Analysis of Transition Events in Health Insurance Coverage

Final Report

August 2009

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EXECUTIVE SUMMARY

Over time, the number of people lacking health insurance coverage in the U.S. is sustained by a set of dynamic processes. Comparatively few of the uninsured remain in that state indefinitely, but uninsured persons who gain coverage are offset by insured persons who lose their coverage. In good economic times the balance shifts toward the gainers, and uninsured rates tend to decline. In weak times, the balance shifts in the reverse direction, and uninsured rates tend to rise. Migration plays a role as well. New immigrants have much higher uninsured rates than long-term residents, but so do those who leave the population, which dampens the effect of immigration. Achieving a significant reduction in the number of uninsured persons will require reducing the rate at which people lose coverage or increasing the rate at which people (re)gain coverage—or, ideally, both. From a policy perspective, this should focus attention on the factors that contribute to people losing or gaining coverage, yet true longitudinal analyses of these factors are rare.

Recognizing this limitation of our research base, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in the Department of Health and Human Services contracted with Mathematica Policy Research, Inc. (MPR) to conduct a study focusing explicitly on the dynamics of health insurance coverage. The study had four main components: (1) a literature review; (2) methodological work on the 2001 panel of the Survey of Income and Program Participation (SIPP) to identify and address limitations that represent potential sources of bias in estimates of health insurance dynamics; (3) a descriptive (or tabular) analysis of SIPP panel data to document aspects of the dynamics of health insurance coverage and (4) a multivariate analysis of events associated with transitions in health insurance coverage. The literature review and the methodological findings are presented in appendices to the report and not discussed in this summary.

DATA

The analyses presented in this report use data from the 1996 and, primarily, 2001 panels of the SIPP. The 2001 panel followed a sample of nearly 30,000 households for three years. With its collection of monthly data on health insurance coverage, employment, income, family composition, and a wide range of other potential covariates of health insurance coverage, SIPP is unique in its ability to support analysis of the dynamics of health insurance and the relationship between transitions in coverage and changes in employment, income, and family composition.

HEALTH INSURANCE DYNAMICS

The analysis sample for most of the research presented in this report consists of persons who were 19 to 61 in January 2001. In that month, 17.6 percent of this population lacked health insurance coverage. Over the 36-month reference period of the 2001 SIPP panel, roughly twice that fraction (35.0 percent) had some amount of time in which they were not covered by health insurance. How much time? Nearly 60 percent were without coverage for 12 months or more, and more than a third were uninsured for at least two of the three years. These include 4.5 percent who were uninsured the entire time. At the other end of the spectrum, 23 percent were without coverage for four months or less—a very modest amount, to be sure, which may also include some false (misreported) uninsured spells.

The likelihood of being without coverage declined progressively with age. Among persons 19 to 29 in January 2001, 27 percent were uninsured in that month and 54 percent were ever uninsured during the three years. By ages 51 to 61, 11 percent were uninsured in January 2001, and 22 percent were ever uninsured in the three years.

About a third of those who were ever uninsured had more than one uninsured spell during the reference period. Multiple spells were much more common among the young than among the most senior adults. If we exclude persons who were continuously uninsured from those with a single spell, we find that those with two or more spells were without coverage for a longer period of time than those with just a single spell.

Family income relative to the poverty line is the single strongest predictor of insured status when measured at a point in time. The uninsured rate in January 2001 ranged from a high of 42 percent among people below poverty to a low of 5 percent among people above 400 percent of poverty. We find that relative income in the first year of the 2001 panel is very strongly associated with coverage over the duration of the panel as well. The fraction ever uninsured was 68 percent among persons below poverty in the first year and declined to 14 percent among persons above 400 percent of poverty. Nevertheless, the substantially greater numbers of higher- versus lower-income persons yielded a surprising result—namely, that persons with family incomes above 200 percent of poverty in 2001 accounted for just over half of the ever uninsured and just over half of new insured and uninsured spells.

Race and ethnicity are also strong covariates of health insurance coverage in both the cross-section and longitudinally. Similar to the poor, 41 percent of Hispanics were uninsured in January 2001, and 65 percent were ever uninsured in the three years. The corresponding uninsured rates for non-Hispanic whites were 13 percent and 28 percent, respectively. In addition, while Hispanics were just 13 percent of the nonelderly adult population, they accounted for 31 percent of those who were uninsured the entire 36 months.

While the 2001 panel was conducted during a period that included a brief recession followed by a slow recovery, the 1996 SIPP panel was conducted during a period of sustained economic growth. How did the picture of health insurance dynamics differ between the two surveys? Uninsured rates for nonelderly adults were flat during the 2001 panel, whereas they declined by three percentage points in the 1996 panel. More new spells—both uninsured and insured—were started during the 2001 panel than the 1996 panel, but, consistent with the flat trend in uninsured rates, the numbers of the two types of spells were nearly identical. During the 1996 panel, the number of new insured spells exceeded the number of new uninsured spells by 4.5 million. Other differences between the panels were mixed, however, which suggests a complex underlying relationship between economic factors and health insurance transitions. For this reason we did not extend the two-survey comparison to the multivariate analysis of transition events.

The proportion of persons retaining the same type of insurance coverage between one interview and the next (four months later) reflects not only actual retention but reporting accuracy, which appears to vary by source. For coverage from a current employer, 90 percent reported the same coverage four months later; 7 percent reported another type of coverage; and 3 percent reported being uninsured. For private nongroup coverage, 65 percent reported the same coverage four months later; 28 percent reported a different type of coverage; and 7 percent reported being uninsured. For Medicaid, 79 percent reported the same coverage four months later; 8 percent reported a different type of coverage; and 13 percent—the highest among all sources—reported being uninsured. Among the uninsured, 80 percent reported that they were still uninsured four months later while 20 percent reported that they had health insurance.

Of the new uninsured spells that started during the first year of the 2001 panel, 49 percent were preceded by coverage from a current employer or union, 22 percent by public coverage, 14 percent by coverage from a former employer, 13 percent by nongroup or other private coverage, and 2 percent by military-related coverage. Uninsured spells preceded by coverage from a current employer or union or by public coverage had strikingly similar durations. Spells preceded by nongroup coverage ran a little longer while those preceded by coverage from a former employer ran a little shorter. Of the uninsured spells that ended during the final year of the panel, 56 percent were followed by coverage from a current employer or union; 26 percent by public coverage; 13 percent by nongroup or other coverage; 4 percent by coverage from a former employer; and 2 percent by military-related coverage. Here, too, the length of the uninsured spells did not vary between spells followed by coverage from a current employer or union versus public coverage.

OBTAINING COVERAGE: TRANSITIONS OUT OF THE UNINSURED STATE

Previous research on health insurance transitions has used logistic regression models that describe the likelihood of transitioning between two states, such as from being uninsured to being insured. With such models there is a single origin state and a single destination state. Leaving the origin state implies entering the lone destination state. In our work we use a multinomial logistic regression framework to model jointly the transitions from the uninsured state to any of five destination states representing alternative sources of coverage. In this way the full choice set is incorporated into the model. Empirically, we estimate transitions between consecutive waves of the SIPP, with each person contributing an observation for each wave (1 through 8) that he or she was uninsured and remained in the sample through the next wave.

For the uninsured, gaining a job is strongly associated with obtaining coverage through a current employer or union, a private nongroup source, or a former employer. While the association with coverage from a current employer implies that health insurance is provided by the new employer, the association with coverage from a former employer or nongroup source suggests that some new employees find it necessary to acquire coverage elsewhere. Changing jobs, regardless of whether earnings increase or decrease, is almost as strongly associated with obtaining coverage through a current employer or union but no other source. Losing a job, however, is negatively associated with the likelihood of obtaining coverage from a current employer or union or a private nongroup source but positively associated with the likelihood of obtaining coverage from a public source (Medicare, Medicaid or another state program) or even a former employer. Presumably the loss of employment and, with it, earnings increases the odds of qualifying for public coverage. Changes in family earnings are also strongly related to obtaining coverage, mostly through a current employer or union. An increase in family earnings may make current employer or union coverage more affordable whereas a decrease in earnings makes it less affordable.

Net of trigger events, demographic characteristics remain strongly associated with transitions out of the uninsured. As education increases, persons are progressively more likely to leave the uninsured for every source but public coverage. Compared to the childless, persons with children are more likely to acquire coverage through Medicaid but less likely to obtain coverage from a nongroup source, former employer, or the military. Compared to Hispanics, white and black non-Hispanics are more likely to leave the uninsured state for every source of coverage. With increasing family income, individuals are more likely to obtain coverage through a current employer or union or a private nongroup source and are less likely to obtain coverage through a public source.

CHANGING AND LOSING COVERAGE: TRANSITIONS INTO THE UNINSURED STATE

To analyze transitions *into* the uninsured state, we use a two-step estimation procedure. The first step models the decision to leave the current health insurance coverage type (again, one of five), relative to keeping it, and the second step models the decision to transition to the uninsured state, relative to obtaining an alternative type of insurance coverage, given that the individual leaves the current coverage type. In both steps, a separate logistic regression model is estimated for each coverage type. For example, in the first step, transitions out of coverage from a current employer or union are modeled separately from transitions out of the other four types of coverage. In the second step, transitions into the uninsured state from current employer or union coverage are modeled separately from transitions into the uninsured from another source of coverage. Dividing the transition from covered to uninsured into two steps allows us to model separately the decision to leave the current coverage type and the decision to obtain an alternative coverage type or become uninsured. Conceptually, this provides a richer behavioral framework. As above, we estimate transitions between consecutive waves of the SIPP, with each person contributing an observation for each wave (1 through 8) that he or she was insured and remained in the sample through the next wave.

Losing one's job is very highly correlated with leaving coverage through one's current employer or union and, conditional on leaving, with becoming uninsured rather than entering an alternative source of coverage. Individuals who experience a decrease in earnings without losing their jobs are also more likely to leave coverage through a current employer or union. This is true without regard to whether the reduced earnings are accompanied by a change in family size. The higher likelihood of leaving may be due to a decrease in hours worked that makes the individual ineligible for health insurance benefits. The reduced earnings may also make the coverage too costly if it continues to be offered.

Moving from one job to another, regardless of the impact on earnings, is associated with leaving coverage from every source but the military, but the association is particularly strong for coverage from a current employer or union or a former employer. For these two sources, conditional on leaving, a job change also increases the chances of becoming uninsured. Together, these relationships highlight the prevalence of waiting periods for health insurance coverage at new jobs or provide evidence that individuals are accepting jobs without coverage.

Job gains and earnings increases are associated with leaving public coverage. This is expected, as the earned income obtained from new employment may exceed program eligibility thresholds, or the new job may offer employer-sponsored coverage that is superior to public coverage or less costly than the coverage available from a former employer. In addition, increased earnings, without an increase in family size, make an individual more likely to leave public coverage but, given that they do so, decrease the chances that the individual will become uninsured. We do not find the same association for similar individuals whose increase in earnings is coupled with an increase in family size. This may reflect in part the higher income eligibility thresholds that public programs apply to larger families.

Net of trigger events, key demographic characteristics are strongly associated with the likelihood of leaving current coverage. With increasing age, people are less likely to leave any source of coverage, but among those who do leave, the relationship between age and becoming uninsured varies with the source of coverage that was terminated. White and black non-Hispanics are less likely than Hispanics to leave any source of coverage except, for blacks, nongroup coverage. Conditional on leaving current employer or union coverage, public coverage, or private nongroup coverage, non-Hispanics are less likely than Hispanics to become uninsured. With increasing education, people are less likely to leave any nonpublic source of coverage but more likely to leave public coverage. Regardless of the source they left, the more educated are less likely to become uninsured. Family income behaves similarly to education except that there is no association between income and the likelihood of leaving private nongroup coverage. Conditional on leaving nongroup coverage, however, people with more income are less likely to become uninsured.

CONCLUSION

The analyses presented in this report have implications for policy, and they also suggest a number of priorities for continuing research.

Policy Implications

Our findings have implications that policymakers need to understand if they are to develop effective policies for increasing the proportion of the United States population with adequate health insurance coverage.

- The biggest problem that policymakers must address is how to help people retain coverage once they have it and how to restore coverage more quickly to those who have lost it.

- As numerous as the persons who are without coverage in a three-year period may be, their numbers provide only a partial measure of the size of the population that was at risk of losing coverage during that period. Policymakers must address the risk to the larger population to minimize the losses that contribute to the numbers of uninsured.

- Almost half of those who were ever without coverage in a three-year period were under 30. The low cost-effectiveness of health insurance for this group is almost certainly a factor in their low coverage and one that policymakers must address.

- While the poor and near poor are much more likely than those with higher incomes to experience extended periods without health insurance coverage, losing health insurance coverage is neither exclusively nor primarily a low-income problem. Policymakers must address the needs of both the lower-income and higher-income uninsured.

- With our focus on persons losing and regaining coverage, we should not overlook the hard core uninsured—those represented by persons who were continuously uninsured in our study; the problem that they present for policy is different than the problem presented by people who are in and out of coverage.

Research Priorities

We suggest several areas where additional analysis building on the findings presented here would help to further our understanding of why people lose coverage, how they gain or regain coverage, and why they change their source of coverage.

- We found our modeling approach to the multivariate analysis of transition events to be particularly informative about the association between trigger events and transitions out of and into the uninsured state; useful extensions include explicit modeling of the separate coverage provided by married partners and the inclusion of additional trigger events based on employment changes by the spouse.

- A focused analysis of what distinguishes those persons who appear to remain outside the health insurance system would be useful in helping policymakers to better understand this group.

- Research is also needed that will help us to understand the mechanism whereby more than half of those who lost health insurance coverage over the length of the 2001 SIPP panel had 2001 calendar year incomes above 200 percent of poverty.

- We remain concerned that SIPP obtains too many transitions and that a significant number of one-wave spells may be erroneous; further investigation of this issue is needed and should include the 2004 panel, which incorporated a major innovation to the survey instrument to reduce erroneous transitions of all types.

I. INTRODUCTION

Over time, the number of people lacking health insurance coverage in the U.S. is sustained by a set of dynamic processes. Comparatively few of the uninsured remain in that state indefinitely, but uninsured persons who gain coverage are offset by insured persons who lose their coverage. In good economic times the balance shifts toward the gainers, and uninsured rates tend to decline. In weak times, the balance shifts in the reverse direction, and uninsured rates tend to rise. Migration plays a role as well. New immigrants have much higher uninsured rates than long-term residents, but so do those who leave the population, which dampens the effect of immigration. This description applies to subpopulations as well as to the total population, although entry and exit rates from coverage and the fraction of the uninsured who are chronically without coverage will vary.

Given the importance of dynamics in maintaining the size of the uninsured population, it follows that achieving a significant reduction in the uninsured rate will require reducing the rate at which people lose coverage or increasing the rate at which people (re)gain coverage—or, ideally, both. From a policy perspective, this should focus attention on the factors that contribute to people losing or gaining coverage. And yet, while cross-sectional models of insurance coverage are frequently expressed in terms of factors that influence gains in coverage, true longitudinal analyses are rare.

Recognizing this limitation of our research base, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in the Department of Health and Human Services contracted with Mathematica Policy Research, Inc. (MPR) to conduct a study focusing explicitly on the dynamics of health insurance coverage. The study had four main components: (1) a literature review of studies that shed light on the probabilities and events associated with entries and exits from insurance coverage; (2) methodological work on the 2001 panel of the Survey of Income and Program Participation (SIPP) to identify and address limitations that represent potential sources of bias in estimates of health insurance dynamics; (3) a descriptive (or tabular) analysis of 1996 and 2001 SIPP panel data to document aspects of the dynamics of health insurance coverage, including uninsured spell length, sources of coverage before and after uninsured spells, transition rates, and how these differ among demographic groups; and (4) a multivariate analysis of events associated with transitions in health insurance coverage.

The literature review was submitted in March 2005, subsequently revised, and is included as Appendix A to this report. Limitations of the 2001 SIPP data and how we addressed them are detailed in Appendix B. The enhanced 2001 SIPP panel data file used in the analyses presented in this report is being delivered to ASPE in conjunction with the report. The descriptive analysis was conducted in two parts. The first portion culminated in the delivery of an extensive set of tabulations, designed in collaboration with ASPE staff, in April 2005. The second portion, which focuses more explicitly on the dynamics of health insurance coverage, is presented in Chapter IV of this report. The multivariate analysis, examining the potential role of specific life events in triggering changes in health insurance coverage among nonelderly adults, is presented in Chapter V. There we examine, in particular, the association between changes in employment, income, and family composition and transitions *into* or *out of* health insurance coverage—both by source of coverage.

To complete the report, Chapter II presents a conceptual framework for the analysis and identifies the research questions that are addressed in Chapters IV and V. The chapter also summarizes findings from the earlier set of descriptive tabulations. Chapter III describes the 1996 and 2001 SIPP panels. Finally, Chapter VI reviews our principal findings and draws several conclusions about health insurance dynamics and the potential impact of trigger events.

II. CONCEPTUAL FRAMEWORK AND QUESTIONS ADDRESSED

The empirical analysis presented in this report is based, ultimately, on our understanding of key elements of the dynamics of health insurance coverage and the potential role of trigger events in promoting changes in coverage. Section A of this chapter discusses the conceptual framework for the analysis while Section B outlines the research questions that the empirical analysis addresses.

A. CONCEPTUAL FRAMEWORK

The analyses presented in this report build on a model of the dynamics of health insurance coverage and a theory about why people lose, gain, or change their coverage. Together these provide the conceptual framework for the empirical analyses reported in Chapters IV and V.

1. Dynamics of Coverage

The number of people who lack coverage at any one time is the net result of flows into and out of the uninsured population. This can be expressed in the form of a balancing equation that defines the number of uninsured persons at time *t* in terms of the number who were uninsured at an earlier time, *t*–1, plus the number of additions to the uninsured population between times *t*–1 and *t*, less the number of subtractions over this same period. The equation may be written:

$$U_t = U_{t-1} + E_{t-1,t} - L_{t-1,t} + N_{t-1,t} - F_{t-1,t}$$

where U_t is the number of persons uninsured at time *t*; U_{t-1} is the number uninsured at time *t*-1; $E_{t-1,t}$ is the number of persons who entered the population between times *t*–1 and *t* and who are uninsured at time *t*; $L_{t-1,t}$ is the number of persons who were uninsured at time *t*–1 but are not in the population at time *t*; $N_{t-1,t}$ is the number of persons who were insured at time *t*–1 but have lost their coverage and are uninsured at time *t*; and $F_{t\text{-}1,t}$ is the number of persons who were uninsured at time t–1 but have coverage at time *t*.

Except for immigration, little attention has been paid to the impact of movement into and out of the population in maintaining or changing the number of uninsured persons over time, but the civilian non-institutional population to which most estimates of insured and uninsured persons apply is itself a dynamic population. The scarcity of data on gross movements—other than births and deaths—into and out of this population is a key factor in both the limited research on the impact of such change on the number of uninsured persons and a general absence of discussion of this phenomenon in the literature. Our own research with the SIPP suggests that uninsured rates among people leaving the SIPP universe (that is, leaving the country, entering institutions, or joining the military) are high enough to induce a discernible downward component into the trend in the uninsured rate observed over the life of a SIPP panel. Between March 1996 and November 1999, the departure of sample members 19 to 64 who left the survey universe accounted for a drop of 0.9 percentage points in the nonelderly adult uninsured rate.[1] The impact is as pronounced as it is because the SIPP design does not capture people entering (or, in many cases, re-entering) the population as fully as it represents people leaving the population. In cross-sectional surveys, the net impact of movement into and out of the survey universe is fully reflected in the survey estimates. This includes the impact of immigration, which would very likely be greater if the streams of new migrants were not offset in part by reverse flows of former migrants returning to their home countries.[2]

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[1] Over this same period, persons who were 19 to 64 in March 1996 experienced a decline of 4.0 percentage points in their uninsured rate, due in large part to the strong economy. With a weak economy, the downward contribution from people leaving the survey universe would still be present, but the decline among those remaining in the survey universe would be much weaker or possibly absent altogether.

[2] In March 2000, the uninsured rate for recent immigrants (since 1995) age 19 to 39 was 53 percent, and for recent immigrants 40 to 64 it was 44 percent (authors' tabulations of the March 2000 Current Population Survey).

(continued)

With the SIPP we can estimate the gross flows between the uninsured and the insured among persons present at times t-1 and t (the F and the N terms). This provides the basis for the analysis presented in this report. Given the number of uninsured persons at time t–1, the rate at which people exit the uninsured by obtaining and retaining coverage between t–1 and t determines the magnitude of F. Similarly, given the number of *insured* persons at time t–1, the rate at which people *lose* coverage and remain uninsured between t–1 and t determines the magnitude of N.

The empirical evidence from SIPP indicates that these flows are substantial but largely offsetting. Over a period as short as a year, most of those who were uninsured at the beginning of the period gain coverage while a comparable number of the insured lose coverage. Empirical evidence also tells us that the sizable magnitudes of these flows derive in part from the large number of short-term spells without coverage among people losing coverage.[3] These short-term spells contribute substantial movement into and out of the uninsured population over a relatively brief period of time. Despite the preponderance of short-term uninsured spells, however, SIPP data also tell us that most of the uninsured at any one time have either been without coverage for an extended period of time or will remain without coverage for an extended period of time.[4] These seemingly contradictory findings derive from the well-established fact that longer-term

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(continued)

The March 1996 uninsured rate for adults who left the SIPP universe was 52 percent for those 19 to 39 and 22 percent for those 40 to 64. Adults leaving the SIPP universe include persons moving abroad, joining the military, or entering institutions.

[3] From the 2001 SIPP panel we estimate that of the uninsured spells that started between February 2001 and January 2002, 66 percent of children's spells and 47 percent of nonelderly adults' spells lasted four months or less.

[4] We estimate from the 2001 SIPP panel (data not shown) that 57 percent of the children and 81 percent of the nonelderly adults who were uninsured in May 2002 will have been uninsured for at least a year before regaining coverage.

spells make a bigger contribution to the uninsured at a point in time than do shorter-term spells (see, for example, Congressional Budget Office 2003).

2. Why Do People Experience Transitions in Coverage?

Why people lose coverage, how they gain or regain coverage, and why they change their source of coverage are critical pieces of information for policymakers seeking to identify effective strategies for reducing the level of uninsurance in America. Theories of health insurance coverage are typically developed to support cross-sectional empirical analyses. While such theories may be expressed in terms of why people choose to purchase or otherwise obtain coverage, the underlying purpose of the models they serve is to explain why some people have coverage at a given point in time and some do not. Our focus on transitions in an empirical analysis of longitudinal data requires a theory of changes in coverage decisions over time.

In general terms, the demand for health insurance coverage can be expressed as a function of several elements. These include the utility that a person expects to derive from coverage, which depends in part on health care needs; the price of that coverage; preferences regarding risk; preferences for other goods and services; and the income or other resources available to spend on health insurance coverage and these other goods and services.

In their formulation, Reschovsky et al. (2007) observe that consumers can obtain health insurance coverage in any of four ways. One, they can obtain employer-sponsored insurance (ESI) as a fringe benefit if they (or a family member) work for an employer that offers such a benefit. Two, they can purchase private nongroup coverage. Three, they can obtain public coverage if they are eligible. Four, they can choose to be uninsured (or self-insured), which means that they pay all medical expenses out of pocket or rely on charity. Options one and three are not available to everyone whereas options two and four *are* available, although the price of private insurance coverage may put it beyond the means of many people. We note as well that the quality of medical care that a consumer is able to procure may vary among the available options and thus factor into the consumer's preferences among these options.

Reschovsky et al. (2007) express the probability of being covered by ESI as the product of three probabilities: (1) the probability that an individual works for an employer; (2) the probability that the individual receives an offer of coverage, conditional on working for an employer; and (3) the probability that the individual takes up the offer of coverage, conditional on receiving it. These probabilities are not necessarily independent. An individual may pursue and take a particular job because if offers health insurance coverage, which the individual intends to purchase.

Because access to ESI requires an employer that offers such coverage, and because access to public coverage depends on eligibility, transitions into and out of such coverage will be associated with changes in employment, changes in the benefits offered by employers, and changes in the factors that determine eligibility for public coverage. Furthermore, because the coverage offered by employers is often not free to employees, transitions into and out of ESI may also be affected by changes in income. Private nongroup coverage will be more expensive than coverage offered by an employer, so transitions involving private nongroup coverage are likely to be affected by changes in employment and changes in the coverage offered by employers. Absent changes in access to ESI, transitions into or out of private nongroup coverage are likely to be affected by changes in income, which may also affect eligibility for public coverage and, therefore, transitions into or out of such coverage. Changes in family composition may also affect eligibility for public coverage, leading to possible transitions.

The utility derived from health insurance coverage varies among people as a function of a number of characteristics, some permanent and some subject to change. Healthy, young males may have little need for medical care and therefore assign little utility to it. Excluding rare, emergency care, what a young male would spend out of pocket for medical care may be substantially less than the employee premium for ESI. With increasing age or with the acquisition of a family this calculation changes. Given the short-term length of our longitudinal analysis, aging is not a significant factor in changing utility, but other changes in personal characteristics—such as marriage, childbirth, divorce, or the loss of a spouse—may have immediate effects and, therefore, need to be considered as potential trigger events.

Lastly, because coverage obtained from an employer or purchased privately can usually be applied to other family members, decisions regarding health insurance coverage are often made at the family level, where family refers to the set of individuals who can be included in health insurance coverage obtained from one source. Typically this consists of a single individual or married couple, their children under 19, plus any additional children up to age 23 who are enrolled full time in school. Public coverage may extend to the family as well, but depending on the type of coverage and how different family members qualify, it may be restricted to individual family members.

B. RESEARCH QUESTIONS

Given the conceptual framework described above, it follows that the key questions for research should revolve around enhancing our understanding of (1) the dynamics of coverage and (2) the factors that are associated with key transitions in coverage. Most of the detailed questions posed in the Statement of Work for this project can be subsumed under these two broad objectives. We discuss these questions in sections 2 and 3 below. An additional set of questions was addressed in the extensive set of descriptive tabulations produced in response to ASPE’s specifications early in the project. For completeness, we document in section 1 the questions that were addressed in these earlier tabulations and provide a summary of key findings.

A discussion of issues regarding analysis of the change in health insurance dynamics over time is presented in section 4 and concludes the chapter.

1. Profiling Insurance Coverage in a Longitudinal Context

The descriptive tabulations that were generated earlier in the project provide evidence of significant variation in the experience and duration of both coverage by source and the lack of coverage across population subgroups. These tabulations, which examined the incidence of coverage and noncoverage within each of the first two calendar years of the 2001 SIPP panel, provide responses to three questions posed by ASPE:

- What are the demographic profiles of insurance coverage?
- How volatile are different coverage types and does this volatility vary by demographic group?
- Are there any systematic differences among those who are uninsured for short time periods versus those who are uninsured for intermediate and longer time periods?

Based on just two single years of data, which were analyzed separately, the descriptive tabulations do not go especially far in providing a basis for classifying periods without coverage. In particular, they do not document extended periods with or without coverage. Nevertheless, tabulations of months of coverage over a period as brief as a year are in fact quite informative about differences across population subgroups. To demonstrate this, we summarize key findings with respect to the demographic profiles of insurance coverage, the volatility of different coverage types, and characteristics associated with extended periods without coverage.

Table II.1 presents four measures of the prevalence of periods without health insurance coverage by age, race and ethnicity, immigration status, and annual income relative to poverty for both the family and the health insurance unit (HIU). All four measures were derived from 12

TABLE II.1

ALTERNATIVE ANNUAL MEASURES OF PREVALENCE OF THE UNINSURED BY DEMOGRAPHIC CHARACTERISTICS AND FAMILY INCOME RELATIVE TO POVERTY: ALL PERSONS, 2001

Population and Classification	Number of Persons (1,000s)	Percent Uninsured All Year	Average Monthly Percent Uninsured	Percent Ever Uninsured In Year	Average Number of Months Uninsured
All Persons	274,307	6.9	14.1	24.1	7.0
Age (January 2001)					
Under 18	71,774	4.5	14.3	29.5	5.8
18 to 39	85,598	11.1	21.3	34.0	7.5
40 to 64	84,541	7.1	11.8	17.9	8.0
65 and older	32,394	0.4	1.0	2.0	5.8
Race and Ethnicity					
White non-Hispanic	193,456	4.5	9.8	17.3	6.8
Black non-Hispanic	32,812	7.8	18.3	33.1	6.6
Hispanic	34,399	18.8	33.8	51.3	7.9
Asian and Pacific Islander	10,647	7.7	16.2	28.2	6.9
American Indian/Alaskan Native	2,992	5.6	18.8	35.6	6.3
Immigration Status (mid-year)					
Native born	244,329	5.5	12.2	21.6	6.7
Foreign born, naturalized	11,421	8.9	15.7	24.6	7.7
Foreign born, permanent resident	12,008	23.3	37.1	51.7	8.6
Foreign born, other	4,460	32.7	48.7	66.2	8.8
Unknown	2,089	9.8	32.2	60.3	6.4
Family Income Relative to Poverty					
Under 100%	29,767	15.8	30.7	49.1	7.5
100% to under 200%	53,599	13.5	25.8	40.8	7.6
200% to under 300%	55,161	7.0	14.9	26.4	6.8
300% to under 400%	43,187	4.1	9.1	17.2	6.4
400% to under 500%	31,589	1.7	5.4	11.0	5.9
500% or more	61,005	1.2	3.2	6.7	5.8
HIU Income Relative to Poverty					
Under 100%	39,015	16.9	32.6	51.2	7.6
100% to under 200%	56,932	12.7	24.7	39.9	7.4
200% to under 300%	53,367	6.0	13.2	23.8	6.6
300% to under 400%	40,173	2.5	6.6	14.0	5.7
400% to under 500%	29,112	1.3	3.7	7.7	5.7
500% or more	55,708	0.8	2.3	5.1	5.4

Source: Mathematica Policy Research, Inc., from the 2001 SIPP panel.

Note: Average number of months uninsured is among persons who were ever uninsured in the year.

months of data—specifically, from reports of the number of months without health insurance coverage in calendar year 2001.[5] The four measures are the percent of persons uninsured all year, the average monthly percent uninsured, the percent ever uninsured in the year, and the average number of months uninsured among those who were ever uninsured. The first three measures represent common ways of describing the relative frequency of the uninsured over a 12-month period while the fourth provides a measure of duration bounded by the 12-month window and without regard to the impact of right and left censorship. Overall, 6.9 percent of all persons were uninsured for the entire year; 14.1 percent were uninsured in any given month, on average; 24.1 percent were ever uninsured during the year; and those who were uninsured were without coverage for an average of 7.0 months. The two-to-one ratio of average monthly to full-year uninsured is a familiar SIPP finding that continues to hold when the elderly, with their very low uninsured rate, are removed. The percent ever uninsured in the year is about three-and-a-half times the percent uninsured the entire year and about half that fraction (or 1.7 times) greater than the average monthly percent uninsured.

There are big differences in the first three measures by age that go beyond what can be attributed to Medicare's nearly universal coverage of the elderly. For example, only 4.5 percent of children under 18 but 11.1 percent of adults 18 to 39 were uninsured the entire year, and 17.9 percent of adults 40 to 64 were ever uninsured compared to 34.0 percent of younger adults. Among those who were ever uninsured, however, the average number of months without coverage varied over a more narrow range, from 5.8 months for both children and the elderly to 7.5 months for adults 18 to 39 and 8.0 months for adults 40 to 64. We find a similarly restricted range of average months uninsured among the ever-uninsured across race and ethnicity,

[5] The sample estimates are weighted by the 2001 calendar year weights.

immigration status, and both family and HIU income. In particular, while the average monthly percent uninsured varied from 2.3 percent to 32.6 percent between the highest and lowest levels of HIU income, the average number of months that the uninsured spent without coverage ranged from 5.4 months to 7.6 months. This suggests, and our later analysis of the full three years of SIPP 2001 panel data will confirm, that while the likelihood of being uninsured may vary greatly across people defined by their demographic and economic characteristics, those who do become uninsured have relatively similar distributions of time without coverage.

Nevertheless, it should be noted that the average monthly duration is related to the proportion of the ever-uninsured who are uninsured for the entire year. The higher this proportion, the longer the average duration. This can be seen most readily in a comparison of the alternative measures by age. For children and the elderly, the percent uninsured all year (4.5 percent for children and 0.4 percent for the elderly) is at most one-fifth of the percent ever uninsured in the year (29.5 percent for children and 2.0 percent for the elderly), and the ever-uninsured in both groups have low average months uninsured (5.8 months). Contrast this with adults 40 to 64, whose 7.1 percent uninsured all year is about 40 percent of the 17.9 percent ever uninsured in the year, and whose average months uninsured is the highest among the age groups at 8.0 months.

The estimates by race, immigration status, and income reveal exceedingly high uninsured rates by each of the first three measures for subgroups within the larger population. In particular, between 23 and 33 percent of the foreign born who had not (yet) become naturalized were uninsured for the entire year, between 37 and 49 percent were uninsured in an average month, and between 52 and 66 percent were ever uninsured during the year. Not quite as extreme but representing a subpopulation nearly twice as large, 16 percent of the poor were uninsured the entire year, 31 percent were uninsured in an average month, and 49 percent were ever uninsured during the year. Hispanic persons, who combine a high incidence of immigration with a high poverty rate, were even more likely to be without coverage than the poor, with 19 percent uninsured all year, 34 percent uninsured in an average month, and 51 percent ever uninsured.

Table II.2 reports the same set of four measures for nonelderly persons classified by the labor force status, firm size (if employed), and industry (also if employed) of the primary earner in the family. We find large increases in uninsured rates across the first three measures as the labor force status shifts from full-year, full-time to part-year, part-time, but the average months uninsured among the ever-uninsured do not grow at all.[6] Uninsured rates decline as firm size grows, with the self-employed being somewhat less likely to experience periods of time without coverage than employees of firms with fewer than 25 employees. Uninsured rates also vary widely by the industry of the primary earner, with average monthly uninsured rates varying from a low of 5.7 percent in education services and government to a high of 33.4 percent in agriculture and personal services. Within these same two sets of industries the percent ever uninsured during the year ranges from 12.0 percent to 51.9 percent.

Table II.3 presents estimates of the four rates for nonelderly adults by marital status and parental status. The sharpest contrast is between those who are married with a spouse present and those who are married but with an absent spouse. The average monthly percent uninsured increases from 11 percent to 33 percent with the spouse's absence. Separated and never married persons have very similar uninsured rates across the three measures, with between 25 and 27 percent uninsured in an average month and 40 to 41 percent ever uninsured during the year. Parents of full-time students 19 to 23 (and no younger children), who represent only 2.8 million

[6] To be considered a full-year worker, a respondent had to have been with a job for at least one week in every month that he or she was in the sample. For a full-year worker, full-time is 35 hours or more per week in at least half the months in the sample. For a part-year worker, full-time is 35 hours or more per week in at least half the months employed.

TABLE II.2

ALTERNATIVE ANNUAL MEASURES OF PREVALENCE OF THE UNINSURED BY EMPLOYMENT CHARACTERISTICS OF THE FAMILY PRIMARY EARNER: NONELDERLY PERSONS, 2001

Population and Classification	Number of Persons (1,000s)	Percent Uninsured All Year	Average Monthly Percent Uninsured	Percent Ever Uninsured In Year	Average Number of Months Uninsured
Nonelderly Persons	241,913	7.7	15.9	27.0	7.1
Labor Force Status of Primary Earner					
Full-year, full-time	174,846	5.9	11.8	20.1	7.0
Full-year, part-time	12,655	12.1	23.0	36.4	7.6
Part-year, full-time	28,675	11.9	30.3	54.3	6.7
Part-year, part-time	7,407	16.4	31.4	51.2	7.3
Unemployed 4 or more months	1,564	25.9	42.2	60.1	8.4
Out of labor force (all other)	16,766	10.3	19.9	32.4	7.4
Firm Size of Primary Earner					
Not employed	18,330	11.6	21.8	34.8	7.5
Self-employed	23,783	14.7	23.4	33.2	8.5
Under 25	34,313	16.0	28.4	43.3	7.9
25 to 99	25,085	8.6	17.9	31.5	6.8
100 or more	139,003	3.7	10.2	19.9	6.2
Don't know	1,400	17.9	35.5	53.3	8.0
Industry of Primary Earner[a]					
Agriculture and personal services	8,403	17.5	33.4	51.9	7.7
Construction; business and repair services	27,658	13.6	24.4	37.3	7.8
Manufacturing and mining	38,706	3.6	10.2	20.4	6.0
Transportation, communication and public utilities; wholesale trade	25,396	4.2	10.4	19.8	6.3
Retail trade	24,591	12.0	24.7	41.2	7.2
Entertainment, recreation, and social services	7,063	6.7	15.5	27.9	6.7
Finance, insurance and real estate; professional services	36,730	3.7	10.4	21.0	6.0
Education services and government	30,260	1.9	5.7	12.0	5.7

Source: Mathematica Policy Research, Inc., from the 2001 SIPP panel.

[a] Includes persons whose primary family earner had an employer during the year and reported an industry.

TABLE II.3

ALTERNATIVE ANNUAL MEASURES OF PREVALENCE OF THE UNINSURED BY MARITAL STATUS AND PARENTAL STATUS: NONELDERLY ADULTS, 2001

Population and Classification	Number of Persons (1,000s)	Percent Uninsured All Year	Average Monthly Percent Uninsured	Percent Ever Uninsured In Year	Average Number of Months Uninsured
Nonelderly Adults (18 to 64)	170,139	9.1	16.6	26.0	7.7
Marital Status (January 2001)					
Married, spouse-present	97,849	6.3	10.9	17.2	7.6
Married, spouse-absent	1,904	17.1	32.9	47.6	8.3
Widowed	3,464	9.6	17.1	24.3	8.5
Divorced	18,398	12.4	21.6	32.7	7.9
Separated	4,245	13.9	26.9	40.8	7.9
Never married	44,279	13.0	25.3	40.4	7.5
Parental Status (January 2001)					
Parent of child under 19	68,751	8.3	15.4	24.7	7.5
Parent of full-time student, 19 to 23[a]	2,756	5.6	8.5	12.4	8.2
Other	98,632	9.7	17.6	27.3	7.8

Source: Mathematica Policy Research, Inc., from the 2001 SIPP panel.

[a] Person has no younger children.

persons, have lower uninsured rates than either parents of younger children or those with no children (or only older children), with the rates for the latter two groups being very similar.

Turning now to coverage, Table II.4 reports estimates of coverage by source that parallel the four measures of uninsured prevalence. For each source these measures indicate the percent covered all year, the average monthly percent covered, the percent ever covered in the year, and the average number of months covered among those who were covered by that source at any time during the year. The estimates are presented for nonelderly persons by age. For all three age groups the estimates reveal how fully ESI dominates all other sources, covering 67.0 percent of the nonelderly population, on average, and 76.5 percent ever in the year.[7] Those who were ever covered by ESI were covered for an average of 10.5 months.

Medicaid dominated the rest of the sources, but this is a result of Medicaid's significant role among children. While 11.0 percent of the nonelderly population, on average, had Medicaid coverage in a given month, the rate among children was 21.2 percent. Medicaid coverage dropped to 7.6 percent among adults 18 to 39 and 5.8 percent among adults 40 to 64. Private nongroup coverage accounted for a larger share of the older adult population, with a monthly average of 7.4 percent, but Medicaid dominated its 4.3 percent share among younger adults.

Military-related coverage, which for SIPP and other household surveys encompasses mostly civilian employees of defense department agencies, was reported by about half as many people, on average, as private nongroup coverage, but about two-thirds of those with military-related coverage were covered for the full year compared to about 40 percent of those with private nongroup coverage. Other private coverage, which represents a catch-all in the SIPP questionnaire, is reported as the source of coverage for only 1.2 percent of adults but

[7] ESI in this table is based on a Census Bureau recode that combines sources identified as current employer, former employer, and union. See Chapter IV.

TABLE II.4

ALTERNATIVE ANNUAL MEASURES OF HEALTH INSURANCE COVERAGE BY SOURCE: NONELDERLY PERSONS BY AGE, 2001

Age and Source of Coverage	Percent Covered All Year	Average Monthly Percent Covered	Percent Ever Covered In Year	Average Number of Months Covered
All Nonelderly Persons (under 65)				
Employer-sponsored insurance	56.4	67.0	76.5	10.5
Private nongroup	2.1	5.3	9.7	6.5
Military-related	1.9	2.8	4.1	8.2
Other private	0.2	2.2	6.1	4.3
Medicaid	6.1	11.0	16.4	8.0
Medicare	1.4	2.2	2.9	9.0
Children Under 18				
Employer-sponsored insurance	48.9	60.6	71.4	10.2
Private nongroup	1.3	3.8	7.6	6.0
Military-related	1.6	2.5	3.8	7.9
Other private	0.5	4.7	12.5	4.5
Medicaid	11.5	21.2	30.6	8.3
Medicare	0.0	0.0	0.0	3.9
Adults 18 to 39				
Employer-sponsored insurance	54.3	66.4	77.4	10.3
Private nongroup	1.5	4.3	8.6	6.0
Military-related	1.5	2.2	3.2	8.2
Other private	0.1	1.2	3.7	4.0
Medicaid	3.9	7.6	12.2	7.5
Medicare	0.6	0.8	1.1	9.5
Adults 40 to 64				
Employer-sponsored insurance	65.0	72.9	80.0	10.9
Private nongroup	3.4	7.4	12.7	7.0
Military-related	2.6	3.8	5.4	8.4
Other private	0.1	1.1	3.2	4.1
Medicaid	3.7	5.8	8.7	8.1
Medicare	3.5	5.4	7.2	9.0

Source: Mathematica Policy Research, Inc., from the 2001 SIPP panel.

Note: Population sizes by age are reported in Table II.1.

4.7 percent of children, which is curious because children would have to be listed on an adult's plan in order to be assigned this coverage.

It is noteworthy that, across all age groups, nonelderly persons with other private coverage had such coverage for an average of just four months. This implies that in most cases, people reported other private coverage for just a single interview wave, which in SIPP has a four-month reference period. Such one-time responses could represent reporting error or uncertainty about the true source of coverage rather than the accurate identification of a source of coverage that could not be described by any of the other categories. Average durations for military-related coverage, Medicaid, and Medicare were in the 8 to 9 month range, which is shorter than ESI but longer than private nongroup coverage and indicative of consistent reporting over time. Later, in Chapter IV, we look at alternative measures of stability in reported coverage by source, which better address the question of volatility posed by ASPE.

The issue of systematic differences between the short term, intermediate term, and longer term uninsured was addressed in only a very limited way in the descriptive tabulations summarized here. Further analysis of this issue, which has direct relevance to policy development, is included in the extended treatment of health insurance dynamics described below.

