculated using a sample of those in SIPP for the full calendar year.[1] The average monthly poverty rate is computed by taking income and family size for each person in each month and then calculating the poverty rate for each month, using one-twelfth of the annual Census poverty threshold as the monthly poverty threshold. Poverty estimates for the 12 months of the year are then averaged. If family composition did not change, the annual poverty rate could be computed by comparing the annual income of the person's family (the sum of income in all 12 months) with the annual poverty threshold for family size. Since many families do change in size or composition, the actual annual poverty rate is computed by comparing the sum of a person's family income in each of 12 months with the sum of 12 monthly poverty thresholds, each appropriate to the person's family size in that month.

[1]The Naifeh study also includes those missing one SIPP wave for whom information is imputed by the Census Bureau. Ruggles and Williams's analysis was done before SIPP calendar-year files were available. They linked data from five SIPP wave files and then discarded cases that did not have data for all months in 1984. Their data may be distorted by variations in income induced by imputation procedures that were done separately for each wave; the current calendar-year files correct for this problem.

TABLE III.1

ALTERNATIVE MEASURES OF PEOPLE IN POVERTY, BY FAMILY TYPE: 1984 SIPP
(Percentages)

Family Type	Annual Poverty Rate	Poor All 12 Months	Poor in Any Month	Average Monthly Poverty Rate
Married Couples with Children	7.4	2.8	24.3	10.2
Single Parents with Children	39.9	25.8	60.8	42.7
Unrelated Individuals	17.7	11.0	35.9	21.9
Other Persons	4.5	2.0	14.3	6.3
All Persons	**11.0**	**5.9**	**26.2**	**13.7**

SOURCE: Ruggles and Williams (1986), Table 1.

b. Research on Monthly Versus Annual Measures of WIC Eligibility

In response to the 1990 CBO estimates, FNS asked MPR to produce some tabulations of income-eligible children under age 5 using SIPP for comparison with the CPS. These tables compared SIPP estimates for January 1988 (based on Wave 4 of the 1987 panel and Wave 7 of the 1986 panel) with estimates from the March 1989 CPS, based on annual income in 1988 (Heiser and Doyle 1990; and Doyle 1990). The estimates are quite close: eligibility rates are higher in SIPP by 1 to 2 percentage points, but the total number of children in the CPS is slightly higher, probably because it is measured in March 1989, over a year after January 1988. As a result, SIPP estimates of eligibles computed using the DHHS poverty guideline are slightly higher than the CPS estimates, while SIPP estimates based on the Census poverty thresholds (which include adjustments for family composition) are lower than the corresponding CPS estimates. There is a difference each way of about 100,000 people, which is not likely to be statistically significant (no test statistics were presented).

The major flaw in this quick-turnaround analysis is that it used only one month of data from SIPP. Poverty rates based on one month of data are less precise than an average of 12 months, are subject to seasonality bias, and may not reflect average economic conditions during the year. In addition, the comparison to CPS data is flawed, because there are other reasons that poverty estimates from the two sources differ. In 1995, FNS contracted with MPR to conduct a study that would compare average monthly and annual WIC eligibility rates within SIPP, using data for the same calendar years (Gordon et al. 1997). This study was based on data for the calendar years 1990 to 1992 and used both the 1990 and 1991 SIPP panels.

To help make comparisons with the CPS, Gordon et al. constructed a SIPP annual income measure that imitated the CPS measure; this estimate is thus not fully comparable to the annual income estimate used in the poverty literature. First, they selected samples for each calendar year with data for the full calendar year and the following March.[2] For example, they took families in March 1991 with data for March and the preceding calendar year. Then, they selected those with infants or children in the right age range as of March 1991, computed annual income for 1990 for members of the March 1991 family, and compared that income to the WIC poverty threshold for a family size based on the March 1991 family. Such an estimate fixes family composition at the March 1991 value,

[2]The SIPP calendar-year weights were adjusted for the fact that the sample with the required 13 months of data is more restrictive than the calendar-year sample.

although some families would have changed composition during the year.[3]

The monthly estimates were also based on a sample of families with the relevant 13 months of data but were otherwise constructed similarly to those in the poverty studies described above.[4] In each month, families with infants or children in the correct age range as of that month were selected, and their monthly income was compared to a monthly WIC eligibility threshold. Monthly eligibility rates were then averaged for the 12 months.

There were no statistically significant differences between the monthly and annual eligibility rates for infants and children separately or together, for any of the years 1990 to 1992 separately or for the three years pooled (see Table III.2).[5,6] The monthly estimates for infants were consistently higher than the annual estimates by 1 to 2 percentage points (but the difference was never statistically significant). The monthly eligibility rates for children ages 1 to 4 were essentially identical to the annual estimates.[7]

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[3]Doyle and Trippe (1991) compared annual poverty measures computed with SIPP using the fixed "CPS family" and allowing family composition to change during the year and found the CPS-like poverty estimate to be about 12 percent higher (but the difference was less than 1 percentage point). See the final section of this chapter for further discussion.

The difference between the two annual estimates could be larger or smaller when considering the narrow age range discussed here, which creates the additional problem of people aging into and out of the sample. In addition, Gordon et al. (1997) show that family income tends to drop immediately after a birth, as women's earnings fall, which suggests that estimates of eligible infants may be biased downward, because the annual income estimate includes part of the pregnancy, when the family's income is higher (see Chapter IV for further discussion). It may be that this bias offsets the bias found by Doyle and Trippe.

[4]The SIPP calendar-year weights were adjusted to account for requiring all 13 months of data to be present.

[5]The standard error of the differences was computed using jackknife procedures that accounted for the correlations between the estimates. See Appendix D of Gordon et al. for details.

[6]Unless stated otherwise, statistically significant is used in this report to mean a p-value of .05 or less.

[7]In 1991, when the sample was largest, the monthly eligibility rate for infants and children combined was significantly larger than the annual rate using a p-value of .10. However, the monthly rate for the combined groups was smaller and not statistically significant in the other two years.

TABLE III.2

ALTERNATIVE ESTIMATES OF PERCENTAGE OF INFANTS AND YOUNG CHILDREN INCOME-ELIGIBLE FOR WIC

	Infants (Less than 1 Year Old)		Young Children (Ages 1 to 4)		Infants and Children (Ages 0 to 4)	
	Percentage	Difference (Standard Error)	Percentage	Difference (Standard Error)	Percentage	Difference (Standard Error)
1990						
SIPP Annual Income Estimate	41.9		40.5		40.7	
Average Monthly Estimate	44.0	2.1	39.5	-0.9	40.3	-0.4
		(2.3)		(0.6)		(0.5)
1991						
SIPP Annual Income Estimate	41.4		41.6		41.6	
Average Monthly Estimate	43.5	2.1	42.0	0.4	42.3	0.7
		(1.8)		(0.5)		(0.4)
1992						
SIPP Annual Income Estimate	42.0		44.3		44.0	
Average Monthly Estimate	44.2	2.2	43.4	-1.0	43.5	-0.5
		(3.0)		(0.8)		(0.7)
1990-1992 (Pooled Data)						
SIPP Annual Income Estimate	41.7		41.8		41.8	
Average Monthly Estimate	43.8	2.1	41.5	-0.3	42.0	0.1
		(1.3)		(0.3)		(0.3)

SOURCE: Gordon et al. (1997), Table II.1 and Appendix C. Estimates from SIPP analysis database developed from the 1990 and 1991 SIPP full-panel files. The files include data for each calendar year and the subsequent March for the subsample of persons who were present in all 13 months and who have full data on income of the March family in the prior calendar year.

