

# An Understanding of Alternative Measures of Labor Underutilization

By Paul Daniels

Virginia Employment Commission, Division of Economic Information & Analytics

January 20, 2017

While the Commonwealth reports the official unemployment statistics regularly (referred to in this report as U-3), we do not currently report the other measurements of labor underutilization that are reported by the Bureau of Labor Statistics (BLS). The benefits of such a report are expansive. Not only does this information provide a fuller understanding of Virginia’s labor force, it also opens up multiple avenues for continued research, including new measures of unemployment. This paper also offers a brief overview of the data.

## Overview of Data

A full list of definitions can be found in the Index of this report. In this section I will focus on a brief comparison of the alternative measurements of labor underutilization. All measures are taken from the Current Population Survey (CPS). However, unlike the traditional unemployment rate reported, alternative measures are recorded and reported on a four quarter moving average. This is to account for the relatively small sample sizes at the state level, as well as to eliminate seasonality. It is important to note that because of these lagged quarters, state alternative measures do not fully reflect the current labor market<sup>1</sup>. Furthermore, models used by the Local Area Unemployment Statistics (LAUS) program to report official unemployment rates incorporate more than just the data from CPS. Only CPS data is used to report alternative measures, as that is the only source of information for all measures. As a result, the estimate given in measure U-3 may vary slightly, though not significantly, from the unemployment figure reported by the LAUS program. Finally, the quarters used to report alternative measures reflect calendar quarters, as opposed to the fiscal year.

### **Alternative Measures of Labor Underutilization as defined by the Bureau of Labor Statistics<sup>2, 3</sup>**

<b>U-1</b>	“Extended Unemployment.” Persons unemployed 15 weeks or longer.
<b>U-2</b>	“Involuntarily Unemployed.” Workers who lost their job, or completed a temporary position.
<b>U-3</b>	“Official Unemployment Rate.” Percentage of the civilian labor force that is unemployed
<b>U-4</b>	Persons who are unemployed, including discouraged workers
<b>U-5</b>	Persons who are unemployed, including all marginally attached workers
<b>U-6</b>	Persons who are unemployed, including all marginally attached workers and individuals that are working part-time, but wish to work full-time.
<b>U-7</b>	Persons who are either discouraged from looking for work, or have accepted part-time work but are interested in and available for full-time employment.

<sup>1</sup> All notes on alternative measures of labor underutilization can be found on the BLS website at <https://www.bls.gov/lau/stalt.htm>

<sup>2</sup> Definitions of terms (including basic methodology) can be found in the index at the end of this paper.

<sup>3</sup> All figures shown as a percent of the civilian labor force

### Knowledge to be gained

Measures U-1 and U-2 are generally considered to be more narrowly defined than the official unemployment (U-3), while measures U-4, U-5, and U-6 are broader. The benefit of the additional measurements is that it may give us a more complete understanding of Virginia's labor force, as well as potential insight into more nuanced effects of policy on state employment. For instance, **Figure A** shows that in the most recent quarter measures U-3, U-4, and U-5 have shown a slight increase. In contrast, measures U-1 and U-2 have remained steady, and U-6 has continued to fall. One conclusion that could be drawn from this is that although we are seeing some variation, all in all the employment situation can still be viewed positively. We are continuing to see a decrease in those that are working part-time and would prefer full-time, suggesting that perhaps employers are hiring more full-time staff following the recession in 2009. Alternatively, the increase in measures U-3 through U-5 may suggest that individuals are moving into unemployment, rather than remaining underemployed. Though it is too soon to make any firm conclusions, this underscores the need for a more complete understanding of unemployment in Virginia.