2. Understanding the Dynamics of Coverage

The descriptive analysis presented in Chapter IV addresses several research questions aimed at enhancing our understanding of the dynamics of health insurance coverage. This descriptive analysis provides answers to the following questions:

- How many people are ever uninsured in a three-year period, and for how long are they without coverage?
- How long do people in different demographic groups remain uninsured?

- How important are multiple spells without coverage as a factor in the overall lack of coverage, and what subgroups are most susceptible to them?
- What is the likelihood of entering or exiting health insurance coverage for various demographic groups?
- How long do people remain in different insurance types—specifically, Medicaid, private coverage generally, and both ESI and nongroup coverage specifically?
- What health insurance coverage do people have before they become uninsured?
- How long do people remain uninsured after leaving each source of coverage?
- What type of coverage do people obtain when they regain coverage?
- How long do people remain uninsured before they sign up for public programs? How long do they remain uninsured before obtaining other types of coverage?
- How does the type of coverage before or after a longer term uninsured spell vary by age?
- How often do people with each source of coverage experience changes in employment, income, or family composition?
- What is the likelihood of leaving the current source of coverage or the uninsured state, conditional on experiencing a change in employment, income, or family composition?

We begin by looking at the fraction of the population experiencing one or more months without coverage over a three-year period, building on the one-year analyses presented in the preceding section, and we examine distributions of months without coverage, by age, family income, and race/ethnicity. We also assess the importance of multiple spells as a factor in the amount of time spent without coverage.

Next we examine the likelihood of entering or exiting health insurance coverage by estimating the number of new uninsured and insured spells that were started during a three-year period by age group and family income relative to poverty. Each new spell corresponds to a transition of the type that we model in Chapter V. We look at differential coverage duration by source by estimating the likelihood that people will retain versus leave each source of coverage between one wave and the next and how often when they leave a given source they become uninsured. We also look at the duration of insured spells starting within the first year of the panel by major source of coverage. ASPE had expressed an interest in looking at retention of coverage separately for different demographic groups, but we did not subdivide the population for these estimates.

In looking at the sources of coverage that precede or follow uninsured spells, we expand the analysis to include an examination of how long people remain uninsured after leaving each source of coverage and how long they were uninsured before obtaining their subsequent coverage. For the latter we examine durations by all subsequent sources of coverage rather than looking solely at public programs, as the Statement of Work had requested. We also include estimates of how the type of coverage before or after an uninsured spell differs by age, and in so doing we restrict our attention to spells that lasted six months or more, which hold more interest to policymakers than shorter spells.

Finally, as a prelude to the multivariate analysis presented in Chapter V, we examine the frequency of specific changes in employment, income, or family composition—events with the potential to trigger a change in health insurance coverage—between consecutive SIPP waves, by source of coverage in the first of each pair of waves. We also examine the conditional probability of leaving each source of coverage or the uninsured state, given the experience of a specific change in employment, income, or family composition. These bivariate estimates help to make the case for a multivariate analysis.

3. Events Associated with Gaining or Losing Coverage

The second major new component of this research is a multivariate analysis of events associated with transitions in health insurance coverage. In this analysis we focus on transitions involving the gain or loss of coverage, and we develop distinct modeling approaches to each. One reason for excluding transitions between different types of coverage is that many such transitions involve an interim uninsured spell, which means that they will already be included in our analysis. Another is that many of the direct transitions between different types of coverage that do occur in SIPP may be nothing more than reporting error. Respondents who are uncertain about their own coverage or, if they are also responding for others, the coverage held by other household members may give different answers in different waves when in fact no one's coverage has changed. In addition, and perhaps more importantly, who responds in a given household may change from wave to wave, creating the potential for discrepant responses if the level of awareness of other household members' health insurance coverage varies among the potential respondents.[8] We discuss false transitions further in Appendix B.

The multivariate analysis addresses the following questions posed by ASPE:

- What events are associated with entry or exit from insurance coverage?
- Which events have the strongest relationship with entering or exiting insured status?
- What demographic characteristics are associated with entering or exiting coverage?
- Do the events associated with entry and exit from health insurance coverage differ for long uninsured spells versus short spells?

This analysis is the subject of Chapter V. In developing our multivariate models we explored numerous potential trigger events representing changes in employment, income, and family composition. Estimates from the separate models of transitions into and out of health insurance coverage provide direct answers to the first three questions. Sensitivity analyses explore variation in the estimated relationships in response to changes in model specification, including the omission of one-wave spells, which addresses the last question.

[8] In theory, each adult sample member (15 and older) is interviewed separately, but in reality, many sample households have a single respondent in a given wave, who provides proxy responses for the other adult sample members. A new respondent between one wave and the next can give rise to inconsistent responses between waves, which appear to represent change.

4. Change in Health Insurance Dynamics Over Time

Citing the economic prosperity of the 1990s, the Statement of Work defining the scope of this project asks why uninsured rates have remained as high as they have and poses several questions that demonstrate a comprehension of key elements of the dynamics of health insurance coverage. Specifically, has the percentage of the population entering the uninsured state remained steady rather than declining; has the percentage of the uninsured exiting that state remained unchanged rather than rising; has the length of uninsured spells or gaps in coverage remained fixed rather than diminishing? We suggest that during the late 1990s the dynamics of health insurance coverage were indeed changing, but when the period of growth ended, so, too, did the momentum behind further changes in entry and exit rates. As a result, uninsured rates, which had declined in the late 1990s, flattened out.

This scenario is reflected in a comparison of trends in health insurance coverage rates and the distribution of income relative to poverty in the 1996 and 2001 SIPP panels. These estimates, which were generated using longitudinal weights, reflect the experience of population members who were present at the start of each panel; persons entering the population during the period covered by each panel are excluded. During the 1996 panel, private coverage rates among nonelderly adults *rose* by three percentage points between March 1996 and March 1999, and uninsured rates *fell* by three percentage points (Table II.5).[9] Private coverage rates for children rose by four percentage points, but public coverage declined by nearly the same amount, yielding

[9] Over this same period the CPS shows the following. Among nonelderly adults (18 to 64), the uninsured rate rose from 18.8 to 19.6 between March 1996 and March 1997, remained at that level for another year, and then declined to 19.0 percent. Among children under 18, the uninsured rate rose from 14.8 to 15.4 percent between March 1996 and March 1998 before dropping to 13.9 percent in March 1999. For adults we suggest that the difference between the survey trends is due in large part to SIPP's exclusion of approximately 6 million persons who entered the population between March 1996 and March 1999. The trends in the child uninsured rates are more similar between the two surveys because the new entrants who are excluded from the SIPP estimates number only about a million. The CPS estimates cited here are from the Census Bureau's Historical Health Insurance Estimates, table HI-2, which can be found at http://www.census.gov/hhes/www/hlthins/historic/hlthin05/hihistt2.html.

TABLE II.5

ESTIMATES OF HEALTH INSURANCE COVERAGE AND INCOME RELATIVE TO POVERTY: CHILDREN AND NONELDERLY ADULTS, MARCH 1996 TO MARCH 1999

Estimate	Mar 1996	Mar 1997	Mar 1998	Mar 1999
	Percent of Adults 19 to 64			
Health Insurance Coverage				
Any public coverage	8.7	8.8	8.7	8.4
Only private coverage	72.9	74.3	75.5	76.2
Uninsured	18.4	16.9	15.8	15.4
	Percent of Children under 19			
Health Insurance Coverage				
Any public coverage	19.0	17.0	15.9	15.6
Only private coverage	66.2	67.6	69.2	70.3
Uninsured	14.8	15.4	14.9	14.1
	Percent of Adults 19 to 64			
Monthly Family Income Relative to Poverty				
Less than 200%	31.1	31.0	28.9	27.4
200% to under 400%	33.0	35.0	34.6	34.6
400% or more	35.9	34.0	36.5	38.0
	Percent of Children under 19			
Monthly Family Income Relative to Poverty				
Less than 200%	45.6	46.8	44.4	42.5
200% to under 400%	32.8	33.7	34.4	35.0
400% or more	21.6	19.5	21.2	22.4

Source: Mathematica Policy Research, Inc., from the 1996 SIPP panel.

Note: Age is defined in the reference month.

a much smaller decline in children's uninsured rates. At the same time the percentage of nonelderly adults whose family incomes were below 200 percent of poverty fell by nearly four percentage points while the percentage with incomes between 200 and 400 percent of poverty and the percentage with family incomes above 400 percent of poverty both grew by two percentage points.

During the 2001 SIPP panel, the fraction of adults 19 to 64 with public health insurance coverage rose by a percentage point but was offset by a percentage point decline in the percent with private coverage, leaving the uninsured rate unchanged between January 2001 and September 2003 (Table II.6).[10] Among children, the fraction with public health insurance rose by 3.6 percentage points while the fraction with private coverage declined by 2.8 percentage points, yielding a reduction of 0.8 percentage points in the uninsured rate.[11] During this same period the percentage with family income below 200 percent of poverty declined by just a percentage point among adults and remained unchanged among children.

The Statement of Work invites a comparative analysis of health insurance dynamics between the two SIPP panels, which suggested to us a replication of the multivariate analysis of trigger events on the earlier panel along with the simpler descriptive analysis. We restricted our comparative analysis to the latter, which did indeed provide evidence of differential dynamics between the two surveys. Differences were modest, however, and the odds that we would find differences in an exploratory multivariate analysis that we could confidently attribute to changes in the underlying coverage dynamics appeared too low to warrant the substantial additional effort

[10] The 1996 SIPP panel ran four years while the 2001 panel was in the field for only three years—hence the shorter series for the latter panel.

[11] Between March 2001 and March 2004 the CPS uninsured rate among nonelderly adults 18 to 64 rose from 18.5 to 20.5 percent. The uninsured rate among children under 18 declined from 11.7 to 11.2 percent. Thus, while the trends differ between the two surveys, both the SIPP and CPS show that nonelderly adults fared better in the late 1990s than the early 2000s while children fared about the same.

TABLE II.6

ESTIMATES OF HEALTH INSURANCE COVERAGE AND INCOME RELATIVE TO POVERTY: CHILDREN AND NONELDERLY ADULTS, JANUARY 2001 TO SEPTEMBER 2003

Estimate	Jan 2001	Jan 2002	Jan 2003	Sep 2003
	Percent of Adults 19 to 64			
Health Insurance Coverage				
Any public coverage	8.3	8.7	9.1	9.3
Only private coverage	74.3	73.7	73.5	73.2
Uninsured	17.4	17.7	17.4	17.4
	Percent of Children under 19			
Health Insurance Coverage				
Any public coverage	21.3	22.3	24.2	24.9
Only private coverage	64.6	63.5	62.8	61.8
Uninsured	14.1	14.3	13.0	13.3
	Percent of Adults 19 to 64			
Monthly Family Income Relative to Poverty				
Less than 200%	29.9	28.9	28.0	28.9
200% to under 400%	32.7	34.0	32.7	32.9
400% or more	37.4	37.1	39.3	38.2
	Percent of Children under 19			
Monthly Family Income Relative to Poverty				
Less than 200%	42.7	42.6	42.1	42.6
200% to under 400%	33.3	34.1	33.1	33.4
400% or more	24.1	23.2	24.8	23.9

Source: Mathematica Policy Research, Inc., from the 2001 SIPP panel.

Note: Age is defined in the reference month.

that this would have required. The comparisons that are presented in Chapter IV include estimates of months without coverage in a three-year period, the likelihood of entering or exiting health insurance coverage, and the frequency of multiple spells. Separate estimates are reported for demographic subgroups defined by age, family income, and race/ethnicity.

That the evidence of changing dynamics reported in Chapter IV is as modest as it is may be a function of the 2001 SIPP panel following too closely on the end of the 1996 panel. This suggests that comparing the 1996 panel to the 2004 panel might yield more substantial evidence of change, but there are methodological issues with such a comparison. With the 2004 panel the Census Bureau introduced dependent interviewing into the SIPP; respondents were told what coverage they (or another household respondent) had reported in the prior wave before being asked about coverage in the current wave. Indications are that this effort to reduce seam bias may have been effective in decreasing the frequency of short uninsured spells (Moore et al. 2009). If so, this would alter what the 2004 panel tells us about the dynamics of the uninsured independently of any real change. Consequently, it may not be possible to draw valid inferences about changes in the dynamics of health insurance coverage by comparing a pre-2004 panel with the 2004 panel. To complicate matters further, the Census Bureau did not continue dependent interviewing in the 2008 panel, which entered the field in September 2008. While successful in reducing the degree of seam bias, dependent interviewing proved difficult to administer, and its adverse effects on the measurement of private health insurance coverage in the 2004 panel remain unresolved. Comparisons of health insurance dynamics between the 2001 and 2008 panels (or between 1996 and 2008) should be valid, but they will have to wait until three years of 2008 panel data have been released. Comparisons involving the 2004 panel should be avoided.

Finally, the Medical Expenditure Panel Survey (MEPS) appears to provide a more suitable vehicle for assessing the impact of two major components of the recent upturn in uninsured rates:

rising costs and declining employer offers. The MEPS data on these topics are richer, and the MEPS design, with a new panel starting each year, will support a trend analysis across panels, as the annual estimates from MEPS are uniformly representative of the population over time. At the same time, the two-year length of each MEPS panel permits some analysis of transitions and a cross-panel comparison of these findings. Future work on the changing dynamics of health insurance coverage should weigh the potential contributions of MEPS to supplement what can be learned from SIPP.

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III. DATA SOURCE

The analyses presented in this report use data from the 1996 and 2001 panels of the SIPP, with the newer panel serving as our primary data source and the older panel being used to help establish patterns of change over time. This chapter provides a brief overview of the survey. Section A discusses the survey design and selected features of the 1996 and 2001 panels, and Section B reviews SIPP's strengths and limitations for an analysis of the dynamics of health insurance coverage. Appendix B discusses in more depth several issues with SIPP panel data, including some that are specific to the 2001 panel. Appendix B also details the enhancements that we introduced into the SIPP databases for the analyses performed under this project.

A. THE SIPP DESIGN

Designed and conducted by the Census Bureau, SIPP is a longitudinal survey of a household-based sample drawn to be representative of the civilian, noninstitutional population of the United States. Adult members (15+) of sample households are interviewed every four months and asked an extensive battery of questions about their activities over the previous four months.[12] A substantial core of items is repeated every wave. These items capture monthly data on employment, income by detailed source, participation in government assistance programs, health insurance coverage, school enrollment, and a variety of additional topics. Selected data—including several health insurance items—are collected for children as well as adults. The core data are supplemented by topical modules that change from wave to wave and collect information on more specialized areas such as citizenship, assets and liabilities, child care costs,

[12] A household is considered "in sample" if it includes at least one adult member of an original sample household—that is, a household interviewed in the first wave of the survey. With few exceptions, original sample members are retained in the sample if they move within the United States, providing they remain in the household population.

work-related expenses, migration, and employment history. Some of the topical module content—such as assets and debts—is repeated annually. Other topical module elements recur less often or not at all.

A SIPP sample is divided into four rotation groups, which are interviewed on a staggered basis. Typically, the initial (wave one) interview with the first rotation group is conducted in February, and the four-month reference period runs from October of the previous year through January of the current year. The initial interview with the second rotation group is conducted in March, and the reference period runs from November of the previous year through February of the current year. Similarly, the third rotation group is interviewed first in April while the fourth rotation group is interviewed initially in May. Their reference periods run from December through March and January through April, respectively. The month of January appears in all four reference periods for wave one. Similarly, the common calendar month for the second wave interview is May while the common calendar month for the third wave interview is September. This pattern repeats in waves four through six and again in waves seven through nine and, in a four-year panel, waves 10 through 12. The rotation group design serves two major functions. First, it distributes the interview workload evenly over time. Second, it ensures that the survey estimates for any calendar month from January of the first year through September of the final year will be constructed of roughly equal fractions of respondents reporting on their activities one, two, three, and four months ago, which equalizes the effects of recall bias on responses. The survey's calendar month weights assign one-quarter of the population for a given month to each of the four rotation groups.

The 2001 SIPP panel began with a sample of about 35,100 interviewed households, but, for budgetary reasons, 15 percent of the households that responded to the first interview were dropped from the sample before the second interview. Households that remained in the sample were followed for an additional eight waves, yielding a total reference period of 36 months, ranging from October 2000 through September 2003 for the first rotation group to January 2001 through December 2003 for the fourth rotation group. The 1996 SIPP panel began with a sample of 36,700 interviewed households, which were followed for a total of 12 waves. Due to a temporary shutdown of the federal government in early 1996, the 1996 panel started two months late. The 48-month reference period spans December 1995 through November 1999 for the first rotation group to March 1996 through February 2000 for the fourth rotation group.

B. STRENGTHS AND LIMITATIONS OF SIPP PANEL DATA

With its collection of three to four years of monthly data on health insurance coverage, employment, income, family composition, and a wide range of other potential covariates of health insurance coverage, SIPP is unique in its ability to support analysis of the dynamics of health insurance and the relationship between transitions in coverage and changes in employment, income, and family composition.

The most important limitation of SIPP for this analysis is the weak information on employer offers of health insurance coverage. The 2001 panel collected such data only once, in a topical module that was administered in the fifth or middle wave. Because these data are present for only one point in time, they cannot be used in a longitudinal analysis, where they might help to elucidate the role of employment changes or provide insight into trends in employer offers of coverage and employee acceptances of offers. The 2001 panel did ask those respondents who were without health insurance in each wave the reasons that they lacked coverage, and the fact that their employer did not offer coverage was one of the possible reasons. This does not substitute for the collection of systematic and consistent information on employer offers, and a comparison of the reasons data with the topical module data on employer offers in wave 5 persuaded us that the reasons data do not provide a good proxy for the data collected in wave 5. Consequently, our analysis makes no use of data on employer offers.

Another notable limitation of SIPP is its declining cross-sectional representativeness over time. While SIPP is a panel survey and was not designed to provide representative cross-sectional estimates, survey users often take advantage of SIPP's rich data to generate cross-sectional estimates and compare them over time. The survey data contain monthly cross-sectional weights that are post-stratified to population controls reflecting the full civilian, non-institutional population, but this is not sufficient to compensate for the survey's under-representation of people entering or re-entering the population after the initial interview. As we explained in the previous chapter, this under-representation of entrants and re-entrants introduces a trend component into the survey's cross-sectional estimates over time. For uninsured rates and poverty rates this trend component is negative. If the overall trends in these variables are downward as well, as they were during the reference period of the 1996 panel, the effects of this separate panel trend may not be evident. But when the overall trends are flat or rising, these separate trends in poverty and health insurance coverage may affect the estimated trend from SIPP. As we discuss in Appendix B, poverty trends in the 2001 SIPP panel deviate noticeably from trends in the CPS, and SIPP's progressive loss of representativeness over the length of a panel may contribute to this phenomenon. At a minimum, SIPP users need to be aware that panel and true cross-sectional trends may differ.

IV. HEALTH INSURANCE COVERAGE DYNAMICS

This chapter presents a descriptive analysis of the dynamics of health insurance coverage. We begin by defining the analysis sample used for most of the empirical estimates in this and the next chapter. Then we review alternative estimates of the lack of coverage over the three-year length of the 2001 SIPP panel and, for comparison, the first three years of the 1996 panel. Following that we turn our attention to transitions in coverage, examining both their frequency and selected characteristics. In the final empirical section we look at an array of potential trigger events, presenting estimates of their frequency by source of coverage and their association with the probability of leaving each source of coverage and the uninsured state. We conclude with several observations about the dynamics of health insurance coverage.

A. ANALYSIS SAMPLE

A longitudinal analysis follows the same units over time. When the analysis involves people, as opposed to businesses or other entities, the units are typically individuals. While decisions about health insurance coverage are commonly made at the family level—or, more specifically, at the level of the family insurance unit, which many cross-sectional analyses utilize as their analytical unit—family units lack the continuity over time that existing methods of longitudinal analysis require. To conduct longitudinal analysis with families, researchers often exclude units with changes in marital status (see, for example, Dey and Flinn 2008). This strategy simply sidesteps the problem created by discontinuous units rather than solving it. In our case, changes in family composition are potential trigger events that we do not want to exclude from the analysis. Furthermore, ASPE has framed key issues in the dynamics of coverage in terms of the health insurance coverage of individuals. Following Duncan and Hill (1985), we use the individual as our unit of analysis but include family-level variables as characteristics of the individual.

Most of the analyses presented in this chapter and all of those in the next chapter focus on adults who were 19 to 61 in January 2001. The lower age limit corresponds to the start of adulthood (or the loss of child eligibility) under Medicaid and SCHIP. The upper age limit was chosen to exclude transitions into Medicare among persons turning 65, as such transitions involve no choice for most of the population reaching that age. By setting the upper limit at 61 at the start of the panel we also exclude transitions that may be influenced by the imminent approach of Medicare eligibility.[13] In addition, since the SIPP is a household survey that excludes from its sample frame the residents of institutions (such as nursing homes, prisons, and military barracks), our study population excludes this segment of the population as well.[14]

One consequence of following the same individuals over time is that we observe the effects of aging. By the end of the panel every sample member is three years older than at the start of the panel, and there is no sample member younger than the youngest member who started the panel—that is, no one is younger than four months shy of 22.[15] This has implications for the frequency over time of characteristics that vary by age, such as health insurance coverage. In particular, the youngest adults age out of the years when they are most vulnerable to losing coverage, which would tend to reduce their uninsured rate over time, other things being equal.

[13] By the end of wave 9, someone who was 61 years and 11 months at the end of wave 1 will be 64 years and 7 months, or 5 months short of qualifying for Medicare.

[14] Members of the armed forces living with one or more adult civilians—specifically, a spouse or other family member—are included in the SIPP sample frame and, therefore, our analysis if they meet the age requirement.

[15] We restricted the sample to persons 19 to 61 based on age in January 2001, but depending on rotation group, the 36-month reference period could have started as early as October 2000 and ended as early as September 2003.

B. LACK OF COVERAGE OVER TIME

There are varied ways to approach describing the extent to which people lack health insurance coverage over time. In this analysis we look first at how many people were without coverage during the three-year reference period of the 2001 SIPP panel and the amount of time that they spent without coverage. Then we compare such estimates between the 1996 and 2001 panels, which were conducted during periods characterized by different economic conditions—sustained economic growth during the former versus a brief recession followed by a very slow recovery during the latter. Following that we assess both the frequency and the impact of multiple spells without coverage. In the final two sections we look at the relationship between relative income and coverage over time and at differential coverage by race and ethnicity.

1. How Many People Are Without Coverage?

In January 2001, the population 19 to 61 numbered 162.7 million. Of these persons, 28.7 million or 17.6 percent of the total were uninsured in that month (Table IV.1). About twice that number, or 57.0 million (35.0 percent) were ever without health insurance coverage over the 36-month reference period of the 2001 SIPP panel.[16] In other words, over a three-year period more than one in three nonelderly adults had some amount of time in which they were not covered by health insurance. Since only half of these were uninsured in January 2001, those who lost coverage at some point between January 2001 and the end of 2003 were as numerous as those who were without coverage at the start of this period.

The likelihood of being without coverage, whether at the beginning or at any point in the three-year period, declined progressively with age. Among persons 19 to 29 in January 2001, 27.2 percent were uninsured in that month and 54.5 percent—more than half the persons in the

[16] Depending on rotation group (see Chapter III), the reference period started in months October 2000 through January 2001 and ended in months September 2003 through December 2003.

TABLE IV.1

LIKELIHOOD OF BEING WITHOUT HEALTH INSURANCE COVERAGE OVER A 36-MONTH PERIOD: ADULTS 19 TO 61 IN JANUARY 2001, BY AGE

		Age in January 2001			
Population	Total	19 to 29	30 to 39	40 to 50	51 to 61
		Thousands of Persons			
Total persons	162,727	41,267	42,191	46,599	32,670
Uninsured in January 2001	28,716	11,225	7,277	6,615	3,599
Ever uninsured in 36 months	57,010	22,497	14,687	12,619	7,207
By months without coverage					
1 to 4	13,207	5,025	3,505	2,906	1,771
5 to 11	10,138	4,287	2,702	2,039	1,110
12 to 23	13,958	6,064	3,425	2,843	1,626
24 to 31	7,645	3,256	1,867	1,672	849
32 to 35	4,670	1,729	1,223	1,088	631
36	7,392	2,135	1,964	2,073	1,220
		Percent of All Persons			
Uninsured in January 2001	17.6	27.2	17.2	14.2	11.0
Ever uninsured in 36 months	35.0	54.5	34.8	27.1	22.1
By months without coverage					
		Percent of All Persons			
1 to 4	8.1	12.2	8.3	6.2	5.4
5 to 11	6.2	10.4	6.4	4.4	3.4
12 to 23	8.6	14.7	8.1	6.1	5.0
24 to 31	4.7	7.9	4.4	3.6	2.6
32 to 35	2.9	4.2	2.9	2.3	1.9
36	4.5	5.2	4.7	4.4	3.7
		Percent of the Ever Uninsured			
1 to 4	23.2	22.3	23.9	23.0	24.6
5 to 11	17.8	19.1	18.4	16.2	15.4
12 to 23	24.5	27.0	23.3	22.5	22.6
24 to 31	13.4	14.5	12.7	13.2	11.8
32 to 35	8.2	7.7	8.3	8.6	8.8
36	13.0	9.5	13.4	16.4	16.9
		Cumulative Percent of the Ever Uninsured			
1 or more	100.0	100.0	100.0	100.0	100.0
5 or more	76.8	77.7	76.1	77.0	75.4
12 or more	59.1	58.6	57.7	60.8	60.0
24 or more	34.6	31.7	34.4	38.3	37.5
32 or more	21.2	17.2	21.7	25.0	25.7
36	13.0	9.5	13.4	16.4	16.9

Source: Mathematica Policy Research, from the 2001 SIPP panel.

age group—were ever uninsured during the three years. By ages 51 to 61, 11.0 percent were uninsured in January 2001, and 22.1 percent were ever uninsured over the three years—rates that were just two-fifths of those observed among the youngest members of the study population. That the fraction ever without coverage should decline with increasing age is consistent with the rising need for health care as people grow older, but the rate of decline does not match the rising need if more than one in five nonelderly adults over 50 were without health insurance coverage for at least some amount of time.

2. For How Long Are People Without Coverage?

Among those who were ever without coverage over the three years, 23.2 percent were uninsured for four months or less—a fraction that varied little across the age groups. Excluding those whose months without coverage came at the beginning or end of the panel and who may have been concluding or initiating longer-term spells, their experience with the uninsured state was fleeting. In some cases the reported lack of coverage may not have occurred at all, being due, instead, to erroneous responses. We can only speculate about the frequency of such errors, although certain reporting patterns noted in Appendix B suggest that they may be all too common. More important, however, are the 59.1 percent who were without coverage for at least 12 months and the 34.6 percent—more than a third of the ever uninsured—who were without coverage for 24 months or more. Clearly, most of those who were ever uninsured spent significant amounts of time spent without coverage.

Overall, the likelihood of being uninsured for all 36 months was greatest among the young, at 5.2 percent of all persons 19 to 29, declining progressively with age to 3.7 percent among the most senior. However, the relationship with age reverses when we restrict our attention to the ever uninsured. The fraction of the ever uninsured who were without coverage for the entire 36 months grew from 9.5 percent among persons 19 to 29 to 16.9 percent among persons 51 to 61.

That is, while the oldest members of the population were the least likely to be uninsured for any amount of time over the three-year period and the least likely to be uninsured for the entire three-year period, they were the most likely to be uninsured for the full duration *if* they were uninsured at all. In the course of this chapter we will see other instances where the amount of time spent without coverage is not proportional to the likelihood of spending any time without coverage.

A detailed distribution of months without coverage among the ever-uninsured, by age (Table IV.2), shows even more clearly than the collapsed distributions in Table IV.1 the general similarity of uninsured durations across age groups. It also highlights a notable feature of reported spells without coverage. Excluding those who were uninsured for the entire 36-month period, 64 percent of those who were ever uninsured during the three-year period were reported as uninsured for a multiple of four months.[17] This fraction rises progressively with age, from 62 percent among the youngest adults to 70 percent among the most senior. This clustering of reported durations at multiples of four months poses a serious challenge for analysis and interpretation of health insurance dynamics in the SIPP, as discussed in Appendix B. The challenge is especially great for an analysis of the impact of trigger events on transitions in health insurance coverage, as the timing of events relative to the transitions that they are alleged to influence is critical to assessing their importance. We lay out our approach in Chapter V but note here that it involves increasing the time interval from months to survey waves (four-month units).

3. Change between the 1996 and 2001 Panels

As we have noted, the 1996 SIPP panel was conducted during a period of sustained economic growth whereas the 2001 panel was conducted during a period that included a brief

[17] This calculation excludes 36-month durations from both the numerator and the denominator.

TABLE IV.2

DISTRIBUTION OF MONTHS WITHOUT COVERAGE OVER A 36-MONTH PERIOD: ADULTS UNINSURED ONE OR MORE MONTHS, BY AGE IN JANUARY 2001

Number of Months	Total	Age in January 2001			
Without Coverage	19 to 61	19 to 29	30 to 39	40 to 50	51 to 61
One or More	100.00	100.00	100.00	100.00	100.00
1	3.26	3.56	3.20	3.00	2.91
2	2.77	2.71	2.98	2.59	2.89
3	2.12	1.78	2.48	2.50	1.76
4	15.01	14.29	15.21	14.93	17.02
5	1.93	1.82	2.20	2.10	1.46
6	1.75	2.05	1.51	1.47	1.78
7	1.60	2.05	1.36	1.54	0.76
8	8.48	8.29	8.93	8.20	8.65
9	1.40	1.66	1.26	1.28	1.07
10	1.28	1.64	1.64	0.76	0.34
11	1.35	1.54	1.51	0.80	1.35
12	6.07	6.32	5.81	6.47	5.11
13	0.99	0.92	1.18	1.08	0.70
14	1.07	1.21	1.05	0.72	1.27
15	1.00	1.25	0.89	0.78	0.82
16	5.17	5.54	4.74	4.48	6.06
17	0.84	0.99	0.67	0.79	0.80
18	1.08	1.41	1.16	0.66	0.66
19	1.02	1.15	0.92	1.01	0.86
20	4.59	5.02	4.27	4.19	4.60
21	0.75	0.95	0.35	0.84	0.78
22	0.94	1.09	0.98	0.90	0.42
23	0.96	1.10	1.29	0.61	0.49
24	4.38	4.89	3.91	4.06	4.34
25	0.85	1.09	0.75	0.64	0.68
26	0.86	0.86	1.01	0.91	0.43
27	0.59	0.63	0.45	0.71	0.55
28	5.24	5.29	5.19	5.62	4.52
29	0.43	0.52	0.37	0.26	0.58
30	0.58	0.74	0.50	0.57	0.28
31	0.48	0.46	0.53	0.48	0.40
32	6.69	6.27	7.10	6.51	7.50
33	0.56	0.56	0.44	0.78	0.42
34	0.43	0.40	0.39	0.60	0.28
35	0.52	0.45	0.40	0.74	0.56
36	12.97	9.49	13.38	16.42	16.92
Percent uninsured a multiple of 4 months, excluding 36 months	63.92	61.77	63.68	65.15	69.58

Source: Mathematica Policy Research, from the 2001 SIPP panel.

recession followed by a sluggish recovery. Between January 1996 and December 1998, the number of employed persons grew from 125.1 million to 132.6 million, and the unemployment rate decreased from 5.6 percent to 4.4 percent.[18] From January 2001 through January 2002 the number of employed persons declined from 137.8 million to 135.7 million before resuming an upward climb that took the number to 138.4 million by the end of 2003. Over this same period the unemployment rate rose from 4.2 percent to a peak of 6.3 percent in June 2003 before turning downward, reaching 5.7 percent in December of that year. As we reported in Chapter II, uninsured rates for nonelderly adults 19 to 64 declined from 18.4 percent to 15.4 percent between March 1996 and March 1999 whereas they remained at 17.4 percent between January 2001 and September 2003 (Tables II.5 and II.6).

How did the differing economic conditions and contrasting trends in uninsured rates affect the number of people who were ever without coverage during the two panels and the time they spent in the uninsured state? Table IV.3 provides the same information for the 1996 SIPP panel that Table IV.1 provided for the 2001 panel. While the uninsured rate among adults 19 to 61 started *higher* in the 1996 panel than the 2001 panel (18.8 percent in March 1996 versus 17.6 percent in January 2001), the fraction ever uninsured during the first 36 months of the 1996 panel was a percentage point *lower* than in the 2001 survey: 33.9 percent in 1996 versus 35.0 percent in 2001. Comparing the time spent without coverage among the ever uninsured, we find that similar percentages in both panels were without coverage for less than a year (42 percent in the 1996 panel versus 41 percent in the 2001 panel), but a higher percentage was without coverage for 36 months in the earlier versus the later panel (16.8 versus 13.0 percent). This was true in every age group, but the difference is most striking among those who were 40 to 61 at the

[18] These and the subsequent labor force statistics, which were derived from the CPS, are seasonally adjusted and were obtained from the historical data series maintained by the Bureau of Labor Statistics on its website. They can be retrieved from http://data.bls.gov/PDQ/servlet/SurveyOutputServlet.

TABLE IV.3

LIKELIHOOD OF BEING WITHOUT HEALTH INSURANCE COVERAGE OVER A 36-MONTH PERIOD: ADULTS 19 TO 61 IN MARCH 1996, BY AGE

		Age in March 1996			
Population	Total	19 to 29	30 to 39	40 to 50	51 to 61
		Thousands of Persons			
Total persons	151,899	40,293	43,987	41,716	25,903
Uninsured in March 1996	28,486	11,708	8,019	5,710	3,050
Ever uninsured in 36 months	51,466	21,897	14,252	10,017	5,299
By months without coverage					
1 to 4	11,750	5,143	3,149	2,247	1,211
5 to 11	9,735	4,578	2,594	1,751	812
12 to 23	11,909	5,561	3,182	1,997	1,169
24 to 31	6,238	2,636	1,823	1,200	578
32 to 35	3,192	1,354	903	584	351
36	8,642	2,625	2,600	2,238	1,178
		Percent of All Persons			
Uninsured in March 1996	18.8	29.1	18.2	13.7	11.8
Ever uninsured in 36 months	33.9	54.3	32.4	24.0	20.5
By months without coverage					
		Percent of All Persons			
1 to 4	7.7	12.8	7.2	5.4	4.7
5 to 11	6.4	11.4	5.9	4.2	3.1
12 to 23	7.8	13.8	7.2	4.8	4.5
24 to 31	4.1	6.5	4.1	2.9	2.2
32 to 35	2.1	3.4	2.1	1.4	1.4
36	5.7	6.5	5.9	5.4	4.5
		Percent of the Ever Uninsured			
1 to 4	22.8	23.5	22.1	22.4	22.8
5 to 11	18.9	20.9	18.2	17.5	15.3
12 to 23	23.1	25.4	22.3	19.9	22.1
24 to 31	12.1	12.0	12.8	12.0	10.9
32 to 35	6.2	6.2	6.3	5.8	6.6
36	16.8	12.0	18.2	22.3	22.2
		Cumulative Percent of the Ever Uninsured			
1 or more	100.0	100.0	100.0	100.0	100.0
5 or more	77.2	76.5	77.9	77.6	77.2
12 or more	58.3	55.6	59.7	60.1	61.8
24 or more	35.1	30.2	37.4	40.2	39.8
32 or more	23.0	18.2	24.6	28.2	28.9
36	16.8	12.0	18.2	22.3	22.2

Source: Mathematica Policy Research, from the 1996 SIPP panel.

start of each panel: 22 percent were uninsured throughout the first 36 months of the 1996 panel compared to less than 17 percent in the 2001 panel.

Continuing, we find that median months without coverage among the ever-uninsured were very similar between the two panels at 15.5 versus 15.9, but there was an age differential in the earlier panel that was absent from the later panel (Table IV.4). Specifically, median months without coverage in the 1996 panel grew from 13.7 at ages 19 to 29 to 17.5 at ages 51 to 61. In the 2001 panel the median months without coverage were more narrowly constrained, ranging from a low of 14.7 to a high of 15.4, with no consistent pattern by age.

The ratio of persons ever uninsured over a period of time to those uninsured at a given point in time provides a measure of turnover in the uninsured population. We find that the ratio of persons ever uninsured in a 36-month period to the number uninsured at the beginning of the period was consistently higher in the 2001 panel, with values averaging 1.99 compared to 1.81 in the earlier panel (Table IV.5). This difference is understandable in light of the lower proportion ever uninsured in the 1996 panel and the declining uninsured rate in that panel versus the flat rate in the 2001 panel. In the 1996 panel, however, this ratio declined with increasing age, dropping from 1.87 to 1.74, whereas there was no pattern by age in the 2001 panel. In the 1996 panel there was somewhat greater differentiation by age in the proportion ever uninsured, and this appears to underlie the observed result.

These mixed differences between the two panels suggest that changing economic conditions may alter the dynamics of health insurance coverage but not necessarily in a predictable way. It is possible, for example, that the health insurance dynamics respond with a lag. The greater long-term lack of coverage in the 1996 panel, for example, may be an extension of what was true in earlier years, and noticeable improvement took more time to develop. Furthermore, it is likely that some elements of economic conditions are more important than others. For instance, while

TABLE IV.4

MEDIAN NUMBER OF MONTHS WITHOUT COVERAGE IN A 36-MONTH PERIOD: ADULTS EVER UNINSURED IN PERIOD BY PERIOD AND AGE AT BEGINNING OF PERIOD

		Age at Beginning of Period			
Period	Total	19 to 29	30 to 39	40 to 50	51 to 61
1996 to 1998	15.5	13.7	16.1	16.6	17.5
2001 to 2003	15.9	15.1	14.7	16.4	16.4

Source: Mathematica Policy Research, from the 1996 and 2001 SIPP panels.

Note: SIPP interviews are staggered over a four-month period, so the 36-month period begins in one of four different months, depending on the survey rotation group. For simplicity, we define age in the same calendar month for all four rotation groups. For the 1996 panel, which started two months late, we use March 1996. For the 2001 panel we use January 2001.

TABLE IV.5

RATIO OF PERSONS EVER UNINSURED IN A 36-MONTH PERIOD
TO PERSONS UNINSURED AT THE BEGINNING OF THE PERIOD,
BY PERIOD AND AGE AT BEGINNING OF PERIOD

		Age at Beginning of Period			
Period	Total	19 to 29	30 to 39	40 to 50	51 to 61
1996 to 1998	1.81	1.87	1.78	1.75	1.74
2001 to 2003	1.99	2.00	2.02	1.91	2.00

Source: Mathematica Policy Research, from the 1996 and 2001 SIPP panels.

Note: SIPP interviews are staggered over a four-month period, so the 36-month period begins in one of four different months, depending on the survey rotation group. For simplicity, we define age in the same calendar month for all four rotation groups. For the 1996 panel, which started two months late, we use March 1996. For the 2001 panel we use January 2001.

trends in both employment and unemployment rates were different between the two panels, unemployment rates were still very low in the 2001 panel, and this may have been more important than the direction of their movement. Transition rates, which we compare below, exhibit a more intuitive response to the differing economic environments of the two panels, but the mixed results displayed here dissuaded us from extending the comparative assessment of health insurance dynamics in the two panels to the multivariate analysis presented in Chapter V.

4. Multiple Spells

Over a period as long as three years, some of the people who were without coverage for any length of time but not the entire period may have experienced more than one uninsured spell. For example, someone may have been without coverage at the start of the period, obtained coverage, but then lost it again. The occurrence of multiple spells underscores the dynamic character of health insurance coverage.

Because the frequency of changes in health insurance status is likely to be sensitive to economic conditions as well as the eligibility rules for public insurance, we examine the incidence of multiple spells in both the 1996 and 2001 panels. Beginning with the 1996 panel, we find that most of those who were ever without coverage in a three-year period had only one uninsured spell, but some had as many as five. Among all persons who were 19 to 61 at the start of the period, 37.3 million (24.6 percent) had one uninsured spell while 14.2 million (9.3 percent) had two or more (Table IV.6). Most of the latter (11.4 million) had exactly two spells, but 330 thousand had four or more. Multiple spells were much more common among young adults than among older adults, and while this was due in large part to the greater frequency of uninsured spells in general among the young, the difference is striking. Adults 19 to 29 were more than twice as likely as adults 51 to 61 to have at least one uninsured spell in three years

TABLE IV.6

NUMBER OF UNINSURED SPELLS OVER A 36-MONTH PERIOD:
ADULTS 19 TO 61 IN MARCH 1996, BY AGE

Estimate	Total 19 to 61	Age in March 1996: 19 to 29	30 to 39	40 to 50	51 to 61
Number of persons (1,000s)	151,899	40,293	43,987	41,716	25,903
With no uninsured spells	100,433	18,396	29,735	31,699	20,604
With any uninsured spells	51,466	21,897	14,252	10,017	5,299
One spell	37,312	14,956	10,293	7,840	4,223
Two spells	11,374	5,475	3,139	1,837	923
Three spells	2,439	1,263	731	302	144
Four spells	324	190	87	38	10
Five or more spells	16	14	3	0	0
Percent of persons	100.0	100.0	100.0	100.0	100.0
With no uninsured spells	66.1	45.7	67.6	76.0	79.5
With any uninsured spells	33.9	54.3	32.4	24.0	20.5
One spell	24.6	37.1	23.4	18.8	16.3
Two spells	7.5	13.6	7.1	4.4	3.6
Three spells	1.6	3.1	1.7	0.7	0.6
Four spells	0.2	0.5	0.2	0.1	0.0
Five or more spells	0.0	0.0	0.0	0.0	0.0

Source: Mathematica Policy Research, from the 1996 SIPP panel.

(54.3 versus 20.5 percent), but they were more than four times as likely to have multiple uninsured spells (17.2 percent versus 4.2 percent).[19]

Table IV.7 provides information similar to Table IV.6 but for the 2001 panel. What we observe in the 2001 panel resembles what we saw in the 1996 panel, but multiple spells are somewhat more frequent in the 2001 panel. While the proportion of adults with any uninsured spells increased from 33.9 to 35.0 percent, the proportion with only one uninsured spell dropped from 24.6 to 23.6 percent, implying an increase of 2.1 percentage points in the proportion with multiple spells.