Because of the surprising nature of these results, Gordon et al. did additional analyses to understand them better. First, they were concerned that restricting the sample to families with data for the 13 months required for the CPS-type estimate might imply that the sample did not fully represent those with family situations and incomes that were less stable. To explore this issue, they constructed monthly WIC eligibility rates for 1990 to 1992 that each month included all families in SIPP with children under 5, even if they did not contribute data for other months. These estimates used the unlinked core files for the relevant waves of the 1990 and 1991 SIPP panels. For each year, the average of the 12 monthly rates was then computed.

The estimated average monthly eligibility rates from the unlinked core files were significantly higher for children than the estimates from the sample present for all 13 months. The difference was 1.7 percentage points on average over the three years. For infants, the estimates were different only in 1991. However, the annual eligibility rates for this broader group of families (if data were available to compute them) could also be larger.

Gordon et al. also investigated why their results were different from those concerning poverty rates described above. For average monthly eligibility rates to be the same as annual rates, either families must have very stable incomes or those who fall below the eligibility threshold in some months (but are above on an annual basis) must be roughly balanced by those who exceed the threshold in some months (but are below on an annual basis). Indeed, they found that these two groups tended to balance each other (about 17 percent of all families with young children are in each group) and that the months eligible for the first group (3.3) are close to the months ineligible for the second group (3.9) (Gordon et al., Tables III.5 and III.6).

They showed also that the difference from results at the poverty level occurs both because low-income children are in families with incomes more stable than those of low-income people in general, and because the WIC threshold is higher than the poverty threshold (Gordon et al., Tables III.3 and III.4). Because the poverty threshold is much lower than the WIC threshold, more people are above on an annual basis but dip below at some point than are below on an annual basis but above at some point.

Intuitively, this is simply because many more people are above poverty on an annual basis (87 percent of the population in 1994, for example, based on Naifeh [1998]) than below (13 percent); the size of the groups on either side of the threshold is more similar around the WIC threshold and for the WIC population (about 42 percent versus 58 percent, based on Table III. 5 of Gordon et al.).

Issues for Further Review

The available evidence suggests that there is no statistically significant difference between annual and average monthly WIC-eligibility rates when they are computed with SIPP calendar-year samples. Differences are smaller than those found for all people in poverty, because low-income children have incomes more stable than those of low-income people in general, and because the WIC threshold is closer to the center of the income distribution than the poverty threshold. However, the monthly eligibility estimates for infants were consistently smaller than the annual estimates. Since infant sample sizes were quite small, it may be worth investigating whether the monthly versus annual difference for infants would be statistically significant if additional years of SIPP data were pooled with the data analyzed to date. In addition, there is some reason for concern that both the monthly and the annual WIC eligibility rates may be understated as the result of attrition bias in SIPP, and that the monthly versus annual contrast might be larger if attriters could be included in the sample.

In general, it may be useful to update some of the alternative SIPP WIC eligibility measures to test the stability of these relationships further.

ADJUSTING FOR THE LENGTH OF THE CERTIFICATION PERIOD

Issue Summary:

WIC certification periods are from 6 to 12 months long, and income eligibility is generally not checked mid-certification. Thus, some WIC participants are not currently income-eligible but were income-eligible when certified, one factor that may explain high coverage rates. One possible adjustment would be to broaden the definition of income eligibility to include those ever income-eligible over the potential certification period (for example, since birth for an infant or in the past 6 months for a child). Research suggests that the number of infants and children income-eligible in at least one month of a year is 25 to 30 percent greater than the number eligible on the basis of annual income. This would be an upper bound on the size of an adjustment, if an adjustment for the certification period were to be adopted. Research also suggests that many not currently income-eligible are adjunct-eligible through Medicaid, in part because Medicaid has similarly long certification periods.

WIC certification periods have been set as follows: the duration of pregnancy (and up to 6 weeks after birth) for pregnant women, up to 12 months for infants (states can recertify at 6 months of age but few actually do), and 6 months for all other categories. Participants may be decertified if the program becomes aware that they are no longer eligible, but there is no requirement that participants report income changes mid-certification and no expectation that WIC agencies try to check this information. It would likely require staff and computer resources not currently available for the WIC program to check participants' income eligibility each month. Frequent income checks could also limit access to the program in a way that would reduce the effectiveness of its preventive mission.[8] Thus, in the midst of their certification period, some participants may no longer be income-eligible. This is one possible reason that the number of monthly participants exceeds the estimated number of eligibles for some WIC categories.

This problem is encountered to some extent by all programs that target low-income people, including TANF, the FSP, and Medicaid. Although none of these programs attempts to adjust eligibility estimates for changes in income between initial enrollment and periodic redeterminations of eligibility, this problem may be much more salient for the WIC program than for other programs, for several reasons. First, unlike the programs just mentioned, WIC is not an entitlement. Since WIC funding levels affect the resources available for other discretionary programs, accurate estimates of eligibility and coverage for determining the program budget are particularly important. Second, in TANF and the FSP, participants are generally required to report any changes in income and may be subject to sanction or retroactive repayment of benefits if they do not.[9] Third, because the eligibility rules of these programs are even more complex than WIC's, there are more other sources of mismatch between estimated eligibility and participation data than the length of the certification period (such as asset limits).[10]

To begin, this section assesses how many current participants appear to be income-ineligible on the basis of current income. Then, it briefly discusses existing research on those ever eligible during a one-year period, an upper bound on potential participants. Last, it considers some possible

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[8]In fact, because of concerns about access and administrative costs, the National Association of WIC Directors has argued for longer certification periods for children.

[9]As discussed later, Medicaid is for the most part even more generous than WIC in its certification periods, although there is extensive variation among states.

[10]As another example, FSP participation rates are over 100 percent for people who report AFDC participation. However, this is because AFDC participation is underreported, so the number of eligibles on AFDC is undercounted (Stavrianos 1997).

approaches to adjusting the eligibles estimates to reflect the concept of "ever eligible during the potential certification period" and to examining how further research would be useful in determining the likely difference such an adjustment would make.

How Many Participants Have Incomes Above the WIC Threshold?

WIC participants may have incomes over 185 percent of poverty for two reasons: (1) they were adjunct-eligible, generally through Medicaid enrollment (as discussed later in this chapter); or (2) they had incomes below 185 percent of poverty when certified, but their family's income recently increased. The latter group may be seen as "currently income-ineligible" although they are legitimate participants under current program rules and practices. WIC administrative data do not allow us to determine the size of the second group, because the administrative data record income only at the time of certification.[11]

Gordon et al. (1997) provide evidence of the size of the "currently ineligible" group from SIPP for the calendar years 1990 to 1992. These data must be interpreted with caution, however, because of underreporting of WIC participation in SIPP.[12] Among children participating in WIC in a typical month, 90 percent were eligible on the basis of their annual incomes, and another 6 percent were eligible in some months of the year. Only about 4 percent were never eligible during the year. Among those who were never income-eligible for WIC, 44 percent participated in Medicaid at some point during the year and may well have qualified as adjunct-eligible.

