THE IMPACT OF MACROECONOMIC CONDITIONS ON THE HEALTH INSURANCE COVERAGE OF AMERICANS*

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1. Introduction

In March 2001, the longest economic expansion in U.S. history ended, and an economic recession began.[1] It is not yet known how the current recession will affect the number of Americans lacking health insurance. The primary objective of this paper is to improve our understanding of the historical relationship between state and national macroeconomic climate and the health insurance coverage of Americans. The secondary objective of this paper is to use the historical findings to predict how rates of uninsurance may change during the current U.S. recession.

Economic recession may increase the numbers of Americans lacking health insurance through several pathways. The first two involve reduced numbers of people with employer-provided health insurance. Table 1 lists the sources of insurance coverage for U.S. adults in 2000. 83.4 million (50 percent of all) adult Americans receive health insurance through their employer, and an additional 31.1 million (19 percent) receive it through the employer of a parent or spouse.

The first causal mechanism by which recession may increase rates of uninsurance is by the newly unemployed losing any health insurance provided by their previous employers. Although the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) allows eligible unemployed workers to temporarily purchase health insurance through their former employers,[2] take-up rates under COBRA are low.[3] In the majority of cases, the loss of employment involves the loss of any health insurance the worker received from the former employer. However, some who lose their jobs remain covered by insurance provided by a spouse's employer. Overall, 44 percent of those who lose

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[1] Business Cycle Dating Committee, National Bureau of Economic Research (2002). . There are mixed signals of whether the U.S. economy has pulled out of recession. Real Gross Domestic Product grew 5.8% during the first quarter of 2002, but in April 2002 the U. S. unemployment rate rose to 6%, its highest point since August 1994: see Economics and Statistics Administration (2002) and Bureau of Labor Statistics (2002).

[2] COBRA stipulates that those who recently worked at firms with more than 20 employees have the option of continuing in their employer's health insurance plan for up to 18 months by paying (at most) 102% of the full premium for active employees. The Commonwealth Fund 2001 Health Insurance Survey found that 65% of current workers would be eligible for COBRA if they became unemployed: see Doty and Schoen (2001).

[3] Only 20 to 25 percent of those eligible for COBRA exercise the option to extend their health insurance coverage: see Rice (1999) and Rowland (2002). The most common explanation for the low take-up rate is cost: on average families pay annual premiums of $7,200 for coverage through COBRA, which represents up to two-thirds of the average worker's unemployment check: see Lambrew (2001).

their job become uninsured as a result.[4] Families USA estimates that between the time the current recession began in March 2001 and December 2001, 1.04 million newly unemployed workers lost health insurance coverage. When one adds the spouses and children of workers who lost their jobs, they estimate that 2.02 million total persons lost health insurance coverage due to unemployment.[5]

Second, recession may be accompanied by reduced health insurance coverage of those who remain employed. Employers may cease offering health insurance in order to cut costs in the face of falling profits. Alternatively, employers may reduce their contributions and shift health insurance costs to employees, causing additional employees to decline coverage. In addition, previously full-time workers may be shifted to part-time jobs that no longer qualify for health insurance benefits.

The third pathway through which recession may affect the number of uninsured is by putting pressure on state governments to cut funding for publicly-provided health insurance. Table 1 indicates that 7 million (4 percent of all) U.S. adults receive health insurance coverage through Medicaid. The state portion of Medicaid spending is a large share of state budgets (on average, 15 percent)[6] so when state tax revenues fall due to recession there is increased pressure to cut Medicaid budgets, potentially increasing the number of Medicaid-eligibles left without coverage. State governors have recently proposed numerous cuts in response to the current recession, including cuts in payments to providers.[7] Those covered by the State Children's Health Insurance Plan (SCHIP) may also be vulnerable to state budget cuts. Medicaid and SCHIP cover 15% of unemployed women and 53% of children with unemployed parents.[8] Two factors add to the current pressure on state governments to cut public health insurance programs: first, many states increased eligibility for public health insurance during the 1990s when state budget prospects were brighter, and second, health care costs appear to be increasing as a fraction of GDP after nearly nine years of stability.[9]

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[4] U. S. Bureau of Census (1998).
[5] Families USA (2002) calculations based on BLS unemployment data and using Census Bureau methodology.
[6] Rowland (2002).
[7] Pear and Toner (2002).
[8] Lambrew (2001).
[9] Levitt et al. (2002).

On the other hand, some people might *gain* health insurance coverage during recession, if their incomes fall to a level that qualifies for Medicaid. This is more likely to happen in the current recession given that eligibility levels are at an all-time high after the most recent round of SCHIP and Medicaid increases in generosity. Finally, recession may affect the number of uninsured if those who previously purchased private health insurance become unable to afford it. Overall, only a small fraction of Americans purchase individual health insurance, but for these individuals other sources of health insurance are generally not available and the premiums tend to be much higher than those available on the employer-based health insurance market.

Policymakers should be concerned about the loss of health insurance coverage during recession for several reasons. First, some of those who lose employer provided health insurance will join the rolls of publicly provided health insurance such as Medicaid and SCHIP, increasing the strain on the budgets of those programs. Second, uninsured persons may receive less medical treatment than the insured.[10] Third, uninsured persons may impose costs on the health care system by receiving what care they do receive in relatively inefficient ways, such as using the emergency room for conditions that could have been treated with an office visit, or being hospitalized for conditions that could have been treated on an outpatient basis.[11] Fourth, uninsured individuals are at risk of severe financial loss in the event of illness.[12]

The current U.S. recession creates an urgent need to better understand the relationship between macroeconomic climate and the health insurance coverage of the U.S. population. Our research will also provide answers to the following questions: How does the effect of local economic climate on insurance coverage differ for men and women and children? What aspects of the macroeconomy have the greatest impact on rates of uninsurance: changes in Gross State Product or unemployment rates?

