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SPELLS WITHOUT HEALTH INSURANCE: DISTRIBUTIONS OF DURATIONS AND THEIR LINK TO POINT-IN-TIME ESTIMATES OF THE UNINSURED

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Introduction

Previous studies of the characteristics of the population without health insurance have relied almost exclusively on data from a point in time (e.g.,Swartz; Wilensky; Chollet; Moyers; Congressional Research Service). Missing from these analyses is information on the distribution of the lengths of time people are without health insurance. To devise policies related to the uninsured, policy makers need to know both who is without health insurance and how long they are without health insurance. If the vast majority of people with long uninsured spells do not have strong attachments to the labor force, then mandating employer provided health insurance is not likely to provide health insurance to great numbers of the uninsured. Similarly, if most of the people with long uninsured spells are poor or near-poor, then an expansion of Medicaid might be a more effective policy for providing financial access to medical care to the uninsured. And, if many people with short uninsured spells have the spells because they are changing jobs, then a policy that provides for continuation of coverage for at least three months past the termination of employment might be effective.

A point-in-time estimate of the number of uninsured, say 33 million people, is consistent with several different scenarios. For example, 33 million could reflect a constantly changing group of people, all of whom lose insurance for a month, or it could reflect a fixed group of people who are constantly without insurance. The recent finding by Nelson and Short (1990) that 63 million Americans experienced at least one month without health insurance during a 28 month period in 1985-87 is further evidence that, in reality, some people are uninsured for short periods while

others are uninsured for long periods of time.[1] But data collected at a point in time from a population with dynamic movements are more likely to contain people who are (in this case) in long spells without health insurance.[2] That is, many more people may have short spells without health insurance but they are not "captured" at the point in time when the data is collected. Consequently, when we use point-in-time data to estimate the characteristics of the uninsured, the estimates provide a better description of individuals experiencing long spells than of all individuals who lose health insurance at some time.

To be able to design effective policies that will provide health insurance to the uninsured, we would like to know how many people experience long versus short spells without health insurance. Further, we would like to understand how characteristics of the uninsured population at a point in time correspond to expected spell lengths of people with such characteristics. This paper provides a link between the distributions of four characteristics of the uninsured at a point in time and the expected uninsured spell lengths of people in specific subgroups of each characteristic (age, income, employment status, and previous health insurance type). Our findings indicate that:

- Half of all uninsured spells end within four months while only 15 percent last longer than 24 months.

- If only uninsured spells in progress are observed, almost 60 percent last longer than 24 months and only 13 percent end within four months. Observing

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1 The mix of people with short spells and long spells without health insurance was first noted in research by Walden, Wilensky, and Kasper (1985, mimeo 1983) using the National Medical Care Expenditure Survey (NMCES), by Swartz (1984) using the Panel Study of Income Dynamics (PSID) and the NMCES, and by Farley-Short, Cantor, and Monheit (1988) and by Monheit and Schur (1988) using the SIPP.

2 Analyses of people in poverty, people receiving welfare (Aid to Families with Dependent Children), and people experiencing unemployment have been consistent in finding that most people who experience any of these situations, do so for short periods of time. (See Bane and Ellwood, 1986; O'Neill, Bassi, and Wolf, 1987; Akerlof and Main, 1980)

uninsured spells in progress is equivalent to observing the uninsured at a point in time.

- Although children are not considered in the analyses reported here, people in the age cohorts between 18 and 24 years of age and 55 years of age and older account for more of the people who experience spells without health insurance than is indicated by the age distributions of the uninsured at a point in time.

- People with higher incomes in the first month of an uninsured spell are more likely to have shorter uninsured spells than are people with lower incomes.

- People who are unemployed or are out of the labor force in the first month of an uninsured spell are more likely to have long uninsured spells; people who are employed (either full-time or part-time) are more likely to have short uninsured spells.