In another analysis, Gordon et al. looked at program participation and eligibility status among pregnant women and their infants on a quarterly basis, with quarters defined with reference to the birth month. They found that, over the quarters before and after a birth, 81 to 86 percent of families with reported WIC participants were income-eligible on the basis of their quarterly income, and another 4 to 11 percent were adjunct-eligible but not otherwise income-eligible. That left 6 to 12 percent of participants who appeared to be ineligible in a particular quarter. In general, 30 to 60 percent of those participants with incomes over 185 percent of the WIC threshold in a quarter were adjunct-eligible (Gordon et al. 1997, Table

[11]The USDA-sponsored National Survey of WIC Participants and Their Local Agencies includes an income verification study that is documenting the incomes of WIC participants at the time of certification and estimating error rates. For a subsample of participants with earnings, they are also collecting descriptive data on income about 4 months after certification, which may provide additional insight into the issues discussed here. These data were collected in the spring of 1998, and the report is expected to be completed in late 1999.

[12]For example, Gordon et al. found that their SIPP-based estimates of infants and children participating in WIC in 1992 was only 76 percent of the count of participants from WIC administrative data.

V.8). Again, this analysis should be interpreted with caution, both because of small sample sizes and because of underreporting of WIC participation in SIPP.

More research on this issue would be helpful, but these data seem to suggest that from 10 to 20 percent of WIC participants in a given month may have incomes over 185 percent of the WIC poverty guideline, and about half of these seemingly ineligible participants are adjunct-eligible, generally through Medicaid. Others may have been eligible when certified, or they may have been certified in error.

Research on Income Eligibility over Longer Periods

Gordon et al. (1997) found that 25 to 30 percent more infants and children are income-eligible in at least one month of a calendar year than on an annual basis. This estimate can be seen as an upper bound on the percentage of infants and children who would be income-eligible at some point during their potential certification period. However, the potential certification period of most WIC eligibles is shorter than 1 year.

Issues for Further Review

If an adjustment in the eligibility estimates to reflect the certification period is desired, additional research using SIPP to determine the best type of adjustment and the magnitude of the adjustment would likely be needed. Using SIPP, it is possible to select a cross-sectional sample of categorically eligible people and to determine if they have ever been income-eligible since the start of their potential certification period.

For example, with SIPP, it would be possible to take a cross-section of infants and determine if they had any months of eligibility since birth, but this would require selecting data from at least a year into a SIPP panel, by which time some attrition would have occurred. As an alternative, the infant's family's income eligibility in the past 6 months could be viewed as a proxy, since a cross-section of infants will be 6 months old on average, assuming a reasonably uniform distribution of births. Then, it would be possible to obtain a slightly larger sample of infants 6 months after the start of the SIPP panel.

Children could be at any point in a 6-month certification period and on average would be 3 months into it. Accordingly, it might be appropriate to consider children who were income-eligible at any time in the past 3 months as a proxy for potential participants. Similar proxies could be defined for pregnant and postpartum women. It would then be possible to estimate the number of potential participants in each category by using such proxy measures and to compare these estimates to the number eligible on the basis of annual income.

A second issue on which further research could be helpful is whether the adjustment would be much smaller if Medicaid adjunct eligibles with incomes over 185 percent of the WIC poverty guideline were taken into account. As noted above, Gordon et al. found that about half of WIC participants with current incomes over 185 percent of poverty are adjunct-eligible through Medicaid. It seems plausible that a large proportion of those who could potentially participate on the basis of recent (but not current) income eligibility would also be on Medicaid, but no good measures of this exist. The research described above could be done both with and without counting everyone on Medicaid as adjunct-eligible. However, the ability to measure those adjunct-eligible through Medicaid only in SIPP is limited by underreporting of Medicaid participation, as discussed further in the next section.

Such research could be used either to develop a new SIPP-based estimate of WIC income eligibility or to develop an adjustment for the CPS-based core estimates.

ADJUNCT ELIGIBILITY THROUGH MEDICAID

Issue Summary:

Many states have Medicaid eligibility policies that enable infants and children with incomes above 185 percent of poverty to enroll in Medicaid and thus obtain adjunct eligibility for WIC. Moreover, the new state Children's Health Insurance Program (CHIP), which is being implemented in many states as an extension of Medicaid, has the potential to expand the number of children who are adjunct-eligible for WIC. Therefore, accurate estimates of WIC eligibles should include not only infants and children in families below 185 percent of poverty, but also infants and children in families above 185 percent of poverty who are enrolled in Medicaid. Unfortunately, it is difficult to estimate the number of infants and children with incomes above 185 percent of poverty who are enrolled in Medicaid. Even if it were possible to measure the precise number adjunct-eligible through Medicaid but not otherwise income-eligible, the decision whether to adjust the WIC-eligibles estimates would need to consider whether it is equitable to base WIC funding on Medicaid policies over which states have considerable discretion.

Estimates of WIC eligibility do not account for adjunct eligibility, except for a small adjustment described in Chapter II. The original reason for this was that the rules of the programs conferring adjunct eligibility implied that essentially all who were adjunct-eligible (usually through participation in AFDC, the FSP, or Medicaid) also had incomes less than 185 percent of the poverty level. However, the expansions of Medicaid eligibility since the late 1980s have increasingly implied that some women,

infants, and children may have incomes greater than 185 percent of poverty but be eligible for WIC because they are enrolled in Medicaid.[13] The next section reviews the key Medicaid policies that permit infants and children in families with incomes above 185 percent of poverty to qualify for Medicaid, and thus WIC. Such people are eligible for WIC only through the Medicaid program. The section after that reviews how CHIP may increase the number of infants and children eligible for WIC only through Medicaid. A third section addresses the key issues in measuring the size of the group that is eligible only through Medicaid and how such measurements could be used to improve estimates of WIC eligibles. The final section assesses the need for additional research and other issues concerning Medicaid adjunct eligibility that the review panel may wish to consider.

Medicaid Policies That Affect the Number Eligible Only Through Medicaid

This section reviews the key Medicaid policies that permit people with incomes above 185 percent of poverty to qualify for Medicaid, and thus WIC. Those policies are:

- Flexible family unit definitions
- Long enrollment periods
- Poverty-related eligibility expansions that qualify people with incomes over 185 percent of poverty
- Medically needy programs that can qualify higher-income people with high medical costs[14]

[13]It is also possible that some people may have family incomes greater than 185 percent of poverty as assessed by the WIC program but be adjunct-eligible through participation in TANF or the FSP. For example, the family unit these programs use for determining eligibility may be different from WIC's. However, since the income limits for these programs are generally much lower than for Medicaid, this group seems likely to be small. Furthermore, such people would generally participate in Medicaid as well.

[14]Two other policies that are likely to have smaller effects on the WIC adjunct-eligible population--presumptive eligibility for pregnant women and transitional Medicaid coverage for working poor families who have left TANF--are not reviewed in detail; see Lewis and Ellwood (1998) for further information on these policies.

a. Flexible Family Unit Definitions

Many states require caseworkers to define the family unit for Medicaid eligibility determinations so as to maximize the possibility of eligibility. In these states, children in families with incomes above the Medicaid eligibility threshold may be eligible if the caseworker counts only the resources of their subfamily. This may increase the "WIC-eligible only through Medicaid" group substantially, because WIC eligibility estimates treat related subfamilies living in the same household as one unit. Therefore, someone can appear to be ineligible for WIC based on family income but in fact may be adjunct-eligible through Medicaid, which considers only the income of the subfamily. Further research is needed to determine to what extent the flexible family definition increases adjunct-eligibility levels.

b. Long Enrollment Periods

Medicaid eligibility policies allow people to be enrolled from several months to a year without having their eligibility redetermined. As a result, people can participate in Medicaid and be adjunct-eligible for WIC for several months even if their income rises above the Medicaid eligibility thresholds during that time. Similar to the long certification periods for WIC, these policies could greatly expand the number of people eligible for Medicaid. Such policies may have a lesser effect on Medicaid enrollment, however, as people with very short spells of eligibility may not be inclined to enroll in Medicaid, and it is *enrollment* in Medicaid, not eligibility, that confers adjunct eligibility for WIC. As discussed earlier, the effects of these policies also overlap somewhat with the effects of the relatively long certification periods for the WIC program itself.

