

Insensitivity of Underemployment to Business Cycles in the United States, 1994-2004*

Nelson Lim

Sara Hajiamiri

RAND Corporation

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1 Abstract

In this paper, we document the association between business cycles and underemployment rates—as defined in the “labor utilization framework” (LUF), see, e.g., Clogg et al. (2001)—in the United States between 1994 and 2004. We find that the 2001 U.S. economic recession was associated with a large, sudden increase in people who reported that they were voluntarily taking part-time work and with small, gradual increases in the prevalence of unemployment and involuntary part-time workers. However, neither the 1990s economic boom nor the 2001 economic recession was associated with other LUF underemployment measures, including discouraged workers and underemployment by income and by education. The same patterns holds for all demographic groups by gender, race and ethnicity, age, education, and marital status. We conclude that underemployment is insensitive to business cycles in the United States between 1994 and 2004, and discuss the implications of our findings for measuring underemployment.

2 Introduction

Although it has long been documented that economic recession is associated with increased unemployment (e.g., Ilg 1994), we know very little about whether and how economic recession (and more broadly, business cycles) is associated with underemployment. The “labor utilization framework” (LUF), first proposed by Hauser (1974) and elaborated by Clogg (1979), develops a set of more refined measures of underemployment that provides more detailed information about what happens to the labor market when the economy turns bad. The LUF distinguishes those underemployed workers in the labor force into such categories as discouraged workers, voluntary and involuntary part-time workers and underemployed by low-income and education mismatch, have been widely analyzed in social demography (e.g., Clogg et al. 2001; Clogg and Shockey 1985; Lichter 1988; Lim and Golinelli 2006). In this paper, we document the association between business cycles and these underemployment measures in the United States between 1994 and 2004. We find that the 2001 U.S. economic recession was associated with a large, sudden increase in people who reported that

they were voluntarily taking part-time work and with small, gradual increases in the prevalence of unemployment and involuntary part-time workers. However, neither the 1990s economic boom nor the 2001 economic recession was associated with other LUF underemployment measures, including discouraged workers and underemployment by income and by education. The same patterns holds for all demographic groups by gender, race and ethnicity, age, education, and marital status. We discuss the implications of these findings for measuring underemployment.

3 Data and Method

We use data from the 1994–2004 March Current Population Survey. We restrict our sample by eliminating those individuals who were 15 years of age and younger ($age < 16$) and those individuals who were retired and disabled at the survey interview.

3.1 Underemployment Measures, Labor Utilization Framework

We follow Clogg (1979) to construct eight measures of (under-)employment (see also, Sobel 1996):

$$\left\{ \begin{array}{l} \text{Not in the labor force} \\ \\ \text{In the labor force} \end{array} \right. \left\{ \begin{array}{ll} \text{Outside the labor force} & (1) \\ \text{Subunemployed/Discouraged Worker} & (2) \\ \\ \text{Unemployed} & (3) \\ \text{Involuntary part-time worker for economic reasons} & (4) \\ \text{Voluntary part-time worker} & (5) \\ \text{Underemployed (full-time) worker, with inadequate income} & (6) \\ \text{Underemployed (full-time) worker, with overeducation} & (7) \\ \text{Adequately employed full-time worker} & (8) \end{array} \right.$$

The definition of Category (1) is the same as in the Current Population Survey, subtracted by those “subunemployed or discouraged workers” in Category (2). Category (2) is defined as persons who

(2a) want a job, (2b) are available to take a job, and (2c) had looked for work within the past year but not within the prior 4 weeks because they believed their search would be futile. The definition of Category (3), unemployed, is the same as the Current Population Reports. Category (4) includes those individuals who worked part-time (less than 35 hours a week) for economic reasons. Category (5) includes voluntary part-time workers. Category (6) includes those full-time workers whose income was below 125% of the poverty threshold.¹ Category (7) includes those full-time workers whose years of schooling exceeded one standard deviation above the average years of schooling in his/her occupation of that year. Category (8) is the residual category for being adequately employed that includes both full-time and voluntary part-time workers.²