The frequency of multiple spells increased across the age spectrum. Nearly 20 percent of adults under 30 had multiple uninsured spells during the reference period of the 2001 panel compared to the aforementioned 17.2 percent during the 1996 panel. At the upper end of the age distribution, 6.1 percent of adults 51 to 61 had multiple uninsured spells in the 2001 panel compared to 4.2 percent in the 1996 panel. If we calculate the frequency of multiple uninsured spells among persons who were ever uninsured (that is, persons who had one or more uninsured spells), we find that the overall proportion of the uninsured with multiple spells increased from 27.5 percent in the 1996 panel to 32.7 percent in the 2001 panel (Table IV.8). Increases were observed in every age group as well, with the proportion growing from 31.7 percent to 36.2 percent among adults under 30 and from 20.3 percent to 27.6 percent among persons 51 to 61. These trends are likely attributable to the weaker economic conditions during the period covered by the 2001 panel.

Do multiple spells increase the amount of time that people spend without coverage, or do the spells of coverage that occur between uninsured spells more than offset the effect of additional

[19] The latter figures were calculated by subtracting the percentage with one uninsured spell from the percentage with any uninsured spells.

TABLE IV.7

NUMBER OF UNINSURED SPELLS OVER A 36-MONTH PERIOD:
ADULTS 19 TO 61 IN JANUARY 2001, BY AGE

Estimate	Total 19 to 61	Age in January 2001 19 to 29	30 to 39	40 to 50	51 to 61
Number of persons (1,000s)	162,727	41,267	42,191	46,599	32,670
With no uninsured spells	105,717	18,770	27,504	33,979	25,463
With any uninsured spells	57,010	22,497	14,687	12,619	7,207
One spell	38,367	14,356	10,037	8,754	5,220
Two spells	14,460	6,151	3,603	3,139	1,567
Three spells	3,681	1,772	935	624	350
Four spells	449	204	99	89	57
Five spells	53	15	13	13	12
Percent of persons	100.0	100.0	100.0	100.0	100.0
With no uninsured spells	65.0	45.5	65.2	72.9	77.9
With any uninsured spells	35.0	54.5	34.8	27.1	22.1
One spell	23.6	34.8	23.8	18.8	16.0
Two spells	8.9	14.9	8.5	6.7	4.8
Three spells	2.3	4.3	2.2	1.3	1.1
Four spells	0.3	0.5	0.2	0.2	0.2
Five spells	0.0	0.0	0.0	0.0	0.0

Source: Mathematica Policy Research, from the 2001 SIPP panel.

TABLE IV.8

PERCENT WITH MULTIPLE SPELLS: ADULTS EVER UNINSURED
IN A 36-MONTH PERIOD, BY PERIOD AND AGE
AT BEGINNING OF PERIOD

		Age at Beginning of Period			
Period	Total	19 to 29	30 to 39	40 to 50	51 to 61
1996 to 1998	27.5	31.7	27.8	21.7	20.3
2001 to 2003	32.7	36.2	31.7	30.6	27.6

Source: Mathematica Policy Research, from the 1996 and 2001 SIPP panels.

Note: SIPP interviews are staggered over a four-month period, so the 36-month period begins in one of four different months, depending on the survey rotation group. For simplicity, we define age in the same calendar month for all four rotation groups. For the 1996 panel, which started two months late, we use March 1996. For the 2001 panel we use January 2001.

spells? Over a period as short as three years, we might expect the latter. What we find, instead, is that persons with two or more uninsured spells did indeed spend more months without coverage than those with just a single spell—providing that we exclude from the single spell group those persons who were uninsured for the entire 36-month period. We calculated separate estimates for those who were *uninsured* in January 2001 and those who were *insured* in that month because their median months without coverage differ. In addition, those who were uninsured in January 2001 have enough observations with three or more uninsured spells to support estimates for this group.

The median number of months without coverage among those who were uninsured in January 2001 was 12.6 months for those with a single uninsured spell, 24.5 months for those with two spells, and 21.9 months for those with three or more spells (Table IV.9). There was little difference by age. For persons who were *insured* in January 2001, the median duration without coverage was 5.5 months for those with a single uninsured spell and 14.2 months for those with two or more uninsured spells. Here, too, these values differed little by age.

We suspect that the shorter duration observed for persons with three or more uninsured spells versus those with two is an artifact of the length of the panel. Higher-order spells are more likely than lower-order spells to be right censored, so the additional insured spell experienced by persons with three versus two uninsured spells detracts from their potential length. With a longer panel, we predict that persons with three uninsured spells would have more months without coverage than those with two uninsured spells.

5. Relative Income and Coverage Over Time

Family income relative to the poverty line is the single strongest predictor of insured status in the cross-section. We find that relative income in the first year of the 2001 panel is very strongly associated with coverage over the duration of the panel as well.

TABLE IV.9

MEDIAN NUMBER OF MONTHS WITHOUT COVERAGE IN A 36-MONTH PERIOD:
ADULTS EVER UNINSURED IN PERIOD BY NUMBER OF SPELLS
AND AGE AT BEGINNING OF PERIOD

		Age at Beginning of Period			
Spells	Total	19 to 29	30 to 39	40 to 50	51 to 61
Uninsured in Jan. 2001					
1 spell [a]	12.6	12.3	13.1	12.5	14.0
2 spells	24.5	24.2	24.5	24.9	24.9
3 or more spells	21.9	22.2	20.8	23.9	21.5
Insured in Jan. 2001					
1 spell	5.5	6.0	5.3	5.1	5.5
2 or more spells	14.2	14.6	13.2	14.9	12.9

Source: Mathematica Policy Research, from the 2001 SIPP panel.

[a] Persons continuously uninsured have been removed from the estimates in this row.

To begin, we find the expected strong, negative relationship between relative income in 2001 and the likelihood of being uninsured in January 2001. Specifically, the January 2001 uninsured rate ranged from a high of 41.8 percent among people below poverty to a low of 5.0 percent among people above 400 percent of poverty for the calendar year (Table IV.10). People between 100 and 200 percent of poverty had an uninsured rate of 35.2 percent while those between 200 and 400 percent had an uninsured rate less than half as high, at 17.0 percent. The comparatively small difference between persons in poverty and those between 100 and 200 percent of poverty reflects the disproportionately greater contribution of public coverage to the health insurance status of the poor versus the near poor.

Turning to the lack of coverage over time, we observe a strong inverse relationship between relative income in the 2001 calendar year and both the likelihood of being ever uninsured over the three-year reference period of the 2001 panel and the number of months without coverage. The fraction ever uninsured in 36 months reaches 68.5 percent among persons below poverty in the first year and 61.5 percent among those between 100 and 200 percent of poverty. This fraction drops to 36.5 percent—close to the overall average—among persons between 200 and 400 percent of poverty and down to 14.3 percent among persons above 400 percent of poverty. With respect to the length of time without coverage, nearly 12 percent of those below poverty were uninsured for all 36 months compared to less than 1 percent among those above 400 percent of poverty. Similarly, 31 percent of those below poverty were uninsured for 24 months or more compared to only 3 percent among those above 400 percent of poverty. Even among the ever-uninsured, we find a big differential by relative income: 17 percent of the poor were uninsured for all 36 months compared to 5 percent of those above 400 percent of poverty. Nearly half (45.0 percent) of the ever-uninsured poor were without coverage for at least 24 months compared to a fifth (20.4 percent) of those above 400 percent of poverty.

TABLE IV.10

LIKELIHOOD OF BEING WITHOUT HEALTH INSURANCE COVERAGE OVER A 36-MONTH PERIOD: ADULTS 19 TO 61 IN JANUARY 2001, BY 2001 ANNUAL INCOME RELATIVE TO POVERTY

		2001 Annual Income Relative to Poverty			
Population	Total 19 to 61	Under 100%	100% to Under 200%	200% to Under 400%	400% or More
		Thousands of Persons			
Total persons	162,727	15,004	27,476	56,747	63,500
		Percent of All Persons			
Uninsured in January 2001	17.6	41.8	35.2	17.0	5.0
Ever uninsured in 36 months	35.0	68.6	61.5	36.5	14.3
By months without coverage					
		Percent of All Persons			
1 to 4	8.1	11.4	9.8	9.6	5.3
5 to 11	6.2	9.7	10.0	7.1	3.0
12 to 23	8.6	16.6	16.0	9.0	3.2
24 to 35	7.6	19.0	16.1	6.5	2.1
36	4.5	11.8	9.6	4.3	0.8
		Cumulative Percent of All Persons			
1 or more	35.0	68.6	61.5	36.5	14.3
5 or more	26.9	57.1	51.7	26.9	9.1
12 or more	20.7	47.5	41.7	19.8	6.1
24 or more	12.1	30.9	25.7	10.8	2.9
36	4.5	11.8	9.6	4.3	0.8
		Percent of the Ever Uninsured			
1 to 4	23.2	16.6	15.9	26.4	36.7
5 to 11	17.8	14.1	16.2	19.5	20.9
12 to 23	24.5	24.2	26.0	24.5	22.0
24 to 35	21.6	27.8	26.3	17.9	14.5
36	13.0	17.3	15.6	11.8	5.9
		Cumulative Percent of the Ever Uninsured			
1 or more	100.0	100.0	100.0	100.0	100.0
5 or more	76.8	83.4	84.1	73.6	63.3
12 or more	59.1	69.3	67.9	54.1	42.3
24 or more	34.6	45.0	41.9	29.6	20.4
36	13.0	17.3	15.6	11.8	5.9

Source: Mathematica Policy Research, from the 2001 SIPP panel.

While the probability of being uninsured, whether at a point in time or over an extended period, declines sharply with income, the population with annual family income above 400 percent of poverty is much larger than the number of poor. Consequently, the 5 percent of persons above 400 percent of poverty who were uninsured in January 2001 and the 14 percent who were ever uninsured represent large numbers. While the poor were 9 percent of the population of adults 19 to 61 in 2001, persons above 400 percent of poverty represented 39 percent of this population (Table IV.11). People between 200 and 400 percent of poverty accounted for another 35 percent while those between 100 and 200 percent of poverty added the final 17 percent.

As a fraction of the uninsured in January 2001, people between 100 and 200 percent of poverty and those between 200 and 400 percent of poverty accounted for comparable shares—about a third each. The poor represented another 22 percent of the January 2001 uninsured while those above 400 percent of poverty accounted for the remaining 11 percent. Shares of the ever-uninsured were nearly equal between the poor (18 percent) and the top income class (16 percent), however, while the largest share of the ever-uninsured (36 percent) was found among those between 200 and 400 percent of poverty. In all, just over half of the ever-uninsured had 2001 annual incomes above 200 percent of poverty.

If we break down the ever uninsured by duration, we find that the top income class accounted for 25 percent of those who were uninsured for 1 to 4 months while the poor contributed 13 percent of this group. That the top income class should account for as much as 25 percent of the short-term uninsured may be viewed as further evidence that some of the one-wave uninsured spells are simply misreported. On the other hand, if higher-income individuals are without health insurance coverage for any length of time, we would expect that their uninsured spells would tend to be brief. Consistent with this, we see that the top income class

TABLE IV.11

DISTRIBUTION OF THE UNINSURED POPULATION BY 2001 ANNUAL INCOME RELATIVE TO POVERTY: ADULTS 19 TO 61 IN JANUARY 2001

		2001 Annual Income Relative to Poverty			
Population	Total 19 to 61	Under 100%	100% to Under 200%	200% to Under 400%	400% or More
		Percentage Distribution			
Total persons	100.0	9.2	16.9	34.9	39.0
Uninsured in January 2001	100.0	21.8	33.7	33.5	11.0
Ever uninsured in 36 months	100.0	18.0	29.6	36.4	16.0
By months without coverage					
1 to 4	100.0	13.0	20.3	41.4	25.3
5 to 11	100.0	14.3	27.0	39.9	18.8
12 to 23	100.0	17.8	31.4	36.4	14.3
24 to 35	100.0	23.2	36.0	30.1	10.7
36	100.0	24.0	35.7	33.0	7.2

Source: Mathematica Policy Research, from the 2001 SIPP panel.

accounted for progressively smaller shares of the uninsured as duration increased while the bottom two classes accounted for progressively larger shares. Among persons uninsured the entire 36 months, the top income class represented only 7 percent compared to 24 percent for the poor.

Continuing through the distribution of months without coverage, persons with annual family incomes between 200 and 400 percent of poverty were the dominant group among those who were uninsured for less than 24 months while persons with family incomes between 100 and 200 percent of poverty accounted for the largest share (36 percent) of those who were uninsured for 24 months or more. There is little difference, however, between each income class's share of those who were uninsured for 24 to 35 months and those who were uninsured for all 36 months.

The findings by duration must be qualified by noting that while health insurance coverage is measured over a three-year period, our measure of family income is based on just the first year. It is highly likely that with an extended income measure covering all three years, we would find a lower incidence of the uninsured among persons in the highest income families and a greater incidence of the uninsured among the poor and near poor. In other words, the people with higher incomes in 2001 who became uninsured at some point between 2001 and 2003 may have experienced reductions in income in conjunction with their loss of insurance coverage. Nevertheless, the income distribution of the uninsured in January 2001 underscores the point that, however strong the relationship between income and health insurance coverage, significant numbers of uninsured are found among persons outside the low-income population.

Earlier we introduced the ratio of persons ever uninsured in a 36-month period to persons uninsured at the beginning of the period as a measure of turnover in the uninsured. Applying this measure to persons classified by relative income in 2001 we find much more variation around an average ratio of 2 than we saw for age. By this measure the poor and those between 100 and 200 percent of poverty are very similar, with ratios of 1.64 and 1.75, respectively (Table IV.12). The ratio rises to 2.16 for persons between 200 and 400 percent of poverty and approaches 3 (at 2.88) for persons above 400 percent of poverty. An alternative ratio, substituting the continuously uninsured for those who were uninsured at the beginning of the period, depicts an even starker contrast between the lower- and higher-income populations. For the entire population this ratio is 7.71, which reflects the comparatively small number of continuously uninsured. Its values of 5.79 and 6.39 for the poor and near poor, respectively, further attest to their similar patterns of turnover. The ratio rises to 8.50 for persons between 200 and 400 percent of poverty and then doubles, to 16.99, for persons above 400 percent of poverty, indicating the very high level of turnover among the high-income uninsured.

Two additional measures also highlight the similarity between the poor and near poor. Median months without coverage among the ever-uninsured is 20.6 for the poor and 19.9 for persons between 100 and 200 percent of poverty. This measure declines to 12.7 among persons between 200 and 400 percent of poverty and drops further to 8.6 among persons above 400 percent of poverty. The percent of the ever-uninsured with multiple uninsured spells is essentially identical between the poor and near poor at 35.5 percent and 35.0 percent, respectively. This measure varies surprisingly little by relative income, however, as multiple spells were recorded by 30.7 percent of those with incomes between 200 and 400 percent of poverty and 29.7 percent of those with incomes above 400 percent of poverty.

6. Differential Coverage by Race and Ethnicity

Race and ethnicity, like income, are strong covariates of health insurance coverage in the cross-section. Driven by differences in income and, for Hispanics, immigration and, particularly, non-citizenship, non-whites and Hispanics are more likely to be without coverage than whites, with Hispanics showing the highest rates by far. We see this in the proportion uninsured in

TABLE IV.12

ALTERNATIVE MEASURES OF TURNOVER IN THE UNINSURED POPULATION
BY 2001 ANNUAL INCOME RELATIVE TO POVERTY

		2001 Annual Income Relative to Poverty			
Period	Total	Under 100%	100% to Under 200%	200% to Under 400%	400% or More
Ratio: ever uninsured to uninsured in January 2001	1.99	1.64	1.75	2.16	2.88
Ratio: ever uninsured to continuously uninsured	7.71	5.79	6.39	8.50	16.99
Median months without coverage: ever uninsured	15.9	20.6	19.9	12.7	8.6
Percent with multiple spells: ever uninsured	32.7	35.5	35.0	30.7	29.7

Source: Mathematica Policy Research, from the 2001 SIPP panel.

January 2001 and in the proportion ever uninsured in a three-year period. Hispanic uninsured rates strongly resemble those of the poor, with 41 percent uninsured in January 2001 and 65 percent ever uninsured, despite the fact that Hispanics are a third more numerous than the poor (Table IV.13). The corresponding uninsured rates for white non-Hispanics were 13 percent and 28 percent, respectively, versus 21 percent and 46 percent for black non-Hispanics and 17 percent and 38 percent for all others, consisting mostly of Asian and native American populations. The uninsured rates for this residual group approximate those for the population as a whole.[20]

These differences in point-in-time and ever-uninsured rates by race and ethnicity are mirrored in the distribution of persons by months without coverage, with the biggest differences occurring at durations of 12 months or greater. In particular, the 28.5 percent of Hispanics who were uninsured for 24 months or more contrasts with 8.7 percent among whites, 14.4 percent among blacks, and 13.6 percent among others. The 11.1 percent of Hispanics who were uninsured for all 36 months compares to 11.8 percent among the poor.

Among the ever-uninsured we find very similar distributions of duration between white and black non-Hispanics, with 31 percent of both subpopulations having been uninsured for 24 months or more. By this measure Hispanics are less sharply differentiated from the other subpopulations, with 44 percent of the ever-uninsured having been without coverage for 24 months or more. For others, this figure is 36 percent. The 17 percent of ever-uninsured Hispanics who were uninsured for all 36 months compares, again, to what we found for the poor, yet the 10 to 12 percent that we find for the other subpopulations is not nearly as distinct from Hispanics as we saw when the total population rather than the ever uninsured was the base.

[20] With a much larger sample we would split these two populations, as estimates from the CPS indicate that their uninsured rates are very different.

TABLE IV.13

LIKELIHOOD OF BEING WITHOUT HEALTH INSURANCE COVERAGE OVER A 36-MONTH PERIOD: ADULTS 19 TO 61 IN JANUARY 2001, BY RACE AND ETHNICITY

		Race and Ethnicity			
Population	Total 19 to 61	White Non-Hispanic	Black Non-Hispanic	Hispanic	Other
		Thousands of Persons			
Total persons	162,727	115,383	18,503	20,500	8,341
		Percent of All Persons			
Uninsured in January 2001	17.6	12.9	21.3	41.2	17.0
Ever uninsured in 36 months	35.0	27.7	46.0	65.0	38.0
By months without coverage					
		Percent of All Persons			
1 to 4	8.1	7.3	10.9	10.0	8.6
5 to 11	6.2	5.2	8.4	10.1	6.6
12 to 23	8.6	6.5	12.3	16.4	9.3
24 to 31	7.6	5.3	9.8	17.3	9.5
36	4.5	3.4	4.6	11.1	4.1
		Cumulative Percent of All Persons			
1 or more	35.0	27.7	46.0	65.0	38.0
5 or more	26.9	20.4	35.1	55.0	29.5
12 or more	20.7	15.3	26.7	44.9	22.9
24 or more	12.1	8.7	14.4	28.5	13.6
36	4.5	3.4	4.6	11.1	4.1
		Percent of the Ever Uninsured			
1 to 4	23.2	26.3	23.7	15.4	22.5
5 to 11	17.8	18.6	18.3	15.6	17.3
12 to 23	24.5	23.6	26.7	25.2	24.4
24 to 31	21.6	19.2	21.3	26.7	24.9
36	13.0	12.2	10.0	17.1	10.8
		Cumulative Percent of the Ever Uninsured			
1 or more	100.0	100.0	100.0	100.0	100.0
5 or more	76.8	73.7	76.3	84.6	77.5
12 or more	59.1	55.1	57.9	69.1	60.1
24 or more	34.6	31.5	31.3	43.8	35.7
36	13.0	12.2	10.0	17.1	10.8

Source: Mathematica Policy Research, from the 2001 SIPP panel.

Comparing shares of the uninsured with population shares, we find that Hispanics accounted for 12.6 percent of our adult target population in January 2001 but 29.4 percent of the uninsured (Table IV.14). As was true of the poor, the Hispanic share of the ever uninsured, 23.4 percent, is not as high as the group's share of the uninsured at a point in time. But the Hispanic share of the ever uninsured grows with duration, from 15.5 percent of those who were uninsured for only 1 to 4 months to 30.9 percent of those who were uninsured for all 36 months. White shares decline with increased duration, but blacks and others hold relatively constant shares over the range of durations, with the black share of the ever-uninsured falling off somewhat at the longest durations.

Alternative measures of turnover in the uninsured population highlight the low turnover among uninsured Hispanics relative to the other three subpopulations. The ratio of persons ever uninsured over the three-year period to persons uninsured in January 2001 varies little across the non-Hispanic subpopulations, ranging from 2.15 for whites to 2.23 for others, but the Hispanic ratio is appreciably lower, at 1.58 (Table IV.15). Similarly, the ratio of ever-uninsured to continuously uninsured persons is lowest for Hispanics at 5.84 although we see some spread among the other three subpopulations on this measure. Blacks have the highest ratio at 10.01 but whites lie between blacks and Hispanics at 8.17, with the "other" subpopulation falling between whites and blacks with a value of 9.26. Median months uninsured among the ever-uninsured shows only modest variation among the non-Hispanic subpopulations, with a range of 13 to 16 months. The Hispanic median is higher at 20 months, which aligns closely with that of the poor.

The frequency of multiple spells among the ever-uninsured does not show the differentiation between Hispanics and other subpopulations that we see on other measures. Instead, we find that 38 percent of blacks, 35 percent of Hispanics, 33 percent of others, and 30 percent of whites had more than one uninsured spell during the 36-month reference period.

TABLE IV.14

DISTRIBUTION OF THE UNINSURED POPULATION BY RACE AND ETHNICITY: ADULTS 19 TO 61 IN JANUARY 2001

Population	Total 19 to 61	Race and Ethnicity: White Non-Hispanic	Black Non-Hispanic	Hispanic	Other
		Percentage Distribution			
Total persons	100.0	70.9	11.4	12.6	5.1
Uninsured in January 2001	100.0	51.9	13.7	29.4	4.9
Ever uninsured in 36 months	100.0	56.1	14.9	23.4	5.6
By months without coverage					
1 to 4	100.0	63.8	15.3	15.5	5.4
5 to 11	100.0	58.7	15.4	20.5	5.4
12 to 23	100.0	54.1	16.3	24.1	5.5
24 to 35	100.0	50.0	14.7	28.9	6.4
36	100.0	53.0	11.5	30.9	4.6

Source: Mathematica Policy Research, from the 2001 SIPP panel.

TABLE IV.15

ALTERNATIVE MEASURES OF TURNOVER IN THE UNINSURED POPULATION
BY RACE AND ETHNICITY

		Race and Ethnicity			
Period	Total 19 to 61	White Non-Hispanic	Black Non-Hispanic	Hispanic	Other
Ratio: ever uninsured to uninsured in January 2001	1.99	2.15	2.16	1.58	2.23
Ratio: ever uninsured to continuously uninsured	7.71	8.17	10.01	5.84	9.26
Median months without coverage: ever uninsured	15.9	12.9	14.0	20.3	16.3
Percent with multiple spells: ever uninsured	32.7	30.2	37.7	35.3	33.5

Source: Mathematica Policy Research, from the 2001 SIPP panel.

C. TRANSITIONS IN COVERAGE

As we have noted, about half of the adults in our study population who were ever without coverage over the 36-month reference period of the 2001 SIPP panel *had* coverage in January 2001. This means that they transitioned from insured to uninsured at least once during the period covered by the panel. The multiple uninsured spells documented in Table IV.7 imply that some people had more than one such transition—with intervening transitions from insured to uninsured. Likewise, most of those who were uninsured in January 2001 acquired coverage before the end of the panel (at least 63 percent, based on data not shown). These individuals experienced at least one transition—from uninsured to insured. We examine the frequencies of transitions into and out of the uninsured in both the 2001 and 1996 SIPP panels and then look in turn at the retention of coverage by source in the 2001 panel, the distribution of sources of coverage preceding uninsured spells that *started* during the 2001 panel, the distribution of sources of coverage following uninsured spells that *ended* during the 2001 panel, and the duration of both sets of uninsured spells, conditional on the prior or subsequent coverage.

1. Frequencies of Transitions

The numbers of transitions both into and out of the uninsured grew between the 1996 and 2001 panels, with transitions into the uninsured (or out of the insured) growing more substantially. This most likely reflected the difference in economic conditions between the two periods, discussed earlier in this chapter. Overall, the number of new uninsured spells starting over a 32-month period grew from 39.5 million in the 1996 panel to 50.2 million during the 2001 panel (Table IV.16).[21] The number of new *insured* spells grew from 44.0 million to 50.6 million.

[21] To measure spell starts we use a fixed reference period (common set of calendar months) in each panel so that seam effects (see Appendix B) are averaged across rotation groups. The *earliest* transitions (those between March and April 1996 in the 1996 panel and between January and February 2001 in the 2001 panel) span the seam between waves 1 and 2 for rotation group 1 and precede the seam by one, two, or three months for rotation groups 2, *(continued)*

This pattern of greater growth in uninsured versus insured spell starts was repeated in every age group, but it was much more true of younger versus older adults—perhaps because younger adults had greater disparities in the frequencies of the two types of spells in the 1996 panel. At the same time, however, the greatest increase in combined spells of both types occurred among persons 40 to 50. Within this age group, uninsured spell starts increased by 3.7 million while insured spell starts grew by 2.9 million.

The relationship between the trend in the uninsured rate and the relative number of insured versus uninsured spell starts is evident from a comparison of the two panels. In the 1996 panel, which coincided with a period of declining uninsured rates (see Chapter II), the number of new *insured* spells exceeded the number of new *uninsured* spells by 4.5 million. That is, more people gained than lost coverage—hence the decline in uninsured rates over the length of the panel. In the 2001 panel, which showed no change in nonelderly adult uninsured rates, new insured and uninsured spells were nearly equal in number. The former exceeded the latter by just 0.4 million as roughly equal numbers of persons gained versus lost coverage.

One other aspect of spell starts is evident in Table IV.16. We have divided the spell starts between persons who were uninsured versus insured initially. Being uninsured initially does not count as a spell start; someone who was uninsured initially would first have to become covered and then lose that coverage to start an uninsured spell. As we would expect, uninsured spell starts are more numerous among people who were insured than uninsured initially, and insured spell starts are more numerous among people who were uninsured versus insured initially. They are not symmetric, however. Rather, we find that, in both panels, a little over 70 percent of new

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(continued)

3, and 4, respectively. The *latest* transitions (between October and November 1998 in the 1996 panel and between August and September 2003 in the 2001 panel) span the seam between waves 8 and 9 for rotation group 4 and follow the seam by one, two, or three months for rotation groups 3, 2, and 1, respectively.

TABLE IV.16

UNINSURED AND INSURED SPELL STARTS: 1996 AND 2001 SIPP PANELS, BY AGE

Spell Type and Population	Total	Age at Beginning of Period: 19 to 29	30 to 39	40 to 50	51 to 61
		Uninsured Spells (1,000s), by Period and Initial Coverage			
		April 1996 to November 1998			
Uninsured spell starts	39,521	18,466	10,909	6,713	3,432
People initially insured	28,604	12,994	7,943	5,045	2,622
People initially uninsured	10,916	5,472	2,966	1,667	810
		February 2001 to September 2003			
Uninsured spell starts	50,221	21,055	12,862	10,369	5,934
People initially insured	35,853	14,593	9,469	7,482	4,309
People initially uninsured	14,368	6,462	3,393	2,887	1,626
		Change, 1996 to 2001			
Uninsured spell starts	10,700	2,589	1,953	3,656	2,502
People initially insured	7,248	1,599	1,526	2,437	1,687
People initially uninsured	3,452	990	427	1,220	815
		Insured Spells (1,000s), by Period and Initial Coverage			
		April 1996 to November 1998			
Insured spell starts	43,992	20,674	11,935	7,432	3,951
People initially insured	20,118	9,384	5,533	3,371	1,829
People initially uninsured	23,874	11,290	6,402	4,060	2,122
		February 2001 to September 2003			
Insured spell starts	50,635	21,561	12,970	10,362	5,743
People initially insured	24,751	10,215	6,617	5,051	2,868
People initially uninsured	25,884	11,345	6,352	5,311	2,875
		Change, 1996 to 2001			
Insured spell starts	6,643	887	1,035	2,930	1,791
People initially insured	4,633	831	1,085	1,679	1,038
People initially uninsured	2,010	56	-50	1,251	753

Source: Mathematica Policy Research, from the 1996 and 2001 SIPP panels.

Note: Age is measured in the month preceding each period.

uninsured spells occurred among people who were initially insured, whereas the corresponding proportion of new *insured* spells that occurred among people who were initially *uninsured* was just over 50 percent. We suggest that this reflects the shorter length of uninsured spells versus insured spells (see below). Insured people who become uninsured often revert back to being insured within four months—that is, they start new insured spells. However, uninsured people who become insured are more likely to remain covered for a while than to revert back to being uninsured within four months. As a result, we see more people who were initially insured starting new insured spells than people who were initially uninsured starting new uninsured spells.

Another set of findings concerns the age distribution of persons starting new uninsured or insured spells. Specifically, new spells of both types are concentrated among young adults, generally, but the extent of this concentration diminished between the 1996 and 2001 panels. In the 1996 panel, 47 percent of all new uninsured and insured spells occurred among adults who were under 30 at the beginning of the panel (Table IV.17). Another 27 to 28 percent occurred among adults 30 to 39, with only 17 percent occurring among adults 40 to 50 and 9 percent among adults 51 to 61. In the 2001 panel, this distribution shifted slightly away from the young, with about 42 percent of new spells of both types occurring among adults under 30, 26 percent among adults 30 to 40, 21 percent among adults 40 to 50, and 11 percent among adults 51 to 61. Part of this change can be attributed to a modest shift in the adult age distribution between 1996 and 2001, with the earliest baby boom cohorts advancing into their 50s. However, the single percentage point drop in the proportion of adults under 30 can explain very little of the 5 percentage point reduction in the share of spells started by these young adults.

Relative to their share of the population, the poor and near poor account for disproportionately many spell starts (of both kinds) while persons above 400 percent of poverty

TABLE IV.17

DISTRIBUTION OF UNINSURED AND INSURED SPELL STARTS BY AGE: 1996 AND 2001 SIPP PANELS

		Age at Beginning of Period			
Population, Spell Type and Period	Total	19 to 29	30 to 39	40 to 50	51 to 61
Persons 19 to 61					
March 1996	100.0	26.5	29.0	27.5	17.1
January 2001	100.0	25.4	25.9	28.6	20.1
Uninsured spell starts					
April 1996 to November 1998	100.0	46.7	27.6	17.0	8.7
February 2001 to September 2003	100.0	41.9	25.6	20.6	11.8
Insured spell starts					
April 1996 to November 1998	100.0	47.0	27.1	16.9	9.0
February 2001 to September 2003	100.0	42.6	25.6	20.5	11.3

Source: Mathematica Policy Research, from the 1996 and 2001 SIPP panels.

Note: Age is measured in the month preceding each period.

account for disproportionately few. In the 2001 panel, 17 percent of the new uninsured spell starts and 18 percent of the new insured spell starts were among persons whose 2001 calendar year family income was below poverty and who made up 9 percent of the population (Table IV.18). Another 28 percent of uninsured spell starts and 29 percent of insured spell starts were made by persons between 100 and 200 percent of poverty and who were 17 percent of the population. The largest share of spell starts, at 37 percent of uninsured spells and 36 percent of insured spells, was due to persons between 200 and 400 percent of poverty, who were 35 percent of the population. Persons above 400 percent of poverty accounted for 18 percent of uninsured spell starts and 17 percent of insured spell starts—comparable to the poor, although these higher income persons represented 39 percent of the population. Overall, about 54 percent of new spell starts were due to persons whose 2001 calendar year income was above 200 percent of poverty.

The distribution of new spells starts by relative income changed very little between the 1996 and 2001 panels. A modest shift in the income distribution between 1996 and 2001 increased the proportion of the nonelderly adult population above 400 percent of the poverty threshold by about 3 percentage points while reducing the proportionate share of each of the lower income groups by 0.6 to 1.5 percentage points. This contributed to an essentially similar shift in the distribution of uninsured and insured spell starts by relative income.

2. Retention of Coverage by Source

We find pronounced differences across individual sources of coverage in the likelihood that people will retain their coverage between successive interview waves and, for those who do not, the likelihood that they will become uninsured. We acknowledge, though, that a low retention rate for a particular source may be indicative of a lower than average reliability in the reporting

TABLE IV.18

DISTRIBUTION OF UNINSURED AND INSURED SPELL STARTS BY ANNUAL INCOME RELATIVE TO POVERTY: 1996 AND 2001 SIPP PANELS

Population, Spell Type and Period	Total	Annual Income Relative to Poverty			
		Under 100%	100% to Under 200%	200% to Under 400%	400% or More
Persons 19 to 61					
March 1996	100.0	9.9	17.5	36.4	36.1
January 2001	100.0	9.2	16.9	34.9	39.0
Uninsured spell starts					
April 1996 to November 1998	100.0	18.6	29.5	36.0	15.9
February 2001 to September 2003	100.0	16.9	28.4	36.7	18.0
Insured spell starts					
April 1996 to November 1998	100.0	18.0	30.2	36.2	15.6
February 2001 to September 2003	100.0	17.9	28.6	36.3	17.2

Source: Mathematica Policy Research, from the 1996 and 2001 SIPP panels.

of that particular source of coverage. For the population 19 to 61 in the first wave of the 2001 panel, we compared coverage, by source, in consecutive waves and then averaged the results over the eight pairs of waves. For persons with broadly defined private coverage (everything but Medicare, Medicaid or other public coverage) as policyholders, 85.3 percent continued to hold the same coverage in the next wave, 10.9 percent changed coverage (either to private coverage as a dependent or to public coverage), and 3.8 percent became uninsured (Table IV.19).[22] Similarly, 87.1 percent of those who held private coverage as a dependent retained the same coverage in the next wave while 9.7 percent changed coverage, and 3.2 percent became uninsured. Retention of public coverage was lower: 77.8 percent retained public coverage, 10.5 percent changed coverage (to private, either as a policyholder or dependent), and 11.7 percent became uninsured.

Breaking down private coverage by source, but only for policyholders, we find an 89.9 percent retention rate for coverage by a current employer, which greatly exceeds the retention rate for any other source of private coverage. Of those who lost their coverage from a current employer, 7.0 percent were observed with a different source of coverage (which may include public) in the next wave, and 3.2 percent were uninsured. We find a similar fraction becoming uninsured among those who left coverage from a union (3.6 percent), but a vastly greater percentage reporting coverage from a different source—35.6 percent. We suspect that this high rate of change of coverage is largely the result of reporting error, probably due to uncertainty as to how the source of coverage should be described. The same may be said about the remaining sources of private coverage. Persons reporting coverage from a former employer, the military, or

[22] After first asking if the sample member was covered by Medicare, Medicaid, or another public plan, the SIPP questionnaire asks if the sample member was covered by any other health insurance plan. If the answer is yes, a follow-up question establishes if the coverage was in the sample member's own name, as a family member on another plan, or both. An additional question determines the source of coverage from the following list: (1) current employer or work, (2) former employer, (3) union, (4) TRICARE/CHAMPUS, (5) CHAMPVA, (6) military/VA health care, (7), privately purchased, or (8) other. In the table we have collapsed choices (4), (5), and (6) into military.

TABLE IV.19

RETENTION OF HEALTH INSURANCE COVERAGE BETWEEN CONSECUTIVE WAVES: ADULTS 19 TO 61 AT THE END OF WAVE 1, 2001 SIPP PANEL

Health Insurance Coverage[a]	Average Population Waves 1-8 (1,000s)	Percent With Same Coverage In Next Wave	Percent With Different Coverage In Next Wave	Percent Uninsured In Next Wave
All persons	158,457	NA	NA	NA
Private coverage, policyholder	83,648	85.3 [b]	10.9	3.8
Current employer	70,130	89.9	7.0	3.2
Former employer	4,074	61.5	30.9	7.6
Union	1,200	60.9	35.6	3.6
Military	1,380	73.7	20.7	5.6
Private nongroup	5,804	65.4	27.7	6.9
Other	1,061	29.1	59.6	11.3
Private coverage, dependent	36,929	87.1 [b]	9.7	3.2
Public coverage	10,720	77.8	10.5	11.7
Medicaid	9,568	78.9	8.3	12.7
Medicare	1,152	68.6	28.8 [c]	2.7
Uninsured	27,160	79.8	20.2	79.8

Source: Mathematica Policy Research, from the 2001 SIPP panel.

[a] The source of coverage is assigned hierarchically in the order listed. That is, a person with coverage from more than one source would be assigned to the highest source listed.
[b] This is the percentage with any type of private coverage in the next wave, not necessarily the same type of private coverage as the current wave. The entries for specific types of private coverage represent the percentage retaining the same source of private coverage.
[c] Of those with different coverage in the next wave, 16.5 percent (or 58 percent of the 28.8) had Medicaid. This could mean that they reported both Medicaid and Medicare or only Medicaid.

a private nongroup plan report a different source of coverage in the next wave 21 to 31 percent of the time while the small number of persons reporting "other" coverage provide a different source 60 percent of the time, with another 11.3 percent reporting no coverage. In all, only 29.1 percent of those who reported other coverage did so again in the next wave. This low retention rate is consistent with the ambiguity of other coverage as a source, and the high percentage who transition from other coverage to uninsured suggests that the reporting of other coverage may also reflect uncertainty about whether the respondent is covered at all. On the other hand, the comparatively high transition rate to the uninsured among those with coverage from a former employer or with private nongroup coverage, relative to those with coverage from a current employer, is much less surprising. Coverage from a former employer can be a stopgap measure following the loss of a job, and it is often more costly than the coverage obtained from a current employer, as is private nongroup coverage.

Of all sources, Medicaid has the highest transition rate to uninsured at 12.7 percent whereas the proportion changing to another source is only 8.3 percent. Medicaid is the only source from which people were more likely to become uninsured than move to another source. We see a quite different pattern for Medicare, with only 2.7 percent becoming uninsured in the next wave but 28.8 percent changing to another source. Two factors seem likely to account for the high frequency with which Medicare beneficiaries appear to change their source of coverage, given that Medicare is relatively rare among the nonelderly and that people who qualify would seem unlikely to lose their eligibility. One, many Medicare beneficiaries under 65 have ESI (typically through a spouse) or Medicaid coverage in addition to Medicare. Our classification scheme for Table IV.19, which assigns a single source of coverage according to an hierarchy, would assign them to one of these other sources, but if they ever failed to mention the other source, they would get assigned to Medicare. Adding the source in the next interview would result in an apparent shift from Medicare to the other source. Two, we also suspect that the high rate of change in coverage reflects confusion about the source—particularly between Medicaid and Medicare—that might result in different responses in different waves.

Lastly, 79.8 percent of the uninsured remained in that state between waves, implying that 20.2 percent became insured. As we have seen, this high exit rate from the uninsured is a reflection of the preponderance of brief uninsured spells. Nevertheless, the exit rate from the uninsured is almost fully offset by transitions from the insured to uninsured. If we apply the percentages becoming uninsured from private coverage by policyholders and dependents and by holders of public coverage, we find that movement *into* the uninsured exceeded movement *from* the uninsured to the insured by an average of only 100,000 per wave. On average, 5.4 million persons moved from uninsured to insured and 5.5 million moved from insured to uninsured.

3. Coverage Before and After Uninsured Spells

Given the importance of transitions into and out of the uninsured state in reducing, maintaining, or increasing the size of the uninsured population, the coverage that people transition out of when becoming uninsured or transition into when becoming insured is relevant in considering possible policy actions to reduce the number of uninsured. To obtain a representative distribution of transitions and the uninsured spells that they initiate or terminate, we restrict our attention to uninsured spells that began within a 12-month window early in the 2001 panel or ended within a 12-month window late in the panel.

a. Coverage Preceding Uninsured Spells

In all, 23.9 million new uninsured spells were started between February 2001 and January 2002 by people who were 19 to 61 in January 2001 (Table IV.20). More than three-quarters (18.4 million) of these new spells were the first uninsured spells started by individuals during this 12-month window, but 5.5 million were the second or possibly higher-order spells. That is,

TABLE IV.20

COVERAGE PRECEDING UNINSURED SPELLS STARTING FEBRUARY 2001
THROUGH JANUARY 2002: ADULTS 19 TO 61 IN JANUARY 2001

		Source of Coverage Prior to Uninsured Spell				
Spells Included	All Sources	Current Employer or Union	Former Employer	Military Coverage	Nongroup or Other Coverage	Public Coverage
	Number of Spells (1,000s)					
All New Uninsured Spells	23,931	11,777	3,474	411	3,004	5,265
First New Spells	18,401	9,298	2,881	300	2,357	3,565
Additional New Spells	5,530	2,479	594	111	647	1,700
	Percentage Distribution of Spells by Prior Coverage					
All New Uninsured Spells	100.0	49.2	14.5	1.7	12.6	22.0
First New Spells	100.0	50.5	15.7	1.6	12.8	19.4
Additional New Spells	100.0	44.8	10.7	2.0	11.7	30.7

Source: Mathematica Policy Research, from the 2001 SIPP panel.

within a 12-month period as many as 5.5 million people within this age group became uninsured, regained coverage, but then became uninsured again.[23]

For all new uninsured spells, 49.2 percent were preceded by coverage from a current employer or union; 14.5 percent were preceded by coverage from a former employer; 1.7 percent were preceded by military coverage, 12.6 percent were preceded by private nongroup or other coverage; and 22.0 percent were preceded by public coverage.[24] The prior source of coverage has a somewhat different distribution between first spells and higher-order spells. Coverage from a current employer or union and, especially, a former employer is more common among first spells than among subsequent spells while public coverage is substantially more common among subsequent spells (30.7 percent) than among first spells (19.4 percent).

The fact that public coverage occurs more often before a second uninsured spell in a 12-month period than before a first such spell could reflect either or both of the following. People losing public coverage may often return to public coverage a short while later. In some if not many cases, losing public coverage may be the result of an administrative process—failure to recertify, for example—rather than a genuine loss of eligibility. Regardless of cause, if spells of public coverage tend to be shorter than spells of private coverage, someone re-entering public coverage after an uninsured spell may be more likely to lose that coverage before the end of a 12-month period than someone re-entering private coverage. This would increase the relative frequency of public coverage prior to second versus first uninsured spells. Alternatively, as a safety net, public coverage often follows the loss of private coverage. This, too, could increase

[23] If the 5.5 million spells included third new spells for some people, than the number of people experiencing multiple uninsured spells would be something less than 5.5 million.

[24] Here and in Chapter V, we have assigned dependents the source of coverage of the policyholder, and we have combined coverage from a current employer and union, nongroup and other coverage, and Medicaid and Medicare (forming public coverage). In each pair, the second source was substantially smaller than the first.

the relative frequency of public coverage preceding a second uninsured spell during a period as short as a year.

More than half (53 percent) of the uninsured spells started by nonelderly adults between February 2001 and January 2002 ended within six months (Table IV.21). Despite this concentration of spells at the low end of the distribution, however, the tail is long, with 18.5 percent of spells running 6 to 11 months in duration, 9.2 percent running 12 to 17 months, 3.9 percent running 18 to 23 months, and 15.3 percent or about one in seven running 24 months or more. Altogether, 28 percent of spells lasted 12 months or more.

