



NORTH CAROLINA
Department of Commerce
Labor & Economic Analysis Division

A photograph of a busy staircase, tinted in a teal color. The image shows several people walking up and down the stairs, with some blurred to suggest motion. The background features architectural details like railings and wall panels.

UNEMPLOYMENT & THE GREAT RECESSION IN NORTH CAROLINA

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**INSIGHTS FOR THE
WORKFORCE SYSTEM**

*Unemployment and the Great Recession in North Carolina:
Insights for the Workforce System*

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Principal Author: Andrew Berger-Gross

Contributing Authors: Oleksandr Movchan and Devon Holmes

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EXECUTIVE SUMMARY

This report examines unemployed workers and unemployment insurance (UI) recipients in North Carolina during the Great Recession of 2007-2009 and its aftermath.

We use data from the federal government's Current Population Survey and North Carolina's Common Follow-up System to learn more about these workers, including their characteristics and their employment outcomes.

Our objective is to help workforce planners and policymakers understand the impact of the last recession so that they can develop strategies for alleviating unemployment during the next recession.

UNEMPLOYMENT AND THE GREAT RECESSION IN NORTH CAROLINA

The Great Recession left deep scars on our state's labor market. The recession and its subsequent recovery have been characterized by acute shifts in the structure of the economy and unprecedented rates of long-term unemployment (defined as joblessness lasting 27 or more weeks).

KEY FINDINGS:

- North Carolina's unemployment rate reached 10.9% in 2010, far surpassing the previous high recorded during the early 1980s. The state also saw a record number of UI claimants in 2009.
- Job losses during the recession were concentrated in the goods-producing sectors and non-metro counties of our state. In 2016, the number of jobs in these sectors and regions remained 16% and 5% below 2006 levels, respectively.
- The share of unemployed without work 27 or more weeks reached 49% in 2010, nearly double the highs seen in the early 1980s, and remained historically high through 2016.
- 1.3 million people were paid UI benefits by North Carolina between 2008 and 2012. 42% of these collected UI benefits over the course of multiple spells, and 58% collected benefits for 27 or more weeks during a given spell.

WHO WERE THE LONG-TERM UNEMPLOYED?

The long-term unemployed and long-term UI recipients during the recession were comparable to their short-term counterparts in most respects. Long-term unemployment was a widespread phenomenon that affected workers in all industries, demographic groups, and regions of North Carolina, despite the concentrated impact that the recession had on particular sectors of our state's economy.

KEY FINDINGS

- The long-term unemployed tended to be older than the short-term unemployed. Other differences in composition between the two groups were generally small. Workers previously employed in the goods-producing sectors were as prevalent among the short-term unemployed as among the long-term.
- Long-term UI recipients were more likely to be black/non-Hispanic than short-term UI recipients. Other differences between the two groups were generally small. Non-metro counties and goods-producing sectors were under-represented among long-term UI claimants.
- The aggregate increase in long-term unemployment in North Carolina can be explained by prolonged jobless durations within all demographic groups, rather than by a compositional shift in the unemployed population.

WHAT HAPPENED TO THE LONG-TERM UNEMPLOYED?

Individuals experiencing long-term unemployment had much worse job-finding and wage-earning outcomes than their short-term counterparts in future months and years.

KEY FINDINGS

- Jobseekers recorded as long-term unemployed on the Current Population Survey were less than half as likely as their short-term counterparts to find work in months immediately after their survey date.
- Long-term UI recipients saw much steeper employment and wage losses than short-term recipients, persisting at least six years after their initial layoff date. They were also more likely to find work at a temp agency or transition to a different industry in the years following layoff.
- Other groups of UI recipients who experienced poor outcomes included older workers and those with more than three years' work experience at their previous employer.

This report concludes by summarizing our findings and proposing topics for follow-up research.

CHAPTER 1: INTRODUCTION

The financial crisis and subsequent recession of 2007-2009 wreaked havoc on labor markets, left scars on the financial system, and decimated household wealth in communities across the nation. While much has been written about the nationwide consequences of these historic events, this report addresses the impact of the Great Recession on unemployed persons and unemployment insurance (UI) benefit recipients in North Carolina.

The primary objective of this report is to better understand these populations, including their demographic attributes and their job-finding and wage-earning outcomes. We specifically highlight the long-term unemployed and long-term UI recipients, who experienced much worse outcomes than their short-term counterparts.¹ Our hope is that the findings presented in this report can help workforce planners and policymakers develop strategies to better assist current jobseekers and prepare for the impact of future recessions.

Our secondary objective is to showcase the types of analyses that are made possible by worker-level microdata, especially microdata with longitudinal links that enable us to track the activity of individual workers over time. Some sources of worker-level microdata are available without restriction in public-use form from federal statistical agencies such as the U.S. Census Bureau. Other sources of microdata are derived from state administrative records which are not publicly available but are typically accessible by state personnel conducting research in the public interest. We encourage public sector researchers in other states to use microdata from their own states to develop longitudinal data systems and to replicate and expand upon the findings described in this report.