Equally as important, the alternative measures allow for further calculations to provide more detailed analysis of Virginia's labor force. For example, **Figure A** shows a seventh measure of labor underutilization, U-7. This could be used as a measure of Virginia's "underserved" population, as it is a combination of discouraged workers and those willing and able to work full-time but are currently part-time workers for economic reasons (they cannot afford to be unemployed, their employer cut their hours, etc.) The relation is that these two groups are composed of individuals who mention to surveyors some form of dissatisfaction with their current situation, which cannot fairly be described as personal. Rather, these are potential full-time workers that feel forces beyond their control are preventing them from the employment they wish to pursue. What is particularly interesting with this measure is that while all alternative measures exhibit a clear downward trend since 2009, U-7 has no such trend. While it has been volatile, there is no clear upward or downward trend (**Figure A**).

Other information that can be learned from the alternative measures comes from taking the difference between these measures and the official rate, U-3 (shown in **Figure B**). For example, the difference between measures U-4 and U-3 can be viewed as the degree of "would-be job-seeker discouragement." This is because measure U-4 adds to the official count discouraged workers that have not looked for work in the past 4 weeks, specifically because they feel no jobs exist for which they are qualified. What **Figure B** tells us is that this has remained relatively stable and close to zero over time, which should be a sign of hope for Virginia's potential labor force.

Another difference of interest is that between measures U-6 and U-5 (shown in **Figure C**). By looking at the two broadest measurements, and separating out those that are part-time for economic reasons (rather than a desire to only work part-time), we get an estimate of underemployment. What is most notable about this figure is that in 2009, the number doubles, providing evidence that one impact of the recession is that workers who wish to be full-time (and possibly were before the recession), can no longer find that work. This may also reflect a hesitation of some employers to hire full-time staff under new health care policies. These inferences are underscored when referring back to **Figure B**, where we can see that the largest differences between alternative measures exist between U-6 and U-3. Like the underemployment figure discussed here, this difference does not appear to be returning to pre-recession levels. While we cannot draw such firm conclusions solely from these numbers, they may provide reason to explore such topics further.

### **Potential Shortcomings**

It is important to briefly mention that there are some shortcomings of a report on labor underutilization. First, as mentioned previously, these numbers are available on a quarterly basis, rather than monthly as are LAUS figures. Second, because information for alternative measures is only available from CPS, the sample size is relatively low, though still representative. Though this should not be viewed as a major roadblock, it may account for some amount of volatility in the figures. Third, due to the practice of using 4 quarter moving averages discussed above, there may be some extra care needed when reporting figures.

### **Possible Avenues for Further Research**

- Interaction between economic variables and alternative measures of underutilization
- Effect of policy and/or employer hiring practices on alternative measures
- Stability (and possible cycle) of underemployment
- Further research into the justification and inferences of U-7

**Table 1: Alternative Measures of Labor Underutilization<sup>1</sup>**

Underutilization measurement	Current 4 quarter average (2015:IV – 2016:III)	Previous 4 quarter average (2015:III – 2016:II)	Most recent national data*** (Dec. 2016)	Last year's equivalent 4 quarter average (2014:IV – 2015:III)
U-1	1.6	1.6	1.9	2.1
U-2	1.7	1.7	2.3	1.9
U-3*	4.1	3.9	4.7	4.6
U-4	4.6	4.3	5.0	4.9
U-5	5.3	5.1	5.7	5.7
U-6	9.1	9.3	9.2	9.9
U-7**	4.4	4.7	N/A	4.6

<sup>1</sup> Alternative measures come from the Bureau of Labor Statistics' Current Population Survey, utilizing 4 quarter moving averages in order to account for the relatively small number of observations, and correct for seasonality.

\* Measurement utilized as the "official" unemployment rate, defined as the total number of unemployed reported as a percentage of the civilian labor force

\*\* Unique measurement of the underserved potential workforce (Discouraged workers plus those involuntarily working part-time for economic reasons, as a percentage of the civilian labor force plus discouraged workers)

\*\*\* Seasonally Adjusted Data

Note: Quarters reflect calendar year and not Virginia's fiscal year.

**Table 1** shows that measures U-3, U-4, and U-5 have increased from the previous 4 quarter average. This marks the first increase for each of these measures since the second quarter of 2012. Despite these fluctuations, all measures show a decrease from the same time period last year. Also of note, Virginia remains under the national rates for all measures of underutilization. Although we are seeing more fluctuations with half of the measurements than we have in recent years, it is too early to make any suggestions as to whether or not this marks the beginning of an upward trend overall, particularly with other measures continuing to decline.