Distributions of uninsured spell durations vary only modestly with the source of coverage that preceded the spell. In particular, there is little difference between spell durations following the two major sources of prior coverage: ESI from a current employer or union and public coverage, with the latter having very slightly more spells in the middle of the distribution. Nongroup and other coverage have the most long-term spells, with 20 percent running 24 months or longer compared to an overall average of 15 percent, and correspondingly fewer in the 3 to 5 month range. Uninsured spells following coverage from a former employer are the least likely to extend to 24 months and the most likely to end in one or two months. Spells following military coverage have the greatest concentration at 3 to 5 months, with virtually no spells ending in one or two months, but as we have seen, coverage from this source is exceedingly rare, so the estimates of subsequent uninsured spell duration lack the precision of estimates for other sources.

b. Coverage Following Uninsured Spells

For uninsured spells that ended between September 2002 and August 2003, 56.1 percent ended when the uninsured secured coverage from a current employer or union, and 25.6 percent ended with public coverage (Table IV.22). Nongroup and other coverage accounted for 12.5 percent. We are surprised that as many as 4 percent of uninsured spells ended with coverage

TABLE IV.21

DURATION OF UNINSURED SPELLS BY PRIOR HEALTH INSURANCE COVERAGE: ALL UNINSURED SPELLS STARTING FEBRUARY 2001 THROUGH JANUARY 2002, ADULTS 19 TO 61 IN JANUARY 2001

		Source of Coverage Prior to Uninsured Spell				
Duration of Uninsured Spell	All Sources	Current Employer or Union	Former Employer	Military Coverage	Nongroup or Other Coverage	Public Coverage
Months Uninsured	Percentage Distribution of Uninsured Spells by Duration					
1 to 2	12.7	11.2	23.3	0.7	11.1	11.0
3 to 5	40.5	42.8	31.9	60.0	36.6	41.6
6 to 11	18.5	17.6	20.5	17.8	18.7	19.0
12 to 17	9.2	9.0	7.9	5.3	10.3	10.1
18 to 23	3.9	3.8	4.5	1.7	3.2	4.3
24 or more	15.3	15.7	11.9	14.5	20.0	14.0
Months Uninsured	Cumulative Percentage Distribution of Uninsured Spells					
1 or more	100.0	100.0	100.0	100.0	100.0	100.0
3 or more	87.3	88.8	76.7	99.3	88.9	89.0
6 or more	46.8	46.0	44.8	39.4	52.2	47.3
12 or more	28.3	28.4	24.4	21.5	33.5	28.3
18 or more	19.1	19.4	16.5	16.2	23.2	18.2
24 or more	15.3	15.7	11.9	14.5	20.0	14.0

Source: Mathematica Policy Research, from the 2001 SIPP panel.

TABLE IV.22

COVERAGE FOLLOWING UNINSURED SPELLS ENDING SEPTEMBER 2002 THROUGH AUGUST 2003: ADULTS 19 TO 61 IN JANUARY 2001

		Source of Coverage Following Uninsured Spell				
Spells Included	All Sources	Current Employer or Union	Former Employer	Military Coverage	Nongroup or Other Coverage	Public Coverage
	Number of Spells (1,000s)					
All Uninsured Spells	16,653	9,340	617	342	2,083	4,271
First Spells	15,671	8,870	555	323	1,981	3,941
Additional Spells	982	469	62	19	102	330
	Percentage Distribution of Spells by Prior Coverage					
All New Uninsured Spells	100.0	56.1	3.7	2.1	12.5	25.6
First New Spells	100.0	56.6	3.5	2.1	12.6	25.2
Additional New Spells	100.0	47.8	6.4	1.9	10.4	33.5

Source: Mathematica Policy Research, from the 2001 SIPP panel.

from a former employer, which suggests a delayed take-up of COBRA following the termination of employment. Only 2 percent of spells ended with military coverage, however.

The small number of second spells ending within the 12-month window, fewer than one million out of 16.7 million, leads us to downplay their importance. Nevertheless, we still find that, in percentage terms, public coverage accounted for a larger share of these spells (33.5 percent) than first spells (25.2 percent).

The frequency with which uninsured spells are preceded by or end with public coverage—particularly second and higher-order spells—greatly exceeds the fraction of the insured population with public coverage at any one time. From Table IV.19 we calculate that just over 8 percent of persons who were 19 to 61 in January 2001 and insured at the end of a given SIPP wave had public coverage. Yet public coverage accounted for three times this fraction of the coverage obtained by people ending uninsured spells and nearly three times this fraction of the coverage held by people prior to becoming uninsured. Clearly, the safety net role of public coverage is evident in the disproportionate fraction of uninsured spells ending with public coverage, but the nearly comparable percentage of uninsured spells preceded by public coverage suggests that the safety net often does not extend far enough in time or that the failure to recertify eligibility when required to do so is a significant contributor to losses of public coverage.

Just under half (49 percent) of the uninsured spells that ended between September 2002 and August 2003 were completed in fewer than six months (Table IV.23). As we saw with uninsured spells that started during the first year of the panel, however, spells that continued for at least six months often ran substantially longer. In all, 33 percent of the spells that ended during the final year of the panel had run for at least 12 months, and 16 percent had lasted at least 24 months. As with new uninsured spells, there was little difference in duration across the major sources. In

TABLE IV.23

DURATION OF UNINSURED SPELLS BY SUBSEQUENT HEALTH INSURANCE COVERAGE: ALL UNINSURED SPELLS ENDING SEPTEMBER 2002 THROUGH AUGUST 2003, ADULTS 19 TO 61 IN JANUARY 2001

		Source of Coverage Following Uninsured Spell				
Duration of Uninsured Spell	All Sources	Current Employer or Union	Former Employer	Military Coverage	Nongroup or Other Coverage	Public Coverage
Months Uninsured	Percentage Distribution of Uninsured Spells by Duration					
1 to 2	10.6	10.9	17.8	0.0	9.6	10.3
3 to 5	38.0	36.0	40.2	48.4	42.6	38.7
6 to 11	18.3	18.7	19.2	19.8	15.2	18.6
12 to 17	12.1	14.0	9.1	12.8	10.7	8.9
18 to 23	5.2	5.5	3.3	0.0	4.0	5.6
24 or more	15.9	14.8	10.4	19.0	17.8	17.9
Months Uninsured	Cumulative Percentage Distribution of Uninsured Spells					
1 or more	100.0	100.0	100.0	100.0	100.0	100.0
3 or more	89.4	89.1	82.2	100.0	90.4	89.7
6 or more	51.4	53.0	42.0	51.6	47.7	51.0
12 or more	33.1	34.3	22.8	31.8	32.5	32.4
18 or more	21.1	20.3	13.7	19.0	21.8	23.5
24 or more	15.9	14.8	10.4	19.0	17.8	17.9

Source: Mathematica Policy Research, from the 2001 SIPP panel.

fact, for each of the sources but coverage from a former employer, 32 to 34 percent of the spells had lasted at least 12 months, and 15 to 19 percent had lasted 24 months or more.[25]

c. Variation in Prior or Subsequent Sources by Age

The mix of sources preceding or following an uninsured spell varies over the age distribution. When we separate coverage held in the sample member's own name from coverage as a dependent, we find that dependent coverage from a current employer or union dominates the prior sources among the youngest adults (19 to 24 at the start of the uninsured spell), accounting for 33 percent of all new spells (Table IV.24).[26] This fraction declines quickly, however, dropping to 14.5 percent by ages 25 to 29; by ages 60 to 64 it represents only 5 percent of prior sources. We suspect that the early prominence is due to young adults leaving their parents' plans and becoming uninsured before they can re-establish coverage through their own employment or that of a spouse. By ages 25 to 29, own coverage from a current employer is the dominant source and remains so until ages 60 to 64, when private nongroup coverage held in one's own name achieves parity, with each source accounting for 22 percent of prior coverage. Medicaid accounts for about 22 percent of prior coverage through age 39 and then declines, gradually, to 15 percent by age 55, with Medicare making up the difference, keeping the public share about the same over time.[27] After Medicaid, dependent coverage from a current employer or union alternates with own coverage from a former employer as next most common until age 55, when own private nongroup coverage supersedes public coverage as the more common prior source of coverage.

[25] Persons uninsured continuously do not contribute to any of the reported durations because their spells were not observed to end.

[26] These estimates are based on spells starting in calendar year 2002 and lasting 6 months, and they include a slightly broader range of ages, with age measured at the start of the uninsured spell rather than in January 2001.

[27] We are surprised that the Medicaid share is not larger at the youngest ages, given the children who would have lost eligibility at age 19, but we should note that the 22 percent who last had Medicaid is a fraction of a much bigger number for persons 19 to 24 (2,762 thousand total spells) than for those at higher ages.

TABLE IV.24

SOURCE OF COVERAGE PRIOR TO AN UNINSURED SPELL BEGINNING IN CALENDAR YEAR 2002 AND LASTING 6 MONTHS OR MORE: NONELDERLY ADULTS BY AGE AT START OF UNINSURED SPELL

Source of Coverage Prior to Uninsured Spell	19 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	Total
Number of Spells (1,000s)	2,762	1,624	1,269	1,032	1,125	907	641	533	283	10,176
Percent of Total Spells	27.1	16.0	12.5	10.1	11.1	8.9	6.3	5.2	2.8	100.0
	Distribution of Sources Within Each Age Group									
Private Coverage Held in Own Name										
Current employer or union	27.1	35.8	45.4	39.3	33.6	36.8	37.1	24.6	22.2	34.0
Former employer	5.7	15.8	8.7	10.5	14.1	12.0	11.1	16.7	17.6	10.9
Military	1.1	0.0	0.0	1.1	2.1	1.2	1.2	2.0	1.4	1.0
Private nongroup or other	5.0	7.8	6.6	6.1	10.3	13.3	13.6	19.9	22.1	8.9
Private Coverage Only as Dependent										
Current employer or union	32.6	14.5	10.1	16.1	12.2	15.4	8.9	9.3	4.8	18.0
Former employer	2.0	1.4	3.3	2.9	3.3	2.3	2.7	3.5	3.5	2.5
Military	0.6	0.5	0.0	0.5	0.4	0.6	0.0	3.4	3.8	0.7
Private nongroup or other	3.9	1.9	3.5	0.0	3.1	1.7	5.7	5.7	4.8	3.1
Public Coverage										
Medicaid	21.8	22.4	22.4	22.7	20.1	14.3	17.8	15.0	15.3	20.4
Medicare	0.0	0.0	0.0	0.7	0.6	2.4	1.9	0.0	4.6	0.6
Sum of Sources	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Mathematica Policy Research, from the 2001 SIPP panel.

Lastly, we note that adults 19 to 24 accounted for 27 percent of all new uninsured spells in 2002. Age group shares declined steadily with rising age, with adults 25 to 29 accounting for 16 percent of new uninsured spells and each age group accounting for progressively smaller fractions, ending with adults 60 to 64 representing only 3 percent of new spells.

Coverage following uninsured spells that ended rather than began in 2002 shows similar patterns, except that dependent coverage never exceeds own coverage, and own coverage from a current employer accounts for more than 40 percent of new coverage right from the beginning and maintains that level through ages 50 to 54 (Table IV.25). In one other departure from the previous table, own coverage from a former employer does not become important until ages 55 to 59. This deviation makes sense, as we can understand leaving coverage from a former employer to become uninsured whereas taking up coverage from a former employer in order to end an uninsured spell is more difficult to explain.[28] The other notable departure is the 15 percent share of new coverage that is due to Medicare at ages 60 to 64. We suspect that this may be an artifact of seam bias in the reporting of when Medicare coverage started, as all of these new Medicare spells would have started before age 65.[29]

4. Duration of Insured Spells

Insured spells run much longer, generally, than uninsured spells. As we saw earlier in the chapter, 65 percent of adults 19 to 61 in January 2001 were never observed without coverage over the 36-month duration of the panel. Because of the longer length of insured spells compared to uninsured spells, a smaller proportion of insured than uninsured spells can be observed from

[28] One possible explanation is that because COBRA remains an option well after employer coverage ends, it may become an attractive way to obtain coverage quickly for someone who develops a medical need.

[29] Seam bias would lead people who start Medicare at age 65 to report being covered by Medicare at the start of the wave in which they turned 65, which means that they were reporting Medicare at age 64. Misreporting of age may be a factor as well. Very few respondents should have qualified for Medicare coverage before age 65, and we see very little reporting of Medicare prior to ages 60 to 64.

TABLE IV.25

SOURCE OF COVERAGE FOLLOWING AN UNINSURED SPELL ENDING IN CALENDAR YEAR 2002:
NONELDERLY ADULTS BY AGE AT END OF UNINSURED SPELL

Source of Coverage After Uninsured Spell	19 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	Total
Number of Spells (1,000s)	4,179	2,531	1,991	1,880	1,482	1,133	1,052	823	542	15,612
Percent of Total Spells	26.8	16.2	12.8	12.0	9.5	7.3	6.7	5.3	3.5	100.0
	Distribution of Sources Within Each Age Group									
Private Coverage Held in Own Name										
Current employer or union	42.6	45.7	47.3	42.9	44.4	46.0	40.7	24.3	17.4	42.2
Former employer	1.9	2.5	1.3	1.6	0.3	1.1	1.0	7.7	8.4	2.2
Military	0.4	0.2	1.1	1.5	0.8	1.8	1.2	4.9	3.9	1.1
Private nongroup or other	6.8	6.7	5.7	10.1	9.8	8.9	15.1	16.5	24.5	9.2
Private Coverage Only as Dependent										
Current employer or union	22.9	16.6	16.9	15.9	14.5	14.7	14.0	12.9	7.0	17.2
Former employer	0.9	1.1	1.1	0.2	1.9	0.5	3.9	1.9	4.5	1.3
Military	0.9	1.2	0.3	0.6	1.2	0.0	0.3	2.2	0.6	0.8
Private nongroup or other	3.5	1.5	2.6	2.6	2.1	1.6	2.2	5.4	3.2	2.7
Public Coverage										
Medicaid	20.1	24.2	23.4	23.4	24.0	20.3	17.6	21.5	15.9	21.7
Medicare	0.0	0.2	0.4	1.3	1.1	5.2	4.1	2.7	14.7	1.6
Sum of Sources	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Mathematica Policy Research, from the 2001 SIPP panel.

start to finish over the length of a SIPP panel. For insured spells that started between February 2001 and January 2002, estimates of duration by major source of coverage show the following. For all sources combined (that is, for all insured spells), 67 percent lasted six months or more, 55 percent lasted 12 months or more, and 41 percent lasted 24 months or more (Table IV.26).[30] The comparable numbers for uninsured spells (from Table IV.21), are 47 percent, 28 percent, and 15 percent.

Durations differ by major source of coverage in ways that we would expect. Medicare spells run the longest, with 80 percent extending to 24 months or more (hardly any of these would have been observed to end). Medicaid spells run the shortest, with 51 percent ending in less than six months and only 19 percent extending to 24 months or more. Spells of private coverage fall close to the average for all insured spells, with 64 percent lasting six months or more, 52 percent extending 12 months or more, and 39 percent reaching at least 24 months in length. Of course, most of those continuously insured over the period, and not included in these calculations, had private, employer coverage.

D. TRIGGER EVENTS AND CHANGES IN COVERAGE

In the next chapter we estimate multivariate models of transitions in health insurance coverage, where the primary predictors are personal events that, we hypothesize, have the potential to trigger changes in health insurance coverage. These include changes in employment, changes in earnings or other family income, and changes in family composition. To develop the final set of trigger events that we included in our models, we started with a much larger set of possible events and reduced them to a more manageable size by examining their bivariate correlations with changes in coverage.

[30] These estimates are based on a slightly different universe than most of the estimates reported earlier in this chapter. The universe is persons 18 to 64 in the first month of coverage.

TABLE IV.26

DURATION OF INSURED SPELLS STARTING FEBRUARY 2001
THROUGH JANUARY 2002, BY MAJOR SOURCE:
PERSONS 18 TO 64 IN FIRST MONTH OF COVERAGE

		Major Source of Coverage		
Duration of Spell	Total	Private	Medicaid	Medicare
Months Insured	Percentage Distribution			
1 to 2	6.3	5.6	8.0	0.2
3 to 5	26.2	30.2	43.1	10.4
6 to 11	12.2	12.5	15.8	5.3
12 to 17	10.2	9.1	10.4	3.1
18 to 23	4.0	3.6	3.8	1.6
24 or more	41.1	38.8	19.0	79.5
Months Insured	Cumulative Percentage Distribution			
1 or more	100.0	100.0	100.0	100.0
3 or more	93.7	94.4	92.0	99.8
6 or more	67.5	64.1	48.9	89.4
12 or more	55.3	51.6	33.1	84.1
18 or more	45.1	42.4	22.7	81.1
24 or more	41.1	38.8	19.0	79.5

Source: Mathematica Policy Research, from the 2001 SIPP panel.

TABLE IV.27

PROPORTION OF INDIVIDUALS EXPERIENCING A TRIGGER EVENT BETWEEN WAVES *t*-1 AND *t* BY SOURCE OF COVERAGE IN WAVE *t*-1

		Source of Coverage in Wave *t*-1					
Trigger Event	All Sources	Current Employer Or Union	Former Employer	Military Coverage	Nongroup Or Other Coverage	Medicaid/ Medicare	Uninsured
Full Sample	1.000	0.574	0.037	0.012	0.058	0.092	0.227
Experience any trigger event	0.839	0.887	0.717	0.749	0.820	0.672	0.816
Experience any employment trigger event	0.439	0.514	0.340	0.379	0.269	0.226	0.400
Experience any income trigger event	0.750	0.782	0.661	0.632	0.778	0.617	0.736
Experience any family composition trigger event	0.219	0.174	0.168	0.201	0.207	0.288	0.319
Employment Trigger Events:							
Job gain	0.049	0.027	0.076	0.044	0.064	0.061	0.090
Job loss	0.054	0.045	0.084	0.044	0.044	0.051	0.075
Change jobs	0.044	0.042	0.058	0.045	0.028	0.026	0.061
Increase hours of work at job	0.122	0.151	0.059	0.144	0.076	0.050	0.100
Decrease hours of work at job	0.129	0.165	0.056	0.125	0.076	0.049	0.097
Increase in employer's contribution	0.054	0.090	0.044	0.000	0.000	0.000	0.001
Decrease in employer's contribution	0.050	0.085	0.034	0.000	0.001	0.000	0.001
Income Trigger Events:							
Increase in family income by at least 25%	0.260	0.234	0.249	0.238	0.301	0.260	0.317
Decrease in family income by at least 25%	0.203	0.187	0.216	0.177	0.246	0.202	0.232
Increase in family earnings by at least 25%	0.254	0.238	0.223	0.214	0.282	0.221	0.306
Decrease in family earnings by at least 25%	0.201	0.195	0.205	0.177	0.222	0.170	0.227
Increase in family other income (total income less earnings) by at least 25%	0.255	0.292	0.229	0.216	0.267	0.183	0.194
Decrease in family other income (total income less earnings) by at least 25%	0.244	0.279	0.198	0.186	0.261	0.186	0.183
Increase in TANF	0.008	0.001	0.002	0.002	0.005	0.047	0.009
Decrease in TANF	0.008	0.001	0.002	0.002	0.005	0.058	0.005
Increase in earnings by at least 25%	0.229	0.232	0.167	0.185	0.248	0.136	0.269
Decrease in earnings by at least 25%	0.183	0.192	0.157	0.150	0.190	0.104	0.194

TABLE IV.27 *(continued)*

Trigger Event	All Sources	Source of Coverage in Wave *t*-1: Current Employer Or Union	Former Employer	Military Coverage	Nongroup Or Other Coverage	Medicaid/ Medicare	Uninsured
Family Composition Trigger Events:							
Increase in number of persons in family	0.039	0.034	0.028	0.040	0.026	0.059	0.047
Decrease in number of persons in family	0.033	0.028	0.025	0.025	0.025	0.047	0.044
Increase in number of persons ages 19+	0.022	0.019	0.009	0.026	0.012	0.040	0.026
Decrease in number of persons ages 19+	0.026	0.022	0.012	0.026	0.018	0.042	0.036
Increase in number of persons under 19	0.037	0.031	0.029	0.035	0.029	0.051	0.048
Decrease in number of persons under 19	0.028	0.024	0.022	0.021	0.022	0.037	0.037
Increase in number of persons with income	0.085	0.065	0.061	0.086	0.078	0.119	0.124
Decrease in number of persons with income	0.082	0.059	0.062	0.069	0.082	0.111	0.135
Increase in number of persons without income	0.088	0.066	0.074	0.075	0.089	0.108	0.139
Decrease in number of persons without income	0.086	0.068	0.070	0.077	0.085	0.111	0.127
Someone in family became married	0.010	0.010	0.007	0.007	0.008	0.009	0.014
Someone in family became widowed	0.002	0.001	0.004	0.001	0.002	0.004	0.002
Someone in family became divorced	0.005	0.005	0.004	0.005	0.003	0.006	0.006
Someone in family became separated	0.004	0.003	0.002	0.002	0.002	0.006	0.005
Became married	0.009	0.009	0.006	0.006	0.007	0.008	0.011
Became widowed	0.001	0.001	0.003	0.001	0.001	0.002	0.001
Became divorced	0.004	0.004	0.003	0.005	0.003	0.004	0.005
Became separated	0.003	0.003	0.002	0.002	0.002	0.004	0.004
Started living with unmarried partner	0.004	0.003	0.002	0.002	0.004	0.005	0.006
Stopped living with unmarried partner	0.006	0.006	0.004	0.005	0.004	0.006	0.009

Source: Mathematica Policy Research, from 2001 SIPP panel.

Events that we considered are listed in Table IV.27 along with their respective frequencies among persons with each possible source of coverage. The first row indicates the proportion of sample members with each source of coverage—including uninsured—averaged over the first eight waves. Each of these waves could serve as *t*-1 in an analysis of wave-to-wave change. The next four rows indicate the proportion of persons experiencing any trigger event, any employment trigger event, any income trigger event, or any family composition trigger event. For example, over the whole sample, the proportion experiencing any of the possible trigger events between consecutive pairs of waves was .839. Among the six sources of coverage, this proportion varied from a low of .672 among persons with Medicaid or Medicare to a high of .887 among those with coverage from a current employer or union. The table includes seven employment trigger events, 10 income trigger events, and 20 family composition trigger events. The events are not mutually exclusive. For example, a job gain or a job change could increase family earnings and family total income. For the multivariate analysis reported in Chapter V, we redefined the triggers so that they were mutually exclusive, but to determine how to do so we first had to examine the candidates without this restriction.

How to define trigger events expressing changes in income proved to be the most challenging. A person’s or family’s income is virtually never the same between consecutive waves, so specifying a trigger involves setting a threshold that will define when a change is large enough to be counted as a change. Originally we set this threshold at 10 percent, but at that level too many persons or families experienced changes in income. We increased the threshold to 25 percent, but even at that level we find that more than 20 percent of the sample is classified as experiencing a change in income between consecutive waves. Most other trigger events have much lower probabilities associated with them, as the estimates in the table attest.

TABLE IV.28

PROPORTION OF INDIVIDUALS TRANSITIONING OUT OF SOURCE OF COVERAGE IN WAVE *t*-1 CONDITIONAL ON EXPERIENCING A TRIGGER EVENT BETWEEN WAVE *t*-1 AND WAVE *t*

		Source of Coverage in Wave *t*-1					
Trigger Event	All Sources	Current Employer Or Union	Former Employer	Military Coverage	Nongroup Or Other Coverage	Medicaid/ Medicare	Uninsured
Full Sample	0.121	0.066	0.303	0.214	0.278	0.170	0.163
Experience any trigger event	0.125	0.069	0.364	0.222	0.282	0.204	0.173
Experience any employment trigger event	0.135	0.081	0.502	0.221	0.337	0.268	0.192
Experience any income trigger event	0.128	0.071	0.363	0.235	0.282	0.203	0.173
Experience any family composition trigger event	0.166	0.106	0.442	0.249	0.340	0.223	0.173
Employment Trigger Events:							
Job gain	0.233	0.122	0.524	0.483	0.435	0.286	0.222
Job loss	0.301	0.391	0.500	0.243	0.293	0.235	0.152
Change jobs	0.256	0.202	0.719	0.220	0.461	0.347	0.238
Increase hours of work at job	0.091	0.038	0.424	0.185	0.314	0.245	0.182
Decrease hours of work at job	0.085	0.042	0.333	0.177	0.252	0.267	0.168
Increase in employer's contribution	0.042	0.020	0.593	0.000	1.000	0.000	0.762
Decrease in employer's contribution	0.046	0.029	0.483	0.000	1.000	0.000	0.962
Income Trigger Events:							
Increase in family income by at least 25%	0.141	0.067	0.376	0.276	0.284	0.206	0.188
Decrease in family income by at least 25%	0.163	0.127	0.377	0.217	0.292	0.210	0.149
Increase in family earnings by at least 25%	0.135	0.061	0.398	0.261	0.290	0.233	0.180
Decrease in family earnings by at least 25%	0.161	0.132	0.353	0.219	0.296	0.198	0.149
Increase in family other income (total income less earnings) by at least 25%	0.125	0.073	0.347	0.237	0.261	0.171	0.210
Decrease in family other income (total income less earnings) by at least 25%	0.118	0.055	0.425	0.251	0.292	0.244	0.183
Increase in TANF	0.216	0.205	0.602	0.000	0.674	0.055	0.480
Decrease in TANF	0.198	0.171	0.318	0.442	0.488	0.192	0.163
Increase in earnings by at least 25%	0.138	0.060	0.500	0.276	0.307	0.294	0.195
Decrease in earnings by at least 25%	0.164	0.140	0.407	0.220	0.282	0.230	0.144

TABLE IV.28 *(continued)*

		Source of Coverage in Wave *t*-1					
Trigger Event	All Sources	Current Employer Or Union	Former Employer	Military Coverage	Nongroup Or Other Coverage	Medicaid/ Medicare	Uninsured
Family Composition Trigger Events:							
Increase in number of persons in family	0.160	0.094	0.429	0.212	0.363	0.226	0.189
Decrease in number of persons in family	0.163	0.106	0.332	0.230	0.412	0.201	0.186
Increase in number of persons ages 19+	0.161	0.085	0.439	0.179	0.419	0.260	0.193
Decrease in number of persons ages 19+	0.167	0.100	0.415	0.310	0.383	0.240	0.186
Increase in number of persons under 19	0.158	0.099	0.428	0.295	0.359	0.201	0.175
Decrease in number of persons under 19	0.164	0.107	0.322	0.244	0.429	0.195	0.186
Increase in number of persons with income	0.175	0.138	0.464	0.228	0.347	0.252	0.140
Decrease in number of persons with income	0.170	0.085	0.456	0.263	0.342	0.217	0.196
Increase in number of persons without income	0.164	0.082	0.456	0.265	0.317	0.205	0.196
Decrease in number of persons without income	0.174	0.139	0.432	0.258	0.336	0.239	0.145
Someone in family became married	0.171	0.095	0.540	0.250	0.396	0.291	0.205
Someone in family became widowed	0.176	0.109	0.360	0.612	0.377	0.172	0.153
Someone in family became divorced	0.164	0.104	0.382	0.504	0.378	0.200	0.209
Someone in family became separated	0.169	0.115	0.426	0.639	0.434	0.145	0.210
Became married	0.167	0.082	0.571	0.293	0.378	0.298	0.223
Became widowed	0.157	0.117	0.312	0.000	0.504	0.102	0.072
Became divorced	0.158	0.092	0.451	0.532	0.403	0.212	0.202
Became separated	0.164	0.109	0.428	0.825	0.420	0.162	0.204
Started living with unmarried partner	0.198	0.125	0.444	0.240	0.427	0.258	0.229
Stopped living with unmarried partner	0.159	0.090	0.658	0.144	0.267	0.276	0.188

Source: Mathematica Policy Research, from 2001 SIPP panel.

Table IV.28 reports conditional probabilities of exiting (or transitioning out of) a source of coverage, given the occurrence of a trigger event listed in the first column. For example, 39.1 percent of those who experienced a job loss between waves *t*-1 and *t* and who had coverage from a current employer or union in wave *t*-1 left that source of coverage between waves *t*-1 and *t*. The first row, labeled "full sample", reports the proportion of persons who left each source between waves *t*-1 and *t*. For example, 6.6 percent left coverage from a current employer or union, and 16.3 percent left the uninsured state. The numbers in the "all sources" column represent probabilities of leaving any source; they are weighted sums of the probabilities under the six sources.

Many of the conditional exit probabilities listed in the table are sufficiently large that we would want to include the corresponding triggers in a multivariate transition model. The probabilities also make abundantly clear why a multivariate model is necessary. It is difficult to draw any conclusions about the relative importance of alternative trigger events from the raw probabilities. Working with a reduced set of redefined trigger events, the analysis presented in the next chapter finds numerous intuitive or interpretable associations.

The employment events included two potential triggers that reflect changes in the employer's contribution to health insurance coverage. These variables are based on items that are collected only in a wave in which a respondent reported coverage from an employer, which means that they are correlated with change in such coverage. Because of this, they confound actual coverage transitions with changes in conditions that might promote transitions. This is evident from the frequency with which persons leave the uninsured state after experiencing either an increase or decrease in the employer's contribution (76.2 percent and 96.2 percent, respectively). We did not include these events in our multivariate analysis.

E. CONCLUSION

This chapter has demonstrated, in many ways, that the uninsured are a dynamic population. The number of people experiencing one or more months without health insurance coverage over a period of three years is twice the number who are uninsured at any one time and several times the number who are continuously uninsured. This implies that changes in coverage occur with considerable frequency. Developing effective policy to reduce the number of uninsured persons requires an understanding of the factors that contribute to changes in coverage—that is, the factors that help to explain why people lose coverage and why they (re)gain it. In this chapter we have documented differences in various aspects of the dynamics of health insurance coverage by age, relative income, and race and ethnicity. In the next chapter we develop two sets of multivariate models to explore potential causes of health insurance transitions by identifying events and characteristics that are associated with the probability of making a transition from the uninsured state to one of several possible sources of coverage or from one of these same sources of coverage to another source or the uninsured state.

V. A MULTIVARIATE ANALYSIS OF HEALTH INSURANCE TRANSITIONS

In this chapter we describe the findings from several multivariate analyses of health insurance transitions among nonelderly adults. We examine transitions out of the uninsured state and into one of five coverage types, defined in the previous chapter, which collectively exhaust all sources of coverage reported in the SIPP. We also examine transitions out of each of these coverage types, focusing in particular on transitions into the uninsured state.

A key group of variables included in the multivariate analyses in this chapter is a subset of the trigger event variables defined in Chapter IV. Because little to no prior research has examined how health insurance transitions are associated with changes in employment, income, and family composition, we view the essence of this work as mostly exploratory in nature.[31]

Since each of the two main sets of analyses has its own sample and empirical model, we first describe the sample, methodology, and findings for the model examining transitions out of the uninsured state. This is followed by a similar presentation with respect to transitions *into* the uninsured state.

A. OBTAINING COVERAGE: TRANSITIONS OUT OF THE UNINSURED STATE

In this section we present the findings from an application of multinomial logistic regression analysis to estimate the association between experiencing a trigger event and the likelihood that an uninsured individual will obtain insurance coverage. We first describe the sample and empirical model, as well as the sets of variables included in the analysis. This is followed by the presentation of the model's main findings. Finally, we discuss several auxiliary analyses that were estimated using an identical model with subsamples defined by individuals' demographic

[31] See Appendix A for a review of research examining trigger events and health coverage transitions.

characteristics and with alternate methodological approaches to constructing trigger event variables and coverage spells.

1. Sample and Methodology

Choosing an appropriate model with which to estimate the association between health insurance transitions and trigger events depends largely on the types of coverage changes being studied. Previous related research has used logistic regression models that relate the likelihood of transitioning between two states, such as from being uninsured to being insured, to a set of explanatory variables (see, for example, Short and Freedman 1998). Thus, there is a single origin state and a single destination state. A limitation of this class of models is that they do not capture the full set of choices available to the decision-maker. That is, the decision they represent is whether to leave the uninsured state to obtain employer-sponsored coverage, precluding other insurance options that might be chosen, such as obtaining nongroup or public coverage. Because the choice set for an uninsured individual may include employer-sponsored coverage, Medicaid, and alternative forms of private coverage, we model transitions out of the uninsured state using a multinomial logistic regression instead. In a multinomial framework, transitions from the uninsured state to any of several destination states are estimated jointly. Thus, the full choice set is incorporated into the model, providing a more realistic behavioral environment in which to examine individual decision making.

a. Unit of Observation

This analysis focuses on transitions out of the uninsured state that occur between two consecutive waves, which we denote as a transition between waves (*t*-1) and (*t*). Our sample consists of individuals who are uninsured in wave (*t*-1) and therefore are "at-risk" for transitioning out of the uninsured state. Thus, it is made up of individuals who are uninsured in both waves (*t*-1) and (*t*), as well as individuals who are uninsured in wave (*t*-1), but who transition to being insured in wave (*t*).

The sample is defined at the person-wave level, so that each individual may contribute multiple observations to the sample. For example, an individual who is uninsured in waves 2, 3, and 4 and insured in waves 5 through 9 contributes three person-wave observations to the sample, one for each wave without coverage. Defining the sample at this level of observation is motivated by our desire to focus on the events associated with leaving the uninsured state and making a transition to a specific coverage type, rather than the events associated with the length of time a respondent goes without coverage. While these research questions are closely related, they require different methodological approaches.

b. Trigger Events

In our main analysis, trigger events are defined over a one-wave period, so that an individual who experiences a change in an employment, income, or family composition measure between waves (*t*-1) and (*t*) is denoted as having experienced a trigger event in wave (*t*). Because the length of the window in which the trigger event is measured can affect the association of the event with the likelihood of a health insurance transition, we estimate an additional set of analyses in which we define trigger events differently so that an individual who experiences a change in an employment, income, or family composition measure between waves (*t*-1) and (*t*) or between waves (*t*-2) and (*t*-1) is denoted as having experienced a trigger event or lagged trigger event in wave (*t*).

Defining trigger events over a one-wave period. Because of the strong seam effects in reported health insurance coverage in the SIPP (see Appendix B), a reported transition in health insurance coverage may actually precede a reported trigger event with weaker seam effects even though, in reality, the trigger event occurred first. For example, a reported transition from unemployment to employment may follow a reported transition out of Medicaid coverage. While our analytical goal is to evaluate association rather than causation, the sequence of events and transitions is certainly relevant to establishing the former. To address this problem, the data used in the current analysis will be defined at the wave level, with the fourth month of each reference period representing health insurance coverage and employment status, income, and family composition for the full wave. Thus, any changes in these variables over the four-month period that are sustained until the fourth month will be picked up automatically. Prior, related research on the association between trigger events and participation in the Food Stamp Program suggests that as the window in which a trigger event is defined is widened, the proportion of individuals experiencing trigger events generally increases, but the relationships between the triggers and program entry and exit weaken (Cody et al. 2007). To avoid diluting the estimated impact of trigger events, we feel it is useful to restrict trigger events to a four-month window.

Defining trigger events over a two-wave period. There may also be a lag in observing the effect of a trigger event on a change in health insurance coverage, weakening the magnitude of the association between variables. For instance, some employers have waiting periods before eligibility for employer coverage can be established. Thus, changes in employment may occur more than one month before employer-sponsored health insurance coverage is obtained. Similarly, changes in income may occur several months prior to a transition out of Medicaid due to ineligibility.

A potential drawback of defining trigger events using one wave only—that is, between waves (*t*-1) and (*t*)—is that we will fail to identify associations between trigger events and health insurance transitions that may have occurred very close in time but in different four-month windows. For example, a job change reported between months 3 and 4 of one wave will not be associated with a health insurance transition reported between month 4 of that wave and month 1 of the next wave. At the same time, however, a job change reported between months 1 and 2 of one wave will not be associated with a health insurance transition reported between months 3 and 4 of the next wave. We prefer to exclude the latter, but doing so requires us to exclude the former as well. By defining trigger events from both (t-2) to (t-1) and (t-1) to (t), we are able to observe how sensitive our results in the "one-wave" trigger analysis are to the window in which the trigger is measured.

Trigger Event Variables. The three types of trigger events are represented by variables that indicate whether an individual experiences a change in employment, income, or family composition. The employment trigger event variables include those that measure whether an individual obtained a new job, lost a job, or changed jobs. The set of income trigger event variables includes variables that indicate whether family earnings increased or decreased by at least 25 percent, and whether other family income besides earnings increased or decreased by at least 25 percent.[32] The set of family composition trigger event variables includes those that indicate whether there was an increase or decrease in the number of individuals in the family. Separate variables are specified for adults joining or leaving the family, defined as individuals who are at least 19 years old, and for children joining or leaving the family, defined as individuals less than 19 years old.

[32] If thresholds are defined too low, then changes occur too often, and the triggers that represent them have little if any association with health insurance transitions. If thresholds are set too high, the triggers may become irrelevant to the populations that are most sensitive to fluctuations in income. We set the threshold for a change in income at 25 percent which, while seemingly high, results in over 75 percent of individuals with and without coverage experiencing a change in earned or unearned income between any pair of consecutive waves.

A cause for concern when deciding how to introduce the three sets of trigger event variables (employment, income, and family composition) into the model was the potential collinearity among the variables, as individuals who experience changes in employment typically also experience changes in income, and individuals who experience changes in family composition, such as a change in the number of adults, may also experience changes in income. For example, the correlation coefficient between experiencing a job gain and having family earnings increase by at least 25 percent is 0.39. A similar correlation exists between experiencing a job loss and having family earnings decrease by at least 25 percent.[33]

In order to address this collinearity, we defined the following mutually exclusive set of the trigger event variables by combining different events[34]:

- An individual experiences a job gain (that is, goes from not working to working or from having one job to having two jobs)
- An individual does not experience a job gain, but has an increase in family earnings and an increase in the number of adults in the family
- An individual does not experience a job gain, but has an increase in family earnings with *no* increase in the number of adults in the family
- An individual experiences a job loss
- An individual does not experience a job loss, but has a decrease in family earnings and a decrease in the number of adults in the family
- An individual does not experience a job loss, but has a decrease in family earnings with *no* decrease in the number of adults in the family
- An individual changes jobs and has an increase in family earnings
- An individual changes jobs and has a *decrease* in family earnings
- An individual has an increase in family other income, defined as total family income less family earnings, and an increase in the number of adults in the family

[33] Other pairs of trigger event variables have correlation coefficients less than 0.10 in absolute value.

[34] This set is not exhaustive of all of the employment, earnings, and family composition changes observed in the sample; it includes events that occurred most frequently in the data.

- An individual has an increase in family other income, defined as total family income less family earnings, with *no* increase in the number of adults in the family
- An individual has a decrease in family other income, defined as total family income less family earnings, and a decrease the number of adults in the family
- An individual has a decrease in family other income, defined as total family income less family earnings, with *no* decrease in the number of adults in the family
- The number of children in the family increases
- The number of children in the family *decreases*

By including this set of variables in the model, we are able to identify the channel through which the trigger event is associated with leaving the uninsured state. For instance, we can differentiate whether the association between a health insurance transition and an increase in family earnings may be due solely to a change in the affordability of the health plan, or is also due to a change in the number of people included under the plan.

c. Additional Variables

While trigger events are our main set of explanatory variables, we include a standard set of demographic and economic characteristics that are typically associated with transitions out of the uninsured state. This includes an individual's race and ethnicity, age, education, gender, family income-to-poverty ratio, marital status, and number of children less than 19 in the family. We restrict the sample to those individuals aged 19 to 61 in wave (*t*-1) in order to exclude children ages 18 and younger for whom types of health insurance coverage are decided largely by their parents, and to exclude individuals who are nearing age eligibility for Medicare.[35] The age groups include individuals ages 19 to 22, 23 to 29, 30 to 39, 40 to 50, and 51 to 61.

[35] Note that age is defined for each pair of consecutive waves rather than a single point in time, as was done in the previous chapter. This underscores the fact that our model treats each pair of waves as independent from an earlier or later pair of waves. In the previous chapter we defined age at a fixed point in time because our analyses often extended across the entire length of the panel.

d. Model Specification

We estimate a multinomial logistic regression model in which the dependent variable, $y_{i,t}$, identifies transitions for individual *i* from being uninsured in wave (*t*-1) to obtaining one of five forms of coverage in wave (*t*):

$$y_{i,t} = \begin{cases} 1, & \text{obtains current employer or union coverage} \\ 2, & \text{obtains Medicaid or Medicare coverage} \\ 3, & \text{obtains private nongroup or other coverage} \\ 4, & \text{obtains former employer coverage} \\ 5, & \text{obtains military coverage} \\ 6, & \text{remains uninsured} \end{cases}$$

The probability of an individual *i* making transition *j* is defined to be a function of the set of trigger events and demographic and economic characteristics described above as follows:

$$\pi_{itj} = \frac{\exp\left(X_{it}{}^{j} B^{j}\right)}{1 + \sum_{j=1}^{6} \exp\left(X_{it}{}^{j} B^{j}\right)}$$

where X_{it}^{j} is the set of explanatory variables for individual *i* for transition *j* evaluated at wave (*t*) and B^j is the set of parameter coefficients associated with making transition *j* (with B^6 normalized to 0). Because the covariate vector X_{it}^{j} is specific to the type of transition, *j*, that an individual may make, one can potentially allow different sets of covariates to be included in the probabilities of different types of transitions. In our specification, however, we include a common set of covariates across all possible transitions since neither theory nor prior, related empirical studies offer adequate guidance in defining transition-specific sets of variables. Thus, in our specification, $X_{it}^{j} = X_{it}$ for all transitions *j*=1,2,..,6.

The model is estimated using maximum likelihood. Each of the i=1,2,…, N observations of the dependent variable $y_{i,t}$ in our sample is treated as a single draw from a multinomial distribution with 6 outcomes. We define a set of indicator variables $\{y^1_{i,t}, y^2_{i,t}, ..., y^6_{i,t}\}$ for which

$$y^j{}_{i,t} = \begin{cases} 1, \text{ if } y_{i,t} = j & \text{(individal } i \text{ makes transition } j\text{)} \\ 0, \text{otherwise} \end{cases}$$

The resultant likelihood function is defined as:

$$L = \prod_{i=1}^{N} \prod_{t=1}^{T_i} \pi_{it1}{}^{y^1{}_{it}} \pi_{it2}{}^{y^2{}_{it}} \pi_{it3}{}^{y^3{}_{it}} \pi_{it4}{}^{y^4{}_{it}} \pi_{it5}{}^{y^5{}_{it}} \pi_{it6}{}^{y^6{}_{it}}$$

where T_i is the number of waves of observations each individual i contributes to the sample. Because there are repeated observations for each individual in the sample, we adjust the standard errors for the presence of non-independent observations. In addition, because health insurance decisions undoubtedly are correlated within families, standard errors are also adjusted for non-independent observations within each family.