4 Descriptive Results

4.1 Business Cycles

We use four macroeconomic indicators, standardized to the level of 1993, to measure business cycles (Figure 1). Overall, these indicators suggest that the U.S. economy has steadily grown until 2000, and then stagnated from 2000–2004. For example, the real GDP per capita reached the plateau in 2000 at about 120% of the 1993 level. The number of jobs followed a similar pattern. Average income also stopped climbing around 2000 at about 135% of the 1993 level. The industrial production has even plumped after the peak in 2000. These results are consistent with the claim by other researchers (e.g., Langdon et al. 2002) that the nation’s longest postwar expansion ended and the economy entered a recession in 2001.

[Figure 1 about here.]

¹For primary workers, we use the family composition to determine the threshold. For secondary workers, we use the poverty threshold for a primary individual.

²Programming issues: (a) It is incorrect to simply adjust for CPI for selecting the poverty threshold. Each year there is a different set of poverty thresholds in the Current Population Report P-60 series. (b) We use codes that construct the variable, `luf2`, to be consistent with the description in Clogg et al. (2001). (c) We want to study gender differences, and thus we don’t want to identify “educational mismatch” using gender-specific occupation-education standards.

4.2 Overall Underemployment Trends

Figure 2 presents the overall trend of underemployment.³ The most noteworthy point is that the number of *voluntary* workers increased from less than 20% to over 23% in 2000 and 2001, which coincided with the macroeconomic recession; however, the jump was sudden and temporary. Unemployment rates and the rates of involuntary part-time workers also rose as the economy turned bad. However, these increases happened much more gradually and later than the increase in the number of voluntary workers.

[Figure 2 about here.]

It appears that underemployment by low income and underemployment of overeducation tend to be “chronic” conditions of underemployment, whereas moving from full-time employment to part-time employment tends to be an imminent response to changes in the economy. The low-term impact of an economic recession is reflected in gradual increase in unemployment rates and the rates of involuntary part-time workers.

4.3 Underemployment Trends by Gender

Figure 3 presents the trends of underemployment by gender. For both men and women, we observe similar patterns of underemployment associated with the 2001 economic recession: a sudden and temporary increase in the prevalence of voluntary part-time workers and small and gradual increases in unemployment rates and involuntary part-time worker.

[Figure 3 about here.]

Comparing the levels of underemployment between men and women, women are much more likely than men to report that they are voluntary part-time workers. Men are more likely to be

³We do not present those who are not in the labor force (Category 1) and those who are adequately employed full-time workers (the residual Category 8). Also note that the category of discouraged workers in general does not matter. It has been less than half a percentage point between 1994 and 2006. When we calculate the other underemployment measures, we will get extremely similar results regardless of whether we include individuals in this category or not.

underemployment by low income and by education mismatch, as previously reported (Clogg and Shockey 1984).

4.4 Underemployment Trends by Race and Ethnicity

Figure 4 presents the trends of underemployment by race and ethnicity. Again we observe similar patterns of underemployment associated with the 2001 economic recession, especially the sudden and temporary increase in self-reported voluntary part-time workers.

[Figure 4 about here.]

4.5 Underemployment Trends by Age, Education, and Marital Status

For other demographic breakdowns, we once again observe similar patterns of underemployment associated with the 2001 economic recession: a sudden and temporary increase in the prevalence of voluntary part-time workers and small and gradual increases in unemployment rates and involuntary part-time worker.

[Figure 5–Figure 7 about here.]

5 Results from Multivariate Models

Between now and the PAA, we will conduct multivariate analysis to confirm the above descriptive results in a more rigorous way. We will construct a set of multilevel models with the macroeconomic indicators for business cycle being a level-2 covariate and individual underemployment data from the March CPS as the level-1 outcome. We will also identify the rotation CPS samples to adjust for the non-independence in the sampling procedure that tends to underestimate the standard errors and inflate statistical power.

