Coverage Transitions in Hispanic vs. White Non-Hispanic Populations: Trends in the Last 20 Years

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It is well documented that Hispanics in the U.S. lack health insurance coverage at much higher rates than non-Hispanic Whites. The 2005 Current Population Survey (CPS) estimated that 33 percent of Hispanics lacked coverage in 2004, compared to 16 percent for the overall population.[1] This gap in coverage has been observed for many years. What is less well known is how that gap has changed over the last twenty years in response to changes in macroeconomic conditions and federal and state policies. In particular, have changes in the labor market and in Medicaid eligibility over this time period affected Hispanics differently than non-Hispanics?

Observing a snapshot of coverage from year to year is interesting to policymakers, but knowing about transitions in and out of coverage provides a

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[1]Information on coverage levels for this and other years is available on the Census website. Given changes in the wording of the questions about coverage in the March Supplement, it is difficult to construct a time trend over the last 20 years from the CPS data.

different and valuable perspective on those without health insurance (Swartz et al. 1993). Little is known about differences in the volatility of coverage across different population groups - for example, whether Hispanics are more or less likely than non-Hispanic Whites to move in and out of private coverage, or public coverage. The Medical Expenditure Panel Survey (MEPS) survey, which started in 1996, interviews survey participants several times a year, asking respondents about monthly coverage status. MEPS estimated that 28 percent of nonelderly Hispanics were uninsured for all of 2003, while 43 percent were uninsured for some part of that year. This contrasts to 11 percent of nonelderly non-Hispanics lacking coverage the entire year, versus 22 percent experiencing some of the year uncovered (ERIU 2006).

The Survey of Income and Program Participation (SIPP) also obtains monthly coverage data and goes back to the first panel in 1984, allowing us to create a pooled panel from 1983 to 2003 to study potential changes in the gap in coverage between Hispanic and non-Hispanic nonelderly adults. Over this time period, there were spells of economic downturns and growth as well as changes in the eligibility for Medicaid at both the state and federal level that would be expected to affect the level of coverage. We also look at differences in the frequency of transitions into and out of insurance coverage over this time period as well as differences in the likelihood of obtaining or losing private vs. public coverage.

Our results indicate that the gap in coverage between Hispanics and white non-Hispanics is increasing, even after accounting for differences in income, human capital, and citizenship. The widening of the gap is driven primarily by Hispanic non-citizens, who have grown more likely to be uninsured, and less likely to transition into coverage, over the sample period.

Background

There are many reasons given for the observed gap in coverage between Hispanics and non-Hispanics, including differences in the ability to obtain "good" jobs that bring with them offers of employer-sponsored insurance (ESI). There is a well documented relationship between education, wages, and offers of ESI (Buchmueller et al. 2005). Hispanics in the U.S. have higher

high school dropout rates than either non-Hispanic white or black students. While Hispanics have made sporadic progress in education attainment over the last twenty years, the high school completion rates for non-Hispanics have been steadily climbing, resulting in an increasing gap between the population groups (Kaufman et al. 2000).

Obtaining ESI is also more difficult for nonnative born Hispanics, reflecting issues with citizenship status as well as additional differences in education level and the kinds of jobs available to them (Ku and Matani, 2001). CPS estimates that almost 75 percent of the uninsured in 2004 were immigrants, the majority of whom lacked citizenship. In 2004, approximately 1 in 5 immigrants who were naturalized citizens were uninsured, whereas almost 1 in 2 immigrant noncitizens lacked coverage (DeNavas-Walt 2005). The gap between the educational level of immigrants and native born citizens has been estimated to explain over 50 percent of the observed wage gap between these two groups (Betts and Lofstrom 2000) and an even higher percent of the observed gap in insurance coverage (Buchmueller et al. 2006, Goldman et al. 2004).

The difference in educational attainment is particularly important for Hispanic immigrants. While over half of those foreign born have a high school diploma or higher, only one quarter of those from Mexico are in this category. There are also significant differences in occupations, with 2 out of 3 adult Mexican immigrants working as laborers, migrant farm workers, or service employees (Lapham et al. 1993). The proportion of foreign born workers in management or professional occupations was lowest among those from Central American, only 8 percent (Larson 2004). So, while non-Hispanic Whites and Hispanics have similar rates of working full-time, full-year, the likelihood of receiving offers of insurance with the jobs that they have are much lower in the occupations filled by most immigrants.

Immigrants in the U.S. also face increased barriers to entering the two dominant public insurance programs for low income children and families, Medicaid and SCHIP. Prior to the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996, most legal immigrants faced the same eligibility criteria as native born citizens (Kaiser 2006). PRWORA distinguished between immigrants who entered the U.S. prior to 1996 and those entering after 1996, establishing the "five-year bar"

for federal funding for coverage for the later immigrants.

In the last decade, there have been notable increases in the number of Hispanic immigrants, the bulk of whom come from Mexico (Paseel and Suro 2005). According to the 2000 Census, 45 percent of the U.S. population who were born in Latin America entered this country between 1990 and 2000, 30 percent entered in the '80s, and 25 percent before 1980. Consequently, the proportion of Hispanics in the U.S. who are native born has been declining and the proportion who are noncitizens has been increasing.

At the same time, the number of undocumented, or unauthorized, immigrants has been increasing as well. For obvious reasons, there are few good estimates of the number of undocumented persons residing in the U.S. The Los Angeles Family and Neighborhood Survey (LAFANS) provides a good estimate of the size of this population in one large U.S. city (Goldman et al. 2004). Analysis of these data reveal that while socioeconomic factors explain much of the difference in coverage rates between immigrants and native born residents in LA County, there remains an unexplained gap in coverage for the undocumented population. In addition, this analysis found that immigrants as a whole are more likely to be consistently uninsured for the survey's two year period. Clearly, when looking at differences in public coverage between Hispanics and non-Hispanic Whites over time, it is important to distinguish between those who are U.S.-born and deal with issues specific to immigrants).

Data

All data in our analysis come from the Survey of Income and Program Participation (SIPP). Each year between 1983 and 1992, and then again in 1995 and 2000,[2] the Bureau of Census began collecting information from a new panel of individuals three times a year each (on a rotating basis) for between two and four years. We have taken each panel (except 1989, which was not completed) and stacked them to create a new, larger panel that covers nearly the entire period from June 1983 to December 2003, with overlapping months between some panels. Sample means are reported in Table 1. The stacked

[2]The Census Bureau names each panel according to the first full year of the survey. So, for example, the survey begun in June 1983 is called the "1984 Panel" and the survey begun in October 2000 is called the "2001 Panel."

panel results in a sample of 8.8 million person-months for 259,775 individuals, between 15,000 and 43,000 individuals per panel.

Attrition correction

As with most panel surveys, the SIPP experiences nonrandom attrition from the sample. The nonrandom nature of this attrition is a concern for us because evidence suggests that those who are most likely to be uninsured are also the most likely to attrit from the sample. To account for nonrandom attrition, we reweight each observation by the inverse probability of its being present in the sample. Following Robins, Rotnitzky, and Zhao (1995) and Wooldridge (2000), we first determine the probability of individual i being present in the sample at time t using a probit regression, where the covariates are the time $t-1$ (or time-invariant) characteristics and the SIPP interview wave:

$$Prob(present)_{it} = \Phi(Z'_{i,t-1}\gamma),$$

where Φ is the standard normal cumulative distribution function and Z is a vector of personal characteristics. Note that because, by definition, we do not know the value for any time-varying characteristic when the individual is not present, Z includes the value of each characteristic at time $t-1$ (unless of course it is time-invariant), with the exception of the SIPP interview wave. In addition to the wave variable, we include dummy variables for being uninsured, unemployed, Hispanic, black, Asian, Native American, female, and married in Z, and use the SIPP weight (lagged as necessary) when running the probit regression.

After fitting a selection probability, π, to each observation, we then find the probability of being present in time t, conditional on being present in each previous period from entry time ($t=1$) to time $t-1$:

$$p_{it} = \pi_{i1} * \pi_{i2} * \pi_{i3} * ... * \pi_{i,t-1} * \pi_{it}$$

The new bias-corrected weight is then the SIPP-created weight times $1/p_{it}$.

Model

We model the probability of person i in time t having health insurance coverage type j conditional on personal and macro-level characteristics $\mathbf{x}$ as a multinomial logit:

$$Prob(insurance_{it} = j|\mathbf{x}_{it}) = \frac{\exp(\mathbf{x}_{it}\beta_j)}{1 + \sum_{h=0}^{2} \exp(\mathbf{x}_{it}\beta_h)};\ j = 1, 2,$$

where $j = 1$ is uninsured and $j = 2$ is public coverage.

For $j = 0$, or private coverage (the base outcome in the model),

$$Prob(insurance_{it} = 0|\mathbf{x}_{it}) = \frac{1}{1 + \sum_{h=0}^{2} \exp(\mathbf{x}_{it}\beta_h)},$$

so that the probabilities sum to unity.

In $\mathbf{x}$, we include variables that account for income, price, and preferences in the demand for health insurance. For income, we include the income of the individual's health insurance unit (HIU).[3] As is usually the case, the price of health insurance is not observed. Recent research suggests that the relevant price for worker take-up of an offer of ESI is the out of pocket premium faced. Employment status - full time or part time, with unemployed the omitted value - serves as a proxy for the out of pocket premium for ESI. Public health insurance has a price of zero. We also include a measure of the tightness of the local labor market, represented by the state unemployment rate,[4] to capture the pressures placed on employers both to offer ESI and to subsidize the health insurance premium. In addition, we include demographic characteristics (age, gender, race/ethnicity, education, marital status, and citizenship status) that can affect both price and preferences. We also include a set of

[3]We define "health insurance unit" as the individual, his/her spouse, and eligible children for whom one or both of the adults are a parent or legal guardian. Children are eligible if they are under 18, or a full-time student under 21.