2. Empirical Findings

We begin by examining the associations between the likelihood of leaving the uninsured state and a set of trigger events. All findings are interpreted relative to remaining uninsured. For example, when examining the association between the likelihood of obtaining Medicaid or Medicare coverage and losing a job, it is implicit that this association is measured relative to remaining uninsured. Because this analysis is mainly exploratory, we focus on the signs of statistically significant estimates more than their magnitudes in interpreting the results. In this case, the sign of the estimate indicates whether there is a positive or negative association between the variable and the likelihood of leaving the uninsured state, relative to remaining uninsured.

a. Trigger Events

Job Gain. Obtaining a new job is positively associated with transitioning from being uninsured to obtaining coverage through one's current employer or union, as well as through a private nongroup source or a former employer (Table V.1). While the association with coverage through a current employer reflects the provision of health insurance at some new jobs, the association with private nongroup coverage may suggest either that there are new jobs that do not offer coverage, which may force new employees to obtain alternative forms of coverage, or that some type of employer-sponsored coverage is available, but is valued less than private, non-group coverage. The association between finding a new job and obtaining coverage through a former employer also suggests that new employees find alternative forms of coverage at jobs that may not initially offer health coverage. Some individuals may go without insurance while searching for a new job in hopes of obtaining a job that provides coverage, but once employed at a job without coverage, they enroll in insurance through a former employer (which the new job has made more affordable).

Earnings Increase. Uninsured individuals who do not obtain a new job, but have an increase in family earnings are also more likely to obtain coverage through a current employer or union. This is true for individuals who concurrently have an increase in the number of adults in the family, in which case the new members may have contributed to the increase in family earnings, as well as for individuals who do not have an increase in the number of adults in the family. The increase in family earnings makes current employer or union coverage more affordable, leading presumably to the observed positive association. The magnitude of the estimate of the association for individuals who have an increase in family earnings is almost twice as large for individuals who also have an increase in the number of adults in the family relative to those who do not. This suggests that enrollment in employer or union coverage is

TABLE V.1

A MULTINOMIAL LOGIT MODEL OF THE LIKELIHOOD OF LEAVING THE UNINSURED STATE AND OBTAINING DIFFERENT COVERAGE TYPES

	Transitions from the Uninsured State to:				
Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	0.12 ***	0.12 **	0.35 ***	0.43 *	0.81 ***
Black, non-Hispanic	0.44 ***	0.50 ***	0.35 ***	0.75 ***	1.04 ***
Other, non-Hispanic	-0.07	0.16	0.67 ***	-0.17	-0.07
Age (referent group is "19 to 22")					
23 to 29	0.24 ***	-0.12	0.07	0.55 *	0.42
30 to 39	0.18 ***	-0.31 ***	-0.11	0.10	1.00 **
40 to 50	-0.01	-0.41 ***	0.11	0.21	1.10 **
51 to 61	-0.37 ***	-0.29 ***	0.55 ***	1.10 ***	1.96 ***
Education (referent group is "less than high school")					
High school	0.46 ***	-0.15 ***	0.28 **	0.33	0.61 **
More than high school	0.84 ***	-0.34 ***	0.99 ***	1.13 ***	1.03 ***
Gender (referent group is "female")					
Male	0.10 ***	-0.88 ***	-0.01	-0.08	1.04 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.74 ***	-0.57 ***	0.10	-0.18	0.02
2.00 or more	1.17 ***	-0.97 ***	0.49 ***	-0.10	-0.14
Marital Status (referent group is "not married")					
Married	-0.10 **	-0.06	0.01	0.09	0.14
Children Less than 18 in Family (referent group is "no children")					
One child	0.00	0.48 ***	-0.39 ***	-0.62 ***	-0.65 **
Two children	0.12 **	0.64 ***	-0.20	-0.57 *	-0.39
Three or more children	0.12 *	0.66 ***	-0.43 ***	-0.39	-1.67 ***
Trigger Events					
Job gain	0.80 ***	-0.16 *	0.23 *	1.23 ***	-0.48
Increase in earnings and increase in family composition	0.50 ***	-0.11	0.12	0.35	-30.64
Increase in earnings and no change in family composition	0.28 ***	-0.39 ***	0.12	-0.18	-1.04 ***
Job loss	-0.56 ***	0.35 ***	-0.27 *	0.98 ***	-0.31
Decrease in earnings and decrease in family composition	-0.25 *	0.28	0.09	-1.14	-0.91
Decrease in earnings and no change in family composition	-0.48 ***	0.06	0.08	0.16	-0.36
Job change and increase in earnings	0.70 ***	0.15	-0.45	0.66	0.65
Job change and decrease in earnings	0.71 ***	-0.06	-0.33	-0.65	0.75
Increase in other family income and increase in family composition	-0.02	0.06	0.52	-0.69	0.62
Increase in other family income and no change in family composition	0.19 ***	0.73 ***	0.49 ***	0.72 ***	0.36
Decrease in other family income and decrease in family composition	0.10	0.18	0.66 **	0.91	0.88
Decrease in other family income and no change in family composition	0.18 ***	0.21 ***	0.21 **	0.19	-0.47
Increase in number of children in family	0.01	0.65 ***	-0.22	0.10	-0.50
Decrease in number of children in family	0.29 ***	0.04	0.08	0.42	0.63

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

driven not only by affordability but also by demand, as the value of family coverage should presumably increase with family size. Although we do not make the distinction between an increase in earnings that is the result of an increase in hours worked with the wage held constant, and an increase in the wage with hours held constant, it is possible that this result is also picking up individuals who were not eligible for employer-sponsored coverage since they worked less than part-time, but have coverage made available to them once their hours increase.

Job Loss. Losing a job is positively associated with obtaining coverage through Medicaid or Medicare. The job loss may decrease earnings by an amount that makes individuals eligible for Medicaid who were previously ineligible. Alternatively, uninsured individuals who are employed and who are eligible for Medicaid may forgo enrollment into the program because they believe they will obtain employer-sponsored coverage in the future, either through increased earnings which make it more affordable or through the offer of employer-sponsored insurance that is associated with longer tenure. Once the job is lost, they decide to enroll in Medicaid.

Job Change. Job changes for uninsured individuals generally may be accompanied by either a wage change or the obtaining of coverage. Our findings show that uninsured individuals who undergo a change in employers without an intervening spell of unemployment are more likely to obtain employer or union coverage. This suggests that jobs that provide health insurance may be valued more than those that do not, after accounting for wage changes across jobs. In fact, the magnitude of the estimate is the same regardless of whether the individual also experiences an increase or decrease in family earnings.

b. Demographics

Demographic characteristics of an individual and his or her family play an important role in making transitions out of the uninsured state. White, non-Hispanic and black, non-Hispanic individuals are more likely to leave the uninsured state and enter any coverage type relative to

Hispanic individuals. Black, non-Hispanic individuals are also more likely than white, non-Hispanic individuals to obtain all forms of coverage except private nongroup.

Age is also important, with individuals age 23 to 39 being more likely to obtain current employer coverage than younger individuals age 19 to 22. At the same time, uninsured individuals 51 to 61 are less likely to obtain current employer or union coverage than individuals age 19 to 22. For transitions onto Medicaid and Medicare, all individuals age 23 to 61 are less likely to enroll in Medicaid or Medicare relative to individuals ages 19 to 22. This is because the majority of Medicaid beneficiaries are single parents and their children. Focusing on those individuals less than 50 years old, the magnitude of these estimates suggests that the likelihood of making this transition decreases with age. Finally, individuals ages 51 to 61 are also more likely to obtain private nongroup coverage relative to younger individuals.

Uninsured individuals with at least a high school education are more likely to obtain coverage through a current employer or union, private nongroup or other, or the military relative to individuals with less than a high school education. They are also less likely to enroll in Medicaid or Medicare. In each of these cases, the magnitude of the association is greatest for those with more than a high school education compared to those who have completed high school only. For instance, the current employer or union estimates suggest that jobs available for individuals with more education have a greater likelihood of offering health insurance. Similarly, the private nongroup or other estimates suggest that individuals with more education place a higher value on being insured, and the Medicaid or Medicare estimates suggest that more highly educated uninsured individuals are either not eligible for the program or, if eligible, view these programs as less of an option due to a greater sense of stigma or higher expectations of gaining insurance from an employer in the future.[36]

Other characteristics such as gender, income, and household composition also matter. Males are more likely to obtain coverage through a current employer or union or the military, and less likely to enroll in Medicaid or Medicare. Individuals with greater family income are also more likely to obtain coverage through a current employer or union, or a private nongroup source, and are less likely to obtain coverage through Medicaid or Medicare. Finally, individuals living in families with a greater number of children are more likely to obtain coverage through a current employer or union or through Medicaid or Medicare; they are less likely to obtain coverage through all other coverage types.

3. Sensitivity Analyses

The impact of certain trigger events may vary across some of the covariates included in the main model specification. To assess this possibility empirically, we re-estimate the main model specification on several policy-relevant subsamples. We compare the results from the full sample in Table V.1 with those from a subsample of individuals with income less than 162 percent of the federal poverty level, which is the median family income-to-poverty ratio among all uninsured individuals in the full sample. We also compare the full sample results with a subsample of non-married individuals.

Table V.2 reveals several differences between the estimates for the full sample in Table V.1 and the estimates for the low-income subsample. The magnitudes of the associations between experiencing a job gain or an increase in earnings and obtaining coverage through a current

[36] We control for family income in the model, so more education may represent greater potential income in the future and, thus, a lower likelihood of enrolling in programs like Medicaid or Medicare.

TABLE V.2

A MULTINOMIAL LOGIT MODEL OF THE LIKELIHOOD OF LEAVING THE UNINSURED STATE AND OBTAINING DIFFERENT COVERAGE TYPES USING A SUBSAMPLE OF LOW-INCOME INDIVIDUALS

	Transitions from the Uninsured State to:				
Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	0.14 *	0.21 ***	0.41 **	0.36	0.47
Black, non-Hispanic	0.48 ***	0.47 ***	0.62 ***	0.75 *	0.99 **
Other, non-Hispanic	-0.21	0.23	1.08 ***	-0.04	-30.83
Age (referent group is "19 to 22")					
23 to 29	0.40 ***	-0.13	-0.64 ***	0.65	1.27
30 to 39	0.41 ***	-0.20 **	-0.61 ***	-0.57	2.10 **
40 to 50	0.16	-0.42 ***	-0.23	-0.03	1.59
51 to 61	-0.03	-0.24 **	0.33	1.13 ***	2.66 ***
Education (referent group is "less than high school")					
High school	0.47 ***	-0.15 **	0.21	0.11	-0.01
More than high school	0.87 ***	-0.30 ***	0.79 ***	1.25 ***	0.72 *
Gender (referent group is "female")					
Male	0.21 ***	-0.80 ***	-0.01	-0.06	1.25 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.77 ***	-0.45 ***	0.10	-0.13	-0.17
2.00 or more					
Marital Status (referent group is "not married")					
Married	-0.25 ***	-0.05	-0.01	-0.13	-0.55
Children Less than 18 in Family (referent group is "no children")					
One child	0.18 **	0.50 ***	-0.57 ***	-1.19 ***	0.17
Two children	0.18 *	0.65 ***	-0.01	-1.16 **	-0.29
Three or more children	0.44 ***	0.69 ***	-0.34	-0.46	-1.57 *
Trigger Events					
Job gain	1.58 ***	-0.29 ***	0.16	1.25 ***	-1.13 *
Increase in earnings and increase in family composition	1.18 ***	-0.23	-0.26	-0.96	-31.60
Increase in earnings and no change in family composition	0.81 ***	-0.45 ***	0.37 ***	0.14	-0.97 **
Job loss	-0.26 *	0.33 ***	-0.46	0.72 *	-1.22
Decrease in earnings and decrease in family composition	-0.22	0.12	-0.16	-30.89	-30.90
Decrease in earnings and no change in family composition	-0.36 ***	0.01	0.25	0.14	0.00
Job change and increase in earnings	0.48 ***	0.02	-0.72	0.43	1.19
Job change and decrease in earnings	0.74 **	-0.39	-1.11	-31.46	-31.29
Increase in other family income and increase in family composition	-0.26	0.17	-0.14	-0.86	1.27
Increase in other family income and no change in family composition	0.25 ***	0.82 ***	0.51 ***	0.59 **	0.75 ***
Decrease in other family income and decrease in family composition	0.07	-0.22	1.17 ***	-31.40	0.74
Decrease in other family income and no change in family composition	0.14 *	0.23 ***	0.21	0.12	-0.25
Increase in number of children in family	-0.01	0.70 ***	0.04	0.12	-30.76
Decrease in number of children in family	0.30 *	0.09	1.00 ***	1.37 *	-0.33

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

employer or union are two to four times larger for the low-income subsample relative to the full sample. Experiencing a job gain or an increase in earnings also has a stronger negative association with obtaining Medicaid or Medicare coverage for the low-income subsample relative to the full sample. This may be attributed to (1) poorer families becoming ineligible for Medicaid when they obtain a new job or experience an increase in earnings or (2) poorer families remaining eligible for Medicaid when they experience these changes, but valuing employer-sponsored coverage more than public coverage. More generally, the stronger associations for both coverage through an employer or union and through Medicaid or Medicare indicate that these events are more important factors in deciding to obtain coverage for poorer families than for families with greater resources.

Another notable difference in the estimates for the low-income group is that age plays a more important role relative to that in the full sample. Relative to those who are younger, individuals age 23 to 39 are more likely to obtain coverage through a current employer or union in the low-income subsample compared to the full sample.

In Table V.3 we present the estimates using a non-married subsample. We find minimal differences between this subsample and the full sample (in Table V.1). For example, while the estimates of the associations between experiencing a job loss or a decrease in earnings and obtaining coverage through a current employer or union are more negative in the non-married subsample, the differences in estimates across the two samples are modest.

The two remaining auxiliary analyses measure the sensitivity of the results to two methodological decisions made when constructing the analysis samples. The first decision was to define a trigger event as a change in an employment, income, or family composition measure across two consecutive waves. If there was a change from wave (*t*-1) to wave (*t*), then a trigger is said to have occurred in wave (*t*). In a sensitivity analysis, we define this set of variables by

TABLE V.3

A MULTINOMIAL LOGIT MODEL OF THE LIKELIHOOD OF LEAVING THE UNINSURED STATE AND OBTAINING DIFFERENT COVERAGE TYPES USING A SUBSAMPLE OF NON-MARRIED INDIVIDUALS

	Transitions from the Uninsured State to:				
Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	0.10 *	0.20 **	0.35 **	0.45	0.05
Black, non-Hispanic	0.34 ***	0.59 ***	0.41 **	0.82 **	0.43
Other, non-Hispanic	0.00	0.44 ***	0.84 ***	-0.36	0.19
Age (referent group is "19 to 22")					
23 to 29	0.27 ***	-0.10	0.05	0.47	0.20
30 to 39	0.21 ***	-0.28 ***	-0.30 *	-0.09	0.95 *
40 to 50	-0.08	-0.31 ***	0.09	0.07	1.21 ***
51 to 61	-0.54 ***	-0.27 ***	0.54 ***	0.86 ***	1.94 ***
Education (referent group is "less than high school")					
High school	0.54 ***	-0.15 *	0.49 ***	0.19	0.66 *
More than high school	0.90 ***	-0.43 ***	1.14 ***	0.96 ***	0.89 ***
Gender (referent group is "female")					
Male	-0.14 ***	-1.05 ***	-0.07	-0.27	0.88 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.92 ***	-0.61 ***	0.04	-0.30	-0.08
2.00 or more	1.29 ***	-0.88 ***	0.48 ***	-0.35	-0.29
Marital Status (referent group is "not married")					
Married					
Children Less than 18 in Family (referent group is "no children")					
One child	-0.05	0.46 ***	-0.52 ***	-1.01 ***	-0.08
Two children	0.11	0.62 ***	-0.12	-1.01 *	-0.09
Three or more children	0.17 *	0.80 ***	-0.46	-0.30	-30.19
Trigger Events					
Job gain	0.79 ***	-0.33 ***	0.28 *	1.35 ***	-0.48
Increase in earnings and increase in family composition	0.60 ***	-0.07	0.19	0.54	-30.53
Increase in earnings and no change in family composition	0.28 ***	-0.48 ***	0.06	0.03	-1.25 ***
Job loss	-0.75 ***	0.20 *	-0.25	1.15 ***	-0.62
Decrease in earnings and decrease in family composition	-0.39 **	0.19	-0.40	-0.52	-29.96
Decrease in earnings and no change in family composition	-0.58 ***	-0.01	0.12	0.34	-0.28
Job change and increase in earnings	0.64 ***	0.11	-0.30	0.26	-29.36
Job change and decrease in earnings	0.68 ***	0.08	-0.20	-1.01	0.51
Increase in other family income and increase in family composition	-0.12	0.05	0.57	-0.57	1.11
Increase in other family income and no change in family composition	0.10	0.78 ***	0.64 ***	0.21	0.37
Decrease in other family income and decrease in family composition	0.07	0.02	1.10 ***	0.85	-0.15
Decrease in other family income and no change in family composition	0.08	0.13	0.25 *	0.33	-0.55
Increase in number of children in family	-0.07	0.72 ***	-0.40	-0.02	-0.13
Decrease in number of children in family	0.33 ***	0.09	0.03	0.28	-29.55

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

examining changes across any two consecutive waves out of the previous three waves. Thus, if there was a change either from wave (*t*-2) to wave (*t*-1) or from wave (*t*-1) to wave (*t*), then a trigger is said to have occurred in wave (*t*). In this way, we account for lags in observing the effects of trigger events on changes in health insurance coverage.

Table V.4 presents the estimates from the estimation using the “two-wave trigger” subsample. The differences between the estimates using this subsample and those using the one-wave trigger definitions, while not sizable, are mixed. For transitions into most coverage types, especially employer or union coverage, there is no common direction of a bias in defining the trigger event variables using the one-wave definition. However, for Medicaid or Medicare transitions all statistically significant estimates using the two-wave definition in Table V.4 are smaller in magnitude than those using the one-wave definition in Table V.1, indicating that lagged trigger events have a weaker association with coverage transitions than current trigger events. That this is true for these coverage types, but not others, may reflect the strict enforcement of Medicaid eligibility rules, letting changes in employment, income, and family composition translate quickly into changes in eligibility status.

The second auxiliary analysis examines the sensitivity of the results to including one-wave spells with or without coverage. We re-estimate the main model using a sample in which any one-wave spells with or without coverage are excluded and present the results in Table V.5. Compared to the results that include one-wave spells in Table V.1, the associations between trigger events and coverage transitions are modestly larger (more positive) when one-wave spells are excluded. This suggests that the relationships present in the original sample are weakened by observed spells with or without coverage that are very short-term, if they occurred at all.

TABLE V.4

A MULTINOMIAL LOGIT MODEL OF THE LIKELIHOOD OF LEAVING THE UNINSURED STATE AND OBTAINING DIFFERENT COVERAGE TYPES WHEN TRIGGER EVENT VARIABLES ARE DEFINED OVER TWO CONSECUTIVE WAVES

	Transitions from the Uninsured State to:				
Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	0.07	0.11 *	0.49 ***	0.38	0.83 ***
Black, non-Hispanic	0.38 ***	0.48 ***	0.49 ***	0.81 ***	1.07 ***
Other, non-Hispanic	-0.06	0.09	0.85 ***	-0.15	-0.31
Age (referent group is "19 to 22")					
23 to 29	0.27 ***	-0.13	-0.14	0.85 ***	0.26
30 to 39	0.19 ***	-0.31 ***	-0.27 *	0.25	0.81
40 to 50	0.04	-0.42 ***	0.00	0.46	0.93 *
51 to 61	-0.26 ***	-0.30 ***	0.29 *	1.40 ***	1.81 ***
Education (referent group is "less than high school")					
High school	0.49 ***	-0.11 *	0.32 **	0.41	0.51
More than high school	0.88 ***	-0.31 ***	1.02 ***	1.14 ***	0.97 ***
Gender (referent group is "female")					
Male	0.13 ***	-0.86 ***	0.01	-0.02	1.00 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.63 ***	-0.53 ***	0.04	-0.37	-0.02
2.00 or more	0.93 ***	-0.85 ***	0.43 ***	-0.20	0.08
Marital Status (referent group is "not married")					
Married	-0.08	-0.05	0.03	0.19	0.18
Children Less than 18 in Family (referent group is "no children")					
One child	0.03	0.52 ***	-0.29 ***	-0.59 **	-0.69 *
Two children	0.14 **	0.67 ***	-0.25 *	-0.76 **	-0.12
Three or more children	0.18 ***	0.71 ***	-0.35 **	-0.24	-1.37 **
Trigger Events					
Job gain	0.85 ***	-0.11	-0.04	0.44 **	-0.31
Increase in earnings and increase in family composition	0.26 ***	-0.09	0.10	0.16	-0.43
Increase in earnings and no change in family composition	0.08	-0.26 ***	0.14	-0.42 *	-0.88 ***
Job loss	-0.49 ***	0.13 *	0.14	0.99 ***	-0.23
Decrease in earnings and decrease in family composition	-0.27 **	-0.11	0.44 *	0.56	-0.24
Decrease in earnings and no change in family composition	-0.33 ***	-0.13 **	0.11	0.11	0.01
Job change and increase in earnings	0.74 ***	-0.07	-0.50 **	0.77 **	0.32
Job change and decrease in earnings	0.37 ***	0.20	-0.15	0.03	0.14
Increase in other family income and increase in family composition	0.03	0.12	0.64 ***	0.30	0.07
Increase in other family income and no change in family composition	0.09 **	0.55 ***	0.50 ***	0.46 ***	0.12
Decrease in other family income and decrease in family composition	0.22 *	0.24 *	0.11	-0.05	0.40
Decrease in other family income and no change in family composition	0.13 ***	-0.06	-0.12	0.19	-0.40
Increase in number of children in family	-0.18 *	0.62 ***	-0.41	-0.26	0.12
Decrease in number of children in family	0.11	0.09	-0.44 *	0.34	0.13

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

TABLE V.5

A MULTINOMIAL LOGIT MODEL OF THE LIKELIHOOD OF LEAVING THE UNINSURED STATE AND OBTAINING DIFFERENT COVERAGE TYPES WHEN ONE-WAVE COVERAGE SPELLS ARE SMOOTHED OVER

	Transitions from the Uninsured State to:				
Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	0.24 ***	0.29 ***	0.53 ***	0.44	0.97 **
Black, non-Hispanic	0.48 ***	0.49 ***	0.39 **	0.91 **	1.16 **
Other, non-Hispanic	-0.05	0.22	0.82 ***	0.52	-0.03
Age (referent group is "19 to 22")					
23 to 29	0.18 ***	-0.06	-0.04	0.27	0.90
30 to 39	0.09	-0.14	-0.15	0.10	1.20
40 to 50	-0.11	-0.18 *	0.00	0.39	1.49 *
51 to 61	-0.52 ***	0.00	0.26	1.07 ***	2.37 ***
Education (referent group is "less than high school")					
High school	0.55 ***	-0.15 *	0.32 **	0.44	0.58
More than high school	0.97 ***	-0.28 ***	1.04 ***	0.90 ***	1.06 ***
Gender (referent group is "female")					
Male	0.06	-0.79 ***	-0.10	-0.14	1.07 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.66 ***	-0.55 ***	0.04	0.23	0.66 *
2.00 or more	1.13 ***	-1.02 ***	0.43 ***	0.43	0.56
Marital Status (referent group is "not married")					
Married	0.00	-0.10	0.09	0.05	0.45
Children Less than 18 in Family (referent group is "no children")					
One child	-0.02	0.34 ***	-0.54 ***	-0.36	-1.00 **
Two children	-0.04	0.36 ***	-0.15	-0.57	-0.36
Three or more children	0.04	0.41 ***	-0.56 ***	-0.36	-1.84 **
Trigger Events					
Job gain	0.82 ***	-0.24 **	0.28 *	0.90 ***	0.07
Increase in earnings and increase in family composition	0.67 ***	0.12	0.10	0.57	-28.36
Increase in earnings and no change in family composition	0.32 ***	-0.33 ***	0.10	-0.44	-1.17 ***
Job loss	-0.39 ***	0.34 ***	-0.32	1.11 ***	-0.96
Decrease in earnings and decrease in family composition	-0.11	0.33	0.05	-0.90	-0.81
Decrease in earnings and no change in family composition	-0.53 ***	0.03	0.11	0.29	-0.59
Job change and increase in earnings	0.79 ***	0.04	-0.33	-0.32	0.40
Job change and decrease in earnings	0.62 ***	-0.20	-0.17	-0.91	0.54
Increase in other family income and increase in family composition	-0.02	0.18	0.58	0.16	0.35
Increase in other family income and no change in family composition	0.23 ***	0.87 ***	0.53 ***	0.72 ***	0.53 *
Decrease in other family income and decrease in family composition	0.12	0.28	0.74 **	1.63 ***	1.28 *
Decrease in other family income and no change in family composition	0.20 ***	0.28 ***	0.23 *	-0.09	-0.89 *
Increase in number of children in family	0.04	0.47 ***	0.12	-0.48	0.12
Decrease in number of children in family	0.29 **	0.12	0.32	-0.88	1.05

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

B. CHANGING AND LOSING COVERAGE: TRANSITIONS INTO THE UNINSURED STATE

In this section we present the findings from an application of a set of logistic regression analyses to estimate the association between experiencing a trigger event and (1) the likelihood that an insured individual will make a transition out of his or her current coverage type and (2) the likelihood that the individual will become uninsured, given that he or she leaves the current coverage type. As in the previous section, we first present the sample and empirical model and discuss the sets of variables that are included in the analysis. Next, we present the main findings of the model as well as those from a set of auxiliary models and sample subgroups.

1. Sample and Methodology

While the analysis of transitions out of the uninsured state was set in a multinomial framework, we use an alternative framework to analyze transitions into the uninsured state from multiple origins separately. This approach consists of a two-step estimation procedure. The first step models the decision to leave the current health insurance coverage type, relative to keeping it, and the second step models the decision to transition to the uninsured state, relative to obtaining an alternative type of insurance coverage, given that the individual leaves the current coverage type. In both steps, a separate logistic regression model is estimated for each coverage type. For example, in the first step, transitions out of current employer or union coverage are estimated separately from transitions out of Medicaid or Medicare. In the second step, transitions from current employer or union coverage to the uninsured state are estimated separately from transitions from Medicaid or Medicare to the uninsured state. Dividing the transition into two steps allows us to model the decision to leave the current coverage type and the decision to obtain an alternative coverage type or become uninsured separately. Conceptually, this provides a richer behavioral framework compared to using a "one-step" model while accommodating the full choice set that is available to the individual.

As in the analysis examining transitions out of the uninsured state, this analysis focuses on transitions between two consecutive waves, denoted (*t*-1) and (*t*). The sample for the analysis of transitions out of coverage type "A" consists of individuals who are insured through coverage type "A" in wave (*t*-1) and who are "at risk" for leaving this coverage type. As described below, "A" may represent current employer or union coverage; Medicaid or Medicare; private, non-group or other coverage; former employer coverage; or military coverage. The sample consists of individuals who transition out of the coverage type between waves (*t*-1) and (*t*) as well as those whose coverage remains unchanged between these waves. As in the prior analysis, the unit of observation is the person-wave.

The same set of variables is included in this set of models that was included in the multinomial logistic models in the previous section. This includes the set of employment, income, and family composition trigger event variables and the set of demographic variables such as an individual's age, education, gender, race and ethnicity, and income. The trigger events are defined over one wave in the main model specification and several sets of sensitivity analyses and defined over two waves in one additional set of sensitivity analyses.

a. Model Specification

We estimate a pair of logistic regression models, denoted by equations "1" and "2", for each of the following coverage types: current employer or union, Medicaid or Medicare, private non-group or other, former employer, and military. The dependent variable in the first equation, $y_{i,t}^{1}$, identifies transitions for individual *i* from being insured through a given coverage type in wave (*t*-1) to not being insured through the same type of coverage in wave (*t*). The dependent variable in the second equation, $y_{i,t}^{2}$, identifies whether the individual becomes uninsured in wave (*t*) given that he or she leaves the current coverage type between wave (*t*-1) and wave (*t*). For example, the two dependent variables associated with transitions out of coverage through a current employer or union, denoted as "employer coverage" for brevity in the equations below, are:

$$y^1_{i,t} = \begin{cases} 1, \text{ if leave employer coverage between waves } (t\text{-}1) \text{ and } (t) \\ 0, \text{ otherwise} \end{cases}$$

and

$$y^2_{i,t} = \begin{cases} 1, \text{ if transition from employer coverage to uninsured state between waves } (t\text{-}1) \text{ and } (t) \\ 0, \text{ if transition from employer coverage to alternative insured state between waves } (t\text{-}1) \text{ and } (t) \end{cases}$$

The probabilities associated with each dependent variable taking the value of "1" are defined to be a function of the set of trigger events and demographic and economic characteristics described in the last section as follows:

$$\Pi^1_{it} = \frac{\exp\left(X^1_{it}B^1\right)}{1+\exp\left(X^1_{it}B^1\right)} \text{ and } \Pi^2_{it} = \frac{\exp\left(X^2_{it}B^2\right)}{1+\exp\left(X^2_{it}B^2\right)}$$

where X^1_{it} and X^2_{it} are the set of explanatory variables for individual *i* evaluated at wave (*t*), and B^1 and B^2 are the sets of parameter coefficients in equations 1 and 2. Since the pair of regression models is estimated for transitions out of each of the five coverage types (current employer or union, Medicaid or Medicare, private nongroup or other, former employer, or military), we obtain five pairs of coefficients B^1 and B^2.

Equations 1 and 2 are estimated separately using maximum likelihood estimation. Each of the *i*=1,2,…, *N* observations on the dependent variables $y^1{}_{i,t}$ and $y^2{}_{i,t}$ in our sample is treated as a single draw from a logistic distribution. The resultant likelihood functions for equations 1 and 2 are defined as:

$$L^1 = \prod_{i=1}^{N}\prod_{t=1}^{T_i} \left(\pi^1_{it}\right)^{\left(y^1_{it}\right)}\left(1-\pi^1_{it}\right)^{\left(1-y^1_{it}\right)} \quad \text{and} \quad L^2 = \prod_{i=1}^{N}\prod_{t=1}^{T_i} \left(\pi^2_{it}\right)^{\left(y^2_{it}\right)}\left(1-\pi^2_{it}\right)^{\left(1-y^2_{it}\right)}$$

where T_i is the number of waves of observations each individual *i* contributes to the sample. All standard errors are adjusted for repeated observations at the individual level.

2. Empirical Findings: Transitions out of the Insured State

We begin by examining the associations between the likelihood of leaving the current insured state and a set of trigger events. Thus, these findings describe the associations observed using the first equation above and are interpreted relative to remaining insured with the current coverage type. For example, when examining the association between the likelihood of leaving Medicaid or Medicare coverage and gaining a job, it is implicit that this association is measured relative to remaining enrolled in Medicaid or Medicare. Following the presentation of these findings, we discuss the findings from the second equation, which examines the factors associated with entering the uninsured state among insurance leavers.

a. Trigger Events

Job Gain. Obtaining a new job is positively associated with transitioning from all four forms of coverage (Table V.6a). For individuals currently insured through Medicaid or Medicare or a former employer, this is expected, as the increase in earned income associated with the new job may exceed program eligibility thresholds, or the new job may offer employer-sponsored coverage that is superior to coverage through Medicaid or Medicare or a former employer. Similarly, individuals currently insured through a private nongroup source who obtain a job that offers insurance, may elect to switch to employer-sponsored coverage. However, the positive association for individuals currently insured through an employer or union is less intuitive. One potential explanation is the existence of waiting periods for insurance coverage at new jobs.[37]

[37] As we discuss in a later section when presenting the results of the sensitivity analyses, re-estimating the same model but defining trigger events as occurring over the past 8 months instead of 4 months leads to similar estimates for all trigger events except the association between a job gain and the likelihood of leaving employer-sponsored coverage. The positive association observed in the current model changes to a statistically significant negative association. This suggests that by using the one-wave definition of trigger events, we may be excluding an important lagged effect of obtaining a job on retaining current employer coverage.

TABLE V.6a

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF LEAVING THE CURRENT FORM OF COVERAGE

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.39 ***	-0.39 ***	-0.60 ***	-0.56 **	-0.43
Black, non-Hispanic	-0.19 ***	-0.23 ***	0.63 ***	-0.43	-0.58 *
Other, non-Hispanic	-0.02	-0.18	-0.45 ***	-0.06	0.13
Age (referent group is "19 to 22")					
23 to 29	-0.86 ***	-0.25 ***	-0.34 ***	-1.44 ***	-0.41
30 to 39	-1.19 ***	-0.38 ***	-0.61 ***	-2.15 ***	-0.41
40 to 50	-1.28 ***	-0.60 ***	-0.66 ***	-2.52 ***	-0.28
51 to 61	-1.12 ***	-0.77 ***	-0.73 ***	-3.81 ***	-0.35
Education (referent group is "less than high school")					
High school	-0.30 ***	0.21 ***	-0.47 ***	-0.07	-0.39
More than high school	-0.47 ***	0.41 ***	-0.60 ***	-0.21	-0.70 ***
Gender (referent group is "female")					
Male	-0.09 ***	-0.18 ***	-0.07	-0.17 *	-0.91 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	-0.48 ***	0.33 ***	-0.02	-0.17	-0.15
2.00 or more	-0.89 ***	0.63 ***	0.04	-0.27 **	-0.41 *
Marital Status (referent group is "not married")					
Married	0.20 ***	0.51 ***	0.24 ***	-0.12	-0.21
Children Less than 18 in Family (referent group is "no children")					
One child	0.05	0.19 ***	0.18 **	0.23	-0.24
Two children	0.04	0.28 ***	0.28 ***	0.16	-0.07
Three or more children	-0.04	0.13	0.07	0.27	-0.15
Trigger Events					
Job gain	0.72 ***	0.64 ***	0.70 ***	0.83 ***	1.05 ***
Increase in earnings and increase in family composition	0.10	0.14	0.12	0.26	-0.11
Increase in earnings and no change in family composition	-0.03	0.32 ***	0.02	0.28 ***	-0.03
Job loss	2.54 ***	0.25 ***	0.15	0.60 ***	0.28
Decrease in earnings and decrease in family composition	0.23 *	0.00	0.41 *	0.13	-0.14
Decrease in earnings and no change in family composition	0.45 ***	-0.01	0.08	0.12	0.17
Job change and increase in earnings	1.34 ***	0.49 ***	0.83 ***	1.30 ***	-0.25
Job change and decrease in earnings	1.55 ***	0.57 ***	0.65 **	1.39 ***	-0.10
Increase in other family income and increase in family composition	0.28 ***	-0.09	0.07	-0.09	0.84
Increase in other family income and no change in family composition	0.08 ***	0.11 *	-0.03	0.40 ***	0.36 ***
Decrease in other family income and decrease in family composition	0.18	0.00	0.22	0.51	1.49 ***
Decrease in other family income and no change in family composition	-0.02	0.41 ***	0.09	0.64 ***	0.44 ***
Increase in number of children in family	0.02	0.25 **	0.37 *	0.13	-0.43
Decrease in number of children in family	0.05	0.18	0.18	0.34	0.46

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

Earnings Increase. While obtaining a new job is strongly associated with insurance transitions, experiencing an increase in earnings without obtaining a new job is mostly unrelated to leaving all four forms of coverage. One exception, which makes intuitive sense, is for individuals transitioning out of Medicaid or Medicare coverage. Individuals experiencing an increase in earnings and no change in family composition are more likely to leave Medicaid or Medicare relative to those whose earnings do not increase. This association is not present for those whose increase in earnings is accompanied by an increase in family size, which is expected given that eligibility thresholds are higher for larger families. Individuals experiencing an increase in earnings and no change in family composition are also more likely to leave coverage through a former employer relative to those whose earnings do not increase. This reflects the improved affordability of coverage at a current job following the increase in earnings.

Job Loss. As expected, losing a job is positively associated with leaving coverage through a current employer or union. The estimate is three to four times as large as most of the other trigger event estimates, demonstrating the strength of the association and highlighting how the loss of a job implies not only a loss of earned income, but a loss of nonwage benefits such as insurance coverage. A positive association is also found between losing a job and leaving Medicaid or Medicare coverage. This is counterintuitive, as we expect Medicaid and Medicare recipients who lose their jobs to remain on Medicaid or Medicare.

Earnings Decrease. Individuals who experience a decrease in earnings without losing their jobs are more likely to leave coverage through a current employer or union than individuals who neither lost a job nor experienced a decrease in earnings. This is true unconditional on whether the decrease in family earnings is accompanied by a change in family size. The higher likelihood of leaving may be due to a decrease in hours worked that makes the individual ineligible for benefits such as health insurance. Alternatively, the reduced earnings may make the coverage too costly.

Job Change. Unconditional on whether they are accompanied by a change in earnings, job changes are positively associated with transitions out of all four forms of coverage. The strongest associations are for leaving coverage through a current employer or union, with descriptive evidence (not shown) indicating that over one-third of these individuals are obtaining coverage through a former employer or are becoming uninsured. Together, these findings suggest that job changers frequently lose health insurance during their employment transitions. Furthermore, the estimates are similar in magnitude for job changers whose earnings increase or decrease. For leavers of current employer or union coverage, this suggests that individuals are not compensating for the loss of health insurance by obtaining higher salaries. For leavers of Medicaid or Medicare, this may suggest that individuals who change jobs and have their earnings reduced are accepting employment at jobs that provide health insurance.

Unearned Income Increase. Finally, changes in unearned family income are also important. Individuals who experience increases in other income, with no change in family composition, are more likely to leave Medicaid or Medicare coverage. This makes sense, particularly for Medicaid, given that their eligibility may change with more income. However, it is less intuitive that individuals who experience increases in other income are more likely to leave current employer or union coverage. In addition, it is also unexpected to see that increases in the number of children in a family increase the likelihood of leaving Medicaid. Presumably, this type of change in family composition would increase the level of need given a constant amount of family income, and thus make it less likely to leave Medicaid. It is possible that having additional children in the family makes it tougher to attend recertification appointments in person, or even fill out additional paperwork at home in states that allow forms to be submitted by mail. This, in turn, may increase the chances of not being recertified.

b. Demographics

Demographic characteristics of an individual and his or her family appear to play an important role in transitions out of each coverage state. White, non-Hispanic individuals are less likely to leave all four forms of coverage relative to Hispanic individuals. This is also true for black, non-Hispanic individuals for all coverage types except private nongroup. Age is also important, with older individuals being less likely to leave each of the four coverage types than younger individuals. Presumably, this reflects the greater value placed on health insurance coverage with rising age. Gender plays a role too, with males surprisingly being less likely to leave all forms of coverage except private nongroup or other.

An individual’s education and family income, relative to the federal poverty threshold, are each associated with the likelihood of making a health insurance transition. Individuals with more education or income are less likely to leave coverage through a current employer or union, relative to those with less education or less income. The opposite is true for Medicaid and Medicare participants, with more education or income being positively associated with leaving those forms of coverage. For individuals insured through a private nongroup or other source, more education is associated with a lower likelihood of leaving, and there is no association with income.

Family composition matters as well, with married adults more likely to leave all forms of coverage, except coverage through a former employer, relative to single adults. For coverage through Medicaid this is expected, as spouses are potential income earners who reduce the likelihood of the family's remaining on Medicaid.[38] For coverage through a current employer or union, however, this is less intuitive. Assuming that each spouse's job provides coverage, married individuals who are both working should be able to obtain employer-sponsored coverage through one spouse in the event the spouse who provides family coverage loses his or her insurance. Thus, the unexpected finding for employer coverage might reflect a greater tendency for only one of the two spouses to have employer coverage. Alternatively, it may highlight a limited window in which a worker who has initially elected not to purchase employer coverage is allowed to change his or her enrollment decision.

3. Empirical Findings: Transitions into the Uninsured State among Coverage Leavers

The second step of our model examines transitions into the uninsured state among a subsample of individuals who leave their current form of coverage. We begin by examining the associations between the likelihood of becoming uninsured and a set of trigger events. All findings are interpreted relative to remaining insured with an alternate form of coverage. For example, when examining the association between gaining a job and the likelihood of becoming uninsured, given the individual is leaving Medicaid or Medicare coverage, it is implicit that this association is measured relative to remaining insured with coverage other than Medicaid or Medicare.

a. Trigger Events

Earnings Increase. Not only are trigger events associated with the loss of an individual's current form of coverage, they affect the likelihood of an individual becoming uninsured relative

[38] We have grouped Medicaid and Medicare together as public coverage because Medicare is rare among nonelderly adults and in some instances may represent Medicaid coverage that was misreported, but explanations that apply to Medicaid participants generally do not apply to those enrolled in Medicare. For simplicity, we interpret certain findings based on the ability of an individual to lose Medicaid rather than Medicare.

to obtaining an alternative form of coverage. In Table V.6b we see that individuals who experience an increase in earnings are less likely to become uninsured given they leave coverage through a current employer or union or through Medicaid or Medicare. While this is true regardless if the increase in earnings is coupled with an increase in family size, the estimates are greater (more negative) for individuals whose earnings and family size increase at the same time. This suggests that individuals with earnings that join a family may provide a means to purchase private nongroup coverage.

Job Loss. Individuals who lose their jobs are more likely to become uninsured given they leave their current form of coverage for all five coverage types. This is expected for individuals losing coverage through a current employer or union and, to some extent, through private non-group or other coverage as this type of insurance may no longer be affordable. The positive association between losing one's job and the likelihood of becoming uninsured after leaving Medicaid or Medicare is intuitively less clear, mainly because Medicaid recipients who lose their jobs should remain eligible for Medicaid. However, our results are based on a sample of individuals who left Medicaid, and so it is possible that this group of individuals differs systematically from the larger group of Medicaid participants.

Job Change. Moving from one job to another is also associated with an increased likelihood of becoming uninsured for individuals who leave coverage through a current or former employer or through a union. For individuals who leave coverage through a current employer or union, the estimate is much larger for those whose job change is accompanied by an increase in family earnings, suggesting that either the new job does not offer coverage or the new employer contributes a smaller amount to the coverage plan relative to the previous job or there is a waiting period involved.