6 Discussion

The main finding of this descriptive analysis of trends of underemployment is unexpected if one subscribes to the macroeconomic theory of unemployment (and note that there is virtually no formal theory about underemployment). Despite confirming prior consensus that economic recessions lead to heightened levels of long-term unemployment, we observe little change in the underemployment rates with the exception of a sudden and temporary increase in the voluntary part-time workers, during the 2001 economic recession in the United States. This is true to all the demographic groups, and thus is not an artifact of the composition of the U.S. population. In other words, unlike the claim of the developers and subsequent followers of the “labor utilization framework”, underemployment is insensitive (or at least less sensitive) to business cycles than official unemployment measures, according to our results.

How can we learn from these findings in proposing a theory for underemployment and revising operationalizations of underemployment that prior researchers have been struggled for decades? We argue that the underemployment by low income and underemployment by educational mismatch both tend to be “chronic” conditions of labor force activities. Workers even on a layoff are unlikely to switch to a lower-paying job in a bad economy, but rather remain hopeful in getting a job that is comparable to his/her previous position. Similarly, highly educated workers are unlikely to move to a market that are typically for lower educated workers. Hence, our findings on the labor market conditions in an economic recession echo the puzzle regarding the “stickiness or rigidity” about wages and are consistent with the arguments by Bewley (1995; 1999).

Our findings also raise concerns about the validity of the underemployment measures based on self-reported labor force activities and self-reported motives. One might imagine that during an economic recession, more families and households may be in greater need for an additional income. Thus, many of the workers who reported being part-time “voluntarily” might indeed be facing difficulties on the job and thus “involuntarily” moved to part-time work status. These self reports might suffer from social desirability biases in that respondents answered the questions in a way

that would not make themselves look bad. If this conjecture is true, one might seriously challenge the validity of the “labor utilization framework” (LUF) and consider alternative, more objective measures of labor force conditions.

We will discuss further details of the implications of our findings for measuring labor force conditions, especially unemployment and underemployment, in the final paper.

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Figure 1: Macroeconomic Conditions, United States, 1993–2003