2. Related Literature

[10] Doyle (2001) exploits auto accidents as natural experiments and finds that auto accident victims who were uninsured received 20% less treatment and had 37% higher mortality than those who were insured.
[11] Weissman, Gastonis, and Epstein (1992).
[12] Jacoby, Sullivan, and Warren (2000) find that 45.6% of persons filing for bankruptcy either incurred at least $1,000 in medical bills not covered by insurance or listed illness or injury as the reason for filing for bankruptcy.

Most studies investigating determinants of insurance status include macroeconomic variables such as state unemployment rate as control variables, but the coefficients on these variables are not the focus of the study and are rarely discussed at any length in the text. Only a few studies focus on the link between macroeconomic conditions and health insurance coverage. Gruber and Levitt (2002) find in aggregate March CPS data for 1980-2000 that every 1 percent rise in unemployment is associated with an increase of 1.2 million uninsured persons. A study by Holahan and Garrett (2001) that is based on Ku and Garrett (2000) estimates that a 1 percent increase in unemployment increases Medicaid enrollment by 1.5 million. Marquis and Long (2001) find mixed evidence that county unemployment rates are correlated with employer offers of health insurance and employer contributions to health insurance. They find that employers are more likely to offer health insurance in tight labor markets in 1993 but cannot reject the hypothesis of a zero correlation in 1997. They also find, contrary to their prediction, that the employer's contribution to employee health insurance is positively correlated with county unemployment rate.

While few papers have focused on the relationship between local unemployment rates and individual health insurance status, there has been considerable research on the relationship between individual health insurance status and labor force participation. In particular, a large literature has examined the effect of health insurance coverage on hours worked, retirement, or the labor force participation of married or low-income women.[13] Other recent research has assessed the impact of COBRA and the Health Insurance Portability and Accountability Act of 1996 (HIPAA) on the probability that unemployed individuals have health insurance.[14]

This paper, in its focus on macroeconomic conditions as the key independent variables, also relates to a recent literature that examines the impact of macroeconomic conditions on health status or health behaviors. Ruhm (2000) documents an inverse relationship between state unemployment rate and mortality and finds evidence that this relationship is due to changes in smoking, diet, and exercise. Dee (2001) finds that binge drinking increases during economic downturns, even among those who remain employed.

[13] Currie and Madrian (1999) and Gruber (2000) provide comprehensive reviews of this literature.
[14] See, e.g. Gruber and Madrian (1997), Berger et al. (2000), and Baumgardner (1998).

In contrast, Ruhm and Black (2001) find procyclical variation in the consumption of alcohol. Joyce (1990) finds no correlation between unemployment rates and infant health.

3. Methods

We estimate a model in which the dependent variable indicates whether an individual has health insurance coverage at a particular point in time. The empirical analysis is based on a random utility model. Suppose that each person derives utility based on insurance status; people enjoy utility U_{INS} if they are insured, and utility U_{UNINS} if they are uninsured. The utility derived from being insured or uninsured depends upon individual characteristics X and macroeconomic conditions M :

$$U_{INS} = \alpha_{INS} + X\beta_{INS} + M\gamma_{INS} + \varepsilon_{INS}$$
$$U_{UNINS} = \alpha_{UNINS} + X\beta_{UNINS} + M\gamma_{UNINS} + \varepsilon_{UNINS}$$

Macroeconomic conditions may affect the utility of being insured if, for example, recession raises the cost of achieving health insurance coverage.

Let $y = 1$ if the individual is insured and $y = 0$ if the individual is uninsured. The probability that a person is insured is equal to the probability that utility in the insured state exceeds utility in the uninsured state.

$$\Pr[y = 1] = \Pr[U_{INS} > U_{UNINS}]$$
$$\Pr[y = 1] = \Pr[(\varepsilon_{INS} - \varepsilon_{UNINS}) > -(\alpha_{INS} - \alpha_{UNINS}) - X(\beta_{INS} - \beta_{UNINS}) - M(\gamma_{INS} - \gamma_{UNINS})]$$
$$\Pr[y = 1] = \Pr[\varepsilon > -\alpha - X\beta - M\gamma]$$

The distribution of the differenced error term determines the proper regression model to use to estimate the probability of health insurance coverage of individual i living in state s at time t as a function of macroeconomic conditions M and individual characteristics X. This paper assumes that the differenced error term follows a binomial distribution; as a result, linear probability models will be estimated.

(1) $$y_{ist} = \alpha + X_{it}\beta + M_{st}\gamma + \varepsilon_{ist}$$

Macroeconomic conditions M include unemployment rates at the state or local level, per capita Gross State Product, and an indicator variable that equals one if time t is

during an economic recession; a set of indicator variables for year are also included. Individual characteristics X include time-varying factors that may affect the person's probability of being uninsured, including age, marital status, education, presence of children in the family, and labor force participation details (such as hours worked, industry, occupation). Individual-specific fixed effects are also removed.

The parameters of interest are the γ coefficients, which will be used to measure the change in the probability that employed and unemployed individuals lack health insurance coverage associated with the change in macroeconomic variables. The hypothesis of this paper is that national recession, higher unemployment, and lower gross state product per capita are associated with lower probabilities of overall health insurance coverage.

A model similar to equation (1) will also be estimated for the following dependent variables: an indicator for whether one's current employer provides health insurance coverage, an indicator for whether one's current employer *offers* health insurance, an indicator for whether the employer of one's spouse provides health insurance coverage, and indicators for whether one's child is covered, and whether that coverage comes through Medicaid. These regressions are generally estimated separately for men, women and children.

4. Data

The relationship between state and national economic climate and individuals' health insurance status is measured using data from two nationally representative samples: The Survey of Income and Program Participation and the National Longitudinal Survey of Youth.[15] Each of the data sets is well-suited for a study of health insurance and the macroeconomy in that they both follow the same individuals over a considerable period of time, enabling us to remove individual fixed effects. An advantage of the SIPP is its

[15] The Current Population Survey (CPS) is another data set commonly used to assess the health insurance coverage of Americans. The advantages of the NLSY and SIPP over the CPS are that they track individuals for long periods of time and they record health insurance coverage at a particular point in time whereas the CPS records whether the individual had health insurance coverage at any time in the past year. Bennefield (1996) finds that CPS respondents tend to underreport health insurance coverage relative to SIPP respondents.

large sample size, and advantages of the NLSY are its rich information about labor market experience and a larger set of questions about health insurance.