TABLE V.6b

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF ENTERING THE UNINSURED STATE CONDITIONAL ON LEAVING THE CURRENT FORM OF COVERAGE

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.99 ***	-0.54 ***	-0.80 ***	-0.25	0.45
Black, non-Hispanic	-0.76 ***	-0.61 ***	-0.36 *	0.23	0.45
Other, non-Hispanic	-0.65 ***	-0.31	-0.31	-0.74 *	0.85
Age (referent group is "19 to 22")					
23 to 29	0.58 ***	-0.12	0.34 *	-0.20	0.11
30 to 39	0.51 ***	-0.56 ***	0.14	-0.66 **	1.04
40 to 50	0.27 ***	-0.66 ***	0.25	-0.82 ***	-0.27
51 to 61	-0.22 *	-1.12 ***	0.01	-1.43 ***	0.17
Education (referent group is "less than high school")					
High school	-0.52 ***	-0.25 **	-0.32 *	-0.28	-0.12
More than high school	-1.14 ***	-0.65 ***	-0.38 ***	-0.89 ***	-1.01 *
Gender (referent group is "female")					
Male	0.43 ***	-0.11	0.34 ***	0.36 ***	1.31 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.06	-0.57 ***	0.17	-0.36 *	-0.17
2.00 or more	-0.66 ***	-1.00 ***	-0.38 ***	-1.01 ***	-1.53 ***
Marital Status (referent group is "not married")					
Married	-1.28 ***	-0.18 *	-0.71 ***	-0.87 ***	-1.49 ***
Children Less than 18 in Family (referent group is "no children")					
One child	-0.04	0.33 ***	0.10	0.14	-0.67
Two children	-0.13	0.41 ***	-0.20	0.18	-1.36 **
Three or more children	-0.06	0.25 *	0.04	0.26	-1.13
Trigger Events					
Job gain	-0.04	0.01	-0.09	-0.24	0.93 *
Increase in earnings and increase in family composition	-0.65 ***	-0.77 ***	-0.13	-0.49	1.96 ***
Increase in earnings and no change in family composition	-0.21 ***	-0.31 ***	-0.08	-0.59 ***	0.20
Job loss	0.69 ***	0.64 ***	0.79 ***	1.11 ***	0.95 **
Decrease in earnings and decrease in family composition	0.38	0.30	0.02	-1.05	2.36 ***
Decrease in earnings and no change in family composition	0.09	0.29 **	0.37 ***	0.40 **	1.19 ***
Job change and increase in earnings	1.05 ***	0.22	-0.08	0.58 *	1.82 *
Job change and decrease in earnings	0.71 ***	0.04	0.14	0.69 **	0.24
Increase in other family income and increase in family composition	-0.51 ***	-0.65 *	-0.08	-0.22	-1.43
Increase in other family income and no change in family composition	-0.47 ***	-0.39 ***	-0.36 ***	-0.03	-0.09
Decrease in other family income and decrease in family composition	-0.21	0.24	0.09	0.65	-1.99 *
Decrease in other family income and no change in family composition	-0.48 ***	0.00	-0.11	0.33 *	0.03
Increase in number of children in family	-0.24	0.63 ***	0.15	-0.84	-0.05
Decrease in number of children in family	-0.05	0.01	-0.50	-0.30	0.37

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

Unearned Income Increase. Increases in family income other than earned income also play a role. These changes are associated with a lower likelihood of entering the uninsured state given that an individual leaves coverage through a current employer or union or through Medicaid or Medicare. This is true for individuals who either also have an increase in family size or whose family size remains unchanged. These results suggest that, like increases in earned income, increases in other income serve as a safety net against becoming uninsured for individuals who leave their current form of coverage.

b. Demographics

Many individual and family demographic characteristics are associated with increased or decreased likelihoods of becoming uninsured given that an individual leaves his or her current form of coverage. These include education, marital status, race, age, gender, and to some extent, family size. For people leaving all five coverage types, having a high school education reduces the likelihood of becoming uninsured, and having more than a high school education reduces the likelihood even further. Being married also reduces the likelihood of becoming uninsured among people leaving all five coverage types.

Among individuals who leave coverage through a current employer or union, Medicaid or Medicare, or a private nongroup or other insurer, those that are non-Hispanic, have more education, or are married are less likely to become uninsured.[39] For individuals leaving coverage through a current employer or union or through Medicaid or Medicare, age is also important. Individuals leaving current employer or union coverage who are 23 to 50 years old are more likely to become uninsured than those 19 to 22 years old whereas those 51 to 61 are less likely to become uninsured. This likely reflects college-aged individuals who are still covered by their

[39] This result is not statistically significant for non-Hispanic individuals that are neither white nor black who leave Medicaid or Medicare or private, non-group or other coverage.

parents' insurance policies. However, among individuals who are at least 23 years old, the likelihood of becoming uninsured decreases with age, eventually dropping below that of the youngest adults. Except for people leaving Medicaid or Medicare, males who leave a source of coverage are more likely than females to become uninsured. Finally, the presence of children in the family increases the likelihood of becoming uninsured for individuals who are leaving Medicaid or Medicare.

4. Sensitivity Analyses

Because the associations between trigger events and the transition out of current coverage types and into the uninsured state may differ by demographic and economic characteristics, we estimate sensitivity analyses on several subsamples defined by income and marital status. We compare the results from the full sample of insured persons in Table V.6a and persons who left their source of coverage in Table V.6b with those from a subsample of individuals with income less than 350.5 percent of the federal poverty level, which is the median family income-to-poverty ratio among all insured persons.[40] We also compare the full sample results with a subsample of non-married individuals.

The results based on the low-income subsample indicate that almost all trigger events with significant associations with the likelihood of leaving one's current coverage type in the full sample are larger in magnitude in the low-income subsample (Table V.7a). However, for transitions into the uninsured state, conditional on leaving one's current coverage type, there are no noticeable differences in the size of the estimates across the two samples (Table V.7b). This suggests that changes in employment and income have a greater effect on poorer individuals'

[40] The median family income-to-poverty ratio for this sample is more than twice the median ratio for the full sample used to examine transitions out of the uninsured state. This reflects the compositional differences between the two samples and indicates how lower income individuals are more likely to be uninsured at any point in the survey window.

TABLE V.7a

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF LEAVING THE CURRENT FORM OF COVERAGE USING A SUBSAMPLE OF LOW-INCOME INDIVIDUALS

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.45 ***	-0.40 ***	-0.70 ***	-0.65 **	-0.65 *
Black, non-Hispanic	-0.27 ***	-0.26 ***	0.61 ***	-0.48	-0.72 *
Other, non-Hispanic	0.05	-0.23 *	-0.53 ***	-0.27	0.17
Age (referent group is "19 to 22")					
23 to 29	-0.77 ***	-0.21 **	-0.29 *	-1.13 *	-0.32
30 to 39	-1.01 ***	-0.35 ***	-0.50 ***	-1.93 ***	-0.39
40 to 50	-1.10 ***	-0.57 ***	-0.59 ***	-2.22 ***	0.01
51 to 61	-0.97 ***	-0.73 ***	-0.74 ***	-3.34 ***	-0.34
Education (referent group is "less than high school")					
High school	-0.26 ***	0.21 ***	-0.48 ***	0.03	-0.19
More than high school	-0.39 ***	0.38 ***	-0.71 ***	-0.17	-0.41
Gender (referent group is "female")					
Male	0.03	-0.21 ***	-0.11	-0.22 *	-0.71 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	-0.50 ***	0.32 ***	-0.01	-0.22	-0.11
2.00 or more	-0.84 ***	0.56 ***	0.09	-0.45 ***	-0.37
Marital Status (referent group is "not married")					
Married	0.15 ***	0.52 ***	0.14 *	-0.10	-0.31
Children Less than 18 in Family (referent group is "no children")					
One child	-0.02	0.15 *	0.21 *	0.22	-0.45 *
Two children	-0.06	0.23 ***	0.28 **	0.16	-0.18
Three or more children	-0.23 ***	0.10	0.08	0.30	-0.15
Trigger Events					
Job gain	0.62 ***	0.69 ***	0.84 ***	1.00 ***	1.14 ***
Increase in earnings and increase in family composition	-0.07	0.18	0.27	0.33	0.55
Increase in earnings and no change in family composition	-0.15 ***	0.36 ***	0.07	0.47 ***	0.03
Job loss	2.56 ***	0.29 ***	0.12	1.10 ***	0.67 *
Decrease in earnings and decrease in family composition	0.40 **	0.02	0.32	0.01	0.72
Decrease in earnings and no change in family composition	0.51 ***	0.02	0.11	0.40 ***	0.10
Job change and increase in earnings	1.45 ***	0.47 ***	0.77 ***	1.44 ***	-0.16
Job change and decrease in earnings	1.99 ***	0.76 ***	0.64 *	1.95 ***	0.55
Increase in other family income and increase in family composition	0.31 **	-0.14	0.25	-0.19	0.74
Increase in other family income and no change in family composition	0.08 *	0.07	-0.05	0.31 ***	0.43 **
Decrease in other family income and decrease in family composition	0.07	-0.13	0.51	0.31	1.42 *
Decrease in other family income and no change in family composition	0.06	0.42 ***	0.09	0.58 ***	0.47 **
Increase in number of children in family	-0.04	0.27 ***	0.24	-0.16	-1.32 ***
Decrease in number of children in family	0.06	0.20	-0.09	0.09	-0.02

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

TABLE V.7b

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF ENTERING THE UNINSURED STATE CONDITIONAL ON LEAVING THE CURRENT FORM OF COVERAGE USING A SUBSAMPLE OF LOW-INCOME INDIVIDUALS

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.96 ***	-0.58 ***	-0.69 ***	-0.26	0.15
Black, non-Hispanic	-0.75 ***	-0.67 ***	-0.28	0.08	0.17
Other, non-Hispanic	-0.63 ***	-0.27	-0.33	-0.58	0.58
Age (referent group is "19 to 22")					
23 to 29	0.50 ***	0.04	0.15	-0.08	0.76
30 to 39	0.58 ***	-0.38 ***	-0.14	-0.55	2.04 **
40 to 50	0.42 ***	-0.54 ***	0.07	-0.62 *	0.38
51 to 61	0.02	-0.91 ***	-0.01	-1.29 ***	1.07
Education (referent group is "less than high school")					
High school	-0.39 ***	-0.21 *	-0.31 *	-0.19	-0.50
More than high school	-0.87 ***	-0.63 ***	-0.21	-0.64 **	-1.23 **
Gender (referent group is "female")					
Male	0.52 ***	-0.12	0.27 ***	0.33 **	1.11 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.07	-0.57 ***	0.12	-0.42 **	-0.31
2.00 or more	-0.33 ***	-1.07 ***	-0.20	-0.83 ***	-1.33 ***
Marital Status (referent group is "not married")					
Married	-1.03 ***	-0.18 *	-0.44 ***	-0.59 ***	-1.17 ***
Children Less than 18 in Family (referent group is "no children")					
One child	0.02	0.37 ***	0.15	0.12	-0.54
Two children	-0.13	0.36 ***	-0.10	0.07	-1.67 ***
Three or more children	-0.25 **	0.22	0.08	0.12	-1.33 *
Trigger Events					
Job gain	-0.19	0.07	-0.19	-0.49 *	0.90 *
Increase in earnings and increase in family composition	-0.59 ***	-0.68 **	0.04	-0.57	1.62 *
Increase in earnings and no change in family composition	-0.36 ***	-0.23 *	-0.11	-0.70 ***	0.19
Job loss	0.66 ***	0.70 ***	0.76 ***	1.01 ***	1.67 ***
Decrease in earnings and decrease in family composition	-0.01	0.60	0.32	-0.37	3.00 ***
Decrease in earnings and no change in family composition	-0.04	0.34 **	0.38 ***	0.60 **	1.08 *
Job change and increase in earnings	1.04 ***	0.28	-0.51	0.77 **	2.26
Job change and decrease in earnings	0.66 ***	0.24	0.84	0.71	1.89
Increase in other family income and increase in family composition	-0.58 ***	-0.77 **	-0.32	-0.21	-0.96
Increase in other family income and no change in family composition	-0.38 ***	-0.49 ***	-0.45 ***	-0.16	-0.35
Decrease in other family income and decrease in family composition	-0.13	0.14	0.09	0.88	-2.65 *
Decrease in other family income and no change in family composition	-0.51 ***	-0.02	-0.21	0.23	-0.48
Increase in number of children in family	-0.17	0.61 ***	0.15	-0.50	-0.99
Decrease in number of children in family	0.00	0.09	-0.69 *	-0.47	0.30

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

coverage dynamics, in terms of changing from one coverage type to another, relative to individuals with greater family income, but do not have a substantially different effect on the likelihood of becoming uninsured.

The results based on the non-married subsample indicate that, unlike the low-income subsample, single individuals who experience trigger events have similar changes in the likelihood of leaving their current coverage type and entering the uninsured state as married individuals. However, the associations between their demographic characteristics and these types of health insurance transitions do differ across marital status. Comparing Tables V.6a and V.8a, we find:

- The presence of children increases the likelihood of single individuals leaving coverage through a current employer or union by a greater amount than for all individuals. The likelihood of leaving coverage through Medicaid or Medicare, however, while still positive, is smaller for single individuals relative to all individuals.
- The coefficient for males remains statistically significant but changes sign to positive for persons leaving current employer or union coverage. In addition, while males have a lower likelihood of leaving current employer or union coverage than females, *single* males have a *greater* likelihood of leaving relative to *single* females.
- The associations between education and the likelihood of leaving one's current coverage type are also larger for single individuals.

Comparing estimates for entering the uninsured state among all individuals and single individuals (Tables V.6b and V.8b), we find that race and education play less of a role for single individuals than for all individuals and, therefore, for those who are married. The estimates are generally smaller and in some cases are no longer statistically significant for both of these characteristics when the sample is restricted to single individuals.

In addition to these sensitivity analyses, we also re-estimate the model using a two-wave definition for trigger event variables and excluding one-month spells with and without coverage. Tables V.9a and V.9b present the estimates based on the "two-wave trigger" sample. Both for

TABLE V.8a

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF LEAVING THE CURRENT FORM OF COVERAGE USING A SUBSAMPLE OF NON-MARRIED INDIVIDUALS

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.40 ***	-0.27 ***	-0.60 ***	-0.67	-0.71 *
Black, non-Hispanic	-0.30 ***	-0.15	0.67 ***	-0.65	-0.77 *
Other, non-Hispanic	-0.15	-0.15	-0.50 **	-0.38	-0.58
Age (referent group is "19 to 22")					
23 to 29	-0.84 ***	-0.31 ***	-0.33 **	-1.35 **	-0.96
30 to 39	-1.25 ***	-0.48 ***	-0.55 ***	-2.17 ***	-1.73 ***
40 to 50	-1.41 ***	-0.60 ***	-0.79 ***	-2.47 ***	-1.55 ***
51 to 61	-1.31 ***	-0.79 ***	-0.76 ***	-3.63 ***	-2.13 ***
Education (referent group is "less than high school")					
High school	-0.46 ***	0.24 ***	-0.71 ***	-0.08	-0.55
More than high school	-0.57 ***	0.42 ***	-1.05 ***	-0.34	-0.84 **
Gender (referent group is "female")					
Male	0.24 ***	-0.20 **	0.10	-0.06	-0.58 **
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	-0.44 ***	0.34 ***	0.02	-0.18	-0.06
2.00 or more	-0.99 ***	0.65 ***	-0.06	-0.37 **	-0.52 *
Marital Status (referent group is "not married")					
Married					
Children Less than 18 in Family (referent group is "no children")					
One child	0.11 *	0.11	0.26 *	0.19	-0.22
Two children	0.33 ***	0.19 *	0.38 *	0.12	-0.67
Three or more children	0.15	0.14	0.37	0.04	-0.68
Trigger Events					
Job gain	0.67 ***	0.75 ***	0.70 ***	0.69 ***	1.05 ***
Increase in earnings and increase in family composition	0.10	0.14	0.31	0.39	0.64
Increase in earnings and no change in family composition	-0.08	0.33 ***	-0.06	0.47 ***	0.07
Job loss	2.69 ***	0.22 *	0.10	0.71 ***	0.13
Decrease in earnings and decrease in family composition	0.24	0.04	0.37	-0.57	2.46 *
Decrease in earnings and no change in family composition	0.53 ***	-0.09	-0.05	0.04	0.47
Job change and increase in earnings	1.45 ***	0.72 ***	0.82 ***	1.14 ***	-1.43
Job change and decrease in earnings	1.69 ***	0.59 **	0.98 ***	1.53 ***	-2.34
Increase in other family income and increase in family composition	0.28 *	0.02	0.09	-0.13	0.65
Increase in other family income and no change in family composition	0.12 ***	0.04	-0.07	0.24 *	0.69 ***
Decrease in other family income and decrease in family composition	0.22	0.07	0.42	0.87 *	0.44
Decrease in other family income and no change in family composition	-0.04	0.43 ***	0.15 *	0.47 ***	0.41
Increase in number of children in family	0.17	0.16	0.62 *	0.83	-0.47
Decrease in number of children in family	-0.03	0.24	0.16	0.58	0.39

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

TABLE V.8b

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF ENTERING THE UNINSURED STATE CONDITIONAL ON LEAVING THE CURRENT FORM OF COVERAGE USING A SUBSAMPLE OF NON-MARRIED INDIVIDUALS

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military[a]
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.86 ***	-0.45 ***	-0.56 ***	-0.42	
Black, non-Hispanic	-0.60 ***	-0.53 ***	-0.15	0.31	
Other, non-Hispanic	-0.58 ***	-0.29	-0.31	-1.43 **	
Age (referent group is "19 to 22")					
23 to 29	0.63 ***	0.03	0.22	-0.39	
30 to 39	0.68 ***	-0.63 ***	0.15	-0.76 **	
40 to 50	0.40 ***	-0.47 ***	0.35 *	-0.69 **	
51 to 61	-0.19	-0.88 ***	0.01	-1.54 ***	
Education (referent group is "less than high school")					
High school	-0.20	-0.21	-0.18	0.10	
More than high school	-0.84 ***	-0.69 ***	-0.07	-0.41	
Gender (referent group is "female")					
Male	0.25 ***	-0.01	0.54 ***	0.40 **	
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.17	-0.64 ***	-0.07	-0.52 **	
2.00 or more	-0.31 ***	-0.99 ***	-0.40 ***	-1.20 ***	
Marital Status (referent group is "not married")					
Married					
Children Less than 18 in Family (referent group is "no children")					
One child	0.06	0.33 **	0.00	-0.30	
Two children	-0.22 *	0.47 ***	0.17	-0.15	
Three or more children	0.04	0.37 *	-0.09	1.27 **	
Trigger Events					
Job gain	0.01	0.10	-0.16	-0.32	
Increase in earnings and increase in family composition	-0.74 ***	-1.16 ***	-0.49	-0.24	
Increase in earnings and no change in family composition	-0.22 **	-0.37 **	0.04	-0.63 *	
Job loss	0.50 ***	0.82 ***	0.73 ***	1.31 ***	
Decrease in earnings and decrease in family composition	0.23	0.14	-0.09	-1.42	
Decrease in earnings and no change in family composition	-0.11	0.49 ***	0.52 ***	0.80 ***	
Job change and increase in earnings	0.84 ***	0.29	-0.12	0.59	
Job change and decrease in earnings	0.52 ***	0.17	-0.43	0.38	
Increase in other family income and increase in family composition	-0.63 ***	-0.25	0.14	-0.26	
Increase in other family income and no change in family composition	-0.48 ***	-0.18	-0.30 *	0.05	
Decrease in other family income and decrease in family composition	-0.46	0.55	0.26	1.54 **	
Decrease in other family income and no change in family composition	-0.51 ***	0.23	0.08	0.36 *	
Increase in number of children in family	-0.30	0.83 ***	0.09	-0.62	
Decrease in number of children in family	0.07	-0.43	-0.34	-0.82	

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

[a] Insufficient sample size to estimate model using sample of non-married individiduals who leave military coverage.

TABLE V.9a

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF LEAVING THE CURRENT FORM OF COVERAGE WHEN TRIGGER EVENT VARIABLES ARE DEFINED OVER TWO CONSECUTIVE WAVES

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.37 ***	-0.42 ***	-0.61 ***	-0.53 **	-0.39
Black, non-Hispanic	-0.18 ***	-0.24 ***	0.56 ***	-0.37	-0.58 *
Other, non-Hispanic	0.00	-0.20	-0.56 ***	-0.02	0.23
Age (referent group is "19 to 22")					
23 to 29	-0.86 ***	-0.29 ***	-0.28 *	-1.21 **	-0.39
30 to 39	-1.20 ***	-0.40 ***	-0.53 ***	-2.06 ***	-0.37
40 to 50	-1.30 ***	-0.60 ***	-0.58 ***	-2.35 ***	-0.26
51 to 61	-1.13 ***	-0.76 ***	-0.61 ***	-3.58 ***	-0.34
Education (referent group is "less than high school")					
High school	-0.33 ***	0.23 ***	-0.44 ***	0.04	-0.41
More than high school	-0.49 ***	0.42 ***	-0.57 ***	-0.08	-0.64 **
Gender (referent group is "female")					
Male	-0.10 ***	-0.18 ***	-0.05	-0.17 *	-0.90 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	-0.20 ***	0.26 ***	0.04	-0.13	-0.21
2.00 or more	-0.50 ***	0.57 ***	0.10	-0.22 *	-0.44 **
Marital Status (referent group is "not married")					
Married	0.16 ***	0.52 ***	0.24 ***	-0.12	-0.16
Children Less than 18 in Family (referent group is "no children")					
One child	0.05	0.20 ***	0.19 **	0.25 *	-0.09
Two children	0.06	0.27 ***	0.23 **	0.22	0.07
Three or more children	0.01	0.11	0.03	0.32	-0.02
Trigger Events					
Job gain	-0.18 ***	0.56 ***	0.54 ***	0.72 ***	0.35
Increase in earnings and increase in family composition	0.03	0.02	0.21	-0.13	-0.07
Increase in earnings and no change in family composition	-0.02	0.19 ***	0.02	0.19 **	-0.20
Job loss	1.99 ***	0.08	0.20 ***	0.23 ***	0.36 *
Decrease in earnings and decrease in family composition	0.13	-0.31 *	0.21	-0.12	0.40
Decrease in earnings and no change in family composition	0.27 ***	-0.04	0.06	0.02	0.17
Job change and increase in earnings	0.54 ***	0.23	0.18	0.60 ***	0.36
Job change and decrease in earnings	0.63 ***	0.18	0.45 ***	0.51 ***	-0.30
Increase in other family income and increase in family composition	0.23 ***	-0.03	0.15	0.23	0.58
Increase in other family income and no change in family composition	0.06 **	-0.04	-0.05	0.19 ***	0.11
Decrease in other family income and decrease in family composition	-0.09	0.33 ***	0.28	0.89 ***	0.55
Decrease in other family income and no change in family composition	-0.10 ***	0.40 ***	0.05	0.47 ***	0.17
Increase in number of children in family	0.06	0.32 ***	0.12	0.05	-0.16
Decrease in number of children in family	0.16 ***	0.08	-0.07	0.02	-0.04

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

TABLE V.9b

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF ENTERING THE UNINSURED STATE CONDITIONAL ON LEAVING THE CURRENT FORM OF COVERAGE WHEN TRIGGER EVENT VARIABLES ARE DEFINED OVER TWO CONSECUTIVE WAVES

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.94 ***	-0.50 ***	-0.84 ***	-0.25	0.10
Black, non-Hispanic	-0.71 ***	-0.51 ***	-0.54 **	0.14	0.30
Other, non-Hispanic	-0.57 ***	-0.18	-0.32	-0.92 *	1.03
Age (referent group is "19 to 22")					
23 to 29	0.58 ***	-0.27	0.39 *	0.00	0.53
30 to 39	0.53 ***	-0.64 ***	0.13	-0.50	1.49
40 to 50	0.25 **	-0.72 ***	0.29	-0.66 **	-0.13
51 to 61	-0.18	-1.17 ***	0.03	-1.35 ***	0.53
Education (referent group is "less than high school")					
High school	-0.53 ***	-0.30 ***	-0.34 *	-0.26	0.68
More than high school	-1.13 ***	-0.67 ***	-0.47 ***	-0.83 ***	-0.37
Gender (referent group is "female")					
Male	0.45 ***	-0.12	0.25 **	0.20	1.34 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.27 **	-0.46 ***	0.23	0.05	0.13
2.00 or more	-0.48 ***	-0.93 ***	-0.20	-0.53 ***	-1.23 ***
Marital Status (referent group is "not married")					
Married	-1.26 ***	-0.25 **	-0.81 ***	-0.91 ***	-1.67 ***
Children Less than 18 in Family (referent group is "no children")					
One child	0.00	0.28 **	0.21	0.08	-0.41
Two children	-0.09	0.39 ***	-0.14	0.17	-1.65 ***
Three or more children	-0.05	0.17	0.13	0.46 *	-0.69
Trigger Events					
Job gain	-0.13	-0.07	-0.18	-0.45 **	0.65
Increase in earnings and increase in family composition	-0.19	-0.18	0.23	-0.37	0.05
Increase in earnings and no change in family composition	0.01	0.04	-0.05	-0.44 **	0.21
Job loss	0.56 ***	0.77 ***	0.52 ***	0.63 ***	0.35
Decrease in earnings and decrease in family composition	0.38 *	0.24	-0.44	-0.29	1.56 **
Decrease in earnings and no change in family composition	0.01	0.26 **	0.33 ***	0.16	0.12
Job change and increase in earnings	0.44 ***	-0.27	-0.22	0.10	1.52 ***
Job change and decrease in earnings	0.57 ***	0.15	0.35	0.33	1.12
Increase in other family income and increase in family composition	-0.14	-0.53 **	-0.49 *	0.11	1.32 *
Increase in other family income and no change in family composition	-0.28 ***	-0.19 *	-0.25 ***	-0.06	-0.09
Decrease in other family income and decrease in family composition	-0.09	-0.04	0.22	0.01	-0.47
Decrease in other family income and no change in family composition	-0.31 ***	0.06	-0.10	0.19	0.20
Increase in number of children in family	-0.06	0.29 *	-0.17	-0.82 **	-0.86
Decrease in number of children in family	-0.05	-0.01	-0.46 *	-0.36	-1.79 **

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

transitions out of one's current coverage type and transitions into the uninsured state, given one leaves the current coverage type, the estimates of the associations between trigger events and the likelihoods of making these transitions are smaller in magnitude for the sample that uses the two-wave definition. This suggests that defining trigger events as changes that take place over an 8-month period may be picking up events that are too far in the past to be related to individuals' health insurance decision making.

The final auxiliary analysis examines the sensitivity of the results to including one-wave spells with or without coverage in the main set of analyses. Compared to the results that include one-wave spells, the associations between trigger events and transitions out of coverage, while different, do not suggest that a bias in one particular direction is introduced by including the one-wave spells (Table V.10a). For transitions into the uninsured state, however, most of the estimates of these associations are smaller for transitions from current employer or union coverage into the uninsured state when one-wave spells are excluded, with minimal differences for the other coverage types (Table V.10b). This suggests that while we suspect that a lot of short uninsured spells may be misreported, we do not find that removing all short spells yields stronger effects. This suggests that while there still may be a lot of erroneous 4-month uninsured spells, real one-wave spells are an important part of the dynamics of coverage, such that leaving them out weakens our estimates. Interestingly, this differs from our findings with respect to exits from the uninsured state, where removing one-wave spells generally strengthened the estimates.

C. CONCLUSION

This chapter focused on the associations between changes in employment, income, and family composition and obtaining and losing health insurance coverage. We also examined the relationships between health insurance transitions and a set of individual- and family-level demographic characteristics. The number of modeling approaches used and coverage types

TABLE V.10a

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF LEAVING THE CURRENT FORM OF COVERAGE WHEN ONE-WAVE COVERAGE SPELLS ARE SMOOTHED OVER

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.34 ***	-0.28 ***	-0.50 ***	-0.46	-0.35
Black, non-Hispanic	-0.24 ***	-0.21 **	0.66 ***	-0.29	-0.35
Other, non-Hispanic	-0.01	-0.07	-0.25	-0.11	0.38
Age (referent group is "19 to 22")					
23 to 29	-0.77 ***	-0.32 ***	-0.37 ***	-1.45 ***	-0.61
30 to 39	-1.05 ***	-0.48 ***	-0.69 ***	-2.22 ***	-0.79 **
40 to 50	-1.17 ***	-0.57 ***	-0.79 ***	-2.58 ***	-0.64 *
51 to 61	-0.96 ***	-0.78 ***	-0.93 ***	-3.97 ***	-0.64 *
Education (referent group is "less than high school")					
High school	-0.28 ***	0.24 ***	-0.57 ***	-0.30	-0.01
More than high school	-0.47 ***	0.60 ***	-0.67 ***	-0.36 *	-0.51
Gender (referent group is "female")					
Male	-0.12 ***	-0.17 ***	-0.12 *	-0.18 *	-0.85 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	-0.46 ***	0.40 ***	-0.08	-0.12	-0.28
2.00 or more	-0.95 ***	0.65 ***	-0.05	-0.33 ***	-0.33
Marital Status (referent group is "not married")					
Married	0.12 ***	0.43 ***	0.11	-0.10	-0.07
Children Less than 18 in Family (referent group is "no children")					
One child	0.03	0.20 **	0.13	0.22	-0.09
Two children	-0.03	0.24 ***	0.27 ***	0.06	-0.11
Three or more children	-0.07	0.15	0.22 *	0.17	-0.32
Trigger Events					
Job gain	0.68 ***	0.52 ***	0.72 ***	0.85 ***	0.96 ***
Increase in earnings and increase in family composition	0.29 **	-0.27	0.46 *	0.36	-0.18
Increase in earnings and no change in family composition	-0.06	0.42 ***	0.03	0.26 **	-0.23
Job loss	2.81 ***	0.19	0.15	0.72 ***	0.41
Decrease in earnings and decrease in family composition	0.38 ***	-0.04	0.46	-0.11	-0.14
Decrease in earnings and no change in family composition	0.51 ***	-0.10	0.10	0.33 ***	0.05
Job change and increase in earnings	1.30 ***	0.40 *	0.86 ***	1.19 ***	0.49
Job change and decrease in earnings	1.41 ***	0.64 ***	0.78 ***	1.35 ***	0.07
Increase in other family income and increase in family composition	0.36 ***	0.40 *	-0.14	0.05	0.76
Increase in other family income and no change in family composition	0.16 ***	0.09	-0.03	0.42 ***	0.35 *
Decrease in other family income and decrease in family composition	0.15	-0.24	0.35	0.43	1.16 *
Decrease in other family income and no change in family composition	0.06	0.52 ***	0.10	0.61 ***	0.62 ***
Increase in number of children in family	0.11	0.24 *	0.40 *	0.29	-0.20
Decrease in number of children in family	0.01	0.28 *	-0.03	0.28	0.61

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

TABLE V.10b

A LOGISTIC REGRESSION MODEL OF THE LIKELIHOOD OF ENTERING THE UNINSURED STATE CONDITIONAL ON LEAVING THE CURRENT FORM OF COVERAGE WHEN ONE-WAVE COVERAGE SPELLS ARE SMOOTHED OVER

Explanatory Variables	Current Employer / Union	Medicaid / Medicare	Private, Nongroup / Other	Former Employer	Military
Race (referent group is "Hispanic")					
White, non-Hispanic	-0.97 ***	-0.34 **	-0.47 ***	-0.01	1.33 *
Black, non-Hispanic	-0.69 ***	-0.57 ***	-0.07	0.57 *	1.61 *
Other, non-Hispanic	-0.68 ***	0.21	-0.15	-0.37	1.93 *
Age (referent group is "19 to 22")					
23 to 29	0.34 ***	-0.13	0.26	-0.07	-0.23
30 to 39	0.36 ***	-0.36 *	0.27	-0.60	-0.20
40 to 50	0.09	-0.51 ***	0.25	-0.69 *	-0.85
51 to 61	-0.37 ***	-0.83 ***	-0.11	-1.41 ***	-0.04
Education (referent group is "less than high school")					
High school	-0.51 ***	-0.20	-0.31	-0.04	0.06
More than high school	-1.12 ***	-0.60 ***	-0.39 **	-0.90 ***	-0.88
Gender (referent group is "female")					
Male	0.42 ***	-0.17	0.24 **	0.53 ***	2.18 ***
Family Income-to-Poverty Ratio (referent group is "less than 1")					
1.00 to less than 2.00	0.20	-0.68 ***	0.02	-0.36	-0.95
2.00 or more	-0.45 ***	-1.01 ***	-0.52 ***	-0.69 ***	-2.26 ***
Marital Status (referent group is "not married")					
Married	-1.19 ***	-0.36 ***	-0.60 ***	-0.96 ***	-1.29 **
Children Less than 18 in Family (referent group is "no children")					
One child	-0.09	0.16	0.15	0.37	-1.01 *
Two children	-0.22 **	0.36 *	-0.11	0.41 *	-1.74 *
Three or more children	-0.13	0.11	0.07	0.27	-0.89
Trigger Events					
Job gain	0.06	-0.27	-0.24	-0.17	1.71 **
Increase in earnings and increase in family composition	-0.64 ***	-1.00 **	0.17	-0.37	2.84 ***
Increase in earnings and no change in family composition	-0.18 *	-0.33 **	-0.22	-0.42 *	0.53
Job loss	0.60 ***	0.72 ***	0.65 ***	1.00 ***	1.87 ***
Decrease in earnings and decrease in family composition	0.33	0.01	-0.28	-1.93	2.67 **
Decrease in earnings and no change in family composition	0.08	0.26	0.41 ***	0.11	1.84 ***
Job change and increase in earnings	0.88 ***	-0.18	-0.01	0.73 **	2.04 **
Job change and decrease in earnings	0.64 ***	-0.40	-0.09	1.09 ***	1.45
Increase in other family income and increase in family composition	-0.41 *	-0.69	-0.44	-0.47	0.53
Increase in other family income and no change in family composition	-0.38 ***	-0.57 ***	-0.41 ***	0.05	-0.36
Decrease in other family income and decrease in family composition	-0.03	0.08	0.40	0.35	-2.64 **
Decrease in other family income and no change in family composition	-0.29 ***	-0.15	-0.04	0.37 **	0.83 *
Increase in number of children in family	-0.31	0.53 *	0.04	-0.89	0.87
Decrease in number of children in family	-0.19	0.20	-0.52	-0.26	0.50

Source: Mathematica Policy Research, from 2001 SIPP panel.

*, **, *** Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

examined, together, produced many findings. In this section, we conclude by highlighting some that we feel are most relevant to the design of policies to reduce uninsured rates among nonelderly adults.

Changes in employment or earnings are associated with transitions out of the uninsured. For the uninsured, finding a new job is strongly associated with obtaining coverage through a current employer or union, a private nongroup source, or a former employer. Changing jobs, regardless of whether earnings increase or decrease, is almost as strongly associated with gaining coverage through a current employer or union but no other source. Losing a job, however, is negatively associated with the likelihood of obtaining coverage from a current employer or union or a private nongroup source but positively associated with the likelihood of obtaining coverage from Medicaid or Medicare or even a former employer. Presumably the loss of employment and, with it, earnings increases the odds of qualifying for Medicaid. Changes in family earnings are also strongly related to obtaining coverage, mostly through a current employer or union. An increase in family earnings may make current employer or union coverage more affordable whereas a decrease in earnings makes it less affordable, lowering the likelihood of obtaining coverage through this source.

Job gains and earnings increases are associated with leaving Medicaid or Medicare. This is expected, as the earned income obtained from new employment may exceed program eligibility thresholds, or the new job may offer employer-sponsored coverage that is superior to coverage through Medicaid or Medicare or less costly than the coverage available from a former employer. In addition, increased earnings, without an increase in family size, make an individual more likely to leave Medicaid or Medicare and, given they leave public coverage, also decrease the chances of the individual becoming uninsured. We do not find the same association for similar individuals whose increase in earnings is coupled with an increase in the size of the family, which may partly reflect the higher Medicaid income eligibility thresholds for larger families.

Job losses and earnings reductions are associated with leaving employer or union coverage. Losing one's job is very highly correlated with leaving coverage through one's current employer or union and, conditional on leaving, with becoming uninsured rather than entering an alternative source of coverage. Individuals who experience a decrease in earnings without losing their jobs are also more likely to leave coverage through a current employer or union. This is true unconditional on whether the reduced earnings are accompanied by a change in family size. The higher likelihood of leaving may be due to a decrease in hours worked that makes the individual ineligible for benefits such as health insurance. Alternatively, the reduced earnings may make the coverage too costly.

Job changes are broadly associated with leaving current coverage. Moving from one job to another, regardless of the impact on earnings, is associated with leaving coverage from every source but the military, but the association is particularly strong for coverage from a current employer or union or a former employer. For these two sources, conditional on leaving, a job change also increases the chances of becoming uninsured. Together, these relationships highlight the prevalence of waiting periods for health insurance coverage at new jobs or provide evidence that individuals are accepting jobs without coverage.

Net of trigger events, demographic characteristics remain strongly associated with transitions out of the uninsured. As education increases, persons are progressively more likely to leave the uninsured for every source of coverage but Medicaid and Medicare. Compared to the childless, persons with children are more likely to acquire coverage through Medicaid but less likely to obtain coverage from a nongroup source, former employer, or the military. Compared to

Hispanics, white and black non-Hispanics are more likely to leave the uninsured for every source of coverage.

Net of trigger events, demographic characteristics are also strongly associated with the likelihood of leaving current coverage. With increasing age, people are less likely to leave any source of coverage, but among those who do leave, the relationship between age and becoming uninsured varies by source. White and black non-Hispanics are less likely than Hispanics to leave any source of coverage except, for blacks, nongroup coverage. Conditional on leaving current employer or union coverage, Medicaid or Medicare, or private nongroup coverage, non-Hispanics are less likely than Hispanics to become uninsured. With increasing education, people are less likely to leave any nonpublic source of coverage but more likely to leave Medicaid. Regardless of the source they left, the more educated are less likely to become uninsured.

VI. CONCLUSION: POLICY IMPLICATIONS AND RESEARCH PRIORITIES

We conclude this report with a brief summary of key findings, which we follow with a discussion of policy implications that are suggested by the work presented here. After that we discuss several priorities for research that we have identified in the course of conducting our analysis and writing up our findings.

A. SUMMARY OF KEY FINDINGS

Among adults 19 to 61 in January 2001, 35 percent or a little over one-in-three were ever without coverage over the 36-month reference period of the 2001 SIPP panel. This is twice the fraction uninsured in January 2001, which means that half of those who were ever uninsured over the three-year period were *insured* at the start of the period and lost coverage for at least some amount of time over the next three years. Furthermore, while 35 percent were ever uninsured, less than 5 percent were uninsured for the entire three-year period. In other words, seven out of eight of those who were ever uninsured during a three-year period either gained or lost coverage during the period. Understanding why they did so—that is, what changed in their lives to cause them to lose or gain coverage—is critical information for policymakers seeking ways to reduce the number of uninsured in the United States.

The likelihood of being without coverage declined progressively with age, reflecting a number of contributing causes. However, family income relative to the poverty line was the single strongest predictor of insured status at a point in time and over a period of time. The uninsured rate in January 2001 was 42 percent among people below poverty and declined to 5 percent among people above 400 percent of poverty. The fraction ever uninsured in three years was 68 percent among persons below poverty in the first year and declined to 14 percent among persons above 400 percent of poverty. Race and ethnicity were also strong covariates of health insurance coverage both at a point in time and over a period of time.

The proportion of persons retaining the same type of insurance coverage between one interview and the next (four months later) reflects not only actual retention but reporting accuracy, which appears to vary by source. For coverage from a current employer, 90 percent reported the same coverage four months later, and 3 percent reported being uninsured. For private nongroup coverage, 65 percent reported the same coverage four months later, and 7 percent reported being uninsured. For Medicaid, 79 percent reported the same coverage four months later, and 13 percent reported being uninsured.

Of the new uninsured spells that started during the first year of the 2001 panel, 49 percent were preceded by coverage from a current employer or union, 22 percent by public coverage, 14 percent by coverage from a former employer, 13 percent by nongroup or other private coverage, and 2 percent by military-related coverage. Uninsured spells preceded by coverage from a current employer or union or by public coverage had strikingly similar durations. Of the uninsured spells that ended during the final year of the panel, 56 percent were followed by coverage from a current employer or union; 26 percent by public coverage; 13 percent by nongroup or other coverage; 4 percent by coverage from a former employer; and 2 percent by military-related coverage. Here, too, the length of the uninsured spells did not vary between spells followed by coverage from a current employer or union versus public coverage.

Our multivariate analysis of transitions involved separate models predicting transitions out of the uninsured and transitions out of five sources of coverage and potentially into the uninsured. For the models predicting transitions out of the uninsured, gaining a job was strongly associated with obtaining coverage through a current employer or union, a private nongroup source, or a former employer. Changing jobs, regardless of whether earnings increased or decreased, was almost as strongly associated with obtaining coverage through a current employer or union but no other source. Losing a job, however, was negatively associated with the likelihood of obtaining coverage from a current employer or union or a private nongroup source but positively associated with the likelihood of obtaining coverage from a public source or even a former employer. Changes in family earnings were also strongly related to obtaining coverage, mostly through a current employer or union. Net of trigger events, selected demographic characteristics remained strongly associated with transitions out of the uninsured. These included education, number of children, race and ethnicity, and income.

For models predicting transitions out of the five sources of coverage, losing one's job was very highly correlated with leaving coverage through one's current employer or union and, conditional on leaving, with becoming uninsured. Individuals who experienced a decrease in earnings without losing their jobs were also more likely to leave coverage through a current employer or union. Moving from one job to another, regardless of the impact on earnings, was associated with leaving coverage from every source but the military, but the association was particularly strong for coverage from a current employer or union or a former employer. Job gains and earnings increases were associated with leaving public coverage. In addition, increased earnings, without an increase in family size, made an individual more likely to leave public coverage but, given such a change, decreased the chances that the individual would become uninsured. Net of trigger events, key demographic characteristics were strongly associated with the likelihood of leaving current coverage. These included age, race and ethnicity, education, and family income.

B. POLICY IMPLICATIONS

What we have presented in this report with regard to the dynamics of health insurance coverage has implications that policymakers need to understand if they are to develop effective policies for addressing the problems posed by the lack of health insurance coverage in the United States. First and foremost is that most of those who lack coverage at any one time were covered in the previous year or two and most will regain coverage within that time frame again. As they regain coverage, however, others will lose it. The problem that policymakers must address is how to help people retain coverage once they have it and how to help those who have lost coverage regain it more quickly. The second point is that as numerous as the persons who were without coverage in a three-year period may be, their numbers provide only a partial measure of the people who were at risk of losing coverage during that period. Those who actually lost coverage were the unlucky ones. Others could have ended up in their place instead—and may indeed do so over a longer period of time. Policymakers must address the risk to the larger population to minimize if not prevent the losses that contribute to the number of uninsured.