This paper is part of a larger analysis we are currently conducting of the characteristics of people with long versus short spells without health insurance.[3] Our study is based on data from the 1984 Panel of the Survey of Income and Program Participation (SIPP).

Several caveats about the information in this note need to be mentioned. First, the data presented here are restricted to the SIPP respondents who were at least 18 years of age at the beginning of the survey. Thus, strict comparisons of this data with earlier point-in-time analyses of the uninsured population's characteristics are not quite appropriate because almost all of the earlier analyses include children.

Second, the data presented here are from a person's first spell without health insurance for which we are able to observe the beginning. If a person were already in a spell without health insurance in the first month for which SIPP gathered

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3 In our analyses of short versus long uninsured spells we are estimating multivariate models of spell durations so that we will be able to understand the relative impacts of personal characteristics on the duration of a spell without health insurance.

information, we do not consider that spell.[4] The absence of people in such spells is a limitation to our analyses because some of these people would be disproportionately included in point-in-time analyses of the uninsured. We are, however, including spells for which we are unable to observe an end -- right censored spells. We estimate the length of time right censored spells will last by making assumptions about the exit probabilities from a spell that we have observed from the beginning and that has lasted at least a certain length of time.[5]

The methodology used to estimate the durations of uninsured spells follows that of Bane and Ellwood (1986). The spell lengths are derived from hazard rates, which were estimated using life table techniques. Three assumptions are needed to derive the distribution of spell lengths: 1) there is a no-growth, steady state in the number of spells starting in each month; 2) the maximum length of spells is thirty years (360 months); and 3) the hazard rate for spells lasting more than 24 months is equal to the hazard rate in the 24th month -- this assumption is needed because of the restricted time frame of the SIPP, making it difficult to draw significant conclusions about hazard rate after the 24th month.

How Different Are Duration Estimates for All Spells and Spells in Progress at a Point in Time?