4a. The Survey of Income and Program Participation

The Survey of Income and Program Participation (SIPP) is a nationally representative sample of Americans over the age of 15[16] and consists of a series of four-year panels starting in 1984 with sample sizes ranging from approximately 14,000 to 36,700 households. The SIPP interviews households at 4-month intervals for up to 4 years. Each wave contains information on the source of health insurance coverage during each month as well as periods of uninsurance over the last 12 months. The SIPP also contains information on job status and demographic characteristics that influence the choice of insurance status (e.g. age, race, sex, education, marital status, income, earnings, hours worked, and family size). Publicly available state identifiers permit the merger of macroeconomic variables with the SIPP data. This paper uses data from the 1990-1996 panels of the SIPP covering the period 1990-1998. Summary statistics of the NLSY data appear in Table 2A. Although the SIPP core data are available for each month for each individual, we use a one-in-four month sample, by using information only on the current months in which the respondent is interviewed. This helps eliminate recall bias over the past four months.

4b. The National Longitudinal Survey of Youth

The National Longitudinal Survey of Youth (NLSY) contains data from interviews of 12,686 respondents conducted annually 1979-1994 and every two years 1994-2000. In eighteen interviews, respondents were asked whether their primary employer offers health insurance coverage. In the 1989, 1990, 1992, 1993, 1994, 1996, 1998, and 2000 interviews, respondents were also asked whether they, their spouse, and their children are currently covered by health insurance; the source of the insurance was recorded. The NLSY contains a rich set of information about the respondents' labor force activity and human capital. The restricted-use geocode permits the merger of macroeconomic variables at the state and county level with the NLSY data. We are still in the process of

[16] There are also interview records for children in the household.

acquiring the geocode, so this paper will use information on local unemployment rates contained in the publicly available NLSY data. The NLSY classifies local unemployment rate into five categories: less than 3%, 3-5.9%, 6-8.9%, 9-11.9%, 12-14.9%, and 15%+. Summary statistics of the NLSY data appear in Table 2B.

4c. Data on Macroeconomic Conditions

The key explanatory variables that reflect the economic climate are: state unemployment rate, per capita Gross State Product, and an indicator variable for national recession. In some specifications we will also include lags of these variables to test whether economic conditions have delayed or lingering effects.

Measures of Gross State Product are derived from the Regional Accounts Data collected by the Bureau of Economic Analysis of the U. S. Department of Commerce. Figure 1 plots the national real quarterly Gross Domestic Product. Figure 2 depicts the mean, and Figure 3 depicts the variance of, per capita Gross State Product 1980 to 1999.

The Bureau of Labor Statistics Local Area Unemployment Statistics Series is the source for monthly unemployment rates at the state level. Figure 4 plots national monthly unemployment. Figure 5 depicts the mean, and Figure 6 depicts the variance of, state unemployment rate 1980 to 1999.

We also include as a regressor an indicator variable for whether the United States was in economic recession. The coding of this variable is based on the decisions of the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER). The NBER does not define a recession in terms of two consecutive quarters of decline in real GNP, but rather as "a period of significant decline in total output, income, employment, and trade, usually lasting from six months to a year, and marked by widespread contractions in many sectors of the economy."[17] Table 3 lists the NBER's business cycle reference dates since World War II. The final row of Table 3 indicates that the previous expansion (the longest on record) lasted from March 1991 to March 2001. The NBER has not yet determined the date of the trough (i.e. the end date) of the current recession.[18] The data used in this paper allow study of uninsurance during the

[17] Public Information Office, National Bureau of Economic Research (2002).
[18] Business Cycle Dating Committee (2002b).

previous three recessions: January to July of 1980, July 1981 to November 1982, and July 1990 to March 1991.

The regressions also control for the characteristics of local health care markets, such as Medicaid eligibility standards for children across states and over time.[19] Ideally we would know the cost of private health insurance over geographic regions and time. Instead, Medicare geographical price indices, specifically the Hospital Input Price Index and the Medicare Economic Index, produced by the Centers for Medicare and Medicaid Services, are used to proxy for differences in the cost of health insurance.

5. Empirical Results

To reiterate, we hypothesize that national recession and state unemployment rates lower the probability of health insurance coverage, and that per capita gross state product is positively associated with health insurance coverage.

First, we estimate whether an individual has health insurance coverage from any source, as a function of macroeconomic conditions. Table 4A presents results for the SIPP and Table 4B presents results for the NLSY. The evidence regarding this hypothesis is mixed. Table 4A indicates that, for men and women, a ten percentage point increase in the state unemployment rate is associated with a 3.1-3.2 percent increase in the probability that one lacks health insurance coverage. The magnitude of this effect is very similar to the results for NLSY men in Table 4B; moving from a region with less than a 3% unemployment rate to one with an unemployment rate between 12 and 14.9 percent (which is similar to the 10 percent increase in unemployment used in the example for the SIPP results) is associated with a 3.4 percent increase in the probability that one lacks health insurance.

However, not all of the predictions were upheld. In Table 4A, the indicator variable for recession is statistically significant and positive. In Table 4B, the coefficients for women are positive and not statistically significant.

Next, we estimated whether an individual has health insurance coverage through one's own employer as a function of macroeconomic conditions. Table 5A presents results for the SIPP and Table 5B presents results for the NLSY. Again, for men, local

[19] A similar index is explained in Cutler and Gruber (1996)

unemployment rate is negatively associated with insurance coverage. Table 5A indicates that a 10 percent increase in unemployment rate is associated with a 4 percent lower probability that one has health insurance through one's own employer. This is similar to the 3.7 percent lower probability found in Table 5B associated with moving from a region with a less than 3 percent unemployment rate to one with an unemployment rate between 12 and 14.9 percent. In Table 5B, the coefficients on the indicators for local unemployment rate are increasingly negative the higher the unemployment rate, although only one coefficient is statistically significant.