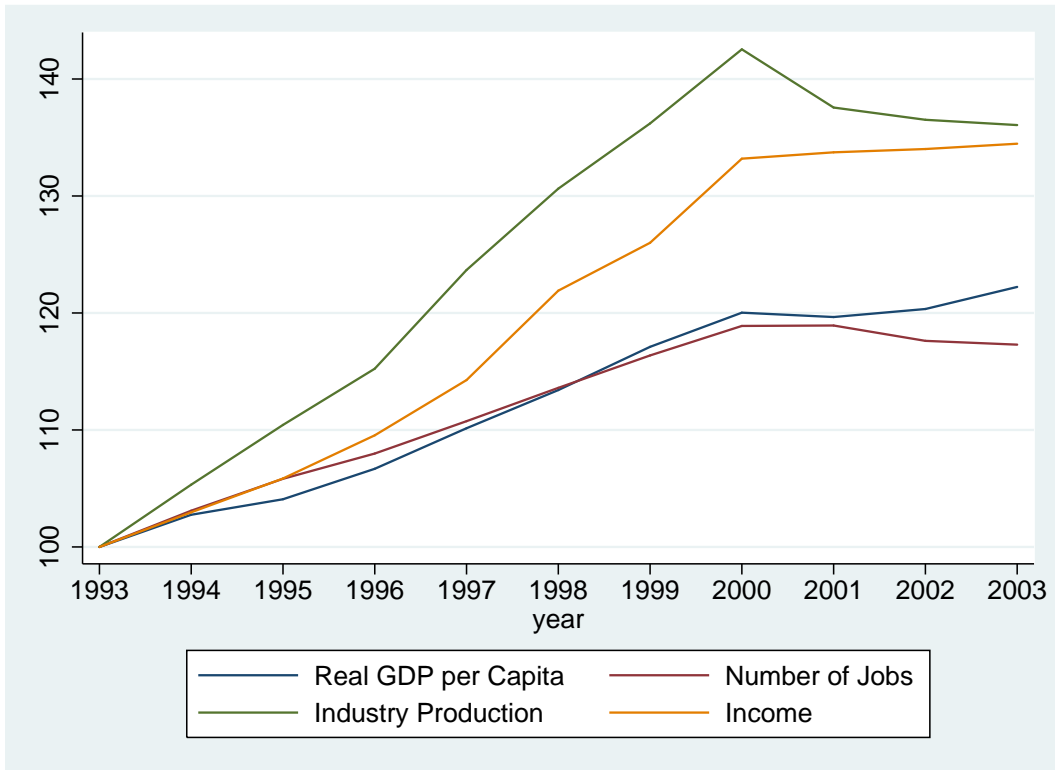


Figure 2: Overall Trend of Underemployment, United States, 1994–2004

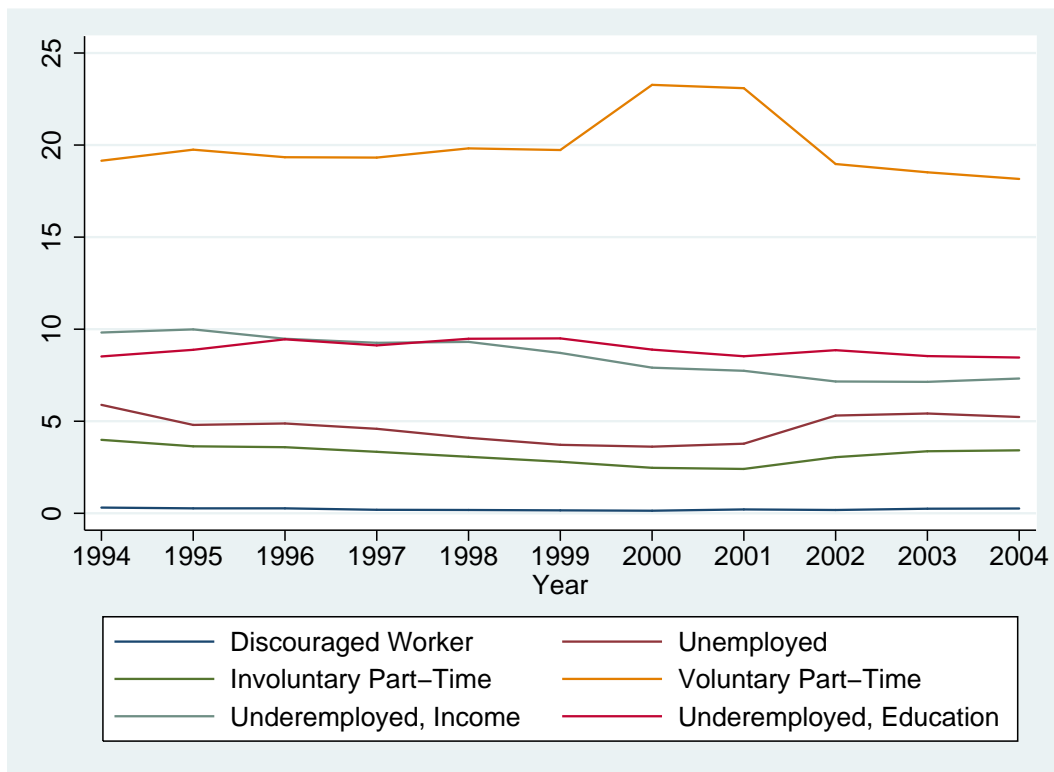