[4]Cawley and Simon (2005) find that state unemployment rate is positively correlated with insurance coverage, and that this correlation survives even after controlling for employment transitions.

binary variables for calendar year, interaction terms between the Hispanic indicator variable and the year dummies, and the Hispanic dummy interacted with the citizenship dummies.

We are interested in gaps in and changes in the frequency of coverage transitions, not just contemporaneous insurance coverage. In the transition regressions, the probability of having insurance coverage type j in time t is conditional not only on $\mathbf{x}$ but also the coverage type in period $t-1$:

$$Prob(insurance_{it} = j|\mathbf{x}_{kit}, insurance_{i,t-1} = k) = \frac{\exp(\mathbf{x}_{kit}\beta_j)}{1 + \sum_{h=0}^{2} \exp(\mathbf{x}_{it}\beta_h)};\ j = 1, 2;\ k = 0, ..., 2,$$

and

$$Prob(insurance_{it} = 0|\mathbf{x}_{kit}, insurance_{i,t-1} = k) = \frac{1}{1 + \sum_{h=0}^{2} \exp(\mathbf{x}_{kit}\beta_h)};\ k = 0, ..., 2.$$

When $j = k$, the regression measures the likelihood of maintaining the same coverage as the previous month and where $j \neq k$, the regression measures the probability of switching from coverage type k to type j.

The variables in $\mathbf{x}$ in the transition regressions account for changes in income, price, and preferences. For income changes, we include the monthly percent change in HIU income, as well as the new HIU income level.[5] For price changes, the elements of $\mathbf{x}$ differ slightly depending on the value of k, the previous month's coverage type. When $k = 1$ (uninsured) or 2 (publicly insured), we are primarily interested in the transition into private coverage, therefore, we include binary variables that indicate transitions from part time to full time employment, or from not working to full or part time employment, which likely result in a decrease in out of pocket price. When $k = 0$ (privately insured), transitions out of private insurance may be the result of

[5]We include the new income level in addition to the percent change in case the same relative income change has a different effect at different points in the income distribution. Excluding this variable makes little difference in the coefficient values for the variables of interest, though its own coefficient is usually statistically significant.

an increase in out of pocket price, so we use binary variables for the opposite employment transitions - full or part time to not working, or reducing hours from full time to part time. We also include the month-to-month percent change in state unemployment rate in each case, to account for changing labor market conditions. The remaining variables in $\mathbf{x}$ are the same demographic covariates in the static regression: age, gender, race/ethnicity, education, marital status, and citizenship status.

Samples

For the regression analyses, we have limited our sample to the first six waves, or twenty-four months, of each SIPP panel to correspond with the length of the shortest included panel, 1988.[6] We kept only adults ages 18 to 64 who were present in the sample for each of these twenty-four months. These sample selections were done so that all individuals in the different panels face the same window for changing their insurance coverage status. Because over much of the study period self-employed individuals faced different tax treatments for health insurance and, by the nature of their employment situation, have no employer premium cost-sharing options, we also eliminated the self-employed from the analysis.

Given our focus on changes in the Hispanic and non-Hispanic White coverage gap, the important role played by immigration and citizenship status, we also excluded non-Hispanic blacks and Native Americans in the sample. We also excluded Asians from this analysis. Data suggests that not only are Asian immigrants very different from Hispanic immigrants in terms of educational attainment and occupations, some Asian immigrants come from countries where health insurance is widespread and may have different perceptions of the role of insurance. Including all possible interactions between race, ethnicity, immigration and citizenship status and the other covariates would be excessively cumbersome.[7]

[6]The 1989 panel lasted only three waves, and was excluded from all analysis.

[7]We ran preliminary analyses including all race and ethnic group. There is little substantive difference between the coefficients of interest when excluding or including these individuals.

Table 2 presents the means for the subsample used for the static insurance regressions. Hispanics make up 10.6 percent of the sample, with non-white Hispanics making up just more than one percent of the sample. Slightly more than half of the Hispanics are native-born; approximately one quarter of those foreign born are naturalized citizens. Fifteen percent of the sample is uninsured at time t, 80 percent are privately insured, and six percent are publicly insured. Consistent with findings from other survey samples, White non-Hispanics are less likely to be uninsured and more likely to have private insurance than are Hispanics; Hispanics who are not citizens are more likely to be uninsured and less likely to have private insurance than native born or naturalized Hispanic citizens.

As noted above, we estimated the probability of a change in insurance coverage status conditional on the status at the start of the 24-month period. Table 3 presents sample means for the three samples used for the multinomial regression of insurance transitions. For each time period, the vast majority of observations in that group remain in the initial coverage state; 93.3 percent of the uninsured in month $t-1$ remain uninsured in month t, while 98.8 percent of the privately insured and 96.9 percent of those with public coverage keep their existing coverage. Nearly six percent of the uninsured and less than two percent of the publicly insured acquire private insurance, while the privately insured are slightly more likely to move to public coverage (1.7 percent) than to lose coverage altogether (1.1 percent).

Results

Trends in the Uninsured Rate

Figure 1a graphs the attrition-corrected uninsured rates for Hispanic non-elderly adults by citizenship status versus white non-Hispanic non-elderly adults. While the white non-Hispanic uninsured rate has slightly declined over this time period, from 14.7 percent in 1983 to 11.9 percent at the end of 2003, the uninsured rate among each Hispanic group has increased. Hispanic non-citizens have seen the greatest increase, from 43.0 percent in June 1983 to 56.3 percent in December 2003. The gap with white non-Hispanics has increased for each group as well; from 7 to 15 percentage points for both

native born and naturalized Hispanics, and from 28 to 44 percentage points for Hispanic non-citizens.

Of interest in analyzing Hispanic uninsured rates during this period is the impact of the 1996 PRWORA reforms on Medicaid eligibility and enrollment for non-citizens, a group that makes up a large percentage of the Hispanic population. Figure 1b shows the prevalence of public insurance, which includes both Medicaid and Medicare, though in our non-elderly population Medicare coverage rates are negligible, among Hispanics and white non-Hispanics. Public insurance rates did fall for Hispanics in the late 1990's following welfare reform, while white non-Hispanic public coverage increased. On the other hand, the result of this decline among each Hispanic group was a public coverage rate that was still higher than during the late 1980s.

The private coverage rate, which includes ESI and other group and individual private coverage, fell significantly for Hispanic non-citizens over the sample period, from 51.5 percent in 1983 to 34.9 percent in 2003 (Figure 1c). Although there was an overall decline for the other two Hispanic groups as well, there were periods of growth for both groups, reflecting, in part, times of tight labor markets. According to the Bureau of Labor Statistics, the unemployment rate among Hispanics decreased from 14.3 percent in June 1983 to 6.5 percent in December 2003 (http://www.bls.gov/data/home.htm). Meanwhile, private coverage among white non-Hispanics remained relatively constant, between 80 and 85 percent.

Multinomial regressions

In Table 4 we present results from multinomial logit regressions where the dependent variable can take on one of three values: uninsured, privately insured (the base outcome), or publicly insured.[8] Native born Hispanics are 7.0 percent more likely to be uninsured, all else equal, than white non-Hispanics. The adjusted gaps in coverage, relative to native born white non-Hispanics,

[8]If an individual has both public and private coverage, which occurs in just over one percent of the sample, she is assumed to be privately insured in the multinomial framework. Thus, if such an individual loses her private coverage, she would be classified as one who switches to public coverage even though she did not have to add this coverage to her existing portfolio.

are larger for naturalized Hispanics (8.2 percent) and Hispanic non-citizens (14.2 percent).[9]

The solid line in each panel of Figure 2 is the plot of the mean derivative of the Hispanic indicator variable plus the mean derivative of the year-Hispanic interaction term. The variables in the multinomial regression explains, on average, 66 percent of the native born Hispanic - white non-Hispanic gap in uninsured rate (Figure 2a), 72 percent of the gap in public coverage (Figure 2b), and 67 percent of the gap in private coverage (Figure 2c). Although much of the gap is explained by income, employment, and education, controlling for citizenship does explain a significant portion; on average, including citizenship in the regression accounts for an additional 17 percent of the gap in uninsured rates. Each adjusted gap plot has a trend that is significantly different from zero.

Each year, the regression adjusted gap in the uninsured rate between native born Hispanics and white non-Hispanics increased, on average, by .22 percentage points; the gap in public coverage decreased by .12 percentage points; and the gap in private coverage widened by 0.10 percentage points.[10] Figure 3 displays how the composition of the gaps between the groups has changed over time. In 1983, for example, the uninsured rate for Hispanics was 5.6 percentage point higher than that for non-Hispanic Whites, while the rate of private coverage was 8.7 percentage points lower and the rate of public coverage 3.1 percentage points higher. Throughout the early 1980s, we observe this pattern of participation in public health insurance programs offsetting a large portion of the lower private coverage rates. Later in the studied time period, as the regression adjusted public coverage rate for Hispanics shrank to nearly the same rate as for white non-Hispanics, nearly all of the increase in uninsured gap was accounted for by increases in the gap in private coverage.

[9]The estimated impacts of individual factors are shown in Table A1 in the appendix. In general, higher income, more work hours, more education, being married, or being female result in a lower probability of being uninsured. With the exception of being female, these same factors result in a lower probability of having public coverage and more likely to have private insurance.