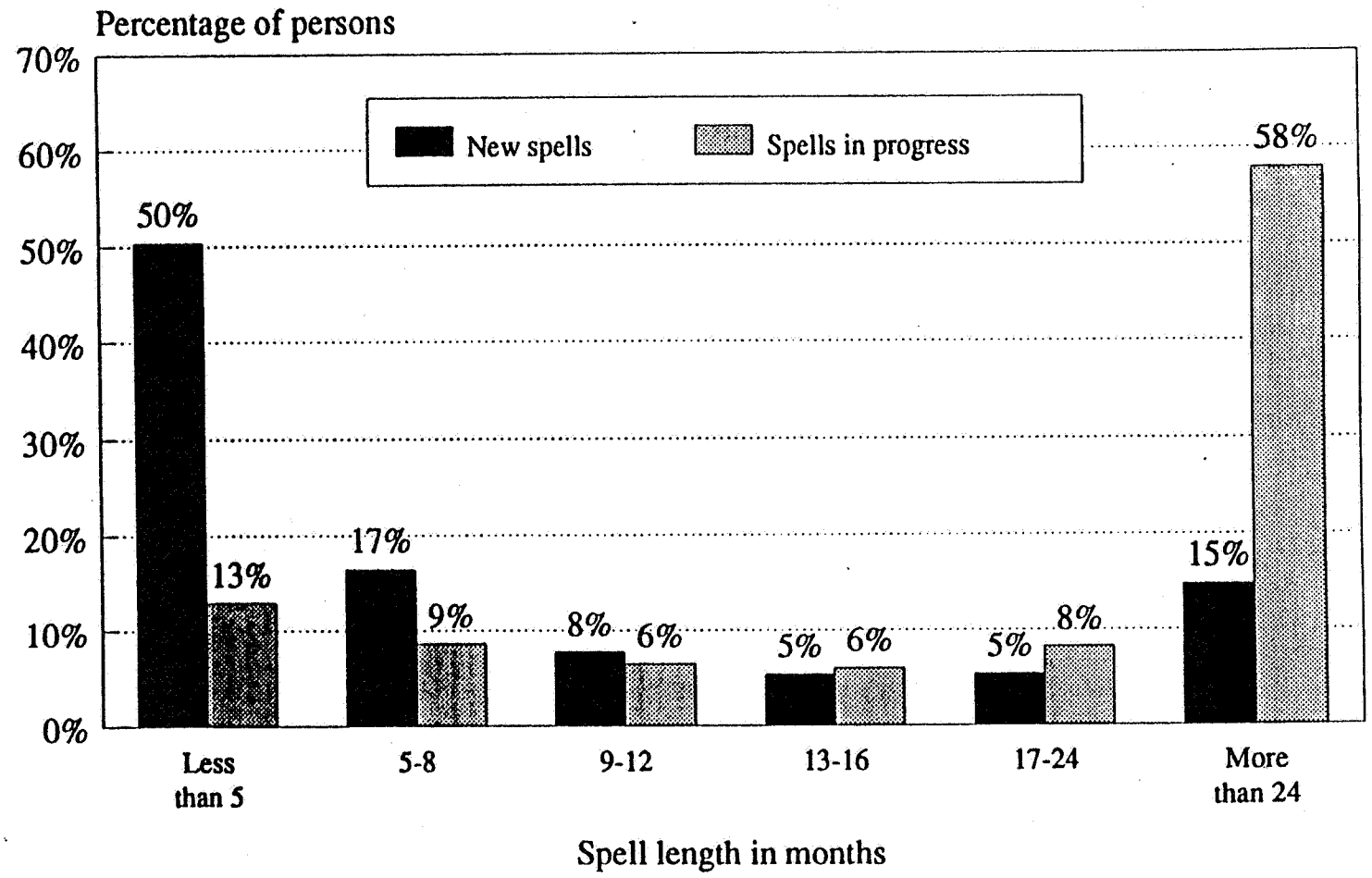
The distributions in Figure 1 present data on the frequencies of expected durations of spells without health insurance. The darker bars indicate the distribution of spell lengths when the analyses are conducted on spells from their

4 Thus, we are omitting left censored spells without health insurance and we are not including some people with long spells without health insurance. We are planning to correct this limitation in future analyses.

5 This is a well-established procedure and was used by Bane and Ellwood (1986) in their estimates of durations of poverty spells. Also, see Kiefer (1988).

Figure 1.

Distribution of Uninsured Spell Lengths: New Spells and Spells in Progress



insurance coverage that concentrate on uninsured spells already in progress are misleading. We discuss the two distributions in turn.

The darker bar graph in Figure 1 shows that if we were to look at all spells without health insurance from their beginning, we would observe that half of all spells are of less than five months' duration. Another 16.5 percent of all spells end within 5 to 8 months -- so that two-thirds of all spells end within 8 months. At the other end of the time spectrum, only 15 percent of all spells last more than two years. Thus, when we consider all uninsured spells, we find that the vast majority (70 percent) of spells last a year or less. This indicates that for most people, a spell without health insurance will not be a chronic experience.[6]

The lighter bar graph in Figure 1 provides the distribution of spell lengths of spells that are currently in progress. The data in the lighter bar graph are analagous to what we find when examining the uninsured population at a point in time. Thus, spells in progress are disproportionately long spells and we expect to find the smallest proportion of people with short spells in this panel. This is clearly evident: only 13 percent of the spells in progress will last less than 5 months. Moreover, 58 percent of the spells that are currently in progress will last more than 24 months. This is in direct contrast to the durations of spells that we can observe from the beginning. Thus, if we were to look only at spells that are in progress, rather than spells from their beginnings, we would grossly over-estimate the proportion of people with spells in excess of 24 months. This comparison also provides a rough measure of how weighted the point-in-time uninsured population is with people with

6 Note, however, that this analysis is of uninsured spells and not people with multiple spells. That is, while 70 percent of all spells last less than a year, it is possible for an individual to have multiple short uninsured spells broken by equally short insured spells. Our analysis here does not consider people with multiple spells (we will do that in the future) although we recognize that some people with multiple uninsured spells might be considered chronically uninsured.

long spells. The spells in progress have four times the proportion of people with spells greater than 24 months as the spells that can be observed from the beginning.