Again, there is some mixed evidence regarding our hypotheses. Results on unemployment rate for women are not as predicted; in the SIPP it is the opposite sign (positive) and statistically significant. Once again, the indicator for national recession is not statistically significant.

The NLSY contains a question not asked in the SIPP: Does your current employer offer health insurance coverage? Results for this dependent variable appear in Table 6. Again, a gender difference is apparent: for men, higher unemployment rate is associated with a lower probability that employer offers health insurance, while for women there is no statistically significant correlation.

Another question asked in the NLSY but not in the SIPP is: Do you have health insurance coverage through your spouse's current employer? Results for this dependent variable appear in Table 7. Again a gender difference exists; this time the coefficients for women are statistically significant and in the sign predicted. In general, a higher unemployment rate is associated with a lower probability of spousal coverage for women but not for men. National recession has no statistically significant effect.

In each of the regressions appearing in Tables 4-5, the coefficient on an indicator variable for currently employed is statistically significant and positive, indicating that employment is associated with a higher probability of health insurance coverage. To test whether the macroeconomy may affect health insurance coverage through the loss of employment, an indicator variable for employment is regressed on the set of macroeconomic variables (as well as other explanatory variables included in other models). Table 8A presents the results for the SIPP and Table 8B the results for the NLSY. For each data set, higher unemployment in the local area is associated with a

lower probability of own employment. The indicator variable for recession is statistically significant and negative only for men in the SIPP. Combining results, local unemployment rates affect rates of uninsurance both by increasing unemployment, and also conditional on employment status.

Finally, we estimate models of coverage for children. Table 9A reports results for the SIPP and Table 9B the results for the NLSY. In the SIPP, state unemployment rate is associated with a lower probability of children having insurance coverage, but a higher probability that they have Medicaid coverage. This suggests that local unemployment has the effect of pushing children onto the Medicaid rolls, but not enough to offset the overall loss of private or employer-provided insurance for children. The results for NLSY children in Table 9B yield no evidence that macroeconomic conditions impact child insurance coverage. For the SIPP, national recession is associated with higher coverage for children. One might suspect this is due to more children enrolling in Medicaid during recessions, but the second column in each Table 9 yields no evidence that this is true.

6. Conclusion

This paper finds that a 10 percent increase in local unemployment rate is associated with a 3.1 percent increase in the probability that an adult individual lacks health insurance, controlling for a number of factors. From the time the recession began in March 2001 until April 2002, the national unemployment rate rose 1.7 percent. The results from this analysis indicate that the current recession would have a sizable impact on the number of uninsured, even controlling for factors clearly affected by the recession (such as the probability of employment). A number of caveats should be noted when using estimates from past recessions to predict the impact of the current recession. The last recession was over ten years ago, and several factors have changed that may affect the relationship between the macroeconomy and health insurance coverage. First, more couples are dual-earner, suggesting that the impact of one spouse losing employer-provided health insurance may be less. Second, the real cost of insurance has risen, perhaps making coverage more sensitive to the macroeconomy. Third, recent expansions in Medicaid eligibility may have made Medicaid enrollment more sensitive to the

macroeconomy; in the current recession there may be a lesser impact of parental unemployment on child health insurance coverage.

This paper finds large gender differences in the impact of macroeconomic conditions on health insurance coverage. High local unemployment lowers the probability that one is covered through one's own employer among men but not women. In contrast, high local unemployment lowers the probability that one is covered through the spouse's employer for women but not for men.

This paper finds that national recession itself has little impact on health insurance coverage, though this may be because the models also control for unemployment and gross state product. What does appear to matter is local unemployment rate. Results for per capita gross state product are mixed.

Finally, this paper finds that 10 percent higher unemployment is associated with 7 percent higher probability that a child is on the Medicaid rolls. Despite this shift onto Medicaid, the net effect of a rise in local unemployment is to decrease the number of children with health insurance coverage.

The longest economic expansion in U.S. history ended March 2001. It is not yet obvious how the current recession has affected the number of Americans lacking health insurance. This paper examines how rates of uninsurance vary in response to macroeconomic conditions. While knowledge of the historical relationship between the macroeconomy and health insurance coverage is important in its own right, that knowledge also permits estimates of how the current U. S. recession affects the probability that individuals lack health insurance coverage.

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Table 1
Source of Insurance Coverage for U. S. Adults in Year 2000

Insurance Source	Number (Thousands)	Percent
Employer: Own	83,385	50%
Employer: Other's	31,148	19%
Individual	9,438	6%
Medicaid	7,029	4%
Other	6,646	4%
Uninsured	29,261	18%
Total	166,907	100%

Notes:
Source: Lambrew (2001), Appendix Table 1.
Data: March 2001 Current Population Survey. CPS respondents were asked to report whether they had some health insurance coverage in the previous year.
Sample includes all U.S. adults aged 18 to 64.