There is a significant life cycle component to the problem of the uninsured. Almost half of those who were observed without coverage during the three-year survey were under 30—a group that makes up about a quarter of the nonelderly adult population. People transitioning from coverage under their parents' plans to coverage through their own employment or public assistance account for part of the time without coverage that we observed in the population under 30. Gaps in coverage as people establish more steady employment account for much of the rest. But within this group there is also a significant issue of preferences for coverage—something we could not observe directly. This is the group for which health insurance is generally not cost effective—particularly for those who are not yet raising families. Our analysis does not address this issue, which is widely recognized as a major one in bringing more people into the health insurance system. To improve coverage for young adults, policymakers must address this issue as well as others that are specific to the labor force position of this subpopulation.

The poor and near poor (those between 100 and 200 percent of poverty in this analysis) are much more likely than those with higher family incomes to experience periods without health insurance coverage and, given that they do so, to be without coverage for extended periods of time. More than two-thirds of the poor and nearly that same fraction of the near poor were ever without health insurance coverage in a three-year period. At the same time, because of the much larger numbers of persons who are neither poor nor near poor, we find that about equal numbers of persons above and below 200 percent of poverty were ever without coverage in a three-year period. While there are some caveats regarding the measurement of income, these findings underscore that losing health insurance coverage is neither exclusively nor primarily a low-income problem. Policymakers must address the needs of both the lower-income and higher-income uninsured.

Having focused our attention on people's movements in and out of coverage, we must remind ourselves that there is a core of persons who were uninsured throughout each panel. Sample members representing more than 7 million nonelderly adults—or 4.5 percent of the total—reported no health insurance coverage at any time in the three years and, therefore, were never observed in transition between covered and not covered. Almost certainly, this is not a monolithic group. While some of its members may have no interest in health insurance coverage, we suspect that many if not most would prefer to have coverage if they could obtain it. In considering this group and what it might imply about policy, it is clear that we need more information about its members. We present this as a research priority below.

C. PRIORITIES FOR RESEARCH

Understanding why people lose coverage, how they gain or regain coverage, and why they change their source of coverage are critical pieces of information for policymakers seeking to identify effective strategies for reducing the number of people without health insurance coverage in the United States. The analysis presented in this report is a step toward improving our understanding of these issues. We suggest several areas where further analysis building on the findings presented here would be useful—both in better understanding some of the issues confronting policymaking in the area of health insurance coverage and in better understanding certain aspects of the SIPP data.

We found our modeling approach to the multivariate analysis of transition events to be particularly informative about the association between trigger events and transitions out of and into the uninsured state, and we would recommend it to others. Most of the coefficients that were statistically significant had the expected signs although we did obtain several results that were counter-intuitive. Useful additions would be an explicit modeling of the separate coverage provided by married partners and the inclusion of additional trigger events based on employment changes by the spouse. SIPP is capable of supporting both enhancements. There are complex econometric issues to be addressed, for sure, but health insurance decisions in families are in fact more complex than those confronted by single individuals.

Other recommended extensions of our modeling of health insurance transitions include the use of more interactions in order to better understand the factors that may condition individuals' responses to potential trigger events and life circumstances. Candidates for analysis in this manner include age, race and ethnicity, and health status.

Following up on one of our points about policy implications, a focused analysis of what distinguishes those persons who appear to remain outside the health insurance system would be useful in helping policymakers to better understand this group.

Research is also needed that will help us to understand the mechanism whereby more than half of those who lost health insurance coverage over the length of the 2001 SIPP panel had 2001 calendar year incomes above 200 percent of poverty. Was subsequent job loss or the loss of income other than earnings a major factor, or is there something else involved that must be taken into account?

Finally, we remain concerned that SIPP obtains too many transitions and that a significant number of one-wave spells may be erroneous.[41] Empirical findings suggest that this is a much bigger issue for the analysis of children than adults, which is consistent with the way that the SIPP instrument collects health insurance coverage for children. Data collection on children's coverage could readily introduce more false uninsured spells for this subpopulation than for adults. Cross-panel analysis including the 2004 SIPP panel, which used dependent interviewing in an attempt to reduce false transitions throughout the survey content area, is a clear priority.

We had hoped that our analysis of trigger events would shed some light on the quality of reporting of health insurance transitions in the SIPP. Erroneous spells ought to be more weakly associated with trigger events than actual spells. When we removed one-wave spells from our model estimation we obtained mixed results. The coefficients of trigger events associated with exits from the uninsured were increased, but the coefficients of trigger events associated with exits from specific sources of coverage were largely unaffected. At the same time, the coefficients of trigger events associated with passage into the uninsured, conditional on leaving a specific source of coverage, were reduced, suggesting that some of the associations with brief spells are actually stronger than the corresponding associations with longer-term spells. We concluded that brief spells—particularly uninsured spells—are in need of further study not just to try to tease out the misreported spells but to provide more information on whether brief spells do indeed relate more strongly to certain triggers or demographic characteristics than longer spells.

[41] It is quite possible, of course, that some transitions are omitted, but the evidence of missed transitions is not nearly as strong as the evidence presented by excess transitions.

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APPENDIX A

LITERATURE REVIEW

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Policy Research, Inc.

Transition Events in Health Insurance Coverage: A Review of the Literature

Revised Draft Report

July 1, 2008

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CONTENTS

CONTENTS (*continued*)

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I. INTRODUCTION

While the proportion of persons who are uninsured at a point in time has risen slowly, people's transitions in insurance coverage are much more numerous than aggregate trends would suggest. The population without health insurance comprises many subgroups that differ in their personal characteristics as well as in spells and transitions in coverage. Changes in a person's economic situation, family composition, or other life events may trigger different transitions in health insurance coverage, depending on the subpopulation to which that person belongs. Identifying these subpopulations and understanding the dynamics of their health insurance coverage could help lawmakers craft policies that increase the total number of people with insurance coverage. Toward this end, the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (ASPE) contracted with Mathematica Policy Research, Inc. (MPR) to improve the information used to develop sound health policy through analyses of patterns and transition events in health insurance coverage. This literature review is an initial step in that effort.

The review considers the literature on transitions into and out of health insurance coverage, focusing particularly on subpopulations with distinctive transition patterns. Specifically, we examine two aspects of insurance coverage:

- The dynamics of coverage—that is, the length of insured and uninsured spells, the types of coverage in place before and after uninsured spells, transitions between types of coverage, the frequency of transitions, and subpopulation differences in insurance dynamics.
- Trigger events affecting transitions—that is, causes of changes in coverage and transition probabilities for the whole population and subpopulations.

We also consider the methodological issues in measuring spell lengths and transitions—specifically, identifying and treating (1) nonsampling error that arises from attrition and nonresponse bias and (2) errors in reporting the timing or occurrence of changes in coverage, or both.

A. METHODOLOGY

Much of the previous research on transitions in health insurance coverage has been narrow in scope, in part reflecting available data at the time of the studies. However, many studies using more recent data also devote attention only to subgroups of concern, instead of the whole population. We identified a set of literature based on three criteria: (1) the study focused on either the dynamics of insurance coverage or trigger events affecting transitions; (2) the study was an empirical data analysis or developed a methodological improvement; and (3) the study is recent (since 1990) or, if earlier, considered seminal. By consulting researchers involved in examining transitions in coverage, checking reference lists from identified articles, and searching publications from websites of relevant major surveys, we identified nearly 20 published and unpublished studies that met these criteria.

B. OVERVIEW

In Section II, we describe the data sources used in previous studies, briefly discussing their strengths and limitations. In Section III, we present the findings of the literature review with respect to the dynamics of insurance coverage. We compare and contrast the definitions employed in describing spell lengths and transitions as well as the results reported for subpopulations. In Section IV, we analyze the limited literature on causes of transitions in insurance coverage, comparing the studies' methodologies and findings. Section V discusses measurement errors and seam bias, including their impacts on estimates and the approaches others have used to address them. In Section VI, we summarize our findings and discuss the research needs that additional analysis might help to address.

II. DATA SOURCES

Previous research has used a wide range of survey databases to study transitions in health insurance coverage, including the Survey of Income and Program Participation (SIPP), the National Medical Expenditure Panel Survey (MEPS), the March Current Population Survey (CPS) matched samples, the National Survey of America's Families (NSAF), and the Survey of Family Health Experiences (SOFHE). A few have used administrative data, such as the State Medicaid Research File (SMRF) data from the Centers for Medicare & Medicaid Services (CMS). This Section describes each of these databases and reviews their strengths and limitations.

A. SURVEY OF INCOME AND PROGRAM PARTICIPATION (SIPP)

SIPP is a longitudinal panel survey of households selected to be representative of the noninstitutionalized resident population of the United States. Before 1996, most SIPP panels consisted of a 20,000-household sample followed for two and one-half years. New panels were started in most years, and data from overlapping panels could be combined to double the sample size available for both cross-sectional and short-term longitudinal analysis. With the 1996 SIPP, the sample size of each SIPP panel was nearly doubled (to 35,000 to 40,000 households) and the panels lengthened to three or four years, eliminating the overlap of panels.

Members of the sample households are interviewed every four months about a wide variety of characteristics and circumstances, including their insurance status, income, employment, family composition, school attendance, and receipt of noncash benefits during the previous four months. SIPP's large sample, long duration of panels, and short reference period make it a good candidate to support analysis of transition events over several years. Indeed, many researchers have used SIPP to compute the uninsurance rate at a particular time or to study the month-by-month dynamics of health insurance coverage (Monheit and Schur 1988; Short et al. 1988;

Swartz and McBride 1990; Swartz 1993; Swartz et al. 1993a; Short and Freedman 1998; Czajka 1999; Czajka and Olsen 2000; Bhandari and Mills 2003; Short and Graefe 2003; CBO 2003; Short et al. 2003).

However, SIPP has several limitations that researchers should heed. First, like any other survey, reporting errors may lead to errors in estimates of insurance coverage or other characteristics. Second, as with many longitudinal surveys, SIPP suffers from sample attrition—that is, some members of the sample drop out over time. Of the original sample in the 1996 SIPP panel, about 25 percent was lost through attrition by wave 5 and 34 percent by wave 10. The U.S. Census Bureau uses information on household size, race, education level, assets, and income sources to adjust for the nonrandom decline in the number of original respondents, but such adjustment is unlikely to account for all systematic differences between those who drop out and those who continue, with some attrition bias likely to remain. Third, SIPP respondents tend to report the same insurance status for the entire four-month reference period covered by the same interview but report changes at the "seam" between interviews. Owing to this so-called seam effect, counts of insured or uninsured months tend to cluster at multiples of four, and particularly brief spells may be underestimated. In Section V, we discuss these fundamental limitations of SIPP in more detail and review possible solutions as suggested in previous literature.

B. NATIONAL MEDICAL EXPENDITURE PANEL SURVEY (MEPS)

MEPS is also a longitudinal panel survey and has some advantages and limitations similar to those associated with SIPP. Sponsored by the Agency for Healthcare Research and Quality (AHRQ), MEPS follows a sample of National Health Interview Survey respondents for two years, with interviews at intervals of three to five months. (The variable reference period derives from the fact that all respondents cannot be interviewed in the same months.) As with SIPP, MEPS obtains insurance coverage information for each month of the reference period, but—instead of asking about coverage on a monthly basis—it asks when coverage started or ended. Such an approach reduces seam bias but may introduce other types of response error into reported transitions. An important advantage of MEPS for the analysis of health insurance dynamics is its capture of detailed information on health care utilization and expenditures. However, MEPS involves a much smaller sample size than SIPP (the 1996 MEPS began with a sample of 9,400 households—barely one-quarter the size of the 1996 SIPP panel), and the two-year panels limit longitudinal analysis to short-term dynamics. Panels overlap by one year, and samples can be combined for analyses of a single calendar year, improving sample size but restricting the period covered by longitudinal analyses.

Researchers at AHRQ have developed general health insurance coverage estimates by using MEPS data (e.g., Beauregard et al. 1997; Rhoades 2004; Crimmel 2004). The estimates imply higher uninsured rates than those obtained from SIPP (or the other major household surveys), reflecting survey design differences as well as definitional differences in what is considered health insurance coverage and differences in how the questions are posed and sequenced.

C. CURRENT POPULATION SURVEY (CPS) MATCHED SAMPLES

CPS is a monthly survey initiated in the 1930s with the primary purpose of measuring the nation's unemployment rate and other labor force characteristics. In 1980, the Census Bureau began asking questions about health insurance on the March Income Supplement to CPS. The questions refer to coverage at any time during the previous year. CPS has been a major source of information on the extent of health insurance coverage in the United States, in part because of its large sample size (supporting detailed population estimates by insurance status) and timely data release. However, it also has limitations with regard to the measurement of such coverage. Specifically, CPS has a relatively long reference period for measuring insurance status (which may cause more serious reporting errors) and provides little information on the fraction of the year for which people have coverage.

A rotating sample design provides a longitudinal component to CPS. Sample addresses are included in the sample for 8 months over a 16-month period on a rotating basis as follows: each sample household is in the sample for 4 months, out for the next 8, and then back in the sample for an additional 4 months. Therefore, about half of the addresses included in the March supplement in any year also were included in the previous year, and the other half will be included in the next year.

It is possible to link addresses over time and match individual sample members, thereby creating longitudinal data. However, the matched sample is not fully representative of the population at either point in time. Given that persons who move during the year leave the sample, the matched sample includes no one who moved during the year. Such persons account for about 17 percent of the total population, and the characteristics of movers may systematically differ from those of nonmovers. Any findings obtained from matched CPS samples almost certainly understate transitions and therefore must be interpreted cautiously. For this reason and because of the complexity involved in linking records over time and analyzing the linked data, few researchers have attempted to analyze CPS samples matched between one year and the next, and no analyses stand out in the literature.

D. OTHER SURVEY DATA

In addition to the above three major surveys, researchers have used other lesser-known survey data to study the dynamics of insurance coverage. The Survey of Family Health Experiences (SOFHE) is a three-year longitudinal survey of families' health insurance and health utilization experiences between 1994 and 1997, funded by the Henry J. Kaiser Family Foundation. The population sample is nationally representative, though the sample size is small

(1,401 families) and suffers from attrition bias. Because the survey oversampled families with at least one person with Medicaid coverage or without any health insurance, Swartz (no date) was able to use SOFHE to determine how the characteristics of an insurance family unit affected the probability that an all-uninsured unit remained all-uninsured in a subsequent time period.

The 1999 National Survey of America's Families (NSAF) is a nationally representative survey of nonelderly adults and children in over 42,000 households. Conducted by the Urban Institute, NSAF oversampled the low-income population generally and was designed to provide estimates for 13 states and the nation. It contains information on insurance coverage at the time of the survey and in the previous 12 months. Using NSAF to explore the distribution of the duration of uninsured spells for people who lacked coverage at some time during a 12-month period, Haley and Zuckerman (2003) recognize several limitations of NSAF. Because it collects coverage information during a 12-month period at only a single point in time, reporting errors could be significant, and some personal characteristics in the survey may not reflect the conditions during the time the person was uninsured. In addition, NSAF does not explicitly collect information about transitions in insurance status and thus is of limited use in understanding transition events.

E. ADMINISTRATIVE DATA

Besides survey data, researchers have used administrative data to study the dynamics of enrollment in public programs, particularly in Medicaid. The Centers for Medicare & Medicaid Services, State Medicaid Research Files (SMRF) are person-based data that include detailed monthly measures of eligibility status, utilization, and expenditures for all Medicaid enrollees. SMRF allows tracking of when individuals are on and off Medicaid over the course of a year. The files also include information on specific eligibility groups, such as transitional assistance and child poverty-related coverage. SMRF data were available from 1992 to 1998 for approximately 30 states that chose to participate in electronic data submission or the Medicaid Statistical Information System (MSIS). However, in 1999 and subsequent years, the Medicaid Analytic Extract files (MAX) replaced SMRF. With all states required to submit MSIS data, MAX files are available for all 50 states. Ellwood and colleagues (1999, 2000) have used 1995 SMRF data to study the enrollment interactions between welfare and Medicaid and the dynamics of overall Medicaid enrollment in several states.

As a set of administrative data, SMRF may avoid the usual limitations of survey data, such as reporting errors and seam bias. However, it has its own weakness. SMRF was extracted from state-reported MSIS databases, and the data quality and submission timeliness of individual states may vary widely. In addition, the demographic information in MSIS is limited (only age, race, and gender are extracted), restricting researchers' ability to study differences among subpopulations.

III. DYNAMICS OF INSURANCE COVERAGE

Although researchers have discussed for a long while how the number of uninsured should be defined and measured, few research studies have looked closely at the dynamics of health insurance coverage. Thus, we have little research evidence about the dynamics of insurance coverage and whether they have changed over time despite a relatively constant rate of uninsured. For example, are fewer people becoming uninsured but remaining without coverage for longer periods? What types of coverage are people likely to obtain after losing insurance? How frequently does insurance status change? Are younger individuals more likely to experience long periods without insurance? Answers to these questions have implications for the design of effective, targeted policy approaches to reducing the number of uninsured individuals.

This Section examines the literature on the dynamics of health insurance coverage for the full population and subpopulations. We review research estimates of insurance spells and transitions and compare definitions and measurements of the length of insured and uninsured spells, types of insurance coverage, transitions between types of coverage, the frequency of transitions, and subpopulation differences.

A. LENGTH OF INSURED AND UNINSURED SPELLS

CPS data indicate that nearly 45 million Americans lack health insurance in 2003. While CPS produces estimates of the number of uninsured for an entire year, it matches other surveys' estimates of persons uninsured at a given time. Given this discrepancy, more extensive research on the length of uninsured spells has long been needed in order to develop a clearer picture of insurance status and to explore the implications for appropriate policy responses.

Previous studies on the length of time that people are uninsured can be roughly divided into two types. One type provides simple calculations of the number of months that a person was uninsured during the study period relative to the number of persons who remained in the sample for the full time period (Bennefield 1998; Crimmel 2004). However, this type of study reports results in different ways—such as total or average number of months without insurance or the percent without insurance for at least one month. Although the results are useful for understanding how many people are uninsured and for how long during a year, the studies do not illustrate the detailed dynamics of people switching from one type of insurance coverage to another or becoming uninsured.

The other type of study is more relevant to our objective. The studies estimate the duration of spells with certain types of coverage or without health insurance, with spell length defined as the number of months between the loss of one (or any) type of coverage and the (re)acquisition of any other coverage.

The second type of study takes either of two approaches to defining the universe of spells to be included in the distribution, which in turn affects the estimation of spell length. Some define the universe of spells as those observed at an initial time point (Swartz et al. 1993a). Others define the universe of spells as those that begin during the study period. The first approach may include spells that were in progress when the survey began; the second approach excludes such "left-censored" spells (Swartz 1993).[1] Assuming that spells are followed to their completion or to a maximum length, then it is logical to conclude that active spells have a higher mean length than spells starting within a specified period. The reason is the likelihood that a spell is active in any given month is directly related to the length of the spell, but there is no such selection among spells starting in the same given month. If the intent is to estimate the distribution of spell length among all spells of a particular type (say, uninsured spells) over a period of time, then a sample of spells starting within a specified window provides a more reliable basis for estimating the distribution (CBO 2003).

Researchers often define short-term or long-term uninsured differently depending on research purpose and data availability. For example, CBO's analysis of 1996 SIPP treated uninsured spells of four months or less as short-term spells and spells of more than 12 months as long-term spells (CBO 2003). Rhoades (2004) defined long-term uninsured as those continuously uninsured for two years. However, previous studies consistently showed that half of new uninsured spells end within five or six months (Swartz et al. 1993a; Bennefield 1998; Bhandari and Mills 2003; CBO 2003), suggesting that many people who lose their health insurance regain coverage within a relatively short time but not indicating how many of those who regain coverage lose it again after a short period.

In addition to the distribution of completed spells, the distribution of right-censored active spells may be of interest to policy researchers. For example, among people uninsured in, say,

[1] Swartz et al. (1993b) took advantage of a limited amount of information about the beginning date of some left-censored uninsured spells in the 1984 SIPP and found that including left-censored spells and correcting for length bias inherent in such spells does not fundamentally change the distribution of uninsured spell duration.

December 2002, how many had no coverage for more than six months? How many had no coverage only since the middle of the year or for a shorter period? Here the distinction is not between long and short spells per se but rather between spells that started a while ago and new spells.

B. TYPES OF INSURANCE COVERAGE

Short and Graefe (2003) assigned the 1996 SIPP panel respondents to one of five coverage categories based on their monthly reported coverage: Medicaid or State Children's Health Insurance Program (SCHIP), Medicare, employer-sponsored, nongroup private, or uninsured. People with different types of coverage differed in their personal characteristics as well as in the dynamics of coverage.

For the general population, private employer-sponsored coverage is a fairly stable source of health insurance; Short et al. (2003) found only 8 percent enrolled for one year or less in a four-year study period. On the contrary, people with non-Medicare public coverage, i.e., Medicaid/SCHIP, are at great risk of insurance transitions due to changes in factors that determine eligibility: earnings, pregnancy, or aging. Of those with Medicaid/SCHIP coverage, 35 percent were enrolled for a year or less; two-thirds of those leaving Medicaid or other public insurance programs became uninsured (Short et al. 2003). Some researchers believe that the surprisingly large percentage of people with very short periods of Medicaid coverage could be explained by the fact that SIPP includes with Medicaid other public assistance programs, such as state and county indigent programs that are intended to provide only short-term coverage (Short et al. 1988).

C. TRANSITIONS IN HEALTH INSURANCE COVERAGE

Relatively few people remain uninsured for long periods, but many experience either transitions between types of insurance coverage or gaps in coverage. Only 4 percent of the nonelderly population, or 12 percent of the uninsured population, were uninsured for an entire four-year period (between 1996 and 1999), suggesting that most of the uninsured experienced one or more transitions in coverage (Short and Graefe 2003). Coverage instability within the same type of insurance, or churning, contributed to an average of two million people losing their health coverage each month during the same four-year period (Short et al. 2003).

For certain types of coverage, the number of changes in coverage can be surprisingly large relative to the average number of people with that coverage. Czajka and Olsen (2000) found that the total number of transitions out of the uninsured state during the one-year period from July 1993 through June 1994 was almost as high (87 percent) as the number of children who were uninsured at any one time. By comparison, the number of transitions out of employer-sponsored insurance was 17 percent of the total number of children with employer coverage at any one time—smaller proportionately but still indicative of a large number of transitions. Yet, the aggregate distribution of coverage changes little from year to year because the number of transitions into each type of coverage is nearly identical to the exits.

Ellwood and Irvin (2000) found that turnover in Medicaid enrollment was especially high for adults, ranging from 26 to 40 percent during 1995 across five study states. Many of those who left Medicaid continued to be eligible: people who had Medicaid benefits terminated and then reinstated during the same year (i.e., churning) accounted for 3.9 to 10.2 percent of the total caseload across the study states.

An individual's destination status is likely to depend on the type of coverage he or she is leaving. Both time-invariant personal characteristics and life-changing events may trigger transitions in health insurance coverage, and the magnitude of the transitions' effects may depend on the origin and destination of the transition. We discuss these relationships separately in the rest of the review.

D. FREQUENCY OF TRANSITIONS

Among people who experience transitions in health insurance coverage, many have more than one transition. To develop a better understanding of the nature of uninsurance, researchers have paid particular attention to the frequency of transitions involving uninsurance—whether uninsured spells are isolated incidents or part of a recurring pattern.

CBO (2003) reported that more than 40 percent of people who started an uninsured spell between July 1996 and July 1997 experienced at least one additional uninsured spell in the next two years. Short and Graefe (2003) found that at least as many people were repeatedly uninsured as experienced a single gap in otherwise stable coverage. Repeated spells of Medicaid/SCHIP or employer insurance were common among people who were repeatedly uninsured.

E. SUBPOPULATION DIFFERENCES IN COVERAGE DYNAMICS

Research findings on the characteristics of people who are more likely to be uninsured are fairly consistent: uninsured rates are highest among persons who are age 18 to 24 years, male, Hispanic, less educated, single, and unemployed. However, evidence about how the dynamics of insurance coverage may differ across subpopulations is not as strong. In this section, we summarize research findings about subpopulation differences in coverage dynamics.

1. Age

Because of near-universal Medicare coverage, people age 65 or over experience the shortest median uninsured spell (Bhandari and Mills 2003). Among the nonelderly, the near-elderly (age 55 to 64) exhibit the lowest overall uninsured rate (13 percent). But, when uninsured, the near-elderly have the highest incidence (69 percent of those ever uninsured) of long-term (one year or more) uninsured spells of any population subgroup (Haley and Zuckerman 2003). Adults, especially young adults (age 19 to 34), are more likely than children to experience long uninsured spells (CBO 2003; Haley and Zuckerman 2003). However, uninsured children (under age 19), compared with other age groups, were the most likely to experience repeated spells without insurance as well as a single gap in coverage (Short and Graefe 2003). The effects of various characteristics on exit rates from uninsured spells also differ for adults and children (Swartz and Marcotte 1993).

2. Gender

Slightly more women than men (69 versus 67 percent) reported continuous insurance coverage (Bhandari and Mills 2003). This difference largely reflects women's greater access to government health insurance in low-income families with children as well as their longer life expectancy after age 65 and enrollment in Medicare (versus men who were more likely to die during the study period).

3. Race and Ethnicity

Hispanics are disproportionately represented (33.5 percent) among the long-term uninsured (Rhodes 2004). CBO (2003) found that 23 percent of uninsured spells among Hispanics last more than two years as compared with 14 percent of spells among non–Hispanic whites and 15 percent among non-Hispanic blacks. Nonwhite status had a positive effect on moving from an uninsured spell to Medicaid but no significant effect on moving to private health insurance (Swartz et al. 1993a).

4. Education

People with less education are more likely than higher-educated people to experience long uninsured spells. Those who did not complete high school have the longest median spell of no health insurance (Bhandari and Mills 2003): 8.8 months compared with 5.6 months among the nonelderly population as a whole. In part, this finding reflects the fact that higher-educated people are more likely to have access to employment-based insurance.

5. Family Structure

Single adults without children are more likely than other adults to experience long uninsured spells, perhaps reflecting lower motivation to obtain insurance (CBO 2003). Conversely, marriage may increase the rate at which adults exit an uninsured spell (Swartz and Marcotte 1993). Medicaid enrollees in families headed by two parents are more likely to have short-term rather than long-term Medicaid coverage (Short et al. 1988).

6. Income/Poverty Level

Persons in low-income families (up to 200 percent of poverty) were disproportionately represented among the long-term uninsured over the two-year period 2000 to 2001. They represented 29 percent of the population, but 49 percent of the long-term uninsured population (Rhodes 2004). Repeated gaps in coverage also occur more often at lower income levels, especially among children (Short and Graefe 2003). In addition, people with low income are less likely to benefit from the stability of private insurance (Short et al. 2003) and experience more difficulty leaving uninsured spells (Swartz and Marcotte 1993). The higher the family income, the stronger the positive effect of income on the exit rate from an uninsured spell (Swartz et al. 1993a).

7. Employment Status

Unstable employment is associated with repeated gaps in coverage, particularly among low-income families. For example, being repeatedly uninsured affected 34 percent of those in families where the adults were in and out of work, and just 17 percent of those in households with a full-time worker throughout the four years (Short et al. 2003). Medicaid enrollees in families with parents once employed but receiving unemployment compensation were more likely to experience short spells of Medicaid coverage (Short et al. 1988). The distribution of insurance spell lengths of any coverage type among people employed part-time is about the same as among those employed full-time (Swartz and McBride 2000). However, people who are out of the labor force reflect very different subpopulations (e.g., full-time homemakers, early retirees, persons unable to work, students, and so forth) and vary considerably in the duration of spells of coverage.

8. Health Status

CBO (2003) found little variation in the duration of uninsured spells by self-reported health status. In contrast, Haley and Zuckerman (2003) found small differences in short-term uninsured rates but a twofold difference in the long-term uninsured rate between those in fair or poor health (32 percent) and those in good or better health (19 percent).

9. Geographic Area/Residential Location

People in suburbs (i.e. metropolitan areas outside central cities) reported the highest continuous health insurance coverage (73 percent), with the lowest found among people in central cities (62 percent) (Bhandari and Mills 2003). Uninsured Persons in nonmetropolitan communities (59 percent) are more likely to be long-term uninsured as compared with those in metropolitan communities (54 percent) (Haley and Zuckerman 2003). Living in the South may be associated with a lower exit rate from an uninsured spell (Swartz et al. 1993a).

10. Other

Citizenship status is an important factor affecting uninsured rates and the duration of uninsured spells (Haley and Zuckerman 2003). Although short-term uninsured rates may be only slightly higher for noncitizens, long-term uninsured rates are much higher—by a factor of four (Haley and Zuckerman 2003). Adults employed in specific industries (e.g., manufacturing, trade, or business and professional services) in the month before losing health insurance may be more likely to leave uninsured spells quickly (Short and Marcotte 1993).

IV. TRIGGER EVENTS

Very few studies have focused on the factors and events that influence transitions in insurance coverage. Some surveys (including SIPP) ask about reasons for the absence of health insurance. The most commonly reported reasons in SIPP for no insurance coverage are the high cost of insurance and lack of access to employment-based coverage, but other important reasons include attitudes toward insurance, poor health, and loss of dependent coverage from a parent (CBO 2003). Individuals who are long-term uninsured are more likely than short-term uninsured persons to cite all of these factors as reasons for no coverage (CBO 2003), suggesting that people who are uninsured for shorter periods may not regard their temporary lack of coverage as a problem.

Interviewees report reasons for the absence of coverage that do not necessarily reflect either personal or family characteristics or "trigger events" such as changes in the family economic situation or family composition that might force loss of coverage. In this chapter, we review a limited number of studies on trigger events. Most of the studies use multivariate analysis of longitudinal data to identify transition events and estimate transition probabilities for the whole population or important subpopulations.

A. SHORT, CANTOR, AND MONHEIT (1988)

Analyzing the 1984 panel of SIPP, Short et al. (1988) described transitions on and off Medicaid during the panel's 32-month period and examined events associated with Medicaid enrollment and disenrollment as well as the income and insurance status of persons before and after Medicaid enrollment. To study trigger events, the authors looked at changes in employment status (including newly employed/unemployed, changed hours, or changed hourly wage), family structure (childbirth, marriage, or loss of spouse), family size, and other changes in family income during the eight months preceding the interview when Medicaid coverage was first reported or lost.[2] Transitions for children under 18 were classified according to the events their parents experienced (or the householder, if the child was not living with a parent).

Short et al. found that economic changes accounted for 61 percent of new Medicaid enrollment. Among all economic changes, reduction in employment (e.g., job loss or reduced hours/wages) alone accounted for 48 percent of transitions onto Medicaid, far more than what could be explained by changes in family composition (22 percent). Changes in health status were not considered but may account for at least some of the residual variation. Among those who left Medicaid, changes in wages and hours played a more important role than gaining a job. However, a high proportion of disenrollees (32 percent) reported none of the trigger events that Short et al. examined.

B. SWARTZ AND MARCOTTE (1993)

Swartz and Marcotte (1993) examined the duration of children's uninsured spells with the 1984 panel of SIPP. They estimated a multivariate hazard model to determine the relative effects of personal and parental characteristics on the rate at which children exit uninsured spells.

To predict the characteristics of children who would have a shorter spell without insurance, the authors modeled the hazard rate as a function of the child's characteristics in the month before losing coverage, including only characteristics independent of time (representing "permanent" status), not variables describing income and other circumstances when health insurance was obtained again. Covariates in the model included the child's age, gender, race, region of residence, monthly family income, family structure, and whether the coverage lost was private or public insurance and the primary parent's age, marital status, educational attainment, employment status, and industry of employment. Among other factors, the parent's educational

[2] Childbirths occurring in the three interviews (12 months) following entry into Medicaid are also included in studying the events associated with Medicaid enrollment.

attainment was significant in the child's chances for exiting quickly from an uninsured spell. The authors concluded that many characteristics that affect the hazard rate for children—being nonwhite, living in the West, family income, parental age, parental education, and industry of employment—have different effects than for adults. The conclusion may have implications in this project for the way we construct our model to estimate transition probabilities for the whole population.

C. SWARTZ (UNKNOWN YEAR)

Recognizing that different people in the same family may have different health insurance coverage, Swartz (unknown year) focused on insurance family units (IFUs), not on individuals. Using 1994–1996 data from SOFHE, she estimated a logit model to determine how the characteristics of an IFU in which all members are uninsured affect the probability that the IFU will remain all-uninsured in a subsequent time period. The model uses a dummy variable to measure whether the IFU was all-uninsured in the earlier period and considers the effects of family income, family size, and the age, health condition, employment status, and marital status of the family head. Among various personal characteristics, having previous insurance coverage experience significantly affected the IFU's probability of gaining coverage in a subsequent period.

D. SHORT AND FREEDMAN (1998)

Short and Freedman (1998) investigated transitions into and out of Medicaid for a cohort of single adult women of childbearing age, using waves 2 through 8 of the 1990 panel of SIPP. They estimated six discrete-time logit models with duration dependence to obtain transition probabilities for persons with Medicaid, private insurance, and uninsured spells. Explanatory variables included time already spent in a spell, insurance history, state income limits on Medicaid, and various socioeconomic and demographic characteristics that affect the costs and benefits of working. The model allowed the value of time-in-spell and other covariates to change over time. That is, the unit of analysis was a person-time interval, where a time interval consisted of the four months in each SIPP wave; most of the explanatory variables were specified as dummy variables.

Short and Freedman (1998) found that former welfare recipients are prone to frequent changes in insurance status. In states with more generous income limits for Aid to Families with Dependent Children (AFDC), women stay on Medicaid longer but are not more likely to move into the Medicaid program.

E. CZAJKA AND OLSEN (2000)

Using data from the 1992 panel of SIPP, Czajka and Olsen (2000) investigated the role of trigger events (i.e., sudden changes in the economic situation or composition of the family) in bringing about changes in children's health insurance coverage. The authors examined transitions among four discrete insurance states: employer-sponsored insurance, Medicaid, other insurance, and no coverage. They approached the analysis of trigger events in two ways: first, they compared the frequency of previous trigger events among children with transitions with the frequency among children without transitions; second, they estimated a series of logit regression models to determine how often specific events were followed by transitions.

They found that events representing changes in the parents' economic status (employment status, jobs or hours worked, family income, and participation in AFDC) as well as family headship or size occurred with greater frequency among children who experienced transitions. The regression results also showed the relative importance of individual trigger events in predicting transitions among the four insurance states.

V. METHODOLOGICAL DEVELOPMENT

A. ATTRITION/NONRESPONSE BIAS

Sample attrition is a common problem in longitudinal surveys. Not everyone interviewed in the first wave completes all interviews during the full period. Some persons leave the sample because they are no longer within the scope of the survey; others refuse at least one interview or move and cannot be located. The size of sample attrition is not negligible. For example, the Census Bureau deliberately and randomly reduced by approximately 15 percent the earliest (1984) SIPP panel in waves 5 and 6, while the unintended and possibly nonrandom attrition of the sample was 24 percent. Attrition reached 34 percent in the 1996 SIPP panel, which had 12 waves (versus 8), covering an additional 16 months. If people who leave the sample differ systematically from those who remain, sample attrition can cause biased estimates.

To compensate for the large number of nonrespondents with incomplete data, the Census Bureau developed longitudinal weights with adjustments for attrition bias. The bureau's adjustment factors ensure that the longitudinally weighted sample matches the initial, full sample with respect to the joint distribution of key demographic and economic characteristics measured at the beginning of the survey. Implicit in this method of adjustment is an assumption that the members of the longitudinal sample resemble the full sample within each adjustment cell. However, evidence suggests that the longitudinal sample differs from the full sample with respect to health insurance coverage, which is not included in the adjustment matrix. In particular, the longitudinal sample has a lower uninsured rate than the full sample (Short and Graefe 2003).[3] Most researchers rely on the bureau's longitudinal weights (see, for example,

[3] Short and Graefe (2003) found that cross-sectional estimates of the number of uninsured people among population ages 4-64 in the last month of their four-year study period were 34.2 million (15.2 percent of the population) in the full sample, compared to 30.7 million (13.7 percent of the population) in the longitudinal sample.

CBO 2003), but some develop their own attrition adjustments (Short et al. 1988) or add a correction factor to the bureau's weights (Short and Graefe 2003).

B. SEAM BIAS

Many researchers have noted seam bias in SIPP and other longitudinal survey data (Short et al. 1988; Swartz 1993; Czajka and Olsen 2000; Short and Graefe 2003; Short and Freedman 1998). Over a wide range of characteristics, SIPP respondents tend to report the same status for the four months covered in each interview such that transitions occur disproportionately at the seams between interview reference periods. While the magnitude of the bias varies across characteristics, the net result is that monthly variables do not provide a completely reliable indication of either the timing of trigger events and transitions in coverage or the exact duration of coverage. Furthermore, short spells are almost certainly underreported, and spell durations show a substantial clustering at multiples of four months (Czajka and Olsen 2000).

In the 1996 SIPP panel, the Census Bureau tried a number of measures to reduce seam bias. These included conducting interviews in a computer-assisted environment, collecting information on current status (the "fifth" month), and using dependent interviewing. Unfortunately, none of the efforts worked appreciably (Weinberg 2003).[4] Researchers have used different strategies to deal with seam bias and smooth the transitions. Some have reported results (e.g., spell lengths) only in four-month or longer intervals (CBO 2003); some have chosen to measure insurance coverage in terms of the number of interviews in which coverage was reported for any month in the reference period (Short et al. 1988); some have statistically smoothed the transitions based on continuous models (Swartz 2003); still others have looked for

[4] It is hoped that the large-scale improvements included in a questionnaire being tested for 2004 implementation will reduce seam bias in SIPP (see Doyle et al. 2000).

potential trigger events not only in earlier months but in the same month as the transition and constructed the data set to accommodate the seam bias (Czajka and Olsen 2000).

C. OTHER REPORTING ERRORS

Survey data may suffer from reporting errors in addition to seam bias. For example, respondents may report coverage at only one interview in the middle of the survey, implying a very brief period of coverage preceded and followed by lengthy spells of no coverage. Such a pattern appears unlikely at best (Short, Cantor, and Monheit 1988). Another example involves respondents who report a one-wave or shorter lapse in coverage while their personal characteristics remain the same. This, too, appears improbable (Swartz 2003). Such distortions or anomalies require researchers to view the data more critically and, on occasion, make edits or corrections when what is reported appears unlikely to be true.

VI. SUMMARY AND RESEARCH NEEDS

In summary, much of the previous research on trigger events and transitions in health insurance coverage is either outdated or narrow in scope (for example, focused on specific subpopulations and limited types of events). As a result, the degree to which the existing literature can inform current policy debates is more limited than policymakers might hope. There is a need for new, broad-based research using more recent and improved data to address fundamental questions about transitions in coverage.

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APPENDIX B

ENHANCEMENTS TO THE 2001 SIPP PANEL DATA

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ENHANCEMENTS TO THE 2001 SIPP PANEL DATA

While SIPP is the only data source that will support the analyses undertaken in this report, the survey's unique strengths must be qualified. In addition to the limitations noted in Chapter III, there are a number of additional issues with respect to the quality of the 2001 SIPP panel data that are particularly relevant to the applications presented in this report. These issues include the following:

- Seam bias continues to be evident in reported transitions of nearly every kind but is especially strong for reported changes in health insurance coverage
- The overall frequency of reported changes in health insurance coverage, the fraction of these that are associated with one-wave spells, and the proportion of one-wave spells that are preceded and followed by the same coverage suggest that reporting error may be responsible for a large number of false transitions
- In contrast to the 1996 panel, monthly poverty rates are much higher than the corresponding annual poverty rates recorded in the CPS, and they trace a downward trend over the life of the panel while the CPS annual poverty rises
- The Census Bureau's discontinuation of "missing wave" imputations for sample members who missed an interview but continued to respond to subsequent interviews compounds the effects of attrition on the data available for longitudinal analysis
- Monthly indicators of employment status and average weekly hours worked contain errors that can result in false or misplaced transitions between employment and unemployment or between full-time and part-time employment
- More than half of all newborns do not appear as new family members until at least two months after their births; this implies that reported increases in family size due to births lag actual increases

One other problem was identified and communicated to the Census Bureau very early in this project and has been corrected. The initial release of calendar year weights for 2002 omitted a portion of the sample that should have received them. We notified the Census Bureau in February 2005 that there was a problem with the 2002 weights as well as many of the longitudinal weights for the 1996 panel. The Census Bureau recreated the 2002 calendar year weights and released the revised set in April 2005. We used the revised weights in the extensive set of descriptive tables that we delivered later in that month.[1]

In the remainder of this appendix we discuss these issues in turn and indicate how we have addressed them in our work. We close with a brief discussion of the adequacy of the existing enhancements to the 1996 SIPP panel data for any comparative analysis with the enhanced 2001 panel data.

A. SEAM BIAS

Seam bias refers to the tendency for transitions of a particular type—such as the loss of health insurance coverage—to be reported disproportionately at the seams between survey reference periods rather than during the reference periods. With the SIPP data collection design, which utilizes four rotation groups that are interviewed in successive months and asked about a reference period that includes the prior four months, actual transitions will be distributed uniformly across the four reference months even if they are not distributed uniformly across calendar months. This implies that if transitions were reported correctly, only 25 percent would occur between reference periods—that is, between the fourth reference month of the prior interview wave and the first reference month of the current wave. What we observe instead is that many types of transitions recorded in the SIPP are reported predominantly between reference periods.

Changes in reported health insurance coverage exhibit very pronounced seam bias. The distribution of spell starts among adults by reference month over waves 2 through 9 of the 2001

[1] The Census Bureau issued a memorandum in July 2005 addressing the problems with the 1996 panel longitudinal weights and instructing users how to make adjustments.

SIPP panel is given in Table B.1.[2] New uninsured spells show the least pronounced seam bias, yet 79.5 percent of such spells are reported as starting in the first reference month. The remaining new spells are distributed over months 2 to 4, with some tendency for new spell starts to grow in frequency with proximity to the interview month. New Medicaid spells exhibit somewhat stronger seam bias than new uninsured spells, with 82.8 percent reported as starting in reference month 1.[3] Private coverage (which encompasses everything but Medicare, Medicaid, and any other public program) displays even stronger seam bias than Medicaid, with 85.7 percent of new spells reported as starting in the first reference month. Topping these high numbers, Medicare shows an astounding 95.0 percent of new spells starting in the seam month. In other words, nearly all respondents who reported that they were covered by Medicare during a given wave but not the previous wave said that they were covered by Medicare for the past four months.