[10]These are the results controlling for citizenship. Figures 2a, 2b, and 2c also show the change in the gaps without this control.

There were also differences in the volatility of coverage between the population groups, differences which also changed over time. The top panel of Table 5 presents results from multinomial logit regressions for individuals who were uninsured in the previous month. Uninsured native born Hispanics were 0.92 percent more likely than native born white non-Hispanics to remain uninsured. The gap in the probability of gaining insurance is broken into being 0.95 percent less likely to get private insurance and 0.03 more likely to obtain public coverage. The differences are even larger for immigrant Hispanics. Naturalized Hispanics are 1.4 percent less likely to leave the uninsured state, while Hispanic non-citizens are 2.4 percent less likely, almost all due to a lower likelihood of acquiring private insurance in both cases. As expected, working more, being female, and being married all improve the probability of obtaining both private and public coverage, and having a higher income improves the chances of acquiring private coverage (Table A2 of the appendix).

Figure 4 illustrates how the gap in remaining uninsured has changed over time, and how the gap can be explained by differences in the probability of acquiring private and public coverage. In all but two years (1984 and 1992), uninsured native born Hispanics are more likely to remain uninsured than white non-Hispanics, and there is a significant upward trend in that difference. Most of that difference can be attributed to the difference in Hispanics acquiring private coverage, though in later years the gap in public coverage acquisition becomes more important.

Our results in the middle panel of Table 5 indicate that publicly insured Hispanic non-citizens are significantly more likely to lose that coverage and become uninsured than are native born white non-Hispanics, while Hispanic citizens are more likely to retain their public coverage. There is a much smaller likelihood for Hispanic non-citizens to move from public coverage to private insurance than to lose public coverage and become uninsured. Increasing work hours (either switching from part time to full time, or becoming employed) not only increases the probability of switching to private coverage, but also increases the chances of becoming uninsured, probably due to means tests for government coverage (Appendix Table A3).

In the 1980s, native born Hispanics were more likely to stay publicly insured than were white non-Hispanics (Figure 5). That gap narrowed, how-

ever, and now native born Hispanics are actually less likely to stay publicly insured and are increasingly leaving public coverage and being uninsured, at a rate higher than white non-Hispanics. Native born Hispanics are also switching from public coverage to private insurance at a higher rate than white non-Hispanics.

Privately insured Hispanics were less likely to keep private coverage than white non-Hispanics (Table 5). This was particularly true for Hispanic non-citizens. Most of this difference is attributed to being more likely than white non-Hispanics to become uninsured, though the probability of transitioning to public coverage is also statistically significant higher, though of low magnitude. High income makes transitions out of private insurance less likely; being female or married increases the chances of switching to exclusively public coverage (Appendix Table A4).

Privately-insured native born Hispanics have become slightly less likely to retain their private coverage than white non-Hispanics over the last two decades, though not significantly so (Figure 6). The vast majority of this gap can be explained by privately-insured Hispanics having an increasing probability of becoming uninsured. Switching to strictly public coverage has had little effect throughout the sample period; in fact, the likelihood of switching from private to public coverage has decreased significantly.

Limitations

Though we have accounted for non-random attrition in our correction, we are still reliant upon the weights that SIPP provides being sensible. However, there still appears to be a discontinuity between the 1996 and 2001 panels, especially for the Hispanic non-citizens in Figure 1a. Besides non-random attrition, another source of this gap could be a reweight of the Hispanic population in the 2001 panel, following the 2000 census, which found a much higher Hispanic share of the population than had been assumed previously (Cresce, Schmidley, and Ramirez, 2004). Also, the smaller sample near the end and beginning of each panel exaggerates this gap; between the last full month of the 1996 panel, November 1999, and the first full month of the 2001 panel, January 2001, the gap is less than two and a half percentage points.

The question of citizenship is a sensitive one, and we fear that missing values may not be random. The number of missing values for the citizenship questions in the SIPP varies greatly by panel. In the 1984 panel, the questions were not asked until the eighth interview wave, when many survey subjects had already attrited; as a result, citizenship status is missing for as much as 32 percent of the sample. In each panel starting with 1986, the citizenship and migration questions are asked in the second interview wave, and the number of missing values is in the range between zero and ten percent throughout the rest of our sample.

Discussion

Our results add to the evidence that Hispanics in general and Hispanic immigrants in particular, are less likely to have insurance (Ku and Matani 2001, Thamer et al. 1997). Although this gap decreases significantly after controlling for various socio-demographic and workforce variables, there remains a gap in coverage (Buchmueller et al. 2006). Also consistent with earlier research, our results indicate that the gap between coverage rates for naturalized citizens and natives seems to be much smaller than the gap between noncitizen immigrants and natives (Goldman et al. 2005).
The sizes of the reductions in the gaps are also consistent with the findings of similar studies. Using the 2002 SIPP panel, Buchmueller et al (2006) reduced the gap for non-citizens by half by controlling for individual characteristics. Similarly, controlling for demographic variables for a sample of residents in LA County, Goldman, Smith, and Sood (2005) explained two-thirds of the gap for undocumented immigrants, and nearly all the gap for those with Green Cards or naturalized citizens. Waidmann, Garrett and Hadley (2004) used the National Survey of Families to study ESI offers and found that human capital and language could account for more than two-thirds of the gap in coverage offers for Latino non-citizens.

The IOM (2001) used an Oaxaca decomposition to estimate the variation in insurance coverage due to discrimination. They find that, after controlling for the effects of all observable characteristics other than nativity, the gap between insurance rates for short-term residents shrinks from 29.8 to 14.8

percent; for long-term residents, the rate shrinks from 16.9 to 10.8 percent; and for naturalized citizens, from 6.3 to 2.5 percent. This study also analyzes the gap in insurance rates between native and foreign-born racial/ethnic groups. Naturalized non-Hispanic Whites only differ from U.S.-born Whites by 0.7 percent. Naturalized Hispanics differ from U.S.-born Hispanics in insurance rates by 5.5 percentage points, but Hispanic short-term residents differ from U.S.-born Hispanics by 21 percentage points.

Though not directly comparable with these studies, our results, which found that demographics, labor market variables, and time trends explain between 60 and 80 percent of the gap in coverage, fall in a similarly reasonable range.

A major contribution of this study is the analysis of the trends in the coverage gaps over the last twenty years. We found that the gap in the uninsured rate is widening, that while the uninsured rate for white non-Hispanics is fairly flat over this time period, it is increasing for Hispanics. Further analysis reveals that the increase is restricted primarily to Hispanic immigrants without citizenship. Differences in individual characteristics, particularly educational attainment and employment status, explain much, but not all, of this change.

Not only are non-citizen Hispanics increasingly more likely to be without insurance coverage, they are also more likely to stay uninsured that comparison groups. Again, much but not all of both the gap and the widening of the gap is explained by characteristics of the individuals.

Further Research

Clearly, the "so-what" question of the long standing gap in coverage needs to be addressed. Hispanic immigrants are also an increasingly large portion of U.S. residents, forming large concentrations in states other than the traditional locations of California, Texas, Florida, and New York. It is not unreasonable to expect the combination of low income, no financial protection, language and cultural barriers, and fear of legal recriminations for those who are undocumented to form a formidable barrier to achieving needed pri-

mary care, particularly for those with chronic health problems. The incidence rates of diabetes, asthma, hypertension, smoking, and obesity are all higher and rising more rapidly for the Hispanic population. However, we have no good evidence on the marginal effect of lacking coverage on either the health care utilization patterns or the health status for this population.

In addition, the data is only beginning to reflect the effects of coming off the "five-year bar" on Medicaid coverage after entry into the U.S. PRWORA was passed in 1996, so those immigrants who arrived just after its implementation would be eligible only in 2001, in the middle of our last panel of data. We can use variation in the implementation of Medicaid reforms across states to identify the effects of new eligibility rules on public coverage. Since so much of the Hispanic population is affected by restrictions on eligibility of immigrants, this new identification strategy would better reflect the reality of coverage limitations among Hispanics.

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Table 1
Sample Means for Time-Series Graphs

	All		White Non-Hispanic		Hispanic	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Uninsured	0.164	0.370	0.134	0.341	0.336	0.472
Privately Insured	0.777	0.416	0.826	0.379	0.550	0.498
Publicly Insured	0.076	0.266	0.056	0.231	0.127	0.333
Hispanic	0.087	0.282				
Native-Born Citizen	0.903	0.296	0.964	0.187	0.536	0.499
Naturalized Citizen	0.040	0.196	0.020	0.139	0.127	0.333
Non-Citizen	0.057	0.232	0.016	0.127	0.337	0.473
Number of Observations	8,789,158		6,822,399		767,968	
Number of Individuals	259,775		202,070		22,484	