Which characteristics describe the people who have long spells and are more likely to be over-represented in point-in-time estimates of the uninsured? We provide a preliminary and partial answer to this question in the remainder of this paper; the question cannot be fully answered without multivariate models of durations of uninsured spells, such as those we are currently estimating.

The Distribution of Spell Durations by Age: Who Is Most Likely to Have Short Spells?

Table 1 presents data on the distribution of uninsured spell lengths by the age of individuals in the first month of their spell without health insurance. Among young adults 18 to 24 years of age (who account for between 20 and 25 percent of the uninsured at a point in time), only 11.5 percent have spells that last longer than 24 months. Similarly, only 10.5 percent of the people 55 years of age and older have spells that last more than 24 months. The middle age cohorts of 25 to 34, 35 to 44, and 45 to 54 years of age have higher proportions of people with spell durations of more than 24 months (between 16.9 and 18.0 percent). However, all of the age cohorts are consistent in terms of showing that two-thirds of all spells end within 8 months. People in the oldest age cohort of 55 years of age and more have the highest proportion of people with spells lasting less than five months. It is not clear why the oldest age cohort has such a distribution of spell lengths but it may be that

Table 1.
Distribution of the duration of spells without health insurance from the beginning of the spell: by age in first month of spell

	Age in first month of spell:					
Spell length	Age 18-24	Age 25-34	Age 35-44	Age 45-54	Age 55+	TOTAL
Less than 5 months	49.9%	48.9%	52.5%	45.9%	60.3%	50.4%
5-8 months	17.9%	17.6%	13.4%	19.7%	9.3%	16.5%
9-12 months	8.6%	7.2%	7.0%	7.2%	7.3%	7.7%
13-16 months	6.3%	3.9%	7.0%	5.0%	3.4%	5.3%
17-24 months	5.7%	4.9%	3.1%	4.1%	9.2%	5.3%
More than 24 months	11.5%	17.5%	16.9%	18.0%	10.5%	14.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Sample size	1,834	1,675	768	478	478	5,233

SOURCE: Calculated from life table estimates calculated using a sample from the 1984 Survey of Income and Program Participation (SIPP).

many people 55 years of age and older who lose health insurance gain Medicare and/or Medicaid within a short time.[7]

The Distribution of Spell Durations by Family Income: How Much of a Difference Does Income Make?

Although we examine family income in dollar groupings rather than relative to the poverty level, a rough rule of thumb is that a monthly income of $400 for a family of four in 1983-84 would be at 50 percent of the poverty level. (The poverty level of income on an annual basis was about $9,600 for a family of four in 1983-84). Similarly, a person in a family of four with a monthly family income between $400 and $599 would be between 50 and 75 percent of the poverty level; and anyone in a family of four with a monthly family income greater than $2,400 would be above three times the poverty level.[8]

Table 2 contains the distributions of spell lengths by people's family income in the first month of the uninsured spell. Of course, a person's income may fluctuate over the course of an uninsured spell, and estimating the distribution of spell lengths by family income in the first month of an uninsured spell may not provide an accurate link between an uninsured spell's duration and monthly income. However, a person's income in the first month of an uninsured spell is indicative of the resources a person has at the beginning of a spell and it is certainly one component of the link between spell length and income.

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7 Our crosstabs of the type of insurance obtained at the end of an uninsured spell indicate that people in this age cohort are more likely to gain Medicare and/or Medicaid coverage than people in other age cohorts.