**Figure A** illustrates that other than U-7, all alternative measures continue to exhibit a downward trend.

**Figure B** shows that the difference between many alternative measures and the official unemployment rate appear to be remaining relatively stable and close to pre-recession levels. On a positive note, the degree of discouraged workers (difference between U-4 and U-3) continues to remain close to zero. The two exceptions to this stability are the differences between the base and measures U-7 and U-6. The difference between official unemployment and the Virginia "underserved" rate continues to be particularly volatile, and even fluctuates between a positive and negative difference. This may illustrate that individuals' perception of the labor market and their own economic situation change somewhat frequently. It may also be that these groups are more susceptible to changes in policy and employer hiring practices. However, further analysis is needed before drawing specific conclusions.

**Figure C** underscores the difference between U-6 and U-3 by showing that underemployment remains volatile. However, although the underemployment rate remains close to double pre-recession levels, it does appear to be approaching a post-recession low point and possibly exhibiting a very slow downward trend. Though further analysis is needed, the underemployment rate does appear to be more cyclical than any other underutilization figures.

Figure A

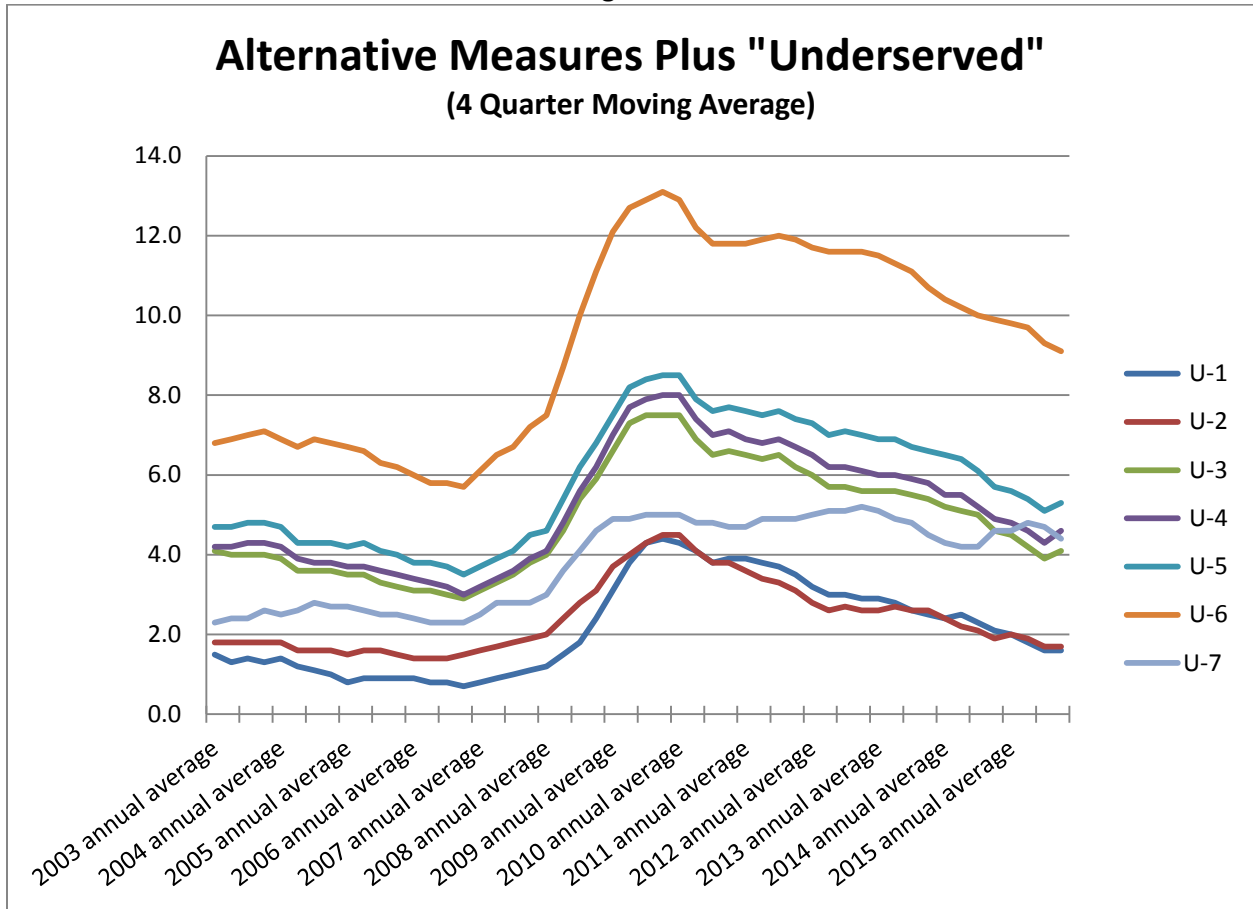


Figure B

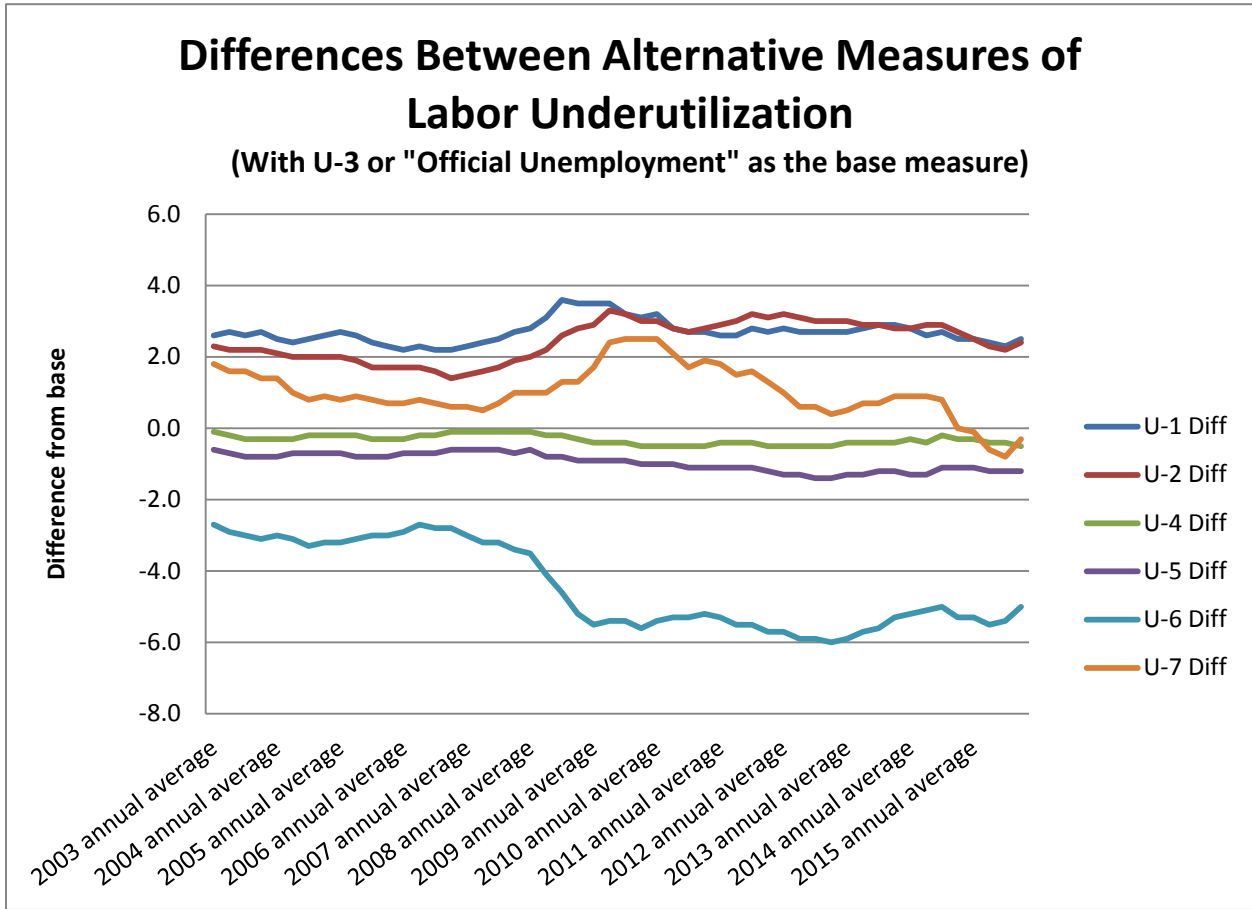
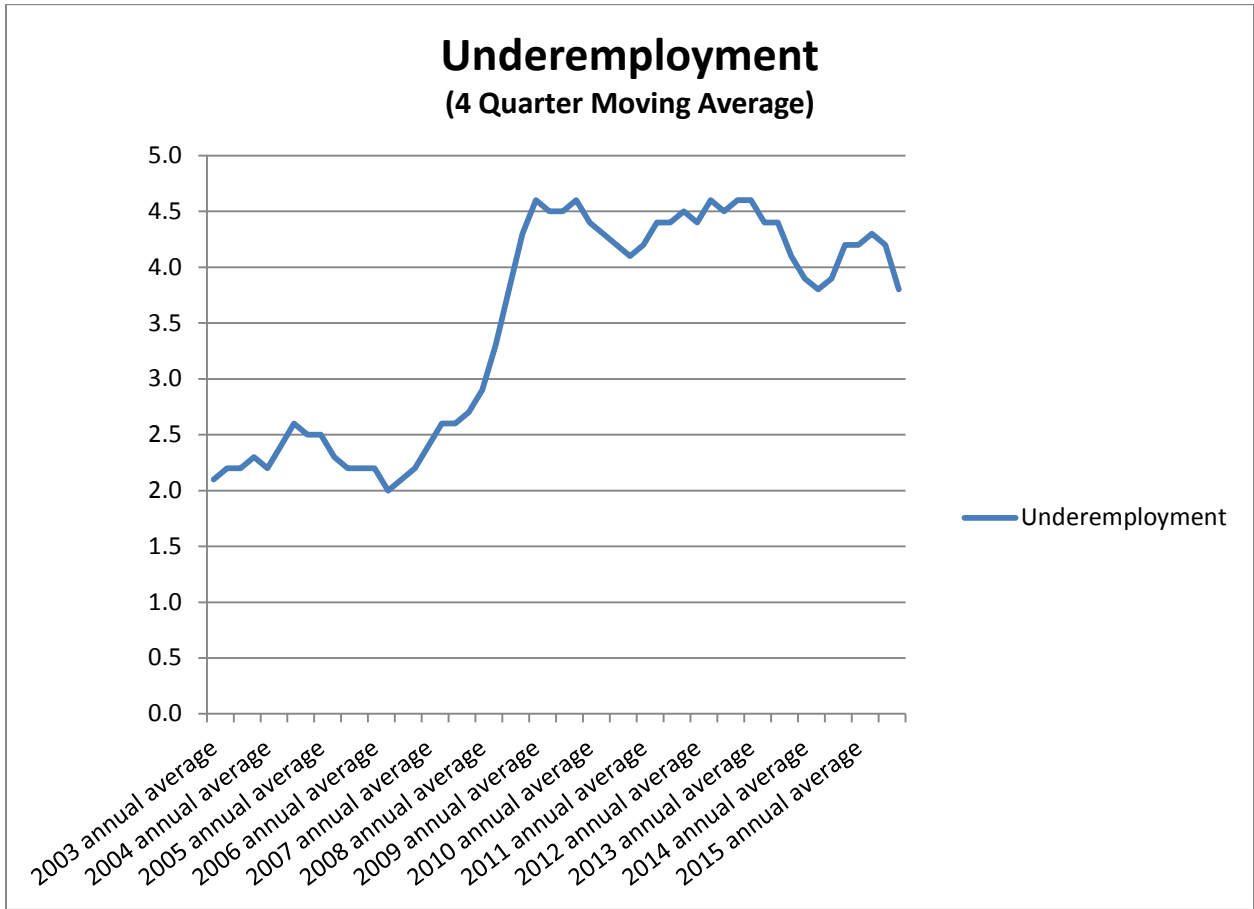