Figure 3: Gender-Specific Trends of Underemployment, United States, 1994–2004

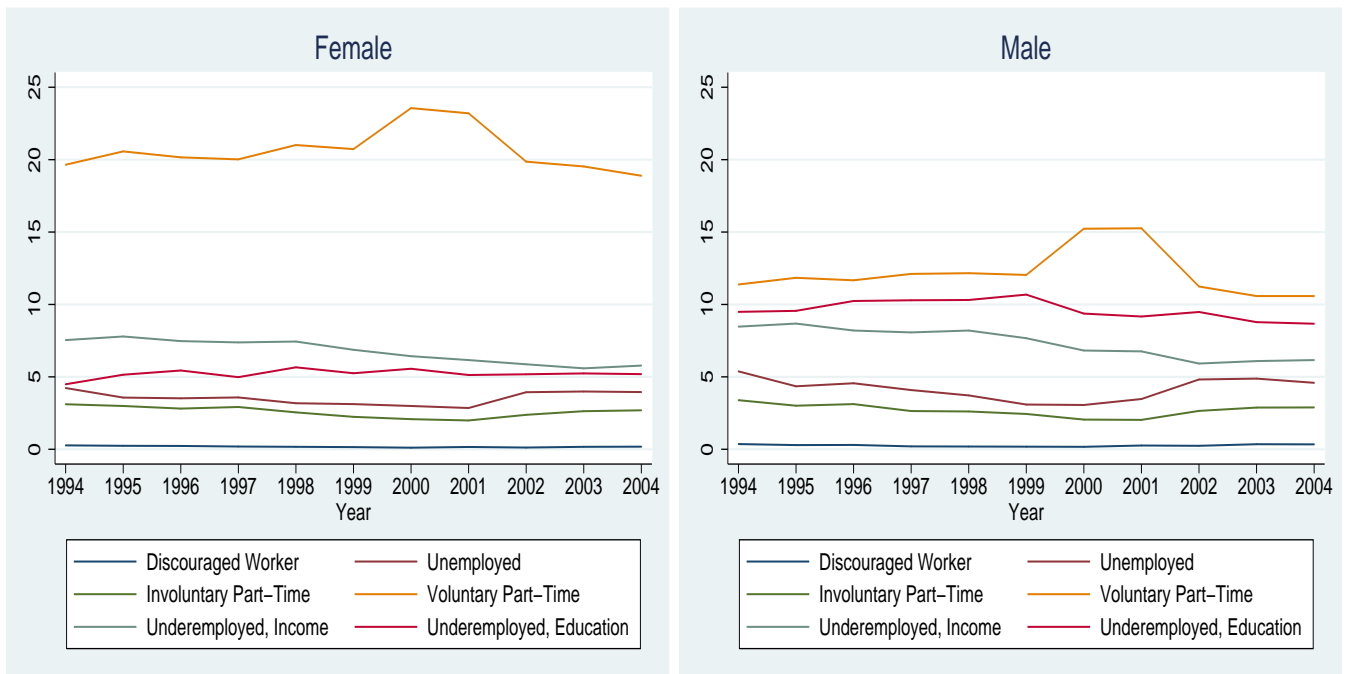


Figure 4: Race-/Ethnicity-Specific Trends of Underemployment, United States, 1994–2004