8 $400 in 1983 is equivalent to $498 in 1989 dollars. Similarly, $599 in 1983 is equal to $746 in 1989 dollars, and $2,400 in 1983 is equal to $2,986 in 1989 dollars. Table 2 indicates the 1989 dollar equivalents of each of the 1983 dollar amounts used to group people by monthly income.

Table 2.
Distribution of the duration of spells without health insurance from the beginning of the spell: by income in first month of spell

	Monthly family income in first month of spell: (1983 dollars; 1989 dollars in parentheses)						
Spell length	Less than $400 (<$498)	$400-$599 ($498-$746)	$600-$799 ($746-$995)	$800-$1,199 ($995-$1492)	$1,200-$2,399 ($1492-$2986)	$2,400 or more ($2986-up)	TOTAL
Less than 5 months	46.4%	41.4%	40.5%	47.0%	53.9%	58.5%	50.4%
5-8 months	14.7%	18.2%	19.2%	17.3%	15.3%	22.3%	16.5%
9-12 months	8.1%	11.8%	8.1%	5.7%	8.6%	4.6%	7.7%
13-16 months	5.3%	9.9%	9.4%	5.3%	4.9%	2.2%	5.3%
17-24 months	2.8%	6.2%	8.8%	6.1%	4.2%	4.8%	5.3%
More than 24 months	22.8%	12.5%	13.9%	18.6%	13.1%	7.7%	14.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Sample size	869	408	436	811	1,537	1,172	5,233

SOURCE: Calculated from life table estimates of hazard rates calculated using a sample from the 1984 Panel of the Survey of Income and Program Participation (SIPP). Income adjusted to 1989 dollars using the Consumer Price Indices (CPI) for 1983 (99.6) and 1989 (124.0).

As we observed with the different age cohorts, a majority of spells for each income group will last less than five months. There is a U-shaped pattern to the proportion of people in each income group with spells that last less than five months: it starts at 46 percent for monthly incomes below $400, falls to a low of 40.5 percent for people with incomes between $600 and $799 per month, and then rises steadily to a high of 58.5 percent for people with monthly incomes above $2,400. At the other end of the time duration spectrum, 23 percent of the people with monthly incomes below $400 in the first month of an uninsured spell have spells in excess of 24 months. The proportion of people with uninsured spells that are just beginning and that are expected to last more than 24 months is between 12.5 and 13.9 percent for all the other income groups except two: almost 19 percent of people with incomes between $800 and $1,199 in the first month of their spells have spells that will last more than 24 months, while only 8 percent of people with monthly incomes at or above $2,400 have spells that are longer than 24 months.

The Distribution of Spell Durations by Employment Status at the Beginning of the Spell: What Difference Does Employment Make?

Table 3 provides data on the employment status in the first month of a person's spell without health insurance. An individual's employment status is determined by whether his or her major activity during the month involves working full-time, working part-time (less than 35 hours per week), actively looking for work and therefore being classified as unemployed, or is an activity that is out of the labor force altogether, such as keeping house. A person's employment status in the first month of an uninsured spell may not, of course, be the person's employment status when the spell ends. Nonetheless, the employment status at the beginning of an uninsured spell is certainly one of the employment factors affecting the duration of

Table 3.
Distribution of the duration of spells without health insurance
from the beginning of the spell: by employment status in first month of spell

	Employment status in first month of spell:				
Spell length	Employed full-time	Employed part-time	Unemployed	Out of labor force	TOTAL
Less than 5 months	53.8%	56.8%	36.1%	48.7%	50.4%
5-8 months	14.4%	16.5%	21.9%	15.0%	16.5%
9-12 months	7.5%	7.2%	9.9%	7.2%	7.7%
13-16 months	6.1%	3.9%	7.8%	4.8%	5.3%
17-24 months	5.2%	3.6%	8.8%	5.1%	5.3%
More than 24 months	13.2%	12.0%	15.5%	19.3%	14.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%
Sample size	1,448	1,368	1,003	1,345	5,233

SOURCE: Calculated from life table estimates calculated using a sample from the 1984 Panel of the Survey of Income and Program Participation (SIPP).

an uninsured spell and it is indicative of the strength of a person's attachment to the labor force.