Table 2
Sample Means for Multinomial Insurance Status Regression

	White Non-Hispanics		Hispanics		Native-Born Hispanics		Naturalized Hispanics		Hispanic Non-Citizens	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Uninsured	0.127	0.333	0.332	0.471	0.258	0.438	0.261	0.439	0.480	0.500
Privately Insured	0.831	0.374	0.550	0.497	0.614	0.487	0.648	0.478	0.410	0.492
Publicly Insured	0.055	0.229	0.130	0.336	0.143	0.350	0.103	0.303	0.118	0.322
Hispanic										
HIU Income	3431.1	3141.7	2186.5	2180.6	2336.1	2346.0	2621.5	2467.4	1778.5	1659.3
Full Time	0.635	0.481	0.567	0.495	0.572	0.495	0.614	0.487	0.541	0.498
Part Time	0.128	0.335	0.110	0.313	0.116	0.321	0.095	0.293	0.106	0.307
State Unemployment Rate	5.89	1.79	6.33	1.63	6.28	1.60	6.30	1.55	6.42	1.71
Female	0.538	0.499	0.553	0.497	0.566	0.496	0.555	0.497	0.532	0.499
Black			0.083	0.276	0.123	0.329	0.042	0.201	0.032	0.176
Asian			0.011	0.102	0.0099	0.099	0.021	0.142	0.0080	0.089
Native American			0.012	0.109	0.015	0.123	0.0078	0.088	0.0079	0.089
Less than High School	0.111	0.314	0.398	0.490	0.286	0.452	0.388	0.487	0.587	0.492
High School Graduate	0.343	0.475	0.279	0.448	0.329	0.470	0.238	0.426	0.211	0.408
Some College	0.239	0.426	0.176	0.381	0.221	0.415	0.178	0.382	0.102	0.303
College Graduate	0.282	0.450	0.114	0.318	0.131	0.337	0.165	0.371	0.068	0.252
Age	39.2	12.3	36.4	11.7	36.0	12.1	40.8	11.5	35.5	10.9
Married	0.655	0.475	0.609	0.488	0.548	0.498	0.691	0.462	0.679	0.467
Native-Born Citizen	0.964	0.186	0.546	0.498						
Naturalized Citizen	0.019	0.138	0.123	0.329						
Non-Citizen	0.017	0.128	0.331	0.471						
Number of Observations	3,904,811		468,259		255,487		57,624		155,148	
Number of Individuals	172,206		20,373		11,093		2,523		6,757	

Table 3
Sample Means for Multinomial Insurance Transition Regressions

	Uninsured in t-1		Privately Insured in t-1		Publicly Insured in t-1	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Uninsured	0.934	0.248	0.010	0.101	0.024	0.153
Privately Insured	0.057	0.232	0.989	0.105	0.015	0.123
Publicly Insured	0.0094	0.097	0.017	0.130	0.971	0.167
Hispanic	0.238	0.426	0.073	0.260	0.251	0.434
Percent Change in HIU Income	3.95	96.88	2.92	110.77	0.90	53.34
HIU Income	1706.3	1651.3	3812.2	3174.1	938.2	1022.3
Part Time to Full Time	0.017	0.129			0.0069	0.083
Unemployed to Full Time	0.0070	0.083			0.0051	0.071
Unemployed to Part Time	0.0076	0.087			0.0081	0.090
Full Time to Part Time			0.0075	0.086		
Full Time to Unemployed			0.0041	0.064		
Part Time to Unemployed			0.0039	0.062		
Percent Change in State Unemployment Rate	0.149	3.243	0.130	2.961	0.108	2.745
Female	0.511	0.500	0.538	0.499	0.685	0.465
Black	0.014	0.119	0.0063	0.079	0.030	0.170
Asian	0.0019	0.044	0.00084	0.029	0.0030	0.054
Native American	0.0028	0.053	0.00085	0.029	0.0034	0.058
Less than High School	0.281	0.450	0.096	0.295	0.443	0.497
High School Graduate	0.370	0.483	0.331	0.471	0.324	0.468
Some College	0.200	0.400	0.243	0.429	0.135	0.342
College	0.115	0.319	0.306	0.461	0.058	0.233
Age	35.6	12.2	39.7	12.0	39.3	13.0
Married	0.527	0.499	0.704	0.457	0.347	0.476
Native-Born Citizen	0.829	0.377	0.939	0.239	0.864	0.343
Naturalized Citizen	0.037	0.188	0.029	0.168	0.035	0.185
Non-Citizen	0.134	0.341	0.032	0.175	0.100	0.301
Number of Observations	542,177		3,292,625		197,362	
Number of Individuals	52,173		170,649		14,627	

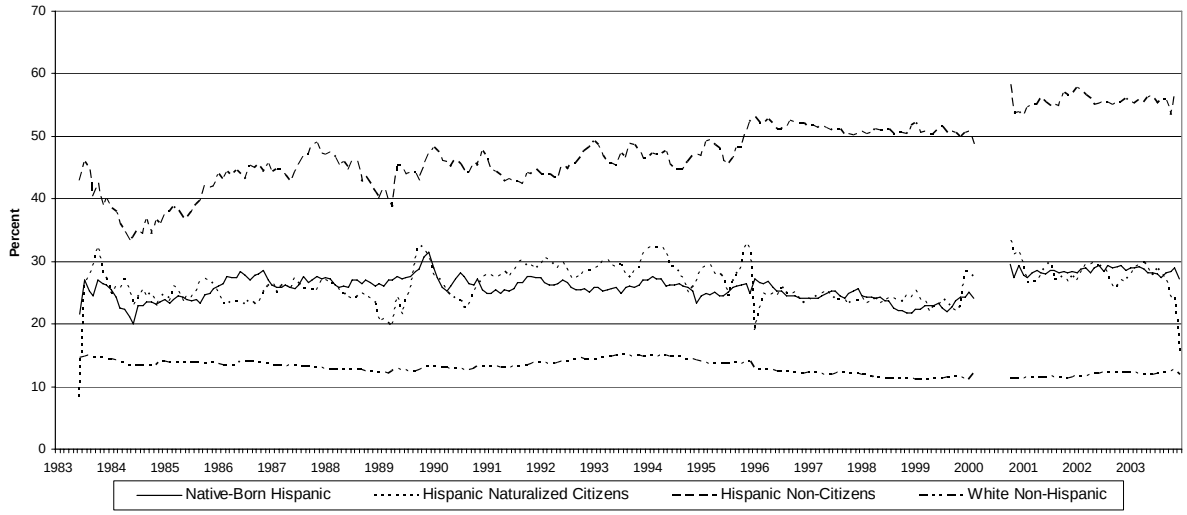
Table 4
Multinomial Logit Regression Results - Insurance Status

	Percentage Point Gap with Native-Born White Non-Hispanics		
	Native-Born Hispanics	Naturalized Hispanics	Hispanic Non-Citizens
Uninsured	6.98	8.24	14.20
Private Insurance	-8.79	-9.02	-15.32
Public Insurance	1.81	0.78	1.12

Table 5
Multinomial Logit Regression Results - Coverage Transitions

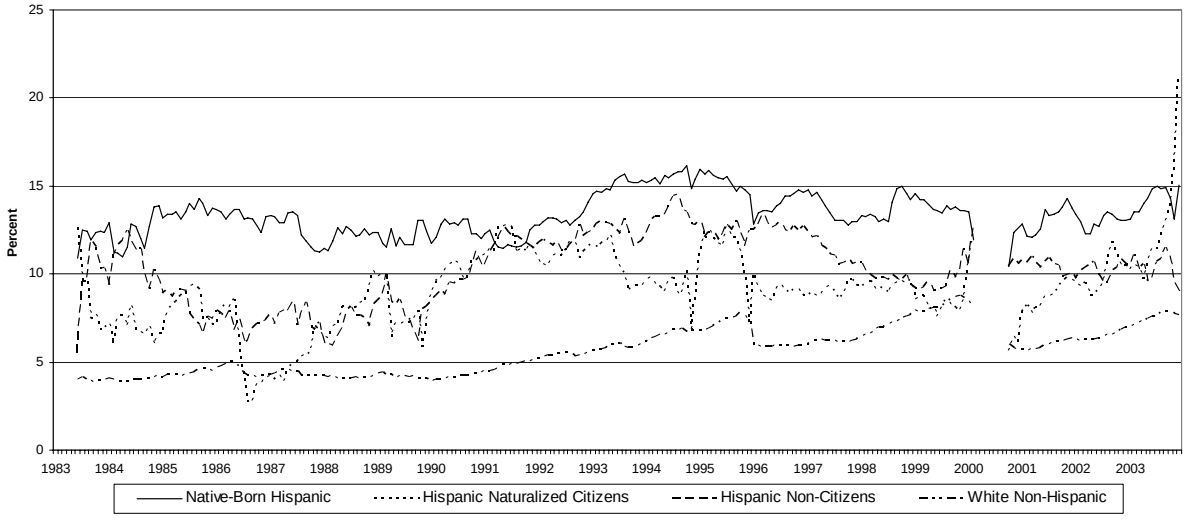
	Percentage Point Gap with Native-Born White Non-Hispanics		
	Native-Born Hispanics	Naturalized Hispanics	Hispanic Non-Citizens
Uninsured in t-1			
Stay Uninsured	0.92	1.37	2.39
Uninsured to Public	0.03	-0.26	-0.08
Uninsured to Private	-0.95	-1.11	-2.31
Publicly Insured in t-1			
Public to Uninsured	0.04	0.13	1.68
Stay Publicly Insured	0.26	0.04	-1.55
Public to Private	-0.30	-0.17	-0.13
Privately Insured in t-1			
Private to Uninsured	0.63	0.61	0.93
Private to Public	0.04	0.03	0.05
Stay Privately Insured	-0.68	-0.64	-0.98