Table 2A
Summary Statistics of SIPP Data

Variable	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
Indicator: covered by own employer HI	1,358,550	0.452	0.50	0	1
Indicator: covered by any HI	1,358,550	0.745	0.44	0	1
Indicator: child covered by Medicaid	624,093	0.193	0.39	0	1
Indicator: child covered by any HI	624,093	0.671	0.47	0	1
Indicator: national recession	1,358,550	0.061	0.24	0	1
State unemployment rate	1,358,550	6.162	1.66	1.9	12.8
State gross domestic product per capita	1,358,550	1624.54	1872.88	296.55	19579.35
Hospital wage index	1,202,211	8192.35	938	4089	12456
Indicator: Hospital wage index missing	1,358,550	0.136	0.34	0	1
Simulated state Medicaid generosity	1,358,550	0.362	0.14	.175	.9323
Indicator: female	1,358,550	0.522	0.50	0	1
Indicator: White Hispanic	1,358,550	0.088	0.28	0	1
Indicator: White Non-hispanic	1,358,550	0.752	0.43	0	1
Indicator: Black Non-hispanic	1,358,550	0.107	0.31	0	1
Indicator: Black Hispanic	1,358,550	0.009	0.10	0	1
Year	1,358,550	1993.88	2.47	1990	1998
Indicator: High-school dropout	1,358,550	0.184	0.38	0	1
Indicator: High-school graduate	1,358,550	0.320	0.47	0	1
Indicator: Some college	1,358,550	0.260	0.43	0	1
Indicator: College graduate	1,358,550	0.134	0.34	0	1
Indicator: College graduate	1,358,550	0.095	0.29	0	1
Age	1,358,550	38.070	12.7	17	64
Presence of children in family	1,358,550	0.515	.4997	0	1
Indicator: employed	1,358,550	0.710	0.45	0	1
Indicator: married	1,358,550	0.580	0.49	0	1
Indicator: widowed	1,358,550	0.020	0.15	0	1
Indicator: separated or divorced	1,358,550	0.130	0.33	0	1
Indicator: married female	1,358,550	0.299	0.45	0	1
Indicator: union member or contract coverage	994,083	0.150	.356	0	1
Indicator: full-time worker	994,083	0.818	0.385	0	1

Note: not listed are eleven indicators for industry, and six indicators for occupation.

Table 2B:
Summary Statistics of NLSY Data

Variable	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
Indicator: employer offers HI	119,348	.711	.45	0	1
Indicator: covered by HI	72,958	.797	.80	0	1
Indicator: HI from current employer	72,941	.481	.50	0	1
Indicator: HI from spouse employer	72,942	.180	.38	0	1
Indicator: private HI	72,942	.944	.21	0	1
Indicator: government-provided HI	72,942	.078	.27	0	1
Indicator: child covered by HI	45,055	.776	.42	0	1
Indicator: child HI from Medicaid	44,985	.123	.33	0	1
Indicator: national recession	135,585	.161	.37	0	1
Indicator: local UE < 3%	131,382	.035	.18	0	1
Indicator: local UE 3.0 – 5.9%	131,382	.399	.49	0	1
Indicator: local UE 6.0 – 8.9%	131,382	.357	.48	0	1
Indicator: local UE 9.0 – 11.9%	131,382	.130	.34	0	1
Indicator: local UE 12.0 – 14.9%	131,382	.054	.23	0	1
Indicator: local UE > 15.0%	131,382	.026	.16	0	1
Indicator: female	135,585	.489	.50	0	1
Indicator: black	135,585	.263	.44	0	1
Indicator: Hispanic	135,585	.176	.38	0	1
Year	135,585	1989.64	5.59	1979	2000
Highest grade completed	135,039	12.71	2.35	0	20
Age	135,585	28.65	5.9	14	44
Family size	135,585	3.22	1.78	1	18
Indicator: employed	135,585	.856	.35	0	1
Indicator: never married	135,570	.405	.49	0	1
Indicator: married, spouse present	135,570	.451	.50	0	1
Indicator: other marital status	135,570	.144	.35	0	1
Job tenure	124,342	3.17	3.69	0	1
Weeks actual work experience	118,635	7.37	5.04	0	1
Indicator: white collar job	116,794	.490	.50	0	1
Indicator: Size of firm >= 1000	60,211	.587	.49	0	1
Indicator: part-time worker	124,577	.190	.16	0	1

Note: not listed are eleven indicators for industry of occupation.

Table 3
Business Cycle Reference Dates
For United States, Post-World-War-II

NBER Business Cycle Reference Dates		Duration in Months			
Trough	**Peak**	**Trough From Previous Peak (Contraction)**	**Trough to Peak (Expansion)**	**Trough to Trough**	**Peak to Peak**
October 1945	November 1948	8	37	88	45
October 1949	July 1953	11	45	48	56
May 1954	August 1957	10	39	55	49
April 1958	April 1960	8	24	47	32
February 1961	December 1969	10	106	34	116
November 1970	November 1973	11	36	117	47
March 1975	January 1980	16	58	52	74
July 1980	July 1981	6	12	64	18
November 1982	July 1990	16	92	28	108
March 1991	March 2001	8	120	100	128

Notes:
Source: Public Information Office, National Bureau of Economic Research (2002).
The NBER defines recession as "a period of significant decline in total output, income, employment, and trade, usually lasting from six months to a year, and marked by widespread contractions in many sectors of the economy." (Ibid.)

Table 4A
SIPP
Whether Covered by Health Insurance
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	.0037	.002
	(2.02)	(1.23)
State Unemployment Rate	-.0032	-.0031
	(-6.09)	(-6.25)
Real Gross State Product	1E-6	-7E-8
	(1.82)	(-0.13)
Number of Observations	648,386	710,164

Notes:
Data: pooled 1990-1996 waves of the SIPP.
Dependent variable equals one if individual covered by health insurance from any source and zero otherwise. Sample includes all individuals between the ages of 17 and 64 years of age.

Table 4B
NLSY
Whether Covered By Health Insurance
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	.001	.067
	(0.17)	(0.86)
3.0 <= UE rate <= 5.9%	-.015	.003
	(-1.65)	(0.31)
6.0 <= UE rate <= 8.9%	-.027	.001
	(-2.48)	(0.07)
9.0 <= UE rate <= 11.9%	-.038	.017
	(-2.94)	(1.38)
12.0 <= UE rate <= 14.9%	-.034	.016
	(-2.18)	(1.14)
UE rate > 15.0%	-.040	-.007
	(-1.48)	(-0.28)
Number of Observations	34,560	36,439

Notes:
Data: 8 pooled years of the NLSY. Sample includes the employed and those not employed.
Dependent variable equals one if individual has health insurance coverage from any source and zero otherwise.
Excluded category: UE rate less than 3.0%.