More than half of the people who are employed in the first month of an uninsured spell have spells that last less than five months. Three-quarters of the people who are employed have spells that last less than a year, while only 12-13 percent of them have spells that last more than 24 months. It is striking that people who are employed part-time are not very different from people employed full-time in terms of the distribution of spell lengths. People employed part-time in the first month of an uninsured spell are only a little more likely than people employed full-time to have a spell that lasts less than five months. Both groups have almost identical proportions of people with spells that last more than 24 months.

In contrast, only a little more than one-third of the people who are unemployed in the first month of an uninsured spell have spells that last less than five months. However, two-thirds of the unemployed have uninsured spells that end within 12 months, and only 15.5 percent of them have spells that last more than 24 months.

Perhaps not surprisingly, people who are out of the labor force at the beginning of an uninsured spell have an almost bimodal distribution of spell lengths. While almost half of the people out of the labor force have uninsured spells that end within five months, almost 20 percent have spells that last more than 24 months. Since the people who are out of the labor force are as diverse as women keeping house, early retirees who are unable to work, and students, it is not surprising that this group has the distribution of spell lengths that it does.

The data in Table 3 imply that people who are employed in the first month of an uninsured spell are very likely to have short spells. Most people who are unemployed in the first month of an uninsured spell are also likely to have short

spells but more of the unemployed have spells that last between 5 and 12 months compared with the employed. Further, more of the unemployed experience longer spells than do the employed. People who are out of the labor force are most likely to have uninsured spells that last more than 24 months.

The Distribution of Durations of Uninsured Spells by Health Insurance Coverage Lost: What Do People Lose and How Does It Affect Spell Lengths?

When we look at distributions of uninsured spell lengths by type of health insurance coverage lost (Table 4), we find differences between people who lose private versus public coverage, and between people who lose employer coverage when they become unemployed versus those who lose employer coverage but do not become unemployed. Among people who lose employer coverage and are recently unemployed, 40 percent have spells that last less than five months and another 20 percent have spells that last between five and eight months. By comparison, people who lose employer coverage but have not recently lost employment are more likely to have short uninsured spells: 60 percent have spells that last less than five months and another 15 percent have spells that last between five and eight months. People who lose employer coverage but do not suffer unemployment may be people who are changing jobs and are uninsured for a short period while they are probationary employees. This would explain why three-quarters of them have uninsured spells that end within eight months.

Three-quarters of the people who lose private coverage or lose coverage from other family members (such as grown children or widows) have uninsured spells that end within eight months. By comparison, only just over half of the people who lose Medicaid coverage have uninsured spells that end within eight months. The distribution of spell lengths for the people who lose employer coverage and are

Table 4.
Distribution of the duration of spells without health insurance from the beginning of the spell: by reason for spell beginning

	Reason for spell beginning:					
	Lost employer coverage:		Lost	Lost	Lost	
Spell length	Recently unemployed	Not recent unemployed	private coverage	coverage from others	Medicaid coverage	TOTAL
Less than 5 months	40.1%	60.0%	52.8%	50.7%	37.9%	50.4%
5-8 months	20.3%	14.8%	15.5%	16.0%	15.3%	16.5%
9-12 months	9.2%	6.7%	6.8%	7.3%	12.5%	7.7%
13-16 months	7.5%	3.7%	6.6%	5.1%	7.5%	5.3%
17-24 months	7.3%	4.0%	5.5%	4.3%	9.7%	5.3%
More than 24 months	15.5%	10.7%	12.8%	16.6%	17.2%	14.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Sample size	659	1,291	574	2,112	465	5,233

SOURCE: Calculated from life table estimates calculated using a sample from the 1984 Panel of the Survey of Income and Program Participation (SIPP).

recently unemployed is very similar to the distribution of spell lengths for the people who lose Medicaid coverage. Further analyses will have to be done to explain these similarities.