Figure C



# Index

**Civilian Labor Force:** All persons classified as employed or unemployed. Civilian meaning not living in institutions such as correctional facilities, long-term care hospitals, and nursing homes, and not on active duty in the Armed Forces

**Discouraged Workers:** Persons not in the labor force who want and are available for a job and who have looked for work sometime in the past 12 months (or since the end of their last job if they held one within the past 12 months), but who are not currently looking because they believe there are no jobs available or there are none for which they would qualify

**Discouraged Workers Plus Civilian Labor Force:** Measure of the labor force used in the denominator of the equation for U-7

**Employed:** Persons 16 years and older in the civilian non-institutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity/paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if they hold more than one job.

**Involuntary Part-Time Workers:** Persons who are available and want to work full-time, but are forced to settle part-time work for economic reasons

**Job Losers:** Unemployed persons who involuntarily lost their last job or who had completed a temporary job. This includes persons who were on temporary layoff expecting to return to work, as well as persons not on temporary layoff. Those not on temporary layoff include permanent job losers and persons whose temporary jobs had ended.

**Marginally Attached Workers:** Persons not in the labor force who want and are available for work, and who have looked for a job sometime in the prior 12 months (or since the end of their last job if they held one within the past 12 months), but were not counted as unemployed because they had not searched for work in the 4 weeks preceding the survey. Discouraged workers are a subset of the marginally attached.

**Marginally Attached Workers Plus Civilian Labor Force:** Measure of the "Full" labor force, often used when calculating alternative measures of underutilization in order to include discouraged workers

**Underserved:** A measurement of the population of Virginia workers who are "underserved." This figure is calculated as the sum of discouraged workers (a subset of marginally attached workers) and those that have involuntarily taken part-time work due to economic reasons.



# Index

**Underemployment:** A measurement of the underemployment rate, calculated as the difference between alternative measures U-6 and U-5. This essentially looks at the widest possible definition of unemployment and the labor force, and separates out those that, while employed, feel that they are not in a position which suits their needs and abilities.

**Unemployed:** Persons aged 16 years and older who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4-week period ending the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.

**U-1:** Persons unemployed 15 weeks or longer, as a percent of the civilian labor force

**U-2:** Job losers and persons who completed temporary jobs, as a percent of the civilian labor force

**U-3:** Total unemployed, as a percent of the civilian labor force (this is the definition used for the official unemployment rate)

**U-4:** Total unemployed, plus discouraged workers, as a percent of the civilian labor force, plus discouraged workers

**U-5:** Total unemployed, plus discouraged workers, plus all other marginally attached workers, as a percent of the civilian labor force, plus all marginally attached workers

**U-6:** Total unemployed, plus all marginally attached workers, plus total employed part-time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers

**U-7:** "Underserved Rate" - Involuntary part-time and discouraged workers as a percentage of the civilian labor force, plus discouraged workers

**U-1 Diff.:** Difference between alternative measure U-1 and official unemployment measure U-3

**U-2 Diff.:** Difference between alternative measure U-2 and official unemployment measure U-3

**U-4 Diff.:** Difference between alternative measure U-4 and official unemployment measure U-3

**U-5 Diff.:** Difference between alternative measure U-5 and official unemployment measure U-3

**U-6 Diff.:** Difference between alternative measure U-6 and official unemployment measure U-3

**U-7 Diff.:** Difference between alternative measure U-7 and official unemployment measure U-3