The lower part of Table B.1 provides the distribution of spell starts for different types of private coverage. SIPP respondents who reported that they had private coverage for any of the past four months were asked the source of the coverage. Sources include ESI obtained from a current or former employer or union, nongroup coverage purchased directly from an insurer, military-related coverage, and other coverage. Because the source of private coverage is captured only once per wave, the timing of a change in source (if a different source is reported in consecutive waves) cannot be determined unless there is a gap in private coverage—that is, one or more months with no reported private coverage. If there is no gap, we assign the start of the new type of private coverage to the first reference month. This strategy increases the seam effect

[2] We exclude spell starts reported in wave 1 because new spells cannot be observed in the first reference month.

[3] What SIPP collects and codes as Medicaid includes not only the program known by that name but coverage under the State Children's Health Insurance Program (SCHIP) and any other public program—besides Medicare—that pays for medical care.

TABLE B.1

DISTRIBUTION OF HEALTH INSURANCE SPELL STARTS BY REFERENCE MONTH WITHIN WAVE: PERSONS 18 AND OLDER, 2001 SIPP PANEL

Source of Coverage	Weighted Number of Spell Starts Waves 2 to 9 (1,000s)	Percentage Distribution By Month within Wave			
		1	2	3	4
Uninsured[a]	58,646	79.5	5.4	7.2	7.9
Medicare	10,624	95.0	1.4	1.3	2.2
Medicaid	29,956	82.8	4.6	5.5	7.1
Private[b]	65,721	85.7	3.7	5.0	5.6
Types of private coverage[c]					
ESI	75,841	88.9	2.9	3.9	4.2
Nongroup	48,106	97.6	0.5	1.0	0.9
Military-related	9,614	99.1	0.3	0.2	0.3
Other	15,671	98.1	0.4	0.4	1.2

Source: Mathematica Policy Research, from the 2001 SIPP panel.

Note: Age is defined as of the beginning month of the spell.

[a] The uninsured are identified as persons with no reported Medicare, Medicaid or private coverage.

[b] The questionnaire asks for coverage by a health insurance plan other than Medicare or Medicaid.

[c] Type of private coverage is ascertained in a question asked once per wave. While two different types of private coverage may be reported within a wave, transitions between the two types cannot be identified. The number of spell starts recorded for the four types of private coverage greatly exceeds the number of spell starts reported for private coverage generally. This is because the type of private coverage can change without a gap in private coverage that would generate a new spell.

for the source of private coverage. Perhaps because of this, the three sources other than ESI show between 98 and 99 percent of new spells starting in the first reference month. For ESI, the proportion is 88.9 percent, which is slightly higher than we observe for private coverage generally.

Spells starting in month 1 of a reference period imply other spells ending in month 4 of the preceding reference period. For example, an uninsured spell starting in the first month of a reference period implies an insured spell ending in the fourth month of the previous wave, so insured spell endings and uninsured spell starts will show the same seam bias—and likewise for uninsured spell endings and insured spell starts. However, insured spells may involve any of several sources, and sources may change without an intervening uninsured spell. Therefore, the correspondence between starts of uninsured spells and endings of spells of individual sources of coverage will not be one-to-one. Furthermore, it is possible that spell starts and spell endings of a particular type of coverage—or the lack of coverage—may exhibit differential seam bias. This is evident from a comparison of the distributions of spell endings (Table B.2) and spell starts (Table B.1). Endings of uninsured spells and private coverage spells show slightly weaker seam bias than do spell starts while endings of Medicare and Medicaid spells show stronger seam bias than their respective spell starts. Within private coverage, all but the military-related sources show very slightly weaker seam bias for spell endings than spell starts.

The phenomenon of Medicaid spell endings showing stronger seam bias than spell starts was true of both the 1992 and 1996 SIPP panels as well, even though seam bias in the reporting of Medicaid transitions increased markedly across the three panels (Table B.3). The proportion of Medicaid spells starting in month 1 grew from 67.9 percent to 82.8 percent over the three panels while the proportion of Medicaid spells ending in month 4 grew from 78.6 percent to 92.3 percent. By contrast, Medicare, private coverage, and uninsured spells were less likely to start in

TABLE B.2

DISTRIBUTION OF HEALTH INSURANCE SPELL ENDINGS BY REFERENCE MONTH WITHIN WAVE: PERSONS 18 AND OLDER, 2001 SIPP PANEL

Source of Coverage	Weighted Number of Spell Endings Waves 1 to 8 (1,000s)	Percentage Distribution By Month within Wave			
		1	2	3	4
Uninsured[a]	58,808	6.8	7.9	8.5	76.9
Medicare	3,299	0.0	0.2	0.1	99.7
Medicaid	28,902	1.6	2.7	3.4	92.3
Private[b]	70,459	5.4	6.0	6.0	82.7
Types of private coverage[c]					
ESI	80,941	4.1	4.8	4.7	86.4
Nongroup	46,333	1.0	1.0	1.2	96.8
Military-related	8,413	0.3	0.4	0.2	99.1
Other	17,462	1.1	0.7	0.7	97.5

Source: Mathematica Policy Research, from the 2001 SIPP panel.

Note: Age is defined as of the ending month of the spell.

[a] The uninsured are identified as persons with no reported Medicare, Medicaid or private coverage.

[b] The questionnaire asks for coverage by a health insurance plan other than Medicare or Medicaid.

[c] Type of private coverage is ascertained in a question asked once per wave. While two different types of private coverage may be reported within a wave, transitions between the two types cannot be identified. The number of spell endings for the four types of private coverage greatly exceeds the number of spell endings reported for private coverage generally. This is because the type of private coverage can change without a gap that would end a spell of private coverage.

TABLE B.3

SEAM BIAS IN HEALTH INSURANCE COVERAGE SPELL BEGINNINGS
AND ENDINGS: PERSONS 18 AND OLDER, BY SIPP PANEL

	Spells Beginning in Month 1 by SIPP Panel			Spells Ending in Month 4 by SIPP Panel		
Source of Coverage	1992	1996	2001	1992	1996	2001
Uninsured	76.1	68.7	79.5	74.9	68.5	76.9
Medicare	94.5	89.3	95.0	98.4	99.3	99.7
Medicaid	67.9	80.8	82.8	78.6	87.1	92.3
Private	82.4	78.1	85.7	78.2	76.2	82.7

Source: Mathematica Policy Research, from the 1992, 1996, and 2001 SIPP panels.

Note: Age is defined as of the beginning or ending month.

month 1 in the 1996 panel than in the 1992 panel. This was also true of uninsured and private spell endings. Seam bias increased between the 1996 and 2001 panels for all sources, however, with the largest increases associated with uninsured spells. The proportion of uninsured spells starting in month 1 grew by 11 percentage points between these two panels while the proportion of uninsured spells ending in month 4 grew by 8 percentage points. We are unable to explain this increase in seam effects in reported health insurance coverage between the 1996 and 2001 SIPP panels, but it underscores the need to take account of seam bias in analyzing health insurance transitions in the 2001 panel.

Seam bias has been evident in the SIPP from its very beginnings, going back to the two research panels that were conducted by the Income Survey Development Program (ISDP), which produced the design of the SIPP.[4] Nevertheless, it is only with the introduction of dependent interviewing into the 2004 SIPP panel that the Census Bureau has achieved any measure of success in reducing seam bias (Moore et al. 2009).[5] Substituting the 2004 panel for the analysis in this project was not a viable option, however, as only six waves had been released by the time our analysis was nearly complete, the sample was reduced by one-half after wave 8, and there are continuing issues with reported private health insurance coverage in the early waves.

[4] For a discussion of seam bias in the ISDP panels see Czajka (1983).

[5] Dependent interviewing in a panel survey such as the SIPP involves telling respondents their prior wave responses as they are being asked about certain behaviors during the current reference period. For example, a respondent who reported being enrolled in Medicaid during the interview month of the prior wave (that is, the first reference month of the current wave) would be asked: “Last time I recorded that you were enrolled in Medicaid in [month]. Is that correct?” If the respondent answered “yes” then Medicaid was recorded for month 1 of the current reference period, and subsequent questions filled in the remaining months. If the respondent answered “no”, then Medicaid was not recorded for month 1, and the respondent was asked about the subsequent months. As implemented in the 2004 panel, respondents who were not enrolled in Medicaid at the time of the last interview were asked the standard sequence of Medicaid questions; they were not reminded of their earlier response. This asymmetry in the use of prior responses was intended to avoid an overly cumbersome interview. The Census Bureau’s evaluation of the impact of dependent interviewing indicates that the spikes in reported transitions at reference month 1 have been reduced by cutting down on the number of reported transitions rather than shifting their occurrence to months 2 through 4.

One earlier attempt to reduce or at least gain more information on seam bias should be noted. With the 1996 panel the Census Bureau began asking respondents about their participation in selected programs in the interview month, which became month 5 of the reference period. Month 5 of wave *k* corresponds to month 1 of wave *k*+1, so the redundant data collection provided a way of gauging the consistency of reports between waves and, possibly, a way of assessing and perhaps even correcting some of the seam bias. However, the Census Bureau has not released the month 5 data in its public use files and has not found the overlapping months to be especially helpful in editing the month 1 reported data. The data for month 1 on the public use files continue to be what was reported in the later of the two waves in which such data were collected.

Lacking a way to correct seam bias at a micro level, we have elected to address the problem through the design of our analysis. Details are provided in the empirical chapters, but, essentially, we are using the wave rather than the month as the unit of time in much of our analysis, with the values of monthly characteristics being measured in the fourth reference month for each wave. By using the wave as the unit of time we avoid the seam issue completely. In so doing we sacrifice the ability to date trigger events and changes in coverage more precisely, but the implications of seam bias are that in many cases we cannot date these occurrences any more precisely than the wave in which they were reported.

B. FREQUENCY OF HEALTH INSURANCE TRANSITIONS

Our research on health insurance transitions with the 2001 and earlier SIPP panels over the past decade has persuaded us that the frequency of transitions in health insurance coverage is overstated. The appearance of too many transitions over a range of subject areas has been noted in other panel surveys as well.[6] This phenomenon would appear to be the result of uncorrelated measurement error in respondents' reports in successive interviews. Changes in respondent between waves may play a role, although this has not been persuasively demonstrated—either in the SIPP or elsewhere.

1. Gaining and Losing Coverage

Table B.4 reports the estimated number of persons gaining and losing health insurance coverage, by age, between consecutive waves in the 2001 SIPP panel. Among children under 19, we find that 44 percent of the uninsured (re)gain coverage between one wave and the next. This figure is strikingly high. Among adults 19 to 39, the proportion drops to about 23 percent, on average, but this is still a substantial fraction of the uninsured. Even among those 40 to 59, close to 20 percent of the uninsured gain coverage between one wave and the next.

On average, the estimated number of insured persons losing coverage between one wave and the next is about the same as the number of uninsured persons gaining coverage. This is reflected in a relatively constant uninsured rate within each of the age groups. The insured persons who lose coverage are a much smaller fraction of the insured population—6 to 7 percent among children and younger adults and less than 3 percent among adults 40 to 59—because the insured population is much bigger than the uninsured population. The combined number gaining or losing coverage is about 11 percent of the child population, between 9 and 10 percent of the adult population 19 to 39, and about 5 percent of the adult population 40 to 59.

The high proportion of the uninsured who become covered between one wave and the next is a function of the large number losing coverage between successive waves and the short duration of most new spells without coverage. In the 1996 SIPP panel, 51 percent of the

[6] Moore et al. (2009) provide a number of references.

TABLE B.4

WAVE TO WAVE TRANSITION BETWEEN INSURED AND UNINSURED, BY AGE: 2001 SIPP PANEL
(Numbers in thousands)

Age Group and Time Period	Initial Number Uninsured	Initial Number Insured	Number Gaining Coverage	Number Losing Coverage	Sum: Number Changing Coverage	Percent of Uninsured Gaining Coverage	Percent of Insured Losing Coverage	Percent of Population Changing Coverage	Initial Percent of Population Uninsured
Children under 19									
Wave 1 to wave 2	9,212	64,432	3,858	4,656	8,514	41.9	7.2	11.6	12.5
Wave 2 to wave 3	9,739	62,773	4,586	4,283	8,869	47.1	6.8	12.2	13.4
Wave 3 to wave 4	9,178	61,998	3,989	4,225	8,214	43.5	6.8	11.5	12.9
Wave 4 to wave 5	9,103	60,706	4,051	3,531	7,582	44.5	5.8	10.9	13.0
Wave 5 to wave 6	8,390	60,373	3,523	3,772	7,295	42.0	6.2	10.6	12.2
Wave 6 to wave 7	8,400	59,122	3,739	3,784	7,523	44.5	6.4	11.1	12.4
Wave 7 to wave 8	8,209	58,113	3,549	4,120	7,670	43.2	7.1	11.6	12.4
Wave 8 to wave 9	8,497	56,454	3,789	3,997	7,785	44.6	7.1	12.0	13.1
Mean percent						**43.9**	**6.7**	**11.4**	**12.7**
Adults 19 to 39									
Wave 1 to wave 2	15,650	62,851	3,625	4,051	7,676	23.2	6.4	9.8	19.9
Wave 2 to wave 3	16,169	61,939	4,275	4,266	8,541	26.4	6.9	10.9	20.7
Wave 3 to wave 4	16,139	61,718	3,582	3,993	7,575	22.2	6.5	9.7	20.7
Wave 4 to wave 5	16,615	61,227	3,902	3,416	7,318	23.5	5.6	9.4	21.3
Wave 5 to wave 6	16,140	61,340	3,814	3,782	7,596	23.6	6.2	9.8	20.8
Wave 6 to wave 7	16,128	60,944	3,657	3,799	7,456	22.7	6.2	9.7	20.9
Wave 7 to wave 8	16,341	60,638	3,902	3,734	7,636	23.9	6.2	9.9	21.2
Wave 8 to wave 9	16,279	60,710	3,551	3,617	7,168	21.8	6.0	9.3	21.1
Mean percent						**23.4**	**6.2**	**9.8**	**20.9**
Adults 40 to 59									
Wave 1 to wave 2	8,763	64,040	1,759	1,767	3,526	20.1	2.8	4.8	12.0
Wave 2 to wave 3	8,843	64,562	1,819	1,807	3,626	20.6	2.8	4.9	12.0
Wave 3 to wave 4	9,034	65,159	1,768	1,915	3,684	19.6	2.9	5.0	12.2
Wave 4 to wave 5	9,348	65,390	1,856	1,844	3,700	19.9	2.8	5.0	12.5
Wave 5 to wave 6	9,421	65,836	1,714	1,649	3,364	18.2	2.5	4.5	12.5
Wave 6 to wave 7	9,470	66,510	1,696	1,909	3,605	17.9	2.9	4.7	12.5
Wave 7 to wave 8	9,748	66,527	1,888	1,740	3,629	19.4	2.6	4.8	12.8
Wave 8 to wave 9	9,636	67,161	1,687	1,805	3,492	17.5	2.7	4.5	12.5
Mean percent						**19.1**	**2.7**	**4.8**	**12.4**

Source: Mathematica Policy Research, from the 2001 SIPP panel.

Note: Age is defined as of the final month of the initial wave in each pair. Children born after the start of the panel do not receive longitudinal weights; hence the weighted number of children declines from wave to wave.

uninsured spells started by children under 19 and 43 percent of the uninsured spells started by nonelderly adults ended in four or fewer months (Czajka and Sykes 2006). In the 2001 panel, about half of the children and 30 percent of the adults under 60 who became uninsured in a given month regained their coverage exactly four months later (Table B.5). Furthermore, a substantial fraction of these returned to the same type of coverage that they had before they became uninsured. Specifically, 72 percent of the one-wave uninsured spells for children and 80 to 83 percent of the one-wave spells for adults under 60 were preceded and followed by the same general type of coverage—that is, Medicare, Medicaid, or private coverage. If we differentiate types of private coverage, we find that, among children, 60 percent of the four-month, one-wave uninsured spells—representing 30 percent of all new uninsured spells—were preceded and followed by the same detailed type of coverage.[7] Among adults under 60, about 55 percent of the one-wave uninsured spells (or 16 percent of all new uninsured spells) were preceded and followed by exactly the same type of coverage. For such spells, we suggest that in many cases the apparent loss of coverage may have been nothing more than a reporting error—an omission of coverage correctly reported in the surrounding waves. If so, reporting error could be responsible for a nontrivial fraction of the transitions into and out of the uninsured state—particularly among children.

Those who leave the uninsured state do not reverse their transitions as rapidly as those who become uninsured. This is especially true among children (Table B.6). Only 20 percent of those who gained coverage lost it four months later (versus the 49 percent who became re-insured four months after losing their coverage). Similarly, 22 percent of the adults under 60 who became

[7] What is identified generically as private coverage in SIPP is based on a question asking if the sample member was covered by a health insurance plan other than Medicare or Medicaid. A later question identifies the following eight sources: current employer or work, former employer, union, CHAMPUS/TRICARE, CHAMPVA, military/VA health care, privately purchased, and other.

TABLE B.5

CHARACTERISTICS OF AVERAGE MONTHLY TRANSITIONS FROM INSURED TO UNINSURED, JANUARY 2001 THROUGH DECEMBER 2002, BY AGE

	Average Monthly Number of Persons (1,000s)				Percent of All New Uninsured Spells			Percent of One-wave Spells	
Age Group	Insured	Becoming Uninsured In Next Month	Regaining Coverage Four Months Later	Uninsured Spell Coincides With Interview Wave	Ending in Four Months Coinciding With Interview Wave	And with Same General Coverage Before and After Spell	And with Same Detailed Coverage Before and After Spell	With Same General Coverage Before and After Spell	With Same Detailed Coverage Before and After Spell
Under 19	62,537	1,145	567	564	49.1	35.3	29.5	71.9	60.2
19 to 39	63,031	1,129	340	333	29.6	24.6	16.4	83.0	55.3
40 to 59	66,201	521	156	154	29.4	23.7	16.1	80.0	54.4

Source: Mathematica Policy Research, from the 2001 SIPP panel.

TABLE B.6

CHARACTERISTICS OF AVERAGE MONTHLY TRANSITIONS FROM UNINSURED TO INSURED, JANUARY 2001 THROUGH DECEMBER 2002, BY AGE

	Average Monthly Number of Persons (1,000s)					Percent of Newly Insured	
Age in Month	Uninsured	Becoming Insured In Next Month	Losing Coverage Four Months Later	Insured Spell Coincides With Interview Wave	Percent of Uninsured Becoming Insured In Next Month	Losing Coverage Four Months Later	With Insured Spell Coinciding With Interview Wave
Under 19	9,547	1,126	230	229	11.8	20.5	20.4
19 to 39	17,162	1,112	251	246	6.5	22.5	22.2
40 to 59	9,527	507	112	110	5.3	22.1	21.8

Source: Mathematica Policy Research, from the 2001 SIPP panel.

insured lost their coverage four months later. In contrast to children, this is much closer to the fraction who became reinsured four months after losing their coverage (29 to 30 percent).

2. Changing Source of Coverage

Among those who remain covered between one wave and the next, a substantial proportion report different sources of coverage at the two points in time. In fact, these changes dwarf the gains and losses to the uninsured. Persons who remain covered may report a change in their major source of coverage—that is, whether they are covered by Medicare, Medicaid or another public source, or a private plan.[8] Over the eight pairs of waves an average of about 8 percent of children but only 2 to 3 percent of nonelderly adults who remained covered recorded a change in at least one of these sources of coverage (Table B.7). The greater frequency of such changes among children reflects the more prominent role of Medicaid in this group. Children can lose private coverage and remain insured if they obtain Medicaid coverage in its place, but that is less often an option for adults.

Persons with private coverage can report changes in whether they hold coverage in their own names or as dependents. Adding these types of changes brings the frequency of changes to more than 11 percent, on average, among both children and adults under 40, and 10 percent among older adults. SIPP respondents with private coverage can also report changes in the detailed source of coverage, whether it be from a current or former employer, a union, one of three military-related options, coverage they purchased privately, or other coverage. Adding these changes brings to about 17 percent, on average, the fraction of children and adults with changes between one wave and the next. Lastly, allowing for changes in a second source of private coverage (for example, coverage from a spouse's plan in addition to one's own plan or,

[8] They may also report the addition or loss of a second major type of coverage, different from the first.

TABLE B.7

WAVE TO WAVE TRANSITIONS IN THE SOURCE OF COVERAGE AMONG THOSE WHO REMAIN UNINSURED, BY AGE

(Numbers in Thousands)

Age Group and Time Period	Number Insured Both Waves	Number Changing Major Source of Coverage	Plus Number Changing Only Ownership	Plus Number Changing Only Type of Private Coverage	Plus Number Changing Only Second Type of Private Coverage	Percent Changing Major Source of Coverage	Plus Percent Changing Only Ownership	Plus Percent Changing Only Type of Private Coverage	Plus Percent Changing Only Second Type of Private Coverage
Children under 19									
Wave 1 to wave 2	59,776	5,819	7,865	11,794	15,141	9.7	13.2	19.7	25.3
Wave 2 to wave 3	58,490	5,186	6,909	11,103	14,270	8.9	11.8	19.0	24.4
Wave 3 to wave 4	57,773	4,822	6,597	10,240	12,944	8.3	11.4	17.7	22.4
Wave 4 to wave 5	57,175	4,628	6,449	9,703	12,453	8.1	11.3	17.0	21.8
Wave 5 to wave 6	56,601	4,943	6,611	9,870	12,861	8.7	11.7	17.4	22.7
Wave 6 to wave 7	55,338	4,116	5,741	9,010	11,469	7.4	10.4	16.3	20.7
Wave 7 to wave 8	53,992	4,313	6,030	9,010	11,453	8.0	11.2	16.7	21.2
Wave 8 to wave 9	52,457	3,751	5,371	8,332	10,637	7.1	10.2	15.9	20.3
Mean percent						**8.3**	**11.4**	**17.5**	**22.4**
Adults 19 to 39									
Wave 1 to wave 2	58,800	1,716	6,014	10,011	12,393	2.9	10.2	17.0	21.1
Wave 2 to wave 3	57,673	1,445	6,950	10,819	13,496	2.5	12.1	18.8	23.4
Wave 3 to wave 4	57,726	1,399	6,812	10,064	12,086	2.4	11.8	17.4	20.9
Wave 4 to wave 5	57,811	1,523	6,672	10,031	12,323	2.6	11.5	17.4	21.3
Wave 5 to wave 6	57,558	1,599	6,622	9,865	12,477	2.8	11.5	17.1	21.7
Wave 6 to wave 7	57,145	1,561	6,638	9,624	11,895	2.7	11.6	16.8	20.8
Wave 7 to wave 8	56,904	1,325	6,078	9,031	11,299	2.3	10.7	15.9	19.9
Wave 8 to wave 9	57,093	1,456	6,056	9,151	11,520	2.6	10.6	16.0	20.2
Mean percent						**2.6**	**11.3**	**17.1**	**21.2**
Adults 40 to 59									
Wave 1 to wave 2	62,273	1,749	6,380	10,723	13,140	2.8	10.2	17.2	21.1
Wave 2 to wave 3	62,756	1,488	7,205	11,382	13,701	2.4	11.5	18.1	21.8
Wave 3 to wave 4	63,243	1,441	7,088	11,432	13,660	2.3	11.2	18.1	21.6
Wave 4 to wave 5	63,546	1,320	6,669	10,643	12,833	2.1	10.5	16.7	20.2
Wave 5 to wave 6	64,187	1,386	6,521	10,234	12,614	2.2	10.2	15.9	19.7
Wave 6 to wave 7	64,601	1,466	6,422	10,063	12,314	2.3	9.9	15.6	19.1
Wave 7 to wave 8	64,786	1,270	6,029	9,933	12,201	2.0	9.3	15.3	18.8
Wave 8 to wave 9	65,356	1,401	5,900	9,797	12,181	2.1	9.0	15.0	18.6
Mean percent						**2.3**	**10.2**	**16.5**	**20.1**

Source: Mathematica Policy Research, from the 2001 SIPP panel.

Note: Age is defined as of the final month of the initial wave in each pair. Children born after the start of the panel do not receive longitudinal weights; hence the weighted number of children declines from wave to wave.

for children, dependent coverage from both parents) raises the fraction of children and adults with changes between waves to between 20 and 22 percent.[9]

In addition to the high volume of changes between waves, we note that the in all age groups the percentage with changes of each type declines over the length of the panel. In the last column, which encompasses all types of changes in reported coverage, the percentage of children with changes declines from 25.3 percent between waves 1 and 2 to 20.3 percent between waves 8 and 9. Among adults 19 to 39 the percentage reporting changes of any type declines more modestly, from 21.1 percent to 20.2 percent. Among adults 40 to 59 the magnitude of the decline falls between that of younger adults and children, from 21.1 percent to 18.6 percent. That the frequency of reported changes in coverage declines over time may reflect improvement in the accuracy of reported sources. Regardless, even after eight waves the frequency with which respondents report change in some aspect of their health insurance coverage remains high.

3. Analytical Strategies for Excess Transitions

In response to a concern that there were too many changes in health insurance coverage in the 1996 SIPP panel, Czajka and Sykes (2006) developed a series of edits designed to correct what appeared to be internal inconsistencies in the reporting of health insurance coverage within families—for example, a child losing ESI for four months while the parent in whose name the insurance was held remained covered. The development of edits for adults was much less effective than it was for children, as errors in the reporting of adults' coverage generally do not create internal inconsistencies within the family.[10] For this reason, we opted not to attempt edits

[9] Such changes include adding or subtracting a second private source, even if the detailed type of coverage is the same as that provided by the first source. Note, however, that if someone covered solely by his or her own plan in one wave added dependent coverage in the next wave, this would be classified as an ownership change.

[10] If an adult plan holder misreports the source of the plan, this same error will be reflected in the type of coverage assigned to everyone else on the plan. There is no inconsistency on which to base an edit, as every family member who is covered by the plan changes coverage at the same time. If, instead, the plan holder fails to mention

to reported coverage to correct possible errors. In our multivariate analysis, however, we estimated an alternative version of each of our principal models in which we eliminated all one-wave uninsured or insured spells. This would eliminate good spells along with bad spells, if any, but if the latter were very numerous, their elimination might strengthen many of the estimated coefficients. We also elected to restrict our analysis to transitions into or out of the uninsured state, and we developed models specifically for these transitions. This strategy reflected our concern that a significant fraction of the reported transitions between different types of coverage did not in fact occur.

C. MEASURED POVERTY

Between the end of the 1996 panel and the beginning of the 2001 panel, the SIPP monthly poverty rate rose by two full percentage points, from 12.6 percent in November 1999 to 14.6 percent in January 2001 (Czajka, Mabli, and Cody 2008). For young adults 18 to 24, who account for disproportionately many transitions in health insurance coverage, the monthly poverty rate rose by more than five percentage points. Over this same period, the annual poverty rate measured in the CPS declined slightly at first and then rose even more slightly. The CPS poverty rate continued to rise during the period covered by the 2001 SIPP panel while the SIPP monthly poverty rates declined. The discrepancy between these two series contrasted sharply with the 1996 panel, during which the SIPP monthly poverty rates tracked the decline in the CPS annual poverty rates quite closely. When the first waves of data from the 2001 panel were released, this divergence from the 1996 panel raised concerns among users that something was amiss with the measurement of income in the 2001 panel.

(continued)
an adult who is covered by the plan but does so in the previous and subsequent waves, then the inconsistency between the plan holder's coverage and the dependent's reported coverage across the three waves can provide the basis for an edit. Such cases were rare among adults, however.

Further analysis of SIPP and CPS poverty data that MPR conducted for the Social Security Administration provided evidence that a substantial portion of the discontinuity between the 1996 and 2001 SIPP panels could be attributed to a tendency for SIPP panels since 1996 to obtain high estimates of poverty in the first wave, followed by a sharp decline between the first and second waves. The 2004 panel shows this same phenomenon, starting with a monthly poverty rate that is two percentage points higher than the monthly poverty rate at the end of the 2001 panel. In the 2001 panel the monthly poverty rate declined from 14.6 percent in January 2001 to 13.6 percent in May 2001, one wave later, but was essentially flat after that.

Much of the remaining discrepancy between the SIPP and CPS poverty estimates during the 2001 panel could be due to the declining representativeness of SIPP panels over time. Our analysis for SSA suggests that this decline may not be due to attrition, as the Census Bureau proposed when it announced the termination of SIPP in early 2006, but to the under-representation of new entrants to the population, discussed earlier in this and the preceding chapter. These new entrants include immigrants, former inmates released from institutions (including prisons), and young adults completing military service. The evidence here is indirect at best, making this a topic for future study, but new entrants are a distinctive group with the potential for high poverty rates (and uninsured rates as well, as we noted in Chapter II).

A longitudinal analysis with SIPP will sidestep the problems presented by declining cross-sectional representativeness, but an overstatement of increases in income between waves 1 and 2 should be taken into account in any longitudinal analysis that uses income as a predictor or outcome and gives prominence to wave 1 in the estimated results. Trigger events based on changes in income may be overstated in wave 2, which will depress their estimated impact on health insurance transitions. However, observations based on waves 1 and 2 account for only an eighth of the total observations used to estimate our multivariate models. Given this, we did not feel that any additional adjustments to the data or our estimation procedures were necessary.

D. MISSING WAVES

SIPP retains (that is, continues to attempt to interview) sample members who miss interviews. Prior to the 2001 panel, sample members were retained until they missed two consecutive interviews or were known to have left the survey universe. One reason for requiring that sample members not miss two consecutive interviews is that a single missing wave surrounded by completed waves can be imputed rather well from the data collected in the prior and subsequent waves, thereby producing complete data for the entire duration of the panel. In the 1991, 1992, and 1993 panels, the Census Bureau imputed missing waves using a simple scheme that assigned to each missing month the data values from either the last month of the preceding wave or the first month of the following wave. While the missing wave imputations did not add new information, they created complete longitudinal records that enabled more sample members to qualify for full panel weights and, therefore, be included in longitudinal analyses spanning the length of the panel.

The missing wave imputations for each of the earlier panels were included on a longitudinal file that was one of the regular SIPP data products. With the 1996 redesign of the survey, the Census Bureau discontinued production of a longitudinal file and elected to discontinue the missing wave imputations as well. Users could create their own longitudinal analysis files and apply the longitudinal weights that the Census Bureau released on a separate file, but sample members with missing months did not receive longitudinal weights unless they were outside the survey universe during the missing months. Discontinuation of the missing wave imputations compounded the impact of a growth in attrition between the 1996 and prior SIPP panels. In response to this growth in attrition the Census Bureau revised its rules for retaining sample members who missed interviews. Effective with the 2001 panel, the Census Bureau no longer stops attempting to interview sample members who miss consecutive interviews. This has reduced sample attrition to levels comparable to 1993, but the proportion of the sample that can be used for longitudinal analysis with the Census Bureau's longitudinal weights is unaffected (Czajka, Mabli, and Cody 2008).

In projects conducted for the Robert Wood Johnson Foundation (as a subcontractor to the Urban Institute) and the Food and Nutrition Service (FNS), MPR applied the Census Bureau's algorithm to impute missing waves to the 1996 and 2001 SIPP panels, respectively. Because the FNS analysis did not focus on health insurance coverage, very few health insurance variables were included in the missing wave imputations for the 2001 panel. For this project, therefore, we imputed an additional 13 monthly and 24 wave-level variables (that is, variables repeating only once per interview wave). We also created a wave-level indicator of whether a sample member with private coverage in his or her own name had individual or family coverage.

For the 1996 panel, the missing wave imputations added 8,406 sample records to the number of observations with complete data for longitudinal analysis, an increase of 15.2 percent. For the shorter 2001 panel, the imputations added 6,214 records to the total, an increase of 12.5 percent. In both panels the impact was disproportionately greater among persons under 45, Hispanics, and especially blacks, with females from both these subpopulations showing greater increases than males. In the 2001 panel, the number of black females under 45 increased by 22 percent while the number of black children of either sex increased by nearly 20 percent (Table B.8).

To enable the records with imputed waves to be included in longitudinal analyses, we created a new full panel longitudinal weight by following the Census Bureau's own procedures to a large extent. Recently, Czajka, Mabli, and Cody (2008) showed that the Census Bureau's

TABLE B.8

IMPACT OF MISSING WAVE IMPUTATIONS ON FULL PANEL
SAMPLE COUNTS, 2001 PANEL

Description	Sample Counts for Longitudinal Weights: Census Bureau	MPR	Sample Increase	Percentage Increase
Sample persons, January 2001	**49,749**	**55,963**	**6,214**	**12.5**
Hispanic	5,810	6,714	904	15.6
Non-Hispanic				
Black	5,693	6,676	983	17.3
Non-black	38,246	42,573	4,327	11.3
Under 15	**11,364**	**13,020**	**1,656**	**14.6**
Hispanic	1,749	2,066	317	18.1
Non-Hispanic				
Black	1,620	1,939	319	19.7
Non-black	7,995	9,015	1,020	12.8
15 to 44	**19,013**	**21,698**	**2,685**	**14.1**
Hispanic				
Male	1,397	1,575	178	12.7
Female	1,357	1,603	246	18.1
Non-Hispanic				
Black				
Male	885	1,041	156	17.6
Female	1,158	1,417	259	22.4
Non-black				
Male	6,899	7,794	895	13.0
Female	7,317	8,268	951	13.0
45 and older	**19,372**	**21,245**	**1,873**	**9.7**
Hispanic				
Male	596	666	70	11.7
Female	711	804	93	13.1
Non-Hispanic				
Black				
Male	810	918	108	13.3
Female	1,220	1,361	141	11.6
Non-black				
Male	7,441	8,130	689	9.3
Female	8,594	9,366	772	9.0

Source: Mathematica Policy Research, from the 2001 SIPP panel.

full panel longitudinal weights do an excellent job of compensating for differential attrition—particularly with regard to earnings. Their analysis compared Social Security earnings records and other administrative data between the initial sample and those who did not attrit. Attrition bias in other characteristics is not completely lacking, however, and one respect in which the weighted longitudinal sample differs from the wave 1 sample is in the proportion of persons who lack health insurance coverage in that wave. The wave 1 sample has a higher uninsured rate than the longitudinal sample. In creating the full panel weight for the expanded samples in both panels, we added health insurance coverage to the set of wave 1 variables to which the distribution of full panel records was controlled.

The MPR full panel weights incorporate two additional enhancements. First, they include an adjustment to correct for disproportionately high attrition among young women becoming mothers for the first time. Second, unlike the Census Bureau's full panel weights, they are assigned not just to people present at the beginning of each panel but also to children born to panel members over the life of the panel. Indeed, it was in making this latter assignment that we discovered a growing shortage of infants over time, which we traced back to the loss of young mothers. These two enhancements were especially relevant to the Robert Wood Johnson Foundation analysis, which included both children and nonelderly adults, and to the FNS analysis, which was devoted in part to the WIC program. The improved weights for young mothers are likely to be relevant here as well, as their health insurance needs differ from those of other women of the same age.

All of the analyses reported in Chapters IV and V make use of the missing wave imputations and MPR longitudinal weights.

E. EMPLOYMENT STATUS

SIPP identifies up to two employers and two respondent-owned businesses per wave. Start and stop dates for each such job are reported in every wave. This information is repeated when jobs cross waves. Each employer and business over the length of a respondent's participation in a SIPP panel is assigned a unique employer number so that the continuity of employers over time can be determined reliably without having to compare start and stop dates. These index numbers are reported along with the other employer and business data each wave. Usual hours worked per week is reported for each job as well, but only once per wave, which means that a change in hours worked cannot be ascertained from this job-specific information. Monthly earnings is the only job-specific variable that could indicate a change in hours worked over the course of a wave, but because the hourly rate of pay is collected only once per wave, the source of a modest increase in earnings cannot be established definitively.

In addition to these job-specific variables, SIPP contains two monthly variables that summarize the work effort over all jobs. The employment status recode, RMESR, classifies each adult's employment during the month into one of eight categories, ranging from being with a job and working all weeks to having no job, no time on layoff, and no time spent looking for work. A second variable, RMHRSWK, captures a combination of usual number of hours worked per week and weeks worked during the month. Together, the two variables describe the level of employment during a month and, therefore, provide a way of assessing change in employment from month to month.

In the 2001 panel, both RMESR and RMHRSWK contain errors that the Census Bureau has traced back to an instrumentation problem affecting *some* rotation groups in *some* waves. Altogether, about one percent of the values of the two variables are in error. Other variables derived from the same source variables reflect the same errors, so it is not possible to correct the two variables using other variables on the file. Furthermore, because the problem originated at the data collection stage, the Census Bureau has not been able to correct the errors and issue revised data. Some of the errors are manifested in the form of inconsistencies between employment recorded in one or both of the monthly recodes and the start and stop dates listed for one or more jobs, but the start and stop dates are not free of errors themselves.

In an earlier ASPE-funded project to create a 2001 panel database that could be used to study transitions into and out of the working poor, MPR staff consulted with Census Bureau staff to better understand the nature and scope of the problem and develop a strategy for resolving inconsistencies among the various employment variables. Building on what was learned, MPR constructed a monthly binary variable, WORK, that indicated whether or not a person was working in each month. The variable was designed to reflect the best information available from the two monthly summary variables, combined with other information—primarily the job start and stop dates—that would be correct when the summary variables were incorrect. This variable and other indicators derived from it were included on the working poor database that MPR delivered to ASPE.

We added WORK to the enhanced 2001 panel file for this project and used the variable to construct indicators of employment gains or losses. We also used WORK in conjunction with other variables to construct indicators of job-to-job transitions, job gains and job losses, and change in hours worked.

F. NEW CHILDREN APPEARING MONTHS AFTER THEIR REPORTED BIRTHS

Another phenomenon that we have observed in SIPP panels over the years is that newborn children sometimes do not get reported as new family members until months after their births. Less often, newborn children are reported as new family members *prior* to their births. Misreporting of changes in family size has implications for the calculation of poverty thresholds.

Furthermore, since changes in family size and relative income are potential trigger events for transitions in health insurance coverage, it is important for the present analysis that the timing of these changes be measured as accurately as possible.

Discrepancies between the birth months of newborn children and their reported appearance as new family members showed a sharp increase between the 1996 and 2001 panels. In pointing this out to Census Bureau staff we learned that the Bureau had discontinued longitudinal editing of demographic information, which had delayed the release of data from the earlier panel. In the 1996 SIPP panel, 8.5 percent of the infants who were born to or adopted by families with full panel longitudinal weights were first listed as new household members two or more months after their reported births while 0.5 percent were listed as new household members one or more months before their reported births (Table B.9). The rest of the infants were evenly divided between those who were listed as new household members in their month of birth (45.7 percent) and those listed a month later (45.3 percent).[11] In the 2001 panel, 36.5 percent of the infants who were born to or adopted by families with full panel longitudinal weights were first listed as household members two or more months after their reported births. Only 24.7 percent were first listed as household members in their month of birth while 36.3 percent were listed a month later, and 2.4 percent were listed as household members one or more months before they were born.[12]

[11] A SIPP convention is that a person must be present in a sample household for at least half of a given month to be counted as a household member for that month. Infants born in the second half of a month are not recorded as new household members until the next month. The even split between infants appearing in their birth month and infants appearing one month later reflects this convention.

[12] This last group was almost evenly divided among those appearing one, two, or three months before their births. This pattern suggests that these children were reported as present for the entire four-month reference period in which they were born, even though they were born in the second, third, or fourth month of the period.

TABLE B.9

DISTRIBUTION OF INFANTS WHO JOINED ORIGINAL PANEL FAMILIES AFTER THE FIRST COMMON CALENDAR MONTH, BY FIRST 1996 AND 2001 SIPP PANELS

First Appearance In Relation to Month of Birth	Number of Infants 1996 Panel	Number of Infants 2001 Panel	Percent of Infants 1996 Panel	Percent of Infants 2001 Panel
Total Infants	2,600	1,645	100.0	100.0
> 2 months earlier	10	17	0.4	1.0
2 months earlier	2	9	0.1	0.5
1 month earlier	0	14	0.0	0.9
Birth month	1,187	407	45.7	24.7
1 month later	1,179	597	45.3	36.3
2 months later	56	286	2.2	17.4
3 months later	47	199	1.8	12.1
4 months later	35	71	1.3	4.3
> 4 months later	84	45	3.2	2.7
Subtotals:				
1+ months earlier	12	40	0.5	2.4
2+ months later	222	601	8.5	36.5

Source: Mathematica Policy Research, from the 1996 and 2001 SIPP panels.

Note: The universe for the 1996 tabulation is persons born March 1996 or later who were not in the sample in March 1996 but who joined families with full panel longitudinal weights before age 1. The universe for the 2001 tabulation is persons born January 2001 or later who were not in the sample in January 2001 but who joined families with full panel longitudinal weights before age 1.

In the earlier FNS project, we addressed these discrepancies in the 2001 panel by backfilling the missing months from the first month in sample to the birth month.[13] We also removed the excess months for infants who appeared in sample prior to their birth month. In addition, we adjusted family and household characteristics, as necessary, to incorporate (or remove) the additional members, and we recomputed poverty thresholds and income-to-poverty ratios.

Because changes in family size are potential trigger events for changes in health insurance coverage, we elected to carry over these edits to the health transitions database along with the edits to family size, poverty thresholds, and other variables affected by the number of family members and their ages and relationships. Trigger events created for the analyses reported in Chapters IV and V reflect the edited rather than reported family composition. This does not affect a large number of sample cases, but it does affect most of the sample families with children born after January 2001.

G. ENHANCEMENTS TO THE 1996 SIPP PANEL

We did not create any additional enhancements to the 1996 SIPP panel file beyond the imputation of missing waves and calculation of new panel weights that were completed under the aforementioned project for the Robert Wood Johnson Foundation and the Urban Institute. First of all, there is no need to apply corrections to the summary employment variables or edit the appearance of newborns, as the errors discussed above were unique to the 2001 panel. Second, the missing wave imputations to the 1996 panel were done in the same way as those to the 2001 panel except that they included a more complete set of health insurance variables. Consequently,

[13] Because the SIPP does not report actual dates of birth, we could not follow the aforementioned Census Bureau convention regarding children born in the second half of the month. This in fact helps us with another SIPP problem regarding infants—namely, that infants who are not reported as household residents until the month after their births are nevertheless assigned an age of one in the month in which their birthday occurs, which means that they appear as infants for only 11 months.

there was no need to create additional imputed variables. The adjustments to the panel weights to incorporate the records with missing wave imputations were done in very much the same way for the 1996 and 2001 panels except that the 2001 panel weights incorporated a more refined adjustment to the weights of young mothers. We saw no reason to revise the weights for the 1996 panel solely to add this refinement. We are confident that our enhanced data files for both panels are sufficiently comparable to support valid inferences from comparisons of transitions observed in the two surveys.

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