Table 5A
SIPP
Whether Have Health Insurance Coverage
Through Own Current Employer
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	.003	-.0015
	(1.57)	(-0.89)
State Unemployment Rate	-.004	.0009
	(-7.3)	(1.75)
Real Gross State Product	-1E-6	-3E-7
	(-1.8)	(-0.60)
Number of Observations	648,386	710,164

Notes:
Data: pooled 1990-1996 waves of the SIPP.
Dependent variable equals one if covered by health insurance from an individual's own employer and zero otherwise. Sample includes all individuals between the ages of 17 and 64 years of age.

Table 5B
NLSY
Whether Have Health Insurance Coverage
Through Own Current Employer
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	-.062	.008
	(-1.03)	(0.10)
3.0 <= UE rate <= 5.9%	-.008	.021
	(-0.78)	(2.22)
6.0 <= UE rate <= 8.9%	-.014	.017
	(-1.27)	(1.6)
9.0 <= UE rate <= 11.9%	-.023	.017
	(-1.68)	(1.30)
12.0 <= UE rate <= 14.9%	-.037	.023
	(-2.28)	(1.44)
UE rate > 15.0%	-.043	.043
	(-1.51)	(1.63)
Number of Observations	34,553	36,429

Notes:
Data: 8 pooled years of the NLSY. Sample includes the employed and those not employed.
Dependent variable equals one if individual has health insurance coverage through own current employer and zero otherwise.
Excluded category: UE rate less than 3.0%.

Table 6
NLSY
Whether Current Employer Offers Health Insurance as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	.039	.037
	(0.56)	(0.39)
3.0 <= UE rate <= 5.9%	-.018	.005
	(-1.85)	(0.46)
6.0 <= UE rate <= 8.9%	-.026	-.004
	(-2.52)	(-0.32)
9.0 <= UE rate <= 11.9%	-.040	-.012
	(-3.38)	(-1.02)
12.0 <= UE rate <= 14.9%	-.047	-.015
	(-3.56)	(-1.06)
UE rate > 15.0%	-.060	-.016
	(-3.65)	(-0.91)
Number of Observations	57,770	49,456

Notes:
Data: 18 pooled years of the NLSY. Sample includes only those currently employed.
Dependent variable equals one if current employer offers health insurance coverage and zero otherwise.
Excluded category: UE rate less than 3.0%.

Table 7
NLSY
Whether Have Health Insurance Coverage Through Spouse's Current Employer as a Function of Macroeconomic Conditions Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	.063	.111
	(1.58)	(1.44)
3.0 <= UE rate <= 5.9%	.006	-.008
	(0.93)	(-0.98)
6.0 <= UE rate <= 8.9%	.001	-.021
	(0.07)	(-2.16)
9.0 <= UE rate <= 11.9%	-.002	-.025
	(-0.27)	(-2.06)
12.0 <= UE rate <= 14.9%	-.007	-.034
	(-0.63)	(-2.40)
UE rate > 15.0%	-.021	-.031
	(-1.14)	(-1.30)
Number of Observations	34,553	36,430

Notes:
Data: 8 pooled years of the NLSY. Sample includes the employed and those not employed.
Dependent variable equals one if individual has health insurance coverage through spouse's current employer and zero otherwise.
Excluded category: UE rate less than 3.0%.

Table 8A
SIPP
Whether Employed in Survey Month
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	-.005	.0008
	(-2.75)	(0.4)
State Unemployment Rate	-.009	-.0082
	(-15.76)	(-13.9)
Real Gross State Product	9E-7	3E-6
	(1.6)	(4.25)
Number of Observations	648,386	710,164

Notes:
Data: pooled 1990-1996 waves of the SIPP.
Dependent variable equals one if employed during the survey month and zero otherwise.
Sample includes all individuals between the ages of 17 and 64 years of age.

Table 8B
NLSY
Whether Currently Employed
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Men	Women
Indicator: National Recession	.063	-.012
	(1.47)	(-0.17)
3.0 <= UE rate <= 5.9%	-.012	.002
	(-1.85)	(0.26)
6.0 <= UE rate <= 8.9%	-.030	-.004
	(-4.31)	(-0.48)
9.0 <= UE rate <= 11.9%	-.041	-.023
	(-5.33)	(-2.38)
12.0 <= UE rate <= 14.9%	-.056	-.031
	(-6.47)	(-2.81)
UE rate > 15.0%	-.072	-.031
	(-6.79)	(-2.24)
Number of Observations	66,790	64,578

Notes:
Data: 18 pooled years of the NLSY. Sample includes the employed and those not employed.
Dependent variable equals one if individual is employed and zero otherwise.
Excluded category: UE rate less than 3.0%.

Table 9A
SIPP
Whether Child Has Health Insurance Coverage
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Child Has Any Coverage	Child Has Medicaid Coverage
Indicator: National Recession	.005	-.0032
	(2.73)	(-1.96)
State Unemployment Rate	-.01	.007
	(-17.51)	(14.88)
Real Gross State Product	6E-6	-5 E-6
	(10.12)	(-9.6)
Number of Observations	624,093	624,093