It seems likely that longer enrollment periods are of particular concern in states that use 185 percent of the poverty level or above as the Medicaid cutoff for the particular category. If the Medicaid cutoff is well below 185 percent of poverty, it is less likely that a participant's income will rise above 185 percent of poverty during the enrollment period, which is what places someone into the "WIC-eligible only through Medicaid" category. Under current Medicaid policy, most states have limits of 185 percent of poverty or higher for pregnant women and infants, but only a minority do for older children (see Table III.3). However, the effects of long enrollment periods on WIC eligibility are likely to increase, as some states plan to use CHIP to increase income-eligibility cutoffs for children to 185 percent of poverty or higher.

At least four common policies can lead to enrollment periods of 6 months to a year:

1. An eligible pregnant woman is usually deemed eligible throughout her pregnancy and postpartum period (60 days after giving birth, plus the remaining days in the month in which the 60th day falls), regardless of any changes in family income. An infant is deemed eligible for 1 year following birth, regardless of changes in family income.

2. Children ages 1 to 4 are not guaranteed eligibility for an extended period, but in practice they also may have long eligibility periods. Even though Medicaid enrollees are required to report changes in income to the Medicaid program, Lewis and Ellwood (1998) and other researchers believe that many income changes go unreported. Redetermination is typically done on an annual basis, so Medicaid enrollees are in effect guaranteed enrollment until a routine eligibility redetermination is required.

3. The Balanced Budget Act of 1997 contains an option for all states to guarantee 12 months of coverage to children enrolled in Medicaid, regardless of changes in family income. The latest available information from DHHS indicates that nine states have opted to provide continuous coverage in their existing Medicaid program: Connecticut, Colorado, Indiana, Michigan, Oregon, Pennsylvania, Rhode Island, South Carolina, and Utah.[15] According to the National Governors' Association, Center for Best Practices (1998), 12 more states have included continuous coverage for children as part of their Medicaid expansions under CHIP.

4. States with Medicaid managed care programs may guarantee initial Medicaid enrollment for up to 6 months, regardless of changes in income.

[15]Conversation with Julia Paradise from DHHS, Office of the Assistant Secretary for Planning and Evaluation, November 3, 1998.

TABLE III.3 *(continued)*

TABLE III.3

MEDICAID ELIGIBILITY CRITERIA, BY STATE

State	Income Threshold for Expanded Medicaid Coverage of Pregnant Women, Infants, and Children (Percentage of Poverty)			Medically Needy Program[a]
	Infants	Children	Pregnant Women	
Alabama	133	133	133	
Alaska	133	133	133	
Arizona	140	133	140	
Arkansas	200	200	133	✓
California	200	133	200	✓
Colorado	133	133	133	
Connecticut	185	185	185	✓
Delaware	185	133	185	
District of Columbia	185	133	185	✓
Florida	185	133	185	✓
Georgia	185	133	185	✓
Hawaii	300	300	300	✓
Idaho	133	133	133	
Illinois	133	133	133	✓
Indiana	150	133	150	
Iowa	185	133	185	✓
Kansas	150	133	150	✓
Kentucky	185	133	185	✓
Louisiana	133	133	133	
Maine	185	133	185	✓
Maryland	185	133	185	✓
Massachusetts	185	133	185	✓
Michigan	185	150	185	✓
Minnesota	275	275	275	✓
Mississippi	185	133	185	
Missouri	185	133	185	
Montana	133	133	133	✓
Nebraska	150	133	150	✓
Nevada	133	133	133	
New Hampshire	185	185	185	✓
New Jersey	185	133	185	✓

TABLE III.3 *(continued)*

State	Expanded Medicaid Coverage of Pregnant Women, Infants, and Children			Medically Needy Program
	Income Threshold for Infants (Percentage of Poverty)	Income Threshold for Children (Percentage of Poverty)	Income Threshold for Pregnant Women	
New Mexico	185	185	185	✓
New York	185	133	185	✓
North Carolina	185	133	185	✓
North Dakota	133	133	133	
Ohio	133	133	133	
Oklahoma	150	133	150	✓
Oregon	133	133	133	✓
Pennsylvania	185	133	185	✓
Rhode Island	250	250	250	✓
South Carolina	185	133	185	
South Dakota	133	133	133	
Tennessee	400	400	400	✓
Texas	185	133	185	✓
Utah	133	133	133	✓
Vermont	225	225	200	✓
Virginia	133	133	133	✓
Washington	200	200	185	✓
West Virginia	150	133	150	✓
Wisconsin	185	185	185	✓
Wyoming	133	133	133	
Total	30/8[b]	11/7[b]	29/6[b]	35[a]

SOURCE: Lewis and Ellwood (1998), National Governors' Association, Center for Best Practices (1997 and 1998).

NOTE: Policies described above are from before the Balanced Budget Act of 1997.

[a]Checks indicate states with medically needy programs. The total is the total number of states with a medically needy program.
[b]The first number is total states with thresholds of 185 or above; the second number is states with thresholds greater than 185.

c. Poverty-Related Expansions

States have several ways to obtain federal approval to qualify pregnant women, infants, and children with incomes above 185 percent of poverty for Medicaid (other than the CHIP program). Under Section 1902(r)(2) of the Medicaid law, states can structure their resource and income-disregard policies to qualify pregnant women, infants, and children in families with incomes above 185 percent of poverty. States with Section 1115 waivers from Health Care Finance Administration (HCFA) can also design Medicaid programs that allow pregnant women, infants, and children in families above 185 percent of poverty to participate. Eight states currently use one of these options: California, Minnesota, Vermont, and Washington expand eligibility under the 1902(r)(2) provision; Arkansas, Hawaii, Rhode Island, and Tennessee expand eligibility under Section 1115 waivers (Lewis and Ellwood 1998). Table III.3 shows the eligibility levels for those states. Although only a few states are involved in these poverty-related expansions, one is California, which contains about 16 percent of estimated income-eligible infants and children and about 17 percent of WIC participants, based on FY 1998 program data.

d. Medically Needy Programs

Thirty-five states have medically needy programs that cover people who are in one of the groups covered by Medicaid (families with dependent children, pregnant women, categorically eligible children, elderly people, blind people, and disabled people) but who do not meet the income or resource standards for regular Medicaid coverage (Table III.3). These people are eligible for medically needy coverage if their income and resources, after deduction of incurred medical expenses, fall below the state's medically needy standards. The process of deducting incurred medical expenses to reduce income to the medically needy standard is known as "spend down." Through spend down, people in families at any income level can qualify for Medicaid. Although no data are available on the income levels of medically needy enrollees, some medically needy infants and young children will have incomes above the WIC threshold, since they would often qualify for Medicaid based on income if their incomes were below the WIC threshold.