Figure 1a: Uninsured Rate - Hispanic Adults, by Citizenship Status



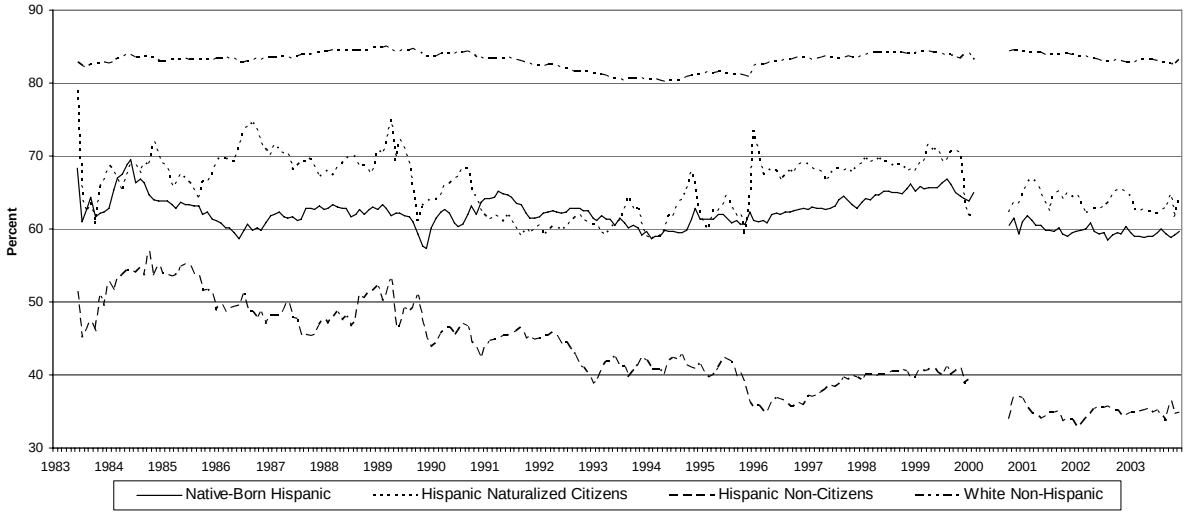
Note: Rates are adjusted for attrition bias.

Figure 1b: Rate of Public Coverage - Hispanic Adults, by Citizenship Status



Note: Rates are adjusted for attrition bias.

Figure 1c: Rate of Private Coverage - Hispanic Adults, by Citizenship Status



Note: Rates are adjusted for attrition bias.

Figure 2a: Native-Born Hispanic-White Non-Hispanic Gap
Uninsured

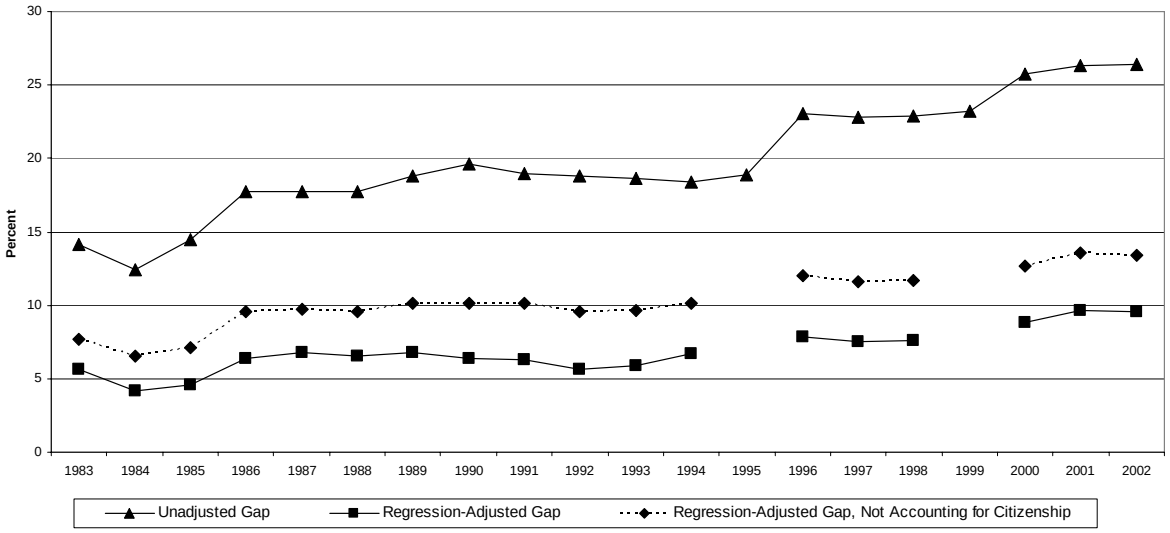


Figure 2b: Native-Born Hispanic-White Non-Hispanic Gap
Publicly Insured

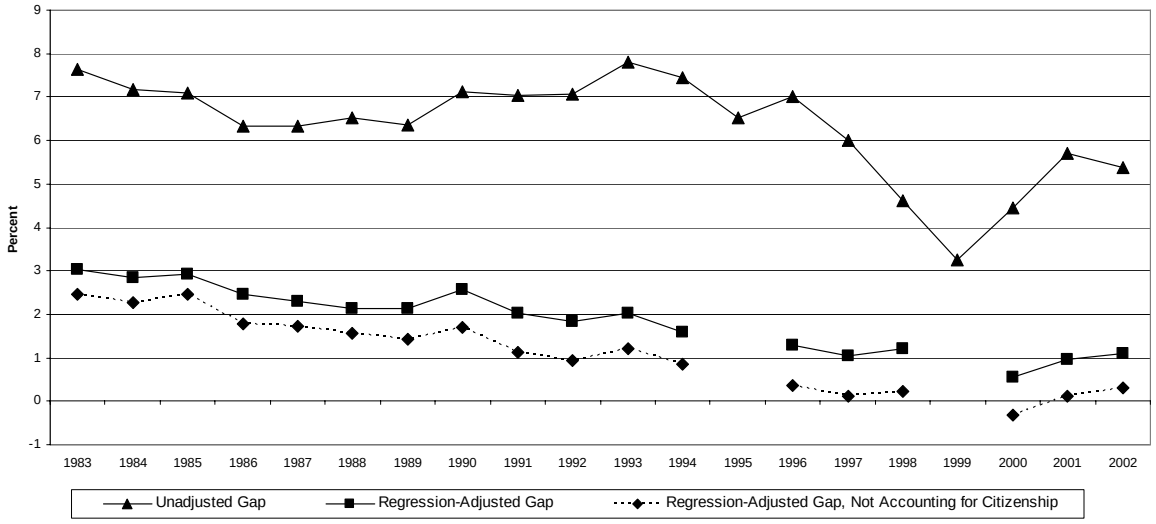


Figure 2c: Native-Born Hispanic-White Non-Hispanic Gap
Privately Insured

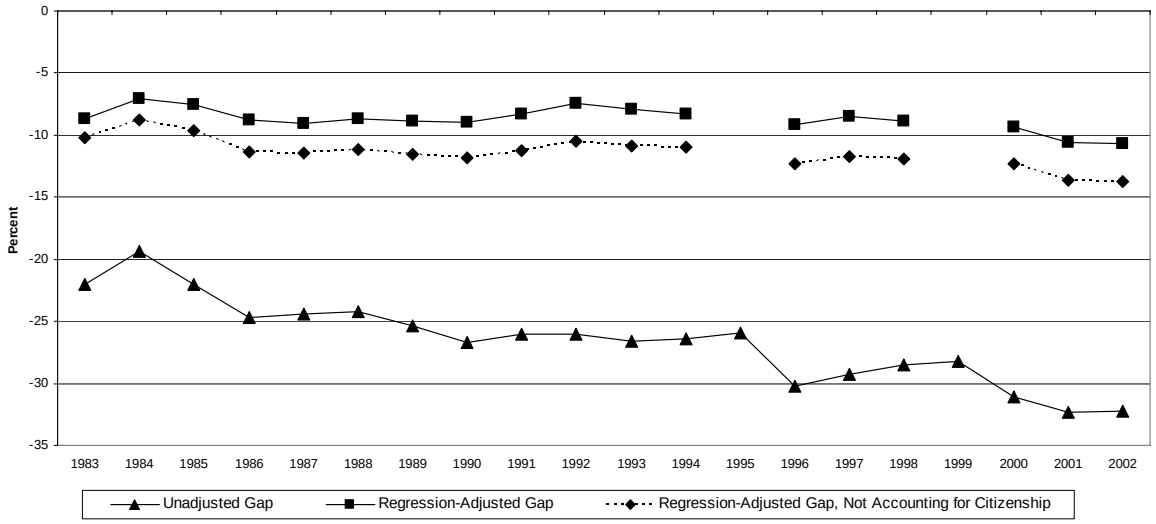
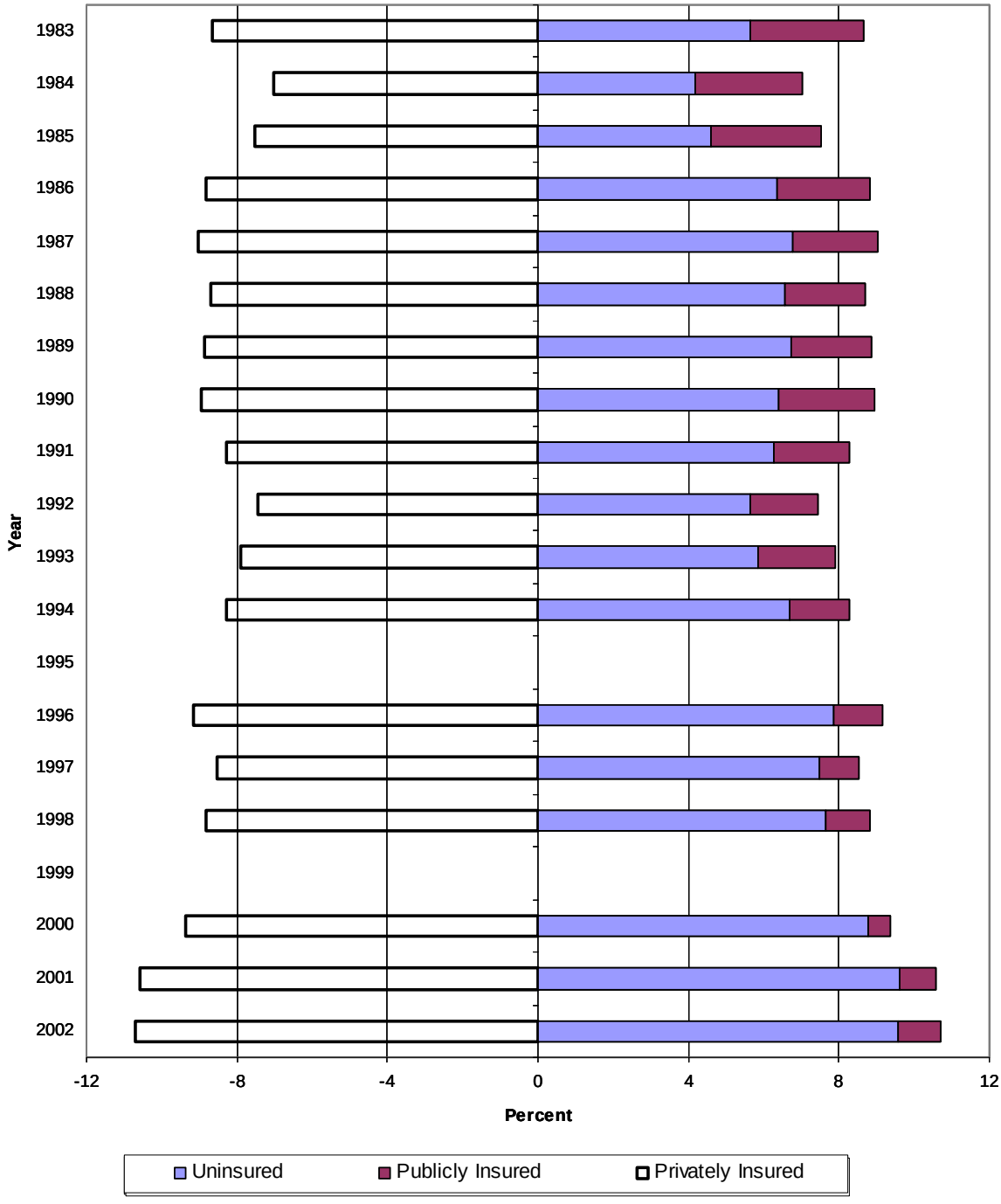