Conclusions:

Analyzing individual characteristics of the uninsured population at a point in time is not providing us with a full picture of the uninsured. Point-in-time data are not representative of all the people who experience spells without health insurance because people who are in the midst of long uninsured spells are over-represented in a point in time sample. This means that point-in-time data are skewed towards the characteristics of people who have longer spells even though half of all uninsured spells last less than five months.

People in the age cohorts of 18 to 24 years of age and 55 years of age and older account for more of the people who experience spells without health insurance than is indicated by the age distribution of the uninsured at a point in time. Similarly, people with higher incomes and people who are employed are more likely to experience uninsured spells than point-in-time data on the uninsured indicate. However, when we look at uninsured spells from their beginning, people who are employed in the first month of the spell are highly likely to have short uninsured spells. In particular, 60 percent of the people who lose employer coverage but do not also lose employment have uninsured spells that end within four months, which may indicate that they are uninsured while they are probationary employees on new jobs.

Point-in-time data on the uninsured do not provide information about the distributions of durations of spells without health insurance and the people with long uninsured spells. In order to design effective policies to provide insurance

coverage to the uninsured, policy makers need to distinguish between people who have short uninsured spells and people who have long uninsured spells. Of particular note is the fact presented here that people who are employed are highly likely to have short uninsured spells. This implies that efforts to increase health insurance coverage via employer mandates should proceed cautiously until we know how many people with long uninsured spells are employed.

References

Akerlof, G. and B. Main. "Unemployment Spells and Unemployment Experience," American Economic Review, December 1980, pp. 885-893.

Bane, M. and D. Elwood. "Slipping Into and Out of Poverty: The Dynamics of Spells," Journal of Human Resources, Winter 1986 (Vol. 21), pp. 1-23.

Chollet, D. "A Profile of the Nonelderly Population Without Health Insurance," Employee Benefit Research Institute Issue Brief No. 66, May 1987.

Congressional Research Service, Library of Congress. "Health Insurance and the Uninsured: Background Data and Analysis," May 1988.

Farley-Short, P., J. Cantor, and A. Monheit. "The Dynamics of Medicaid Enrollment," Inquiry, Winter 1988 (Vol. 25), pp. 504-516.

Kiefer, N. "Economic Duration Data and Hazard Functions," Journal of Economic Literature, June 1988 (Vol. 26), pp. 646-679.

Monheit, A. and C. Schur. "The Dynamics of Health Insurance Loss: A Tale of Two Cohorts," Inquiry, Fall 1988 (Vol. 25), pp. 315-327.

Moyers, E. "A Revised Look at the Number of Uninsured Americans," Health Affairs, Summer 1989, pp. 102-110.

Nelson, C. and K. Short. "Health Insurance Coverage 1986-88," Bureau of the Census, U.S. Department of Commerce, Current Population Reports, Household Economic Studies, Series P-70, No. 17, March 1990.

O'Neill, J., L. Bassi, and D. Wolf. "The Duration of Welfare Spells," Review of Economics and Statistics, May 1987 (Vol. 69), pp. 241-248.

Sulvetta, M. and K. Swartz. The Uninsured and Uncompensated Care: A Chartbook, National Health Policy Forum, 1986.

Swartz, K. Chartbook on the Uninsured: Special Focus on Workers, The Urban Institute Press, 1989.

Swartz, K. "Who Has Been Without Health Insurance? Changes Between 1963 and 1979," Urban Institute Working Paper 3308-01, 1984.

Walden, D., G. Wilensky and J. Kasper. "Changes in Health Insurance Status: Full-Year and Part-Year Coverage," NHCES Data Preview 21, DHHS Publication (PHS) 85-3377, 1985.

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