Based on HCFA data for 1997, approximately 11 percent of the children under 18 enrolled in Medicaid (2,076,471 out of 19,647,683) were in the medically needy category.[16] However, this percentage may be larger or

[16] These data are from reports that states must file based on their administrative data, which are known as "2082" reports because of the number of the form on which they are filed. The data were obtained on-line at [http://www.hcfa.gov/medicaid/msats.htm]. The 2082 data are described further in Appendix A.

smaller for children under age 5. Furthermore, the proportion of medically needy children who have incomes greater than 185 percent of poverty is not known. At any point in time, the medically needy portion of the "WIC-eligible only through Medicaid" group is in addition to those covered through poverty-related Medicaid eligibility. However, as Medicaid income limits have expanded, medically needy WIC eligibles have probably become less important, as some children who would have been enrolled as medically needy may now be eligible under one of the poverty-related eligibility categories.

CHIP

The Balanced Budget Act of 1997 created Title XXI of the Social Security Act as CHIP. Title XXI provided approximately $36 billion in funding from FY 1998 to FY 2007 to provide health insurance for low-income children who are not eligible for traditional Medicaid coverage, if states provide matching funds. States are entitled to block grants with higher federal matching rates than for Medicaid (Ullman et al. 1998). Under CHIP, states can elect to expand coverage under their Medicaid programs or to establish separate state health insurance programs, or both. The number of WIC eligibles will increase to the extent that Medicaid coverage (and thus participation) under CHIP is expanded to children in families with incomes above 185 percent of the WIC poverty level.

CHIP allows states to provide health coverage to children (under age 19) in families with incomes up to 200 percent of the federal poverty level. In addition, if a state's Medicaid income limit was greater than 150 percent of the poverty level for a particular age group at the time the legislation passed, the state is allowed to set income limits for CHIP plans up to 50 percentage points higher than the existing limit for that age group.

As of October 26, 1998, 50 state plans for using CHIP funds had been submitted to HCFA, and 44 had been approved.[17] Thirty-five states were scheduled to begin enrolling children in CHIP-funded programs in 1998; the rest of the states are scheduled to begin sometime in 1999.[18]

Because each state was given the option of increasing its income-eligibility threshold and not mandated to do so, state income thresholds for CHIP vary considerably. Of most interest in looking at implications for WIC eligibility are the 10 states that are using CHIP funds either (1) to expand their Medicaid income threshold from less than or equal to 185 percent of poverty to above 185 percent, or (2) to increase a threshold already above 185 percent to an even higher level. As CHIP is implemented, the

[17][http://www.hcfa.gov/init-chip-map.htm].

[18][http://www.nga.org/MCH/Implementation.htm].

numbers of children who are WIC-eligible only through Medicaid in these states will increase.

At this time, 28 states are planning to use CHIP funds to expand their Medicaid programs for children in the WIC-eligible age groups, including 3 that are also using CHIP funds for a separate state program. However, in many states, income-eligibility thresholds will remain below 185 percent of the poverty level under CHIP. Table III.4 shows income-eligibility data for all states that have chosen to implement CHIP through a Medicaid expansion for WIC-eligible age groups. Eight states are increasing their income ceiling from at or below 185 percent of poverty to above 185 percent: the District of Columbia, Illinois (infants only), Maryland, Massachusetts, Missouri, New Hampshire (infants only), New Mexico, and Wisconsin.[19] Two states that were already above 185 percent of poverty are increasing their thresholds still higher: Minnesota (for infants only) and Vermont.

The Urban Institute has prepared estimates, by state, of the number of uninsured children who may potentially be covered under CHIP (Ullman et al. 1998). They estimate that there are 2.9 million uninsured children whose family incomes are less than 200 percent of poverty and who are eligible for CHIP but who were not already eligible for Medicaid.[20] However, many of these children have incomes below 185 percent of poverty, so this estimate substantially overstates the number of children who will be newly eligible for Medicaid with incomes above 185 percent of the poverty level. Furthermore, not all eligible children will actually enroll in Medicaid. Many children currently eligible for Medicaid under previous poverty-related expansions do not enroll; the same analysis indicated that there are 1.6 million uninsured children eligible for Medicaid under pre-CHIP rules. However, under CHIP, states are required to undertake new outreach efforts to uninsured children, which may increase enrollment in Medicaid both under CHIP-funded and previously existing eligibility groups, thereby increasing the number of people adjunct-eligible for WIC.

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[19] The range of income eligibility above 185 percent for these six states is 200 to 300 percent.

[20] The Urban Institute used their TRIM2 microsimulation model to estimate the number of uninsured children eligible for CHIP. The TRIM2 model uses the CPS data for its estimates, but it adjusts the data for underreporting of Medicaid in the CPS in comparison to administrative data from HCFA. The model does this by testing for Medicaid eligibility among nonreporters of Medicaid and then selecting people to participate so that the size of the resulting Medicaid population matches administrative data from HCFA. The Urban Institute believes that its adjusted estimates reflect the number of uninsured children more accurately than the unedited CPS (Ullman et al. 1998).

TABLE III.4

MEDICAID/CHIP ELIGIBILITY THRESHOLDS FOR INFANTS AND CHILDREN BEFORE AND AFTER THE BALANCED BUDGET ACT OF 1997 FOR STATES THAT CHOSE MEDICAID EXPANSION FOR WIC AGE GROUPS AS THEIR CHIP PLAN

State	Thresholds (Percentage of Poverty) Infants		Thresholds (Percentage of Poverty) Children (Ages 1 to 5)	
	Pre-BBA	Post-BBA	Pre-BBA	Post-BBA
Alaska	133	133	133	133
Arkansas	200	200	200	200
District of Columbia	185	200	133	200
Idaho	133	160	133	160
Illinois	133	200	133	185
Indiana	150	150	133	150
Iowa	185	185	133	133
Louisiana	133	133	133	133
Maine	185	185	133	150
Maryland	185	200	130	200
Massachusetts	150	200	150	200
Minnesota	275	280	275	275
Mississippi	185	185	133	133
Missouri	185	300	133	300
Nebraska	150	185	133	185
New Hampshire	185	300	185	185
New Mexico	185	235	185	235

North Dakota	133	133	133	133
Ohio	133	150	133	150
Oklahoma	150	185	133	185
Rhode Island	250	250	250	250
South Carolina	185	185	133	150
South Dakota	133	133	133	133
Tennessee	400	400	400	400
Texas	185	185	133	133
Vermont	225	300	225	300
West Virginia	150	150	133	133
Wisconsin	185	200	185	200

SOURCE: National Governors' Association, Center for Best Practices (1998).

NOTE: States in boldface type have an increase in their income-eligibility level that would create, or increase the size of, the group of WIC eligibles with family incomes above 185 percent of the poverty level (once CHIP is fully implemented).

Measuring Those Eligible Only Through Medicaid

To account for those WIC-eligible only through Medicaid in eligibility estimates, it is necessary to be able to measure the size of this group. However, it is not straightforward to do this with existing data. The next two sections review options for measuring this group with survey data and with Medicaid administrative data.

a. Using National Survey Data

As described above, a number of Medicaid policies make it possible for pregnant and postpartum women and young children to have family incomes above 185 percent of poverty and still be on Medicaid. One approach to estimating the size of this population would be to use a national survey such as the CPS or SIPP to identify the proportion of reported Medicaid participants who have a family income above 185 percent of poverty. Any time that national survey data are used for Medicaid estimates, however, there are concerns about data quality, particularly regarding the degree of underreporting of Medicaid enrollment.