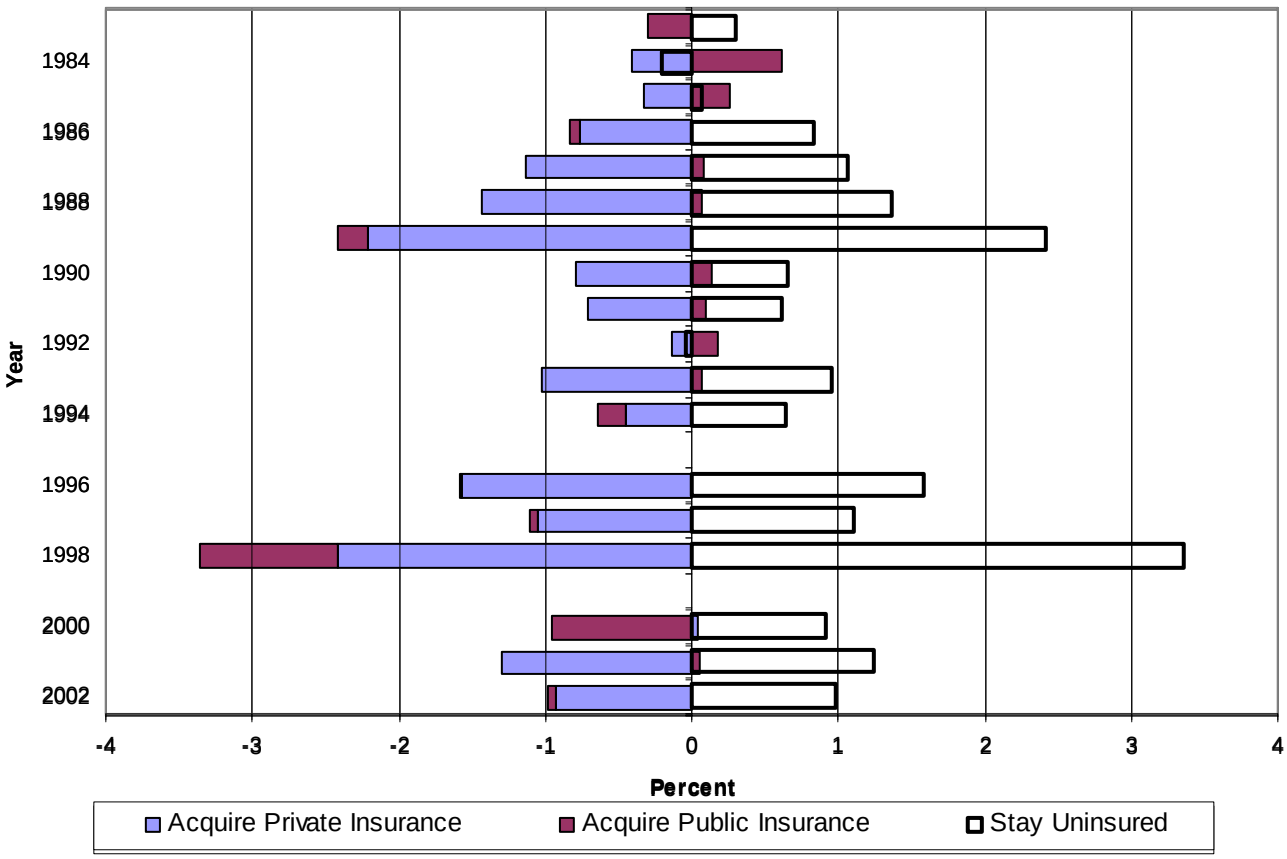
Figure 3: Native Born Hispanic-White Non-Hispanic Gap in Private Insurance, by Alternative Insurance Status



Note: The probability of being privately insured is the negative of the sum of the probability of being uninsured and being publicly insured; because the three categories are mutually exclusive and exhaustive, any status other than private insurance is automatically either uninsured or private insurance status.

Source: Author calculations from insurance status regression.

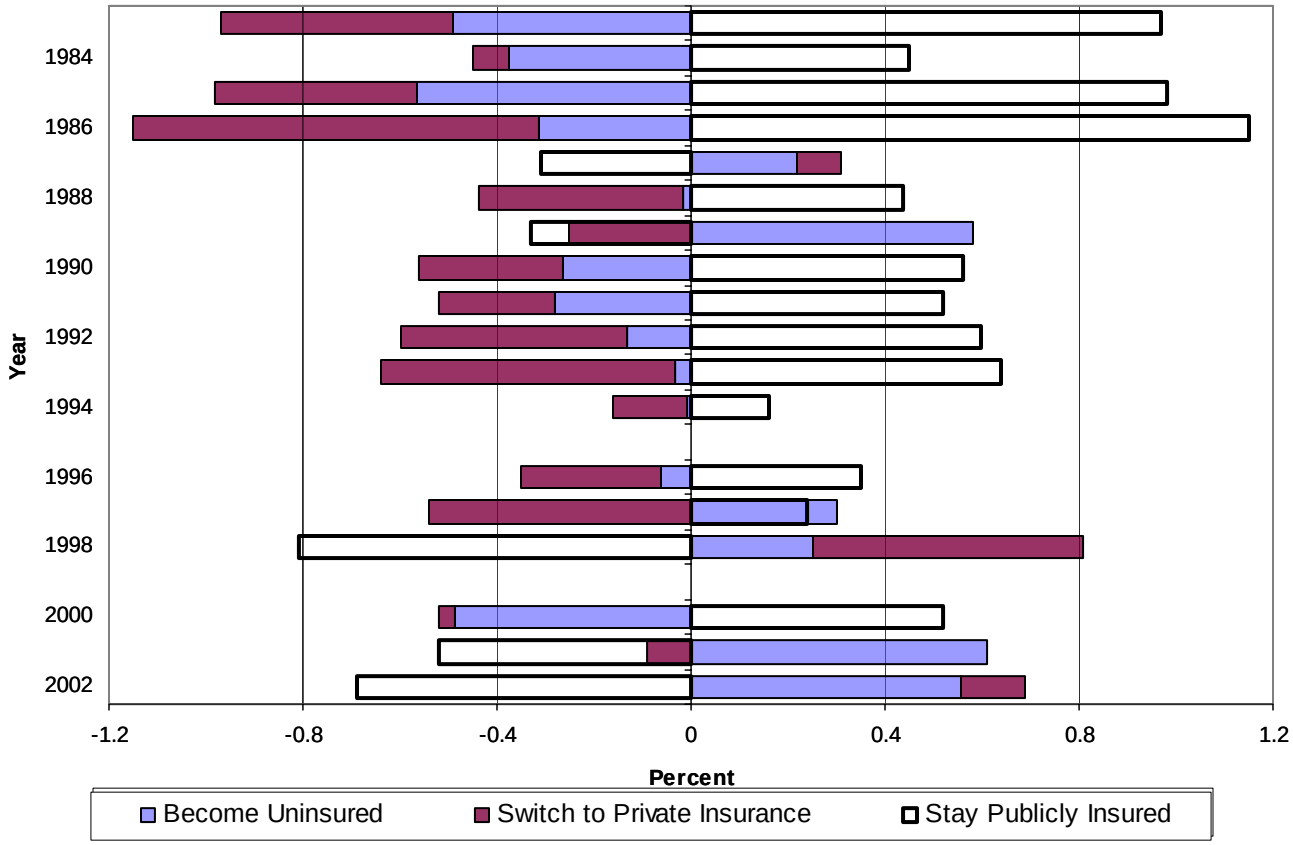
Figure 4: Native-Born Hispanic-White Non-Hispanic Gap in Staying Uninsured, by Insurance Transition



Note: The probability of staying uninsured is the negative of the sum of the probability of acquiring public and private insurance; because the three categories are mutually exclusive and exhaustive, any transition away from being uninsured is automatically a transition into either public or private insurance.