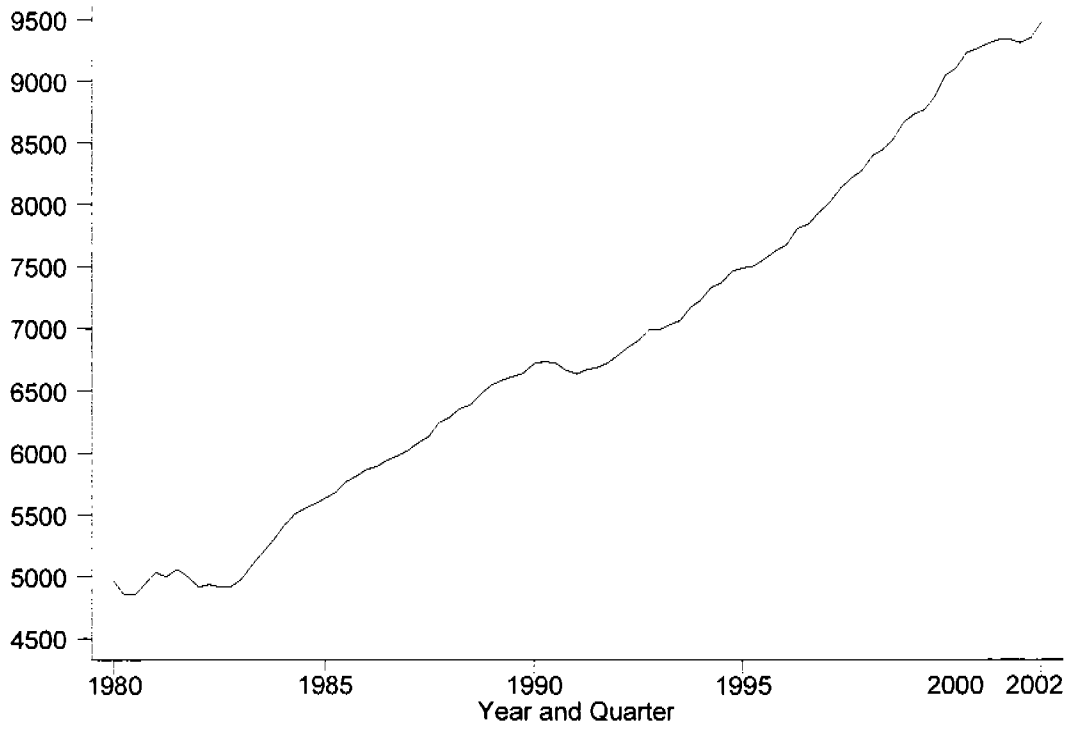
Notes:
Data: pooled 1990-1996 waves of the SIPP.
Column 1: Dependent variable equals one if individual covered by any health insurance from any source and zero otherwise.
Column 2: Dependent variable equals one if individual covered by Medicaid and zero otherwise.
The samples in both cases consist of those who are under 18 years of age.

Table 9B
NLSY
Whether Child Has Health Insurance Coverage
as a Function of Macroeconomic Conditions
Linear Probability Coefficients and (T Statistics)

Macroeconomic Variable	Child Has Any Coverage	Child Has Medicaid Coverage
Indicator: National Recession	.031	.043
	(0.50)	(0.74)
3.0 <= UE rate <= 5.9%	-.005	-.011
	(-0.74)	(-1.72)
6.0 <= UE rate <= 8.9%	-.012	.001
	(-1.52)	(0.09)
9.0 <= UE rate <= 11.9%	-.009	.002
	(-0.88)	(0.26)
12.0 <= UE rate <= 14.9%	-.013	.009
	(-1.08)	(0.82)
UE rate > 15.0%	-.038	-.007
	(-1.97)	(-0.39)
Number of Observations	43,803	43,734

Notes:
Data: 8 pooled years of the NLSY.
In middle column, dependent variable equals one if child has any health insurance coverage and zero otherwise. In right column, dependent variable equals one if child has Medicaid coverage and zero otherwise.
Excluded category: UE rate less than 3.0%.

Figure 1: Real Quarterly Gross Domestic Product, 1980-2002



Source: Bureau of Economic Analysis.