According to Lewis et al. (1998), Medicaid is underreported in the CPS when compared to HCFA administrative data.[21] For example, in 1995, CPS estimates of Medicaid enrollees were 21 percent lower for adults and 23 percent lower for children than estimates based on HCFA administrative data (Lewis et al. 1998). There is evidence of Medicaid underreporting in SIPP as well, but not to the same degree. According to an analysis by Bennefield (referenced in Lewis et al. 1998) Medicaid is underreported in the SIPP by approximately 15 percent.

Still, both SIPP and the CPS are worth considering as potential sources for estimates of the number of Medicaid participants with incomes over 185 percent of the WIC poverty threshold. SIPP has several strengths relative to the CPS. First, the CPS has a higher rate of Medicaid underreporting. Second, the CPS asks respondents if they were *ever* on Medicaid during the previous year, whereas SIPP measures monthly participation. Measuring Medicaid participation at any point during the year provides estimates that are higher than average monthly enrollment,

[21] There are a number of hypotheses regarding why Medicaid is underreported in surveys. It is quite possible that survey respondents may not admit to being covered, because of the stigma associated with public assistance programs; they may not be currently be receiving services at the time they complete the survey; or they may not realize that they or family members are enrolled in Medicaid. Similar underreporting of participation has been documented for other public programs, including WIC and the FSP. Confusion about Medicaid enrollment status may increase given the rise in Medicaid managed care, since many enrollees in Medicaid managed care plans may not realize they are still a Medicaid recipient and report having private health insurance.

since Medicaid enrollees tend to have periods of time during a year when they are not enrolled in Medicaid.

However, estimates from the CPS offer the advantage of being updated annually and available on a more timely basis. Timeliness is of particular concern in this era in which Medicaid eligibility rules are changing rapidly.

In sum, estimates from SIPP or the CPS could be used to estimate people in WIC categories on Medicaid with incomes above 185 percent of poverty. (The CBO estimates of WIC eligibles included such people.) These estimates may be lower bounds because of Medicaid underreporting, but it might be possible to adjust for this. Additional research on the level of underreporting and the factors associated with it would be helpful in developing an appropriate adjustment factor.

b. Using Medicaid Administrative Data to Improve Estimates

As stated earlier, all Medicaid enrollees are automatically income-eligible for WIC. Therefore, Lewis and Ellwood (1998) suggest that if the number of Medicaid enrollees in each state exceeds the estimated number of WIC eligibles, the number of Medicaid enrollees could be used as a lower-bound estimate of the number of WIC eligibles. They believe that this approach is most promising for infants, among whom the group that is WIC-eligible only through Medicaid is likely to be largest.[22] However, they also point out that estimates of Medicaid infants from HCFA administrative data require adjustments before they are useful for this purpose.

In brief, they recommend using Medicaid 2082 data (described further in Appendix A), administrative data that all states report and that count the number of Medicaid participants in various age and eligibility groups. However, they also note some problems with the 2082 data. They suggest an approach to adjusting the 2082 data on the basis of data from State Medicaid Research Files (SMRF) and present some tentative results based on that adjustment.

The following issues with the 2082 data on infants, taken together, suggest that the infant data are not completely comparable to WIC administrative data:

b.

[22] Lewis and Ellwood do not recommend using Medicaid administrative data to estimate the number of pregnant or postpartum women, because they are not identified in 2082 data. They explored using Medicaid data to develop estimates for children ages 1 to 4 but found them to be almost always below the current WIC income-eligible estimates.

- First, the 2082 data and WIC administrative data count infants differently, which yields numbers that are not fully comparable. The 2082 data show the number of infants who were born during the federal fiscal year and who were ever enrolled during the year, whereas estimates of WIC eligibles approximate those eligible in an average month.

- Second, some states count infants differently from other states in the 2082. For technical reasons, some states count as infants all those born during a one-and-a-half-year period and ever enrolled in Medicaid during the year. Other states count as infants all those who were born during the year and who were ever enrolled in Medicaid. This problem will soon be eliminated when HCFA changes the methods by which the 2082 tabulations are prepared for all states.

- Third, infants may be undercounted in the 2082 data, because some states take a few months to process the enrollment of infants following birth. In many states, infants do not appear on the Medicaid files until their second or third month of life.[23]

Lewis and Ellwood believe that the SMRF person summary files can be used to improve estimates of WIC eligibles from the 2082. The SMRF data an be used to calculate the average monthly Medicaid enrollment of infants in SMRF states. The monthly enrollment data available through SMRF can be used to develop an adjustment for delays in the processing the initial enrollment of infants. In addition, average monthly numbers are more comparable to WIC administrative data and estimates of WIC eligibles than the annual ever-enrolled numbers shown in the 2082 data. Based on the relationship between those ever enrolled and average monthly enrollment in states with SMRF files, an adjustment factor can be derived to estimate the average monthly enrollment for infants from reported enrollment in the 2082.

Lewis and Ellwood (1998) completed an analysis of SMRF and 2082 data to test the feasibility of their proposed approach to enhancing the national WIC estimates. SMRF files for six states were used to estimate lags in the Medicaid enrollment of infants and to compute average monthly Medicaid enrollment numbers for infants. On the basis of these SMRF data, the

[23]Prior to enrollment, any Medicaid charges for an infant can be made to the mother's Medicaid account. Thus, infants are covered under Medicaid from birth but are not always shown as Medicaid enrollees from the time of birth.

following three steps were developed to adjust the 2082 data, which are more timely than SMRF and available for all states:

1. Adjust downward the counts of infants in the states that count infants for 18 months to be equivalent to the counts in states that count infants for 12 months.

2. Adjust downward the number of infants ever enrolled during the year in all states so that the data represent average monthly enrollment.

3. Adjust upward the number of infants in each state to account for delays in reported enrollment of newborns.

After adjustments, the estimates of Medicaid infants from the 1995 2082 data suggested that over half the states had more infants enrolled in Medicaid in 1995 than were estimated to be eligible for WIC based on the CPS. For nine states (Kentucky, Maryland, Massachusetts, Minnesota, Mississippi, New Jersey, Vermont, West Virginia, and Wisconsin) the number of Medicaid infants exceeded the estimate of WIC-eligible infants by 20 percent or more. Many of these states have relatively generous Medicaid eligibility policies, which may explain why Medicaid enrollment was substantially greater. However, these results should be interpreted cautiously, because the adjustment factors for the 2082 data were based on a small group of states that were not necessarily representative of all states.

An additional reason for caution concerning this type of adjustment is that Medicaid enrollment has been declining since 1995 because of welfare reform. For example, Medicaid enrollment for children and parents declined between January 1995 and January 1998 by 12 percent in California, 29 percent in Wisconsin, 14 percent in New York, and 18 percent in Florida.[24] How much of this decline involves young children is not known. Furthermore, many of those losing Medicaid as a byproduct of leaving TANF probably have incomes well below 185 percent of poverty and thus remain eligible for WIC. However, if this decline is occurring for infants as well, it may make aggregate Medicaid enrollments of infants less useful as a proxy for those income-eligible for WIC.

[24] Unpublished state Medicaid program data provided by Marilyn Ellwood of MPR.