Source: Author calculations from transition regression, conditional on being uninsured in t-1.

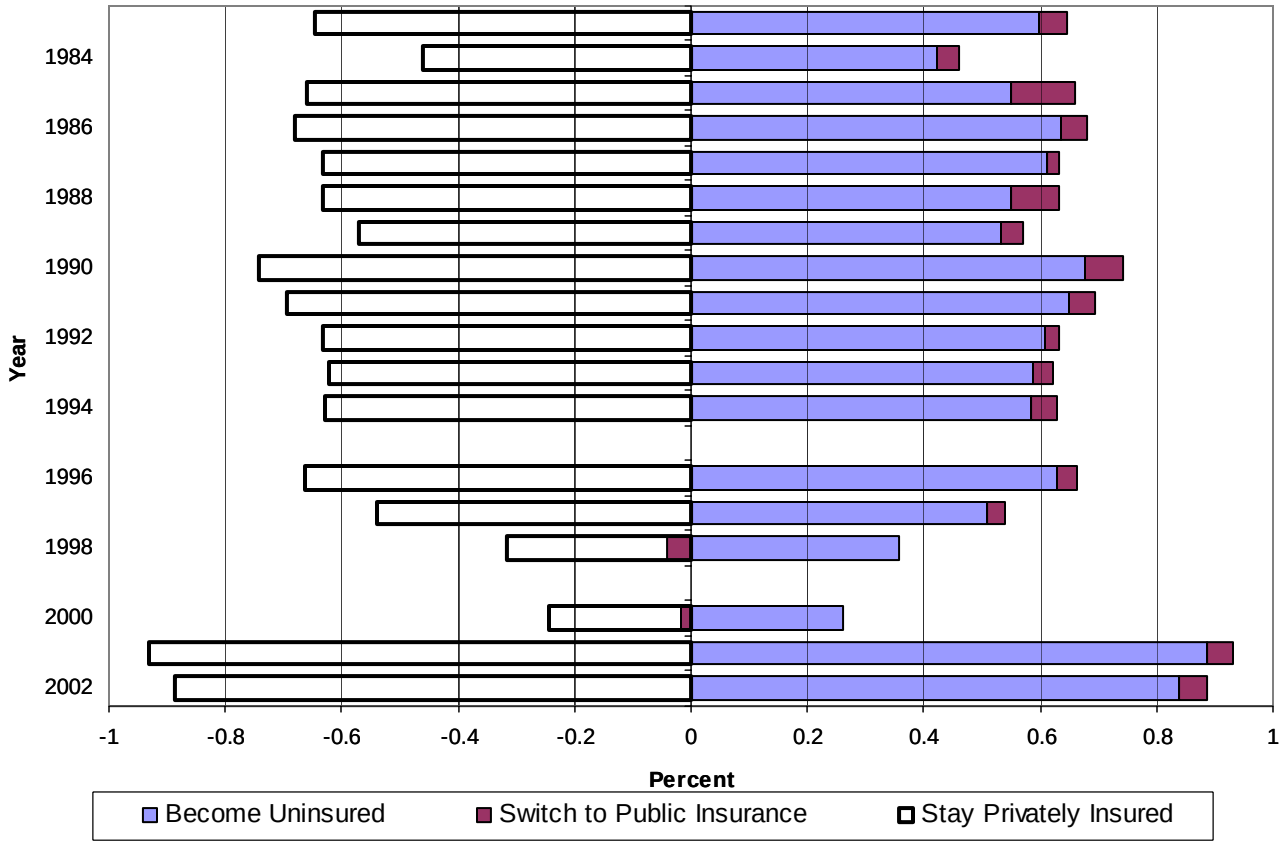
Figure 5: Native-Born Hispanic-White Non-Hispanic Gap in Staying Publicly Insured, by Insurance Transition



Note: The probability of staying publicly insured is the negative of the sum of the probability of becoming uninsured and switching to private insurance; because the three categories are mutually exclusive and exhaustive, any transition away from being publicly insured is automatically a transition into either private insurance or the uninsured state.

Source: Author calculations from transition regression, conditional on being privately insured in t-1.

Figure 6: Native-Born Hispanic-White Non-Hispanic Gap in Staying Privately Insured, by Insurance Transition



Note: The probability of staying privately insured is the negative of the sum of the probability of becoming uninsured and switching to public insurance; because the three categories are mutually exclusive and exhaustive, any transition away from being privately insured is automatically a transition into either public insurance or the uninsured state.

Source: Author calculations from transition regression, conditional on being privately insured in t-1.

Table A1
Dependent Variable: Uninsured, Privately Insured (Base Outcome), or Publicly Insured

	Uninsured			Privately Insured	Publicly Insured		
	Mean Derivative	Coefficient	S.E.	Mean Derivative	Mean Derivative	Coefficient	S.E.
Hispanic	0.096	0.875 ***	(0.044)	-0.107	0.0111	0.704 ***	(0.071)
HIU Income ($1000s)	-0.050	-0.583 ***	(0.0058)	0.068	-0.018	-0.763 ***	(0.011)
Part Time	-0.0028	-0.184 ***	(0.015)	0.037	-0.035	-1.241 ***	(0.025)
Full Time	-0.054	-0.805 ***	(0.013)	0.138	-0.084	-2.873 ***	(0.028)
State Unemployment Rate (%)	0.0012	0.015 ***	(0.0025)	-0.0019	0.00075	0.028 ***	(0.0047)
Female	-0.041	-0.367 ***	(0.012)	0.032	0.0094	0.103 ***	(0.024)
Black	-0.016	-0.125 ***	(0.053)	0.0060	0.010	0.212 ***	(0.075)
Asian	-0.011	-0.080	(0.149)	0.0038	0.0069	0.148	(0.226)
Native American	-0.0038	-0.050	(0.131)	0.0064	-0.0026	-0.097	(0.186)
Less than HS	0.094	1.069 ***	(0.019)	-0.158	0.064	1.888 ***	(0.037)
HS Only	0.044	0.560 ***	(0.016)	-0.070	0.026	0.940 ***	(0.036)
Some College	0.016	0.192 ***	(0.018)	-0.023	0.0065	0.262 ***	(0.040)
Age	0.0049	0.071 ***	(0.0032)	-0.010	0.0051	0.173 ***	(0.0055)
Age^2	-0.000086	-0.0012 ***	(0.000041)	0.00015	-0.000061	-0.0022 ***	(0.000068)
Married	-0.0062	-0.217 ***	(0.013)	0.043	-0.037	-1.091 ***	(0.027)
Noncitizen	0.043	0.485 ***	(0.045)	-0.063	0.020	0.713 ***	(0.077)
Naturalized Citizen	0.011	0.080	(0.049)	-0.0043	-0.0068	-0.165 *	(0.100)
Hispanic*Noncitizen	0.027	0.141 ***	(0.055)	-0.0013	-0.026	-0.808 ***	(0.092)
Hispanic*Naturalized Citizen	0.00016	-0.012	(0.067)	0.0029	-0.0030	-0.092	(0.127)
Constant		-0.717 ***	(0.064)			-3.069 ***	(0.112)
Annual Percentage Point Increase in Native-Born Hispanic-White Non-Hispanic Gap		0.218 ***	(0.031)	-0.100 *** (0.030)		-0.117 ***	(0.0094)
Pseudo R-squared				0.2772			
Number of Observations				4,373,070			
Number of Individuals				192,579			

*** - Significant at the 98% confidence level
** - Significant at the 95% confidence level
* - Significant at the 90% confidence level

Universe: Non-self-employed individuals age 18-64 in SIPP sample 24 months
Standard Errors are corrected for multiple observations on the same individual.
Note: Regression includes year and Hispanic-year indicator variables, with 2002 as the omitted condition.