The remainder of this chapter provides context and introduces the main concepts underlying our report:

Section I gives background information regarding unemployment insurance in North Carolina, the data sources used in this report, and some of the concepts and limitations inherent in these data sources.

Section II walks through the labor market trends motivating our research, including the structural changes, unprecedented rates of long-term joblessness, and record-high UI claiming activity occurring in North Carolina during and after the Great Recession.

Section III concludes by summarizing the primary themes and outlining the overall structure of this report.

I. BACKGROUND

A. UNEMPLOYMENT INSURANCE (UI)

The United States' federal-state unemployment insurance (UI) system was established by the Social Security Act of 1935. UI benefits are funded by a state tax on UI-covered employers, while the administration of state UI programs is funded by the federal government. The federal government also finances periodic benefit extensions during times of high unemployment. States are responsible for setting the parameters and eligibility criteria for their UI programs, subject to certain federal restrictions.

In general, a UI claimant must have been involuntarily separated without cause from a UI-covered employer to initially qualify for benefits. The claimant is then required to conduct active job search and to have non-UI earnings below a specified threshold to qualify for continued weeks of benefits. Most states provide a maximum of 26 weeks of unemployment compensation during a given benefit period.²

Congress enacted legislation providing additional weeks of federally-funded UI benefits starting in June 2008, the first of many actions over the next several years authorizing emergency benefit extensions while also financing mandatory benefit extensions that are usually paid by states. The maximum number of UI weeks available to claimants varied over the next several years, reaching as high as 99 weeks in many states, including North Carolina.

North Carolina's Session Law 2013-2 (formerly House Bill 4) reforming the state's UI program took effect in July 2013. This law significantly reduced the amount and duration of UI benefits available to claimants. One indirect consequence of this law was that the state's UI program no longer met the criteria set by the federal government to qualify for UI benefit extensions. As a result, claimants in North Carolina saw a sudden decline in the available duration of UI benefits from 73 weeks in June 2013 to 20 weeks in July 2013.

¹ Conventionally, spells of unemployment or UI receipt lasting 27 weeks or more are defined as "long-term". Detailed explanations are provided later in this chapter.

² More information about the federal-state unemployment insurance system can be found here: <https://workforcesecurity.doleta.gov/unemploy/aboutoui.asp>

B. DATA SOURCES

Much of the data used in this report comes from North Carolina’s Common Follow-up System (CFS). The CFS is a longitudinally-linked database developed in collaboration with the state’s providers of publicly-funded education and workforce services to share and report data needed for performance accountability purposes.³

The two primary elements of the CFS are programmatic records from North Carolina’s publicly-funded education and workforce programs and wage data reported quarterly by employers for UI tax purposes. Individual worker records from these wage data can be linked by Social Security Number (SSN) to data on UI claiming activity to obtain the employment and wage-earning outcomes for UI recipients. In addition, numerical employer IDs listed on wage records can be linked to the state’s Quarterly Census of Employment and Wages (QCEW) database to obtain additional information about employers such as their North American Industry Classification System (NAICS) industry sector.

This report also draws on longitudinally-linked microdata from the Current Population Survey (CPS) that have been enhanced by the Minnesota Population Center and made available through their IPUMS program.⁴

The CPS was developed in the wake of the Great Depression to provide a direct and consistent measure of unemployment, and is still used to this day as the basis for the federal government’s monthly unemployment rate statistics. The survey is administered by the U.S. Census Bureau and is analyzed and published by the U.S. Bureau of Labor Statistics.⁵

The CPS has a short panel structure in which survey respondents are followed for three consecutive months after their initial survey and then, after an eight-month break, followed for another four months. This feature of the survey allows us to track individual respondents over short time periods. We are aided in this task by IPUMS, which provides unique person identifiers that can be linked over adjacent months.⁶

C. DATA CONCEPTS AND LIMITATIONS

This report examines two distinct but overlapping populations: i) the unemployed, and ii) recipients of unemployment insurance (UI) benefits.

The Current Population Survey (CPS) defines the unemployed as civilian, non-institutionalized persons aged 16 years and older who were without work during the survey’s reference week, and who were available and actively seeking work sometime within the four prior weeks. (Persons on temporary layoff who expect to be recalled to their employer are classified as unemployed even if they were not searching for new work.)