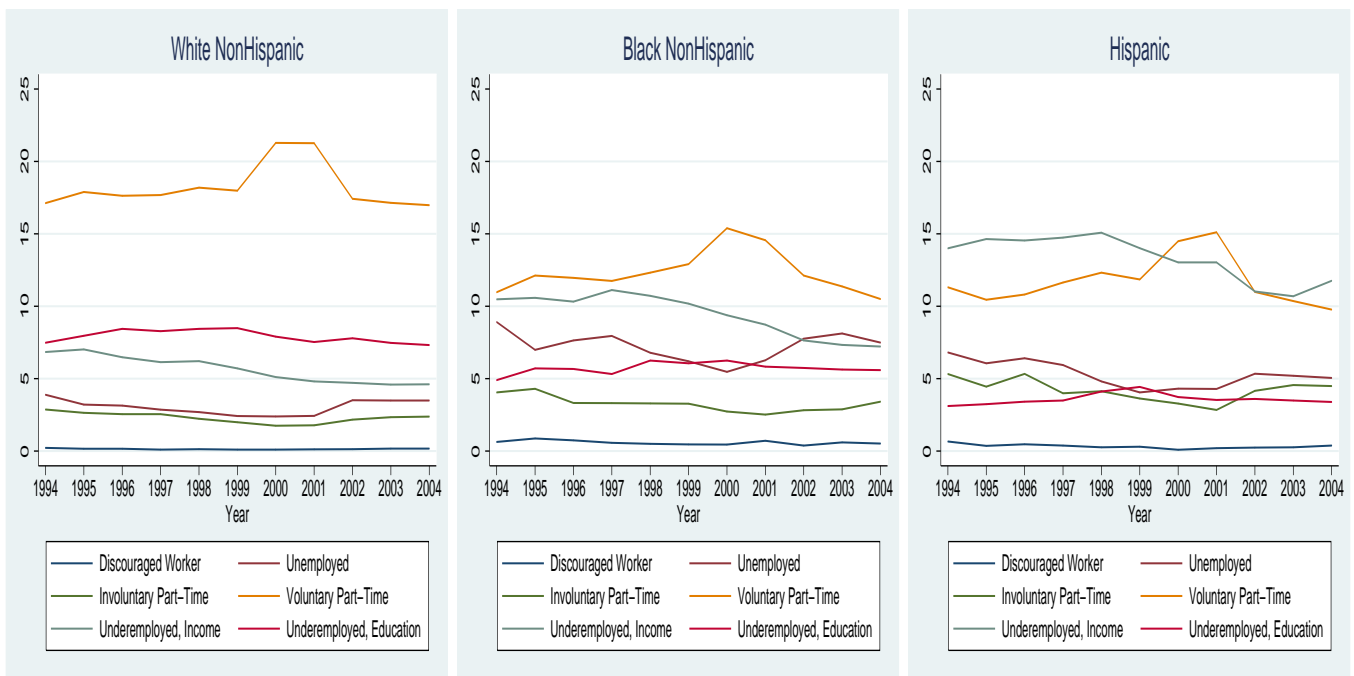


Figure 5: Age-Specific Trends of Underemployment, United States, 1994–2004

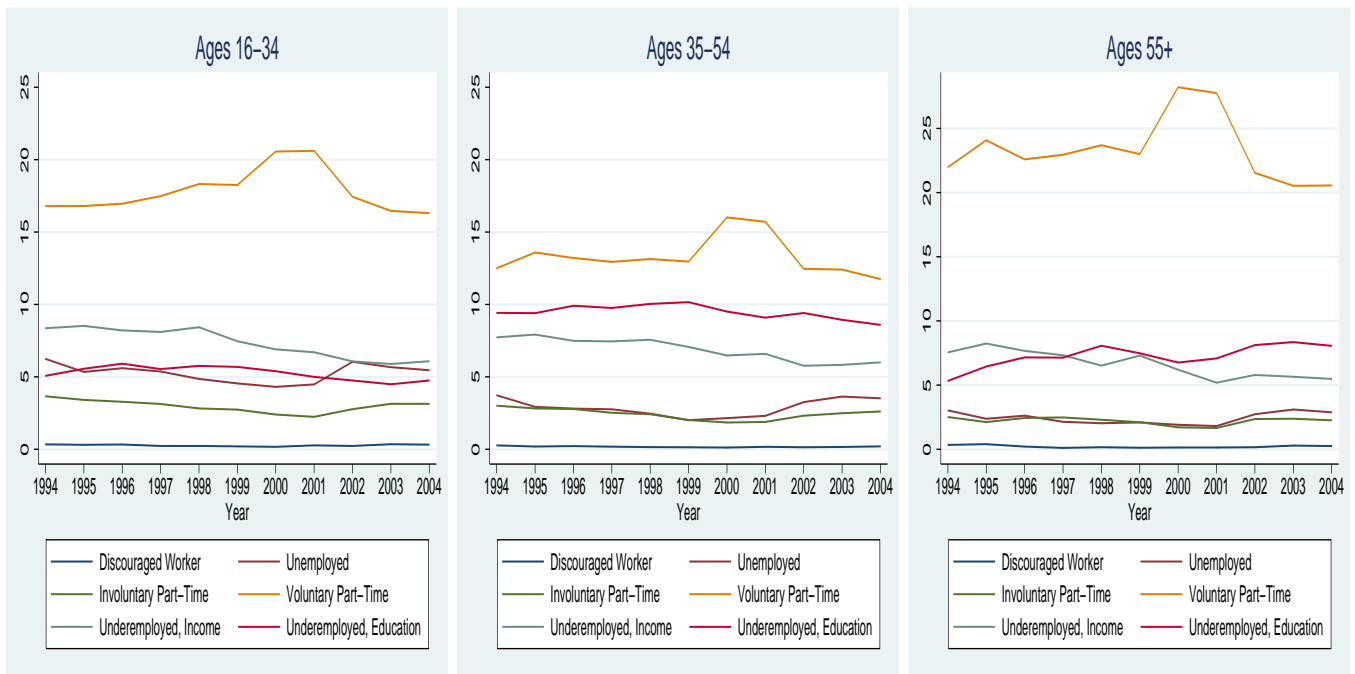