Table A2: Uninsured in the previous month
Dependent Variable: Uninsured (Base Outcome), Privately Insured, or Publicly Insured

	Stay Uninsured	Acquire Private Insurance			Acquire Public Insurance		
	Mean Derivative	Mean Derivative	Coefficient	S.E.	Mean Derivative	Coefficient	S.E.
Hispanic	0.0099	-0.0093	-0.188 ***	(0.066)	-0.00053	-0.069	(0.107)
Change in HIU Income (%)	-0.000000069	0.000000040	0.00000081	(0.000)	0.000000025	0.0000029 ***	(0.000)
HIU Income ($1000s)	-0.0022	0.0074	0.137 ***	(0.006)	-0.0052	-0.581 ***	(0.031)
Part Time to Full Time	-0.116	0.110	1.269 ***	(0.031)	0.0053	0.586 ***	(0.093)
Unemployed to Full Time	-0.201	0.193	1.797 ***	(0.039)	0.0086	0.897 ***	(0.134)
Unemployed to Part Time	-0.058	0.053	0.748 ***	(0.054)	0.0044	0.464 ***	(0.122)
Change in State Unemployment Rate (%)	0.0000011	-0.00000053	-0.000011	(0.000)	-0.00000060	-0.000068	(0.000)
Female	-0.0064	0.0010	0.024 *	(0.014)	0.0055	0.649 ***	(0.035)
Black	-0.0066	0.0016	0.035	(0.063)	0.0051	0.461 ***	(0.115)
Asian	0.0019	-0.0064	-0.125	(0.180)	0.0045	0.407	(0.295)
Native American	-0.0021	-0.0023	-0.041	(0.163)	0.0044	0.405 *	(0.225)
Less than HS	0.026	-0.030	-0.664 ***	(0.024)	0.0047	0.463 ***	(0.060)
HS Only	0.015	-0.017	-0.324 ***	(0.019)	0.0019	0.189 ***	(0.057)
Some College	0.0074	-0.0077	-0.151 ***	(0.021)	0.00031	0.028	(0.064)
Age	0.0019	-0.0018	-0.035 ***	(0.004)	-0.00011	-0.015	(0.009)
Age^2	-0.000015	0.000015	0.00029 ***	(0.000)	0.00000054	0.000076	(0.000)
Married	-0.0063	0.0031	0.062 ***	(0.015)	0.0032	0.368 ***	(0.039)
Noncitizen	0.0054	-0.0081	-0.162 ***	(0.051)	0.0027	0.270 ***	(0.107)
Naturalized Citizen	-0.0012	0.0018	0.033	(0.056)	-0.00061	-0.070	(0.155)
Hispanic*Noncitizen	0.0091	-0.0054	-0.110 *	(0.063)	-0.0037	-0.493 ***	(0.124)
Hispanic*Naturalized Citizen	0.0057	-0.0034	-0.070	(0.079)	-0.0023	-0.299	(0.195)
Constant			-2.307 ***	(0.079)		-3.701 ***	(0.177)
Annual Percentage Point Increase in Native-Born Hispanic-White Non-Hispanic Gap	0.059 * (0.032)		-0.030	(0.028)		-0.029 **	(0.014)
Pseudo R-squared			0.0456				
Number of Observations			542,171				
Number of Individuals			52,172				

*** - Significant at the 98% confidence level
** - Significant at the 95% confidence level
* - Significant at the 90% confidence level

Universe: Non-self-employed individuals age 18-64 in SIPP sample 24 months who were uninsured in the previous month.
Standard Errors are corrected for multiple observations on the same individual.
Note: Regression includes year and Hispanic-year indicator variables, with 2002 as the omitted condition.

Table A3: Publicly insured in the previous month
Dependent Variable: Uninsured, Privately Insured, or Publicly Insured (Base Outcome)

	Become Uninsured			Acquire Private Insurance			Stay Publicly Insured
	Mean Derivative	Coefficient	S.E.	Mean Derivative	Coefficient	S.E.	Mean Derivative
Hispanic	0.0056	0.235 **	(0.117)	0.0013	0.097	(0.147)	-0.0069
Change in HIU Income (%)	0.000000031	0.0000013	(0.000)	-0.000000017	-0.0000011	(0.000)	-0.0000000145
HIU Income ($1000s)	0.00042	0.024	(0.020)	0.0029	0.195 ***	(0.034)	-0.0033
Part Time to Full Time	0.092	1.834 ***	(0.087)	0.047	1.648 ***	(0.112)	-0.139
Unemployed to Full Time	0.120	2.249 ***	(0.093)	0.143	2.793 ***	(0.093)	-0.264
Unemployed to Part Time	0.052	1.296 ***	(0.094)	0.022	1.030 ***	(0.140)	-0.074
Change in State Unemployment Rate (%)	0.00000019	0.0000069	(0.000)	-0.00000080	-0.000054	(0.000)	0.00000062
Female	0.00046	0.017	(0.038)	-0.0015	-0.102 **	(0.044)	0.0011
Black	0.0024	0.107	(0.107)	0.0026	0.168	(0.130)	-0.0050
Asian	-0.0025	-0.095	(0.299)	0.013	0.642 **	(0.306)	-0.011
Native American	0.0035	0.153	(0.226)	0.0041	0.255	(0.330)	-0.0077
Less than HS	-0.0022	-0.112 *	(0.058)	-0.010	-0.713 ***	(0.064)	0.012
HS Only	0.0011	0.037	(0.059)	-0.0054	-0.375 ***	(0.063)	0.0043
Some College	0.0025	0.102	(0.067)	-0.0024	-0.166 ***	(0.070)	-0.000096
Age	-0.00074	-0.035 ***	(0.009)	-0.0012	-0.086 ***	(0.011)	0.0020
Age^2	-0.00000092	-0.000015	(0.000)	0.000015	0.0010 ***	(0.000)	-0.000014
Married	0.018	0.739 ***	(0.035)	0.0064	0.444 ***	(0.048)	-0.024
Noncitizen	-0.0011	-0.057	(0.111)	-0.0040	-0.302 **	(0.131)	0.0051
Naturalized Citizen	0.0055	0.220	(0.161)	-0.00064	-0.035	(0.165)	-0.0049
Hispanic*Noncitizen	0.017	0.615 ***	(0.128)	0.0056	0.357 **	(0.166)	-0.023
Hispanic*Naturalized Citizen	-0.0047	-0.224	(0.202)	0.0018	0.105	(0.228)	0.0029
Constant		-2.936 ***	(0.195)		-2.611 ***	(0.237)	
Annual Percentage Point Increase in Native-Born Hispanic-White Non-Hispanic Gap		0.034 ***	(0.013)		0.0238 **	(0.012)	-0.058 *** (0.019)
Pseudo R-squared				0.0616			
Number of Observations				197,362			
Number of Individuals				14,627			

*** - Significant at the 98% confidence level
** - Significant at the 95% confidence level
* - Significant at the 90% confidence level

Universe: Non-self-employed individuals age 18-64 in SIPP sample 24 months who were uninsured in the previous month.
Standard Errors are corrected for multiple observations on the same individual.
Note: Regression includes year and Hispanic-year indicator variables, with 2002 as the omitted condition.

Table A4: Privately insured in the previous month
Dependent Variable: Uninsured, Privately Insured (Base Outcome), or Publicly Insured

	Become Uninsured			Stay Privately Insured	Become Publicly Insured		
	Mean Derivative	Coefficient	S.E.	Mean Derivative	Mean Derivative	Coefficient	S.E.
Hispanic	0.0084	0.678 ***	(0.064)	-0.0089	0.00050	0.502 ***	(0.151)
Change in HIU Income (%)	0.000000038	0.0000040 ***	(0.000)	-0.000000039	0.0000000022	0.0000027	(0.000)
HIU Income ($1000s)	-0.0049	-0.513 ***	(0.014)	0.0054	-0.00049	-0.571 ***	(0.039)
Full Time to Part Time	0.038	1.741 ***	(0.030)	-0.040	0.0015	1.123 ***	(0.114)
Full Time to Unemployed	0.124	2.994 ***	(0.026)	-0.132	0.0077	2.639 ***	(0.081)
Part Time to Unemployed	0.052	2.025 ***	(0.037)	-0.055	0.0028	1.595 ***	(0.118)
Change in State Unemployment Rate (%)	-0.00000031	-0.000032 *	(0.000)	0.00000036	-0.000000054	-0.000062	(0.000)
Female	-0.0015	-0.151 ***	(0.012)	0.0012	0.00031	0.348 ***	(0.043)
Black	-0.0017	-0.191 ***	(0.060)	0.0010	0.00071	0.579 ***	(0.130)
Asian	0.00024	0.027	(0.162)	-0.00063	0.00039	0.364	(0.434)
Native American	-0.0020	-0.230	(0.148)	0.0019	0.00013	0.123	(0.326)
Less than HS	0.0050	0.456 ***	(0.023)	-0.0075	0.0026	1.623 ***	(0.075)
HS Only	0.0021	0.216 ***	(0.017)	-0.0028	0.00071	0.685 ***	(0.066)
Some College	0.00063	0.065 ***	(0.018)	-0.00076	0.00012	0.135 *	(0.076)
Age	0.00012	0.012 ***	(0.004)	-0.000080	-0.000037	-0.041 ***	(0.012)
Age^2	-0.0000042	-0.00044 ***	(0.000)	0.0000037	0.00000048	0.00053 ***	(0.000)
Married	-0.00014	-0.0166	(0.019)	0.00058	-0.00044	-0.486 ***	(0.056)
Noncitizen	0.0030	0.279 ***	(0.050)	-0.0035	0.00054	0.497 ***	(0.145)
Naturalized Citizen	0.00078	0.078	(0.051)	-0.00073	-0.000053	-0.057	(0.165)
Hispanic*Noncitizen	-0.000075	-0.010	(0.061)	0.00052	-0.00045	-0.640 ***	(0.179)
Hispanic*Naturalized Citizen	-0.0011	-0.120	(0.074)	0.0012	-0.00010	-0.123	(0.222)
Constant		-3.261 ***	(0.071)			-4.921 ***	(0.221)
Annual Percentage Point Increase in Native-Born Hispanic-White Non-Hispanic Gap		0.0035	(0.0061)	-0.00090	(0.0069)	-0.0026 **	(0.0012)
Pseudo R-squared				0.1391			
Number of Observations				3,292,592			
Number of Individuals				170,646			

*** - Significant at the 98% confidence level
** - Significant at the 95% confidence level
* - Significant at the 90% confidence level

Universe: Non-self-employed individuals age 18-64 in SIPP sample 24 months who were uninsured in the previous month.
Standard Errors are corrected for multiple observations on the same individual.
Note: Regression includes year and Hispanic-year indicator variables, with 2002 as the omitted condition.