Issues for Further Review

The discussion above indicates that the number of people income-eligible for WIC only through Medicaid may be substantial and is likely to grow as CHIP is implemented. The fact that these WIC eligibles are not included in current estimates seems likely to explain a substantial portion of the high coverage rates for infants. Furthermore, a number of approaches to estimating the size of this group are likely to be feasible. SIPP may offer the most accurate estimates of monthly Medicaid enrollment. It would also be possible to use SIPP to explore a Medicaid adjustment that accounted for the Medicaid certification period (similar to the adjustment for the WIC certification period discussed earlier). Still, estimates that are based on 2082 data or CPS data and that appropriately account for the weaknesses in those data would likely be easier to make on an annual basis and would be more timely. More research on the size of the population that is income-eligible for WIC only through Medicaid and on the best way to measure it on an ongoing basis is merited.

If estimates of WIC eligibles are adjusted for Medicaid adjunct eligibles above 185 percent of the poverty level, it will also create issues concerning how funds are allocated among the states. The Medicaid policies reviewed above vary considerably by state, and USDA has been reluctant in the past to base state allocations on policies that the states control. In fact, incorporating those income-eligible only through Medicaid into the state estimates used in allocating funds would require a change in WIC regulations. Even if national estimates were revised, USDA could leave the process for determining state allocations unchanged. If USDA were to change the regulations to allow the estimates to reflect adjunct eligibility, one option would be to estimate the number of income eligibles at the state level using current methods and then to adjust for those eligible only through Medicaid in a second step, which would be based on state-level Medicaid administrative data. Another option would be to develop a concept of a "typical" state Medicaid program, similar to the "modal" nutritional-risk set, and estimate the number of eligibles-only through Medicaid at both the national and state levels using the rules of such a program. For example, it may not be appropriate to increase estimates of national or state eligibles to reflect the handful of states that have increased Medicaid eligibility thresholds above 250 percent of poverty. Instead, one possible approach would be to count only those who report Medicaid and have incomes above 185 percent but under 250 percent of poverty. Further review of these issues would likely be useful.

DATA ISSUES

This section reviews two key data issues concerning the core WIC estimates:

1. Would SIPP provide better estimates than the CPS, aside from the issue of annual versus monthly estimation described above?

2. Is it possible to determine whether estimates from either the CPS or SIPP underestimate or overestimate the number of infants and children who would be found eligible by local WIC clinics? If so, is it possible to place bounds on the likely magnitude of the bias?

Would SIPP Provide a Better Basis than the CPS for Estimating WIC Eligibles?

Issue Summary:

WIC eligibility estimates are currently made using data from the March CPS. An alternative database that warrants consideration is SIPP, which provides longitudinal monthly income data, probably provides better income reporting than the CPS, and also has better linkages between income data and household composition data. SIPP's major drawback is its lack of timeliness: data covering any given time period are available 1 to 2 years later from SIPP than from the CPS and may take several years longer if SIPP longitudinal files are needed.

When the current procedures for making national estimates of WIC eligibles were developed in the late 1980s, two potential sources of detailed population and income data were available, SIPP and the annual March supplement to the CPS. At the time, however, SIPP was new and was still being tested. Thus, a decision was made to base the USDA's WIC eligibility estimates on the CPS.

Since then, SIPP has emerged as a major source of data on low-income Americans. For example, a National Academy of Sciences panel recommended basing poverty estimates on SIPP (Citro and Michael 1995). This raises the issue of whether it would be preferable to begin using SIPP, rather than the CPS, as the basis for estimating WIC eligibles. The discussion below summarizes the relative advantages and disadvantages of these two data sources for this use.[25]

[25]The discussion draws heavily on Citro and Michael (1995).

a. Overview of the CPS and SIPP

This subsection briefly describes the two surveys. Appendix A contains additional details. The CPS is a monthly survey, with a core module designed to provide estimates of the unemployment rate in the United States, and with periodic supplements to obtain other information. The March supplement obtains information about household income, as well as information on participation by household members in noncash assistance programs and data on health insurance coverage. The survey has a sample size of roughly 50,000 households and obtains detailed data on income in the calendar year before the March survey and on household demographics for the month when the survey takes place.

SIPP is a continuing study designed, in part, to study participation in and eligibility for public programs. It provides longitudinal data on households over multiple years, including very detailed income and demographic information. Special supplements provide additional data on related topics, such as wealth and housing costs. The most recent version of SIPP has a sample size of about 40,000 households. Data are collected every 4 months, and income and demographic information is obtained for each of the past 4 months.

b. Criteria for Assessing Alternative Data Sources

Key criteria for choosing between the two data sources as a basis for estimating WIC eligibility include:

- Coverage of the low-income population
- Correspondence between the collection periods for income and demographic data
- Completeness of income reporting
- Nonresponse and attrition bias
- Imputation procedures
- Timeliness with which public-use files become available

The next section provides an overview of research on how the CPS and SIPP compare on these dimensions.

c. Past Research

Because both the CPS and SIPP are of great importance for policy-related research, an extensive body of research has evaluated their strengths and weaknesses. This section draws upon this research to assess the applicability of these databases to estimating numbers of WIC-eligible people.

Coverage. Because of various characteristics of low-income households, including the fact that living arrangements are often quite transitory, there is a tendency for all population-based surveys to underrepresent low-income populations. For instance, data presented by Jabine et al. (1990) suggest that nearly 20 percent of black men (who tend to have relatively low average incomes) are missed by both the CPS and SIPP. To be sure, both of these surveys use ratio adjustments based on age, sex, race, and ethnicity to develop survey weights to compensate for this undercoverage, using control totals based on the Decennial Census but adjusted for the census undercount. However, it is unlikely that the weighting adjustments (which are not based directly on income) fully correct for the problem. Overall, Citro and Michael (1995) conclude that "these tentative findings suggest that minorities, unattached people, and low-income people are at much greater risk of not being covered in SIPP and the March CPS-based estimates of poverty."

Correspondence Between the Collection Periods for Income and Demographic Data. There are clear differences between the CPS and SIPP in the period used for the income data they collect. As discussed earlier, the CPS collects data on *annual* income for the calendar year preceding the March administration of the survey, but SIPP collects income data on a monthly basis.

A related technical issue concerns the accuracy with which income information and demographic data can be linked in determining WIC eligibility. A problem that arises in analysis of program eligibility using CPS data is that the available income data are applicable to the previous calendar year, while the demographic data about household composition pertain to the following March. It is possible that some of the income reported in the survey accrued to people who were not in the household all or part of the previous year or that some who contributed income during the past year left the household by March, thus confounding attempts to determine eligibility for assistance programs. SIPP, with its

contemporaneous income and demographic data, is the clearly preferable database with regard to this issue.

Accuracy of Income Reporting. Respondents underreport income from most sources in both the CPS and SIPP. The CPS is believed to be more successful in capturing wage income, because of its focus on employment, while SIPP tends to be closer to independent data sources on most other types of income, most likely because of its more frequent interviews and more detailed questions about nonwage income. For some sources, both surveys appear to have about the same accuracy. For instance, both the CPS and SIPP have been found to identify only 70 to 80 percent of total AFDC payments known to have been issued (based on administrative records) (Lloyd 1998). Some of the undercount of AFDC income is probably due to the population coverage problems noted above, but some is likely due to underreporting by households who are covered by the survey.

Sample Size. The March CPS has an annual sample of approximately 50,000 households. The most recent SIPP panel (that for 1996) started with a sample size of approximately 40,000, and there will be sample attrition as the panel proceeds through the four planned years of the survey. Previous SIPP panels had samples of about 20,000 households on average, but they also partially overlapped, which allowed for combined sample sizes of up to 40,000 for some periods.