Figure 6: Education-Specific Trends of Underemployment, United States, 1994–2004

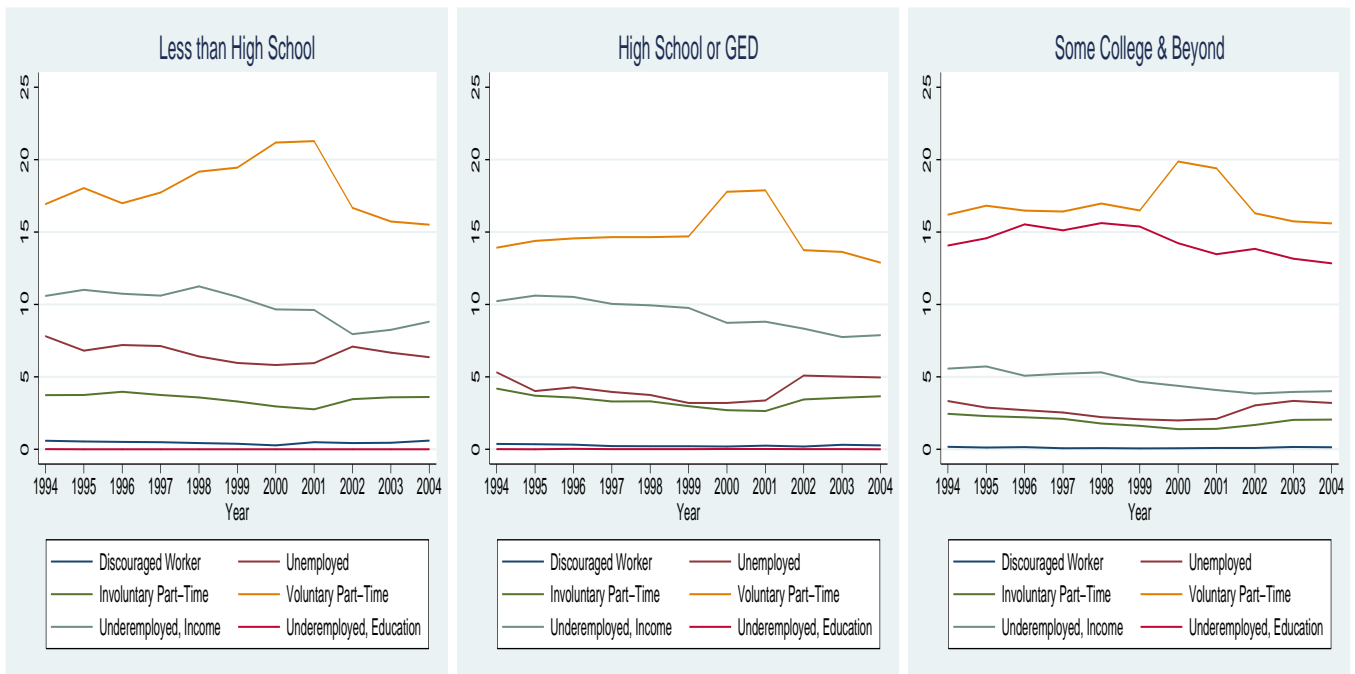


Figure 7: Marital-Status Specific Trends of Underemployment, United States, 1994–2004