Figure 2: Mean Per Capita Gross State Product, 1980-1999

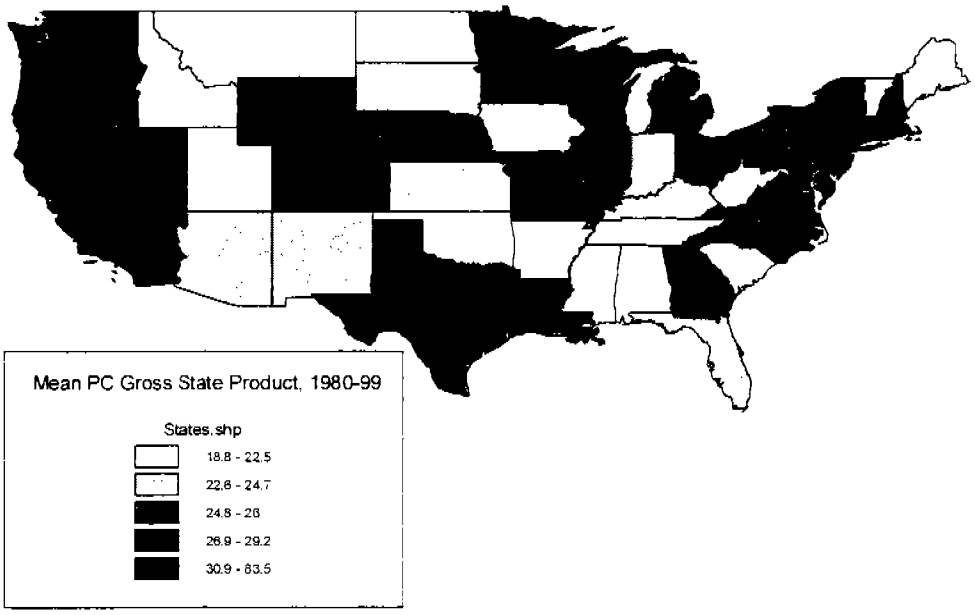


Figure 3: Variance Per Capita Gross State Product, 1980-1999

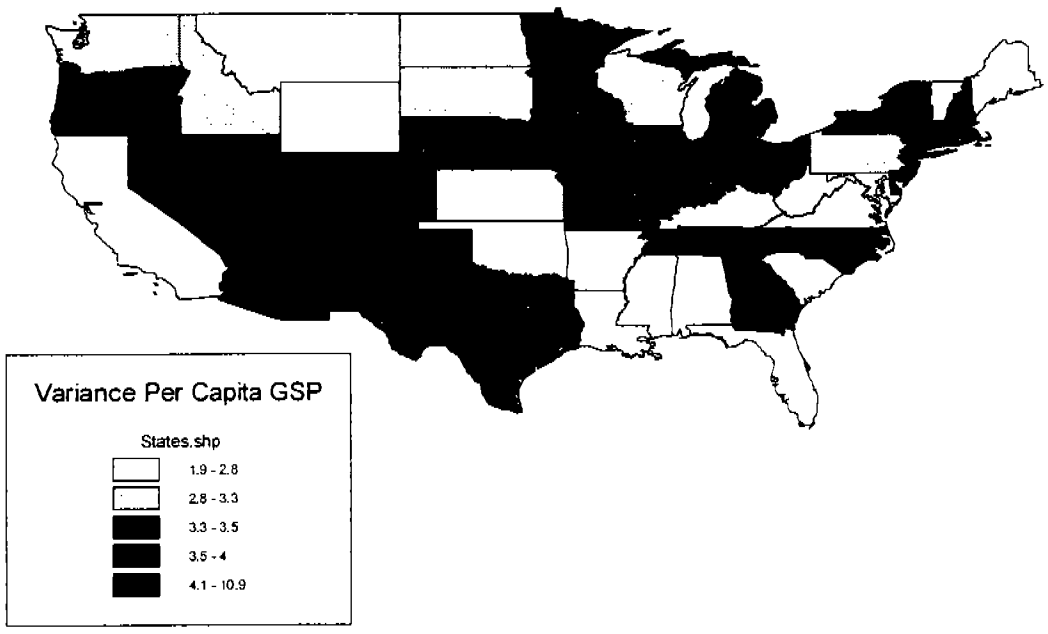
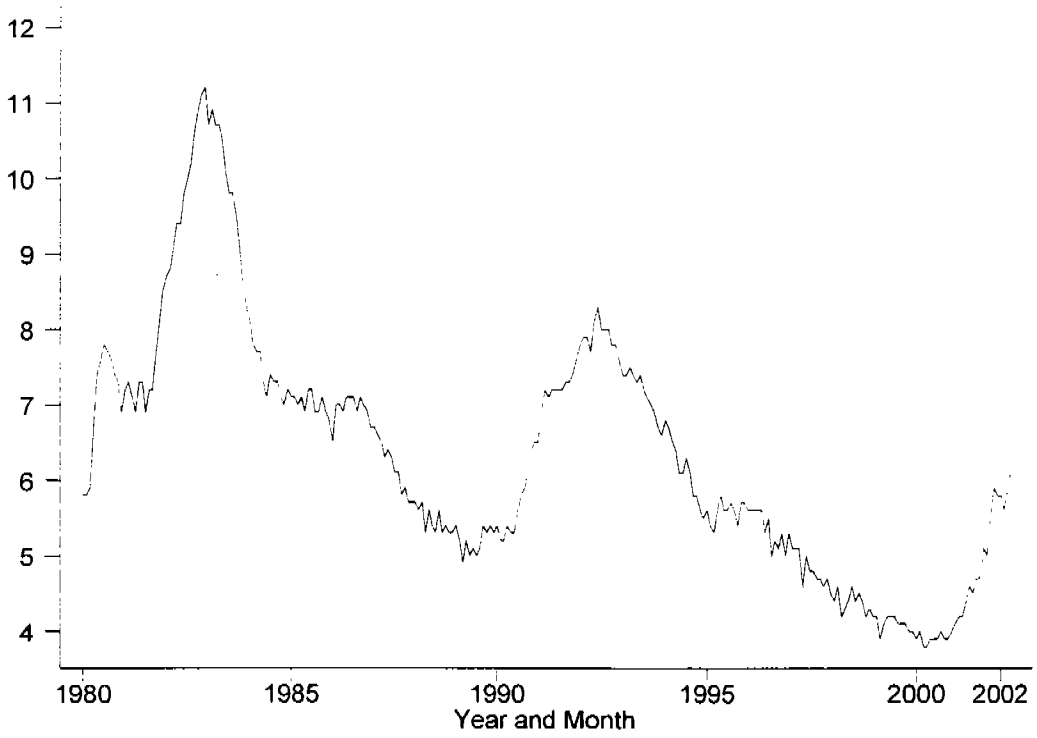


Figure 4: U. S. Monthly Unemployment Rate (Seasonally Adjusted), 1980-2002



Source: Bureau of Labor Statistics

Figure 5: Mean State Unemployment Rate, 1980-1999

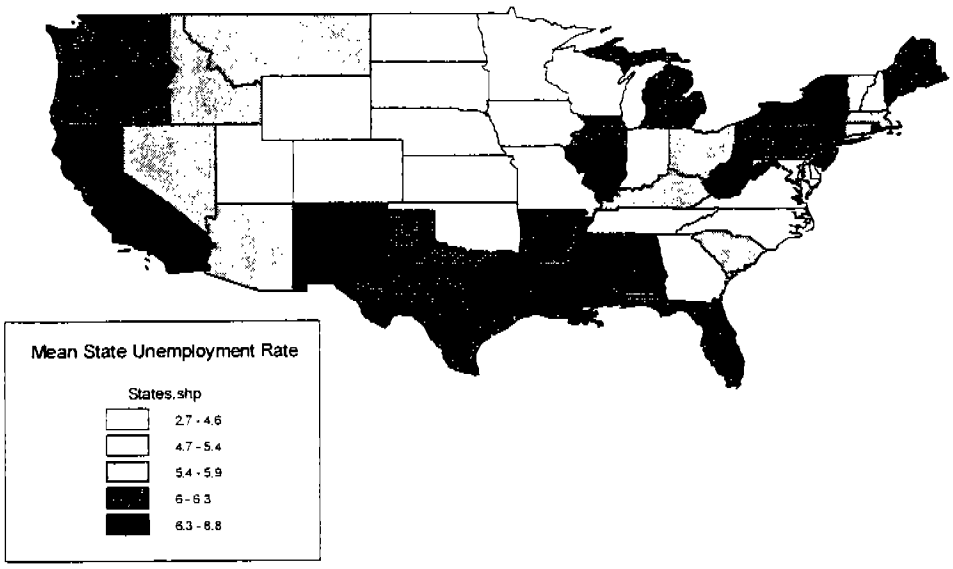


Figure 6: Variance State Unemployment Rate, 1980-1999