Unemployed persons do not necessarily collect UI benefits, and individuals who collect UI are not necessarily unemployed. In most cases, to qualify for UI benefits a person must have been employed in a UI-covered job and laid off without cause, as well as meeting additional monetary and non-monetary criteria for eligibility. Thus, only a subset of the unemployed are eligible for UI benefits, and some of these persons may have exhausted their eligibility or chose not to file for benefits at all. Moreover, it is possible for persons who have a job during their post-layoff period—i.e. employed persons—to continue receiving UI benefits so long as their weekly wage earnings are modest and remain below a state-mandated threshold.

Here we compare the annual UI earnings reported by respondents in the CPS’s annual March supplemental survey to the labor force status reported by the same respondents in previous survey months (*Figure 1.1.1*). We assign job losers (including those expecting recall) and temporary job enders to the UI “eligible” category, and assign voluntary job leavers and unemployed labor market entrants to the “ineligible” group. Unfortunately, these data do not identify the period during which a respondent collected UI, and thus it is not possible to precisely attribute reported UI earnings to a

FIGURE 1.1.1
Percent Reporting UI Earnings Within Past Year on Subsequent March Survey
[United States, 2008 - 2012]

March Respondents				December Respondents			
Unemployed: Total	Unemployed: Eligible	Unemployed: Ineligible	Employed	Unemployed: Total	Unemployed: Eligible	Unemployed: Ineligible	Employed
28%	39%	8%	4%	30%	42%	10%	3%

Source: Monthly survey data are from IPUMS-CPS; March supplement data are from IPUMS-CPS-ASEC. “Eligible” unemployed are job losers (including those expecting recall) and temporary job enders. “Ineligible” unemployed are voluntary job leavers and labor market entrants.

³ More information about the CFS can be found here: <https://www.nccommerce.com/Portals/47/Publications/COMMON%20FOLLOW-UP%20SYSTEM%20REPORT/CFS-Operational%20Report-May%202016.pdf>

⁴ Flood et al. (2015). Throughout this report, CPS data from IPUMS are referenced as “CPS-IPUMS”. More information can be found here: <https://cps.ipums.org/cps/>

⁵ More information about the CPS can be found here: <https://www.census.gov/programs-surveys/cps/about.html>

⁶ Drew et al. (2014).

particular spell of joblessness. Accordingly, we use these data merely as a rough proxy for the proportion of unemployed persons collecting benefits.⁷

During the five-year period examined (2008-2012), nearly 30% of persons identified as unemployed in a given month reported receiving UI benefits within the previous year on the subsequent March survey. Of these, the “eligible” unemployed were much more likely to receive UI benefits than either unemployed persons in the “ineligible” group or employed workers. Although the underlying data are imperfect, this comparison illustrates the extent to which labor force concepts overlap with UI concepts.

We define “spells” of joblessness and UI receipt as the basis for our analysis of unemployment duration. For the unemployed, a spell is defined by the Bureau of Labor Statistics as consecutive months of unemployment; a person is recorded as unemployed during a given month if they are jobless during the reference week and search for work at some point within the four prior weeks. For UI claimants, we define our simplest measure of spells as an observed period of UI receipt; a compensated week is considered part of an ongoing UI spell if it appears within four weeks of the previous week of UI receipt.⁸ The duration of unemployment is as defined in the CPS, expressed as the number of weeks unemployed (calculated from the number of months unemployed). We measure the duration of UI spells by the number of compensated weeks within each spell. Persons unemployed for 27 or more weeks within a spell are categorized as “long-term unemployed”, while those

receiving UI benefits for 27 or more weeks within a spell are categorized as “long-term UI recipients”.

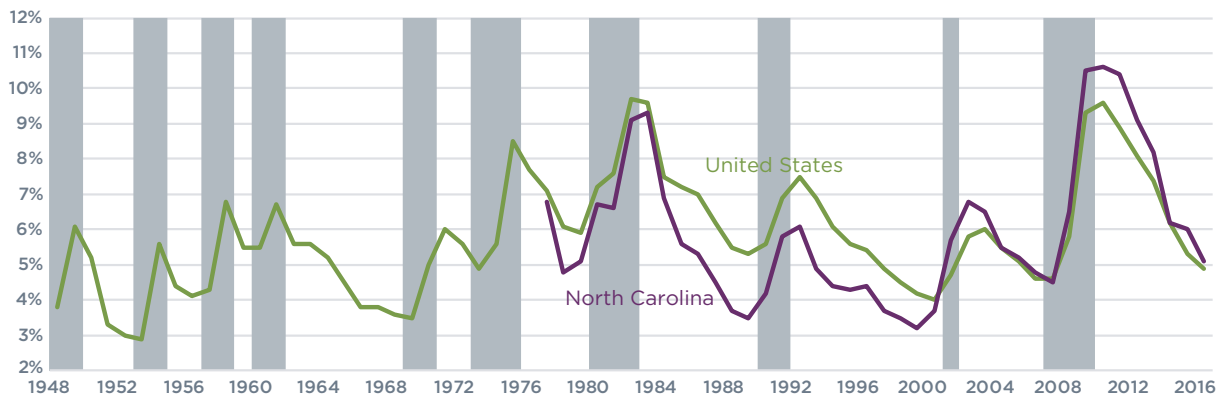
In addition to the conceptual differences between unemployment and UI receipt, our data sources are limited by the scope of activity covered. Wage records from the UI tax system contain employment and wage-earning histories only for those employers who participate in state-funded UI. Federal employers, military employers, and out-of-state employers are excluded, as are the self-employed and other private employers who do not participate in the UI system. Employer data from the Quarterly Census of Employment and Wages (QCEW) are subject to the same constraints as the underlying UI wage data, with the exception that QCEW does include information about federal government employers.

II. UNEMPLOYMENT AND THE GREAT RECESSION IN NORTH CAROLINA

The Great Recession of 2007-2009 was arguably the most severe period of economic turmoil endured by our state and our nation since the government started publishing unemployment statistics.

In 2010, during the height of the recession’s aftermath, North Carolina’s unemployment rate peaked at 10.9%, far surpassing the previous high of 9.3% reached during the early 1980s.^{9,10} For comparison, the nationwide unemployment rate averaged 9.6% in 2010, nearly matching the post-World War II record set in the wake of the 1981-1982 recession (*Figure 1.2.1*).

FIGURE 1.2.1
Unemployment Rate in North Carolina and the United States [1948 - 2016]



Source: North Carolina data are from IPUMS-CPS; CPS data for the United States are from Federal Reserve Economic Data. Gray bars represent periods of recession defined by the National Bureau of Economic Research.

⁷ This comparison is similar to the approach described in Farber and Valetta (2015).

⁸ We refer to this simplest measure of spells of UI receipt as “A-type” spells, to differentiate them from the “B-type” spells described later in the report. The evaluation literature on UI suggests several alternative approaches for defining UI spells, among them including the approaches we employ here. For example, Landais (2011) uses a definition of spells that is analogous to our “A-type” spells, while O’Leary et al. (1995) and Cebi and Woodbury (2010) use definitions that are analogous to our “B-type” spells.

⁹ Data are not available for North Carolina prior to 1977.

¹⁰ Throughout this report, we aggregate monthly CPS data into single-year or multi-year averages to increase sample size and improve the reliability of our estimates.

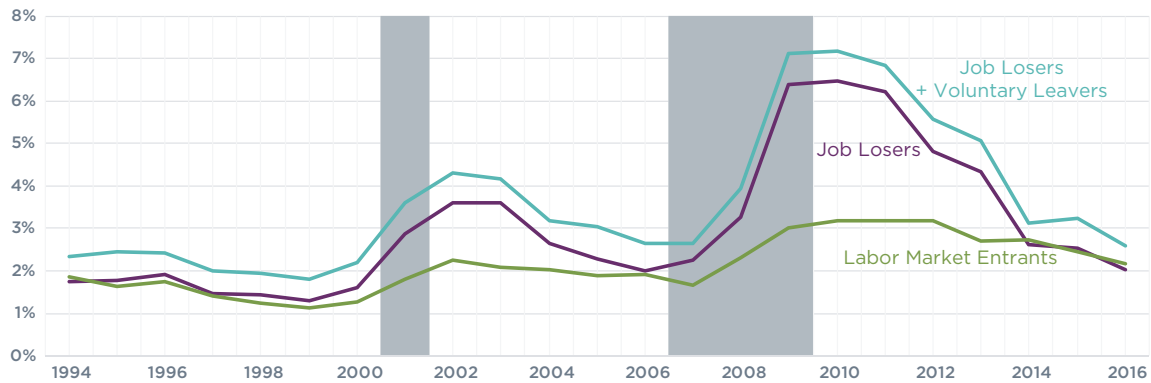
Focusing on North Carolina data, we can see that cyclical fluctuations in the unemployment rate are driven primarily by individuals who lose their job involuntarily (“Job Losers”) – the population that is generally considered eligible for UI benefits. The unemployment rate for labor market entrants, who are starting a job search for the first time or after a period of inactivity, tends to remain relatively stable during periods of recession (Figure 1.2.2).

Job losses during the Great Recession were not distributed proportionately across North Carolina. Rather, the jobs

impact of the recession was concentrated in certain industries and certain geographic areas of the state.

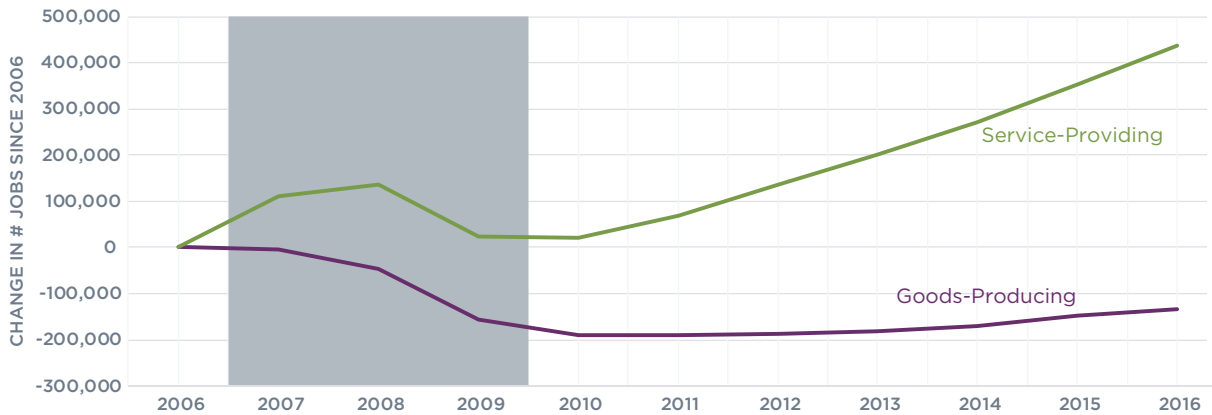
The recession’s combined hit to the construction and manufacturing industries caused the number of jobs in North Carolina’s goods-producing sectors to plummet (Figure 1.2.3).¹¹ In 2010 the number of goods-producing jobs in North Carolina declined to 189,609 (-23%) below levels seen in 2006, and by 2016 was still 133,413 (-16%) below 2006 levels. In contrast, the number of jobs in service-providing sectors did not fall below 2006 levels at any point during the recession, and by 2016 these sectors had added 437,860 jobs (+14%).

FIGURE 1.2.2
Unemployment Rate in North Carolina, by Reason for Unemployment [1994 - 2016]



Source: IPUMS-CPS. Gray bars represent periods of recession defined by the National Bureau of Economic Research.

FIGURE 1.2.3
Employment Trends in North Carolina’s Industry Sectors [2006 - 2016]



Source: Quarterly Census of Employment and Wages (North Carolina Department of Commerce). Gray bar represents recession period defined by the National Bureau of Economic Research.

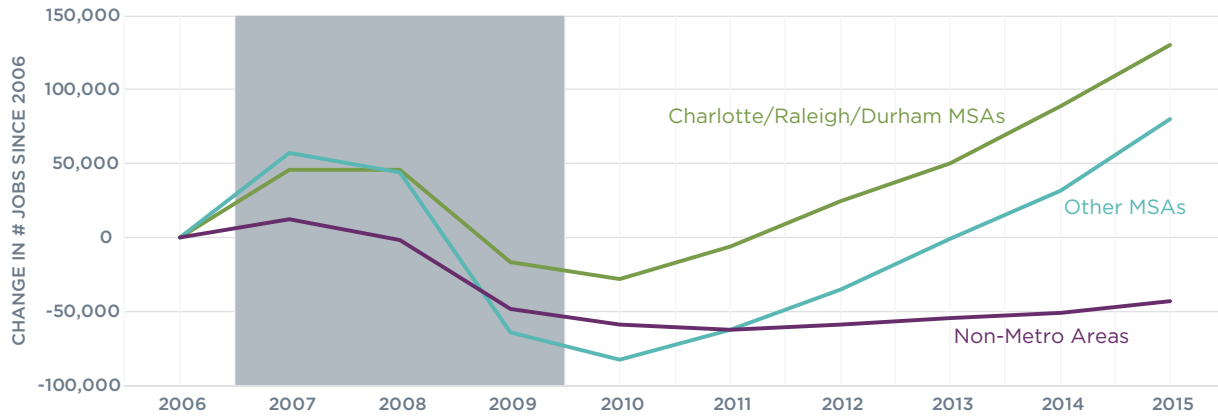
¹¹ Goods-producing sectors include Mining and Logging; Construction; and Manufacturing. Service-providing sectors include Trade, Transportation, and Utilities; Information; Financial Services; Professional and Business Services; Education and Health Services; Leisure and Hospitality Services; Other Services; and Public Administration.

The Great Recession also exacerbated economic disparities between North Carolina's local areas. In this report, we explore three groupings of counties in our state:

- Counties in the prosperous Charlotte and Research Triangle regions (including the Charlotte-Concord-Gastonia, Raleigh-Cary, and Durham-Chapel Hill metro areas);
- Counties in other metro areas;
- Counties outside metro areas.¹²

The number of jobs declined between 2006 and 2010 in all three of these area groupings (*Figure 1.2.4*). However, metro areas started adding jobs at a rapid pace after 2010, while non-metro counties were much slower to recover. By 2016, the number of jobs was 173,875 (+15%) higher in the Charlotte and Triangle areas and 123,754 (+6%) higher in other metro areas, but 35,437 (-5%) lower in non-metro counties, compared to 2006 levels.

FIGURE 1.2.4
Employment Trends in North Carolina's Local Areas [2006 - 2016]



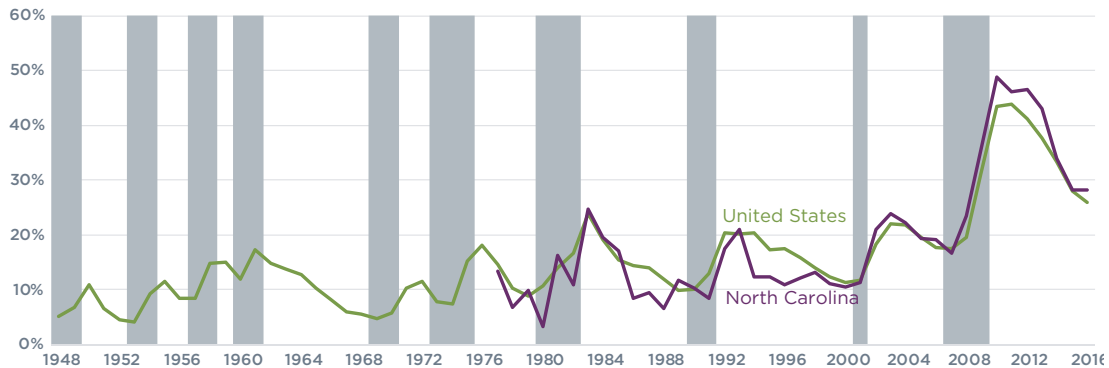
Source: Quarterly Census of Employment and Wages (North Carolina Department of Commerce). Gray bar represents recession period defined by the National Bureau of Economic Research.

In addition to mass layoffs and structural change, the Great Recession was distinguished by unprecedented rates of long-term unemployment, conventionally defined as jobless spells lasting 27 weeks or longer (*Figure 1.2.5*).

The percentage of North Carolina's unemployed population who were long-term unemployed reached a high of 49% in

2010, nearly double the rate seen during the worst of the early 1980s. For comparison, the United States reached a high of 44% in 2011; never during recorded history has long-term unemployment been anywhere near as prevalent. By 2016, the rate of long-term unemployment had declined from its peak, but remained historically high.

FIGURE 1.2.5
Long-Term Unemployed as % of Total Unemployed in North Carolina and the United States [1948 - 2016]



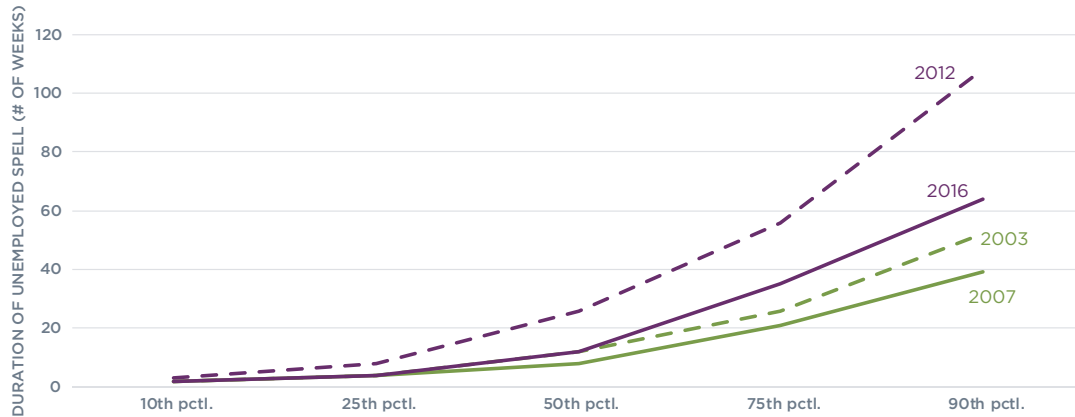
Source: North Carolina data for 1977-1993 are from IPUMS-CPS-ASEC; North Carolina data for 1994-2016 are from IPUMS-CPS; CPS data for the United States are from Federal Reserve Economic Data. Gray bars represent periods of recession defined by the National Bureau of Economic Research.

¹² We use the July 2015 metropolitan statistical area definitions from the U.S. Office of Management and Budget: <https://www.census.gov/geographies/reference-files/time-series/demo/metro-micro/delineation-files.html>

This increase in long-term unemployment coincided with longer jobless spells across the entire distribution of unemployed jobseekers (Figure 1.2.6). Unemployment duration in North Carolina increased at every percentile between 2007 and 2012; the median duration of unemployment increased from 8 weeks to 26 weeks, while the 90th percentile increased from 39 weeks to a staggering 108 weeks. Although unemployment durations had declined

by 2016, they remained elevated above levels seen in 2007 prior to the onset of the Great Recession. Moreover, unemployment durations at the 75th and 90th percentiles remained higher in 2016 than they were back in 2003, during the aftermath of the 2001 recession. Prolonged jobless spells are now a normal fact of life for many unemployed jobseekers in North Carolina.

FIGURE 1.2.6
Duration of Unemployment in North Carolina, by Duration Percentile

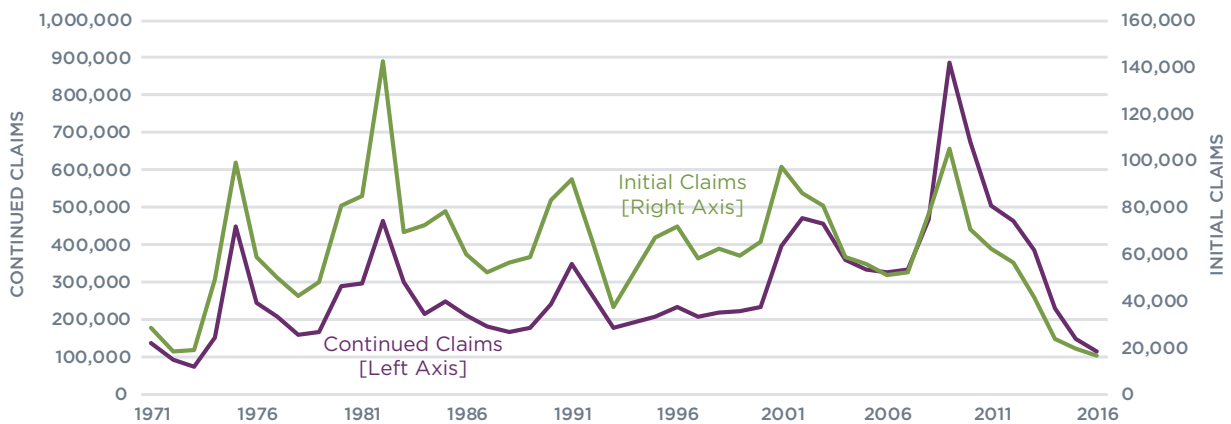


Source: IPUMS-CPS. Solid lines denote periods of expansion. Dotted lines denote labor market troughs (post-recession).

The recession's impact on workers is also apparent in the number of initial and continued claims for unemployment insurance (UI) filed in North Carolina (Figure 1.2.7).¹³ Initial claims for UI typically spike prior to and during the onset of recessions, and the 2007-2009 recession was no exception. However, continued claims for UI—representing ongoing

weeks of UI claiming spells—were much higher during the Great Recession than during previous recessions, reflecting both higher rates of job loss and longer jobless spells. The number of claims took a sharply downward turn in 2013, the year North Carolina passed its UI reform bill, and have since declined below levels seen at any time since the early 1970s.

Figure 1.2.7
Unemployment Insurance Claiming Activity in North Carolina [1971 - 2016]



Source: U.S. Employment and Training Administration. Values are expressed as annual averages of monthly claims counts.

¹³ We express these numbers as annual averages of monthly claims counts. Source: U.S. Employment and Training Administration.

III. MAIN THEMES

There are several themes explored throughout the chapters of this report, the most prominent of which is the twin phenomenon of long-term unemployment and long-term UI benefit receipt. The Great Recession led to a dramatic increase in the number of unemployed, and UI benefit extensions during this period enabled claimants to prolong their spells of benefit collection to historically-long durations. We describe the observable characteristics of the long-term unemployed and long-term UI recipients as well as their short-term counterparts—including information about demographics, place of residence, and work history—to help workforce professionals better understand the distinctions between these populations.

Another main theme we explore is “negative duration dependence”—the inverse relationship between the duration of unemployment spells and resulting labor market outcomes. This duration dependence has been widely documented in the labor economics literature, which has consistently demonstrated that unemployed job seekers face lower probabilities of finding a job the longer they remain unemployed.¹⁴ We quantify the degree of duration dependence experienced by North Carolina’s unemployed and UI recipients to call attention to the challenges faced by these populations.¹⁵

In Chapter 2, we use data from the CPS to describe the observable differences between the long-term and short-term unemployed and measure their job-finding outcomes.

In Chapters 3 and 4, we draw upon UI claims data and wage histories to describe various groupings of UI recipients and measure their employment, wage-earning, and job-changing outcomes.

Chapter 5 concludes by summarizing our findings and their implications for the workforce system.

¹⁴ Kaitz (1970) first documented the inverse relationship between unemployment duration and exit from unemployment. Devine and Keifer (1990) provide an influential review of the literature. Recent examples include Krueger and Mueller (2011) and Kroft et al. (2013).

¹⁵ We do not quantify the impact of extended UI availability on the labor supply decisions of jobseekers or the duration of jobless spells. Such an analysis is outside the scope of this report. There is an extensive literature demonstrating that UI prolongs the duration of jobless spells; see Krueger and Meyer (2002) for a review. However, Kroft and Notowidigdo (2011) show that the impact of UI on the duration of joblessness is less severe during economic recessions than during expansions. More recently, Farber and Valetta (2015) find that UI extensions during the Great Recession induced a substantial increase in the proportion of unemployed persons undergoing long-term spells, but had a minimal impact on the overall unemployment rate.

CHAPTER 2: THE LONG-TERM UNEMPLOYED

The prevalence of long-term unemployment reached previously unseen heights during the Great Recession and remained elevated above the historical norm throughout the subsequent recovery. As the current economic cycle enters its eighth year of expansion, we take this opportunity to learn more about how the unemployed fared during this period, with an eye toward helping workforce planners and policy-makers better understand the impact of the most recent recession and prepare for the next recession.

In this chapter, we use data from the Current Population Survey (CPS) to document the experience of the unemployed in North Carolina during the Great Recession and its aftermath, focusing in particular on the long-term unemployed.¹

In section I, we describe the observed characteristics of the long- and short-term unemployed, finding that these groups differed little in their demographic makeup.

In section II, we show that changes over time in the composition of North Carolina's unemployed population had a negligible impact on the state's overall rate of long-term unemployment.

In section III, we compare the employment and labor force outcomes of the long- and short-term unemployed. We find substantial evidence of "duration dependence", with the long-term unemployed experiencing far lower job-finding rates than their short-term counterparts.

In section IV, we demonstrate that observable differences between the long- and short-term unemployed can explain only a portion of the disparity between these groups' job-finding rates.

Section V concludes by discussing our findings.

I. OBSERVED CHARACTERISTICS OF THE LONG- AND SHORT-TERM UNEMPLOYED

In this section, we examine CPS survey respondents recorded as unemployed during the period between January 2008 and December 2012. Aggregating across a five-year period provides us with a sufficiently large sample for precise comparisons between the long- and short-term unemployed. This particular five-year period overlaps with several economically important periods during the Great Recession and its aftermath, including:

- The recession itself, as defined by the National Bureau of Economic Research (December 2007 – June 2009);
- The period between North Carolina's peak number of employed persons and its recovery (January 2008 – June 2013); and
- The period during which extended UI benefits were available to workers in NC (June 2008 – June 2013).

The recession induced major structural changes in North Carolina's economy, including a massive shift of job opportunities from the state's goods-producing industries to its service-providing sectors. However, these structural changes did not lead to major differences in composition between the long- and short-term unemployed populations. When comparing their observed characteristics, we see that differences between these groups were modest for the most part (*Figure 2.1.1*).

¹ The sequence of sections in this chapter borrows heavily from Krueger et al. (2014).

FIGURE 2.1.1
Composition of Long- and Short-Term Unemployed
in North Carolina [2008-2012 Average]

	Long-Term [27+ weeks]	Short-Term [<27 weeks]	Difference [pct. point]
Age			
16-24	21%	32%	*-11%
25-54	64%	57%	*7%
55+	15%	11%	*4%
Race/Ethnicity			
White/non-Hispanic	54%	55%	-1%
Black/non-Hispanic	36%	31%	*5%
Hispanic	5%	9%	*-4%
Other	5%	5%	1%
Sex			
Male	57%	56%	0%
Female	43%	44%	0%
Married			
	35%	34%	1%
Educational Attainment			
Less than high school diploma	21%	25%	*-4%
High school diploma or equivalent	38%	35%	4%
Some college, no Bachelor's	27%	25%	2%
Bachelor's or above	13%	15%	-2%
On layoff, expecting recall			
	2%	13%	*-11%
Previous Industry of Employment			
Service-providing sector	60%	60%	0%
Goods-producing sector	33%	30%	3%
Not applicable (entrant)	7%	10%	-3%

*Estimated difference is statistically significant at 90% confidence.
Source: IPUMS-CPS.

Individuals awaiting recall to their layoff employer were over-represented among the short-term unemployed.² Young workers were also disproportionately represented among the short-term group (Figure 2.1.2), as were those without a high school diploma. However, all other observed differences in composition between the two groups were smaller than 10 percentage points or were too insignificant to be measured with precision.³

The lack of significant differences in industry composition between the long- and short-term unemployed is especially counterintuitive. Despite the large concentration of job losses in goods-producing industries during the recession, the long-term unemployed were no more likely to have been employed in this sector than their short-term counterparts.

² This group is analogous to the "attached claimants" described in Chapter 3.

³ We evaluate the statistical significance of differences at 90% confidence using error margins for the Current