Nonresponse. The average sample nonresponse for the March CPS income supplement is approximately 14 percent. In addition, there is considerable nonresponse to specific questions, with item nonresponse rates sometimes reaching nearly 20 percent (Lloyd 1998, Section 5.4). The overall nonresponse rate to SIPP by Wave 4 of a panel has ranged from 16 to 18 percent, but item nonresponse is lower than in the CPS. Lloyd (1998) concludes an analysis of the nonresponse in the CPS and the initial years of SIPP by observing, "Overall, the comparison favors SIPP, but the advantage of SIPP over the CPS March income supplement in terms of total nonresponse would be considerably smaller in the second calendar year covered by a panel." It is not yet known how much additional attrition there will be in the third and fourth years of the 1996 SIPP Panel, but this is a cause for concern.

Imputation Techniques. Another difference between the two surveys is in the ways they impute data where the answer to a specific question is missing because the respondent did not know the answer or declined to give an answer. For the CPS, missing data are imputed using a complex matching technique based on responses given by very similar households. In the cross-sectional SIPP files that it releases, the Census Bureau uses a less sophisticated "hot deck" approach, which divides the sample into cells based on a small number of characteristics and then imputes the value

for the missing item that was given by the most recently processed case in the same cell. For SIPP longitudinal files, the Census Bureau imputes missing items for a household by using methods that take into account data from the same household for other periods.

When missing data on income are imputed, neither the CPS nor SIPP takes into account available information about whether a household is participating in any public assistance programs. It has been suggested that failure to do this may represent an important lost opportunity, since participation in income-tested programs makes it possible to infer a probable upper bound on a household's income level.

Timeliness. The CPS is clearly the preferable of the two data sets with regard to timeliness. In any given year, data from the March supplement are released by October. Thus, for instance, 1996 calendar-year data that were collected in March 1997 became available in early fall of 1997. The release times for the SIPP data have tended to vary considerably (and unpredictably) between panels. In general, however, release times are much longer. For instance, a data file for the first wave of the 1996 SIPP Panel, which contains data on only the first two months of 1996, was released only during the summer of 1998, more than 2 years after the period covered by the data. SIPP longitudinal files can take up to 5 years to be released. In part, the longer release times for the SIPP data reflect the fact that longitudinal data files are much more complicated to create than simple cross-sectional ones like those from the CPS.

d. Summary

In terms of the detail available in its income data and its ability to link time frames directly for income data and demographic data, SIPP would appear to be an attractive potential database for estimating WIC eligibles. On the other hand, attrition bias in later years of a panel is a concern. Probably the most serious drawback to SIPP, however, is its lack of timeliness. Reliance on SIPP would delay by at least a year, and probably more, the time when WIC eligibility estimates pertaining to any given time period would become available.

Potential Biases Arising from Limitations in the Available Income Data

Issue Summary:

In general, there is not sufficient research to be able to determine whether the core estimates from the CPS are biased up or down. Data quality issues work in both directions. Additional research on issues such as imputation error could help assess the relative magnitude of the potential biases.

Whichever of the two databases (CPS or SIPP) is used, it is of interest to estimate the likely magnitude of the overall biases that arise in estimating WIC eligibles because of the limitations in the data summarized above. Doing so is useful both in assessing the overall quality of current WIC eligibility estimates and in determining what types of further adjustments to those estimates should be made. This section examines how limitations in the CPS and SIPP affect WIC eligibility estimates. The discussion is summarized in Table III.5.

1. Undercounting Low-Income Households

As discussed in a previous subsection, one significant source of bias is that both surveys are known to undercount low-income households, both because they may not be in the survey universe and because they are less likely to be respondents when they are in it. Although weights have been developed to make the totals from the surveys consistent with U.S. population totals along several dimensions, these weights do not control for income, and it is likely that significant undercounts of the low-income population remain. While there is no way to determine precisely the effects of this factor on estimates of WIC eligibles, it almost certainly results in a downward bias.

This issue could be informed by additional research. Using either the CPS or SIPP, it would be possible, for example, to explore the effects on WIC eligibility estimates of using different weighting algorithms, which could at least indicate the likely size of this bias.

2. Imputation Error

A second important factor to consider is errors in imputations for item nonresponse. As discussed earlier, in both the CPS and SIPP, when data are missing because respondents are not able to answer or refuse to answer specific income questions, the Census Bureau imputes the missing information in preparing the files for public use. An important issue, however, is whether program participation should be taken into account in making the imputations. Data on households' program participation

TABLE III.5

POTENTIAL BIASES ARISING FROM LIMITATIONS IN THE AVAILABLE DATA

Cause of Potential Bias	Relevant Database(s)	Effects on Estimates of WIC Eligibles
Undercounting low-income households	CPS and SIPP	Downward bias
Underreporting of income data	CPS and SIPP	Upward bias
Imputation procedures used for item nonresponse	CPS and SIPP	Downward bias
Discrepancy between period covered by income data and period covered by demographic data	CPS	Upward bias

that are collected in these surveys can provide information about income levels, since participation in a program creates a presumption that the household is below the income-eligibility limit for the program in question. However, current imputation methods do not take program participation into account, and this probably causes too much income to be attributed to families who in fact have relatively low incomes. If this is the case, it has the effect of incorrectly making these households appear ineligible for WIC and other programs when in fact they are eligible. The result would be to bias WIC eligibility estimates downward, although no estimates of the magnitude of this bias are available. This is also an issue where analysis of the effects of different file-editing procedures could be undertaken to develop better estimates of the size of the bias, and possibly even to reduce it.

3. Underreporting of Income

Underreporting of income may be another factor affecting WIC eligibility estimates for both surveys. Both SIPP and CPS are believed to undercount most major forms of income, as compared to independent sources (Lloyd 1998). For instance, the CPS and SIPP have been estimated to undercount wages and salaries by 3 and 8 percent for certain other income sources, such as AFDC, where the two surveys were estimated in 1990 to be tapping only 70 and 72 percent of the relevant income, respectively. Underreporting of income will bias WIC eligibility estimates upward.

4. Discrepancy Between Period Covered by Income and Demographic Data in the CPS

The last row of Table III.5 summarizes the likely effects of the discrepancy in the CPS data between the period to which the available income data are applicable (the year prior to the CPS) and the date of the available demographic data (March of the CPS year). In principle, this bias could go either way.[26] The exit of a person without income from the household late in the year, for instance, could lower the poverty standard for the household and thus make it falsely appear ineligible. On the other hand, if a person with income leaves a household before March of the year that CPS data are collected, that person's income from the previous year is missed by the survey, potentially making an ineligible household appear eligible.

Doyle and Trippe (1991) investigated the direction and magnitude of this timing effect on estimates of U.S. poverty, using simulations of SIPP data

[26]This discussion considers the effects of changes in family composition only. Changes in income around the time of a birth raise additional issues; see discussion in Chapter IV.

that allowed them to examine the "actual" poverty levels observed in the SIPP data and a "CPS-like" poverty estimate, based on SIPP demographic data for March and SIPP income data from the previous year. Their conclusion was that use of the "wrong" demographic data tends to increase estimates of the percentage of adults in poverty by about 12 percent (although the difference is less than 1 percentage point--8 versus 9 percent--and was not tested for statistical significance). Extending this research to the WIC cutoff at 185 percent of poverty could be useful.

e. Summary

Unfortunately, it does not appear possible to develop an estimate of the overall bias created by the income-related data quality issues summarized above. Some factors tend to increase estimates of WIC eligibles, others tend to decrease them. However, several of the issues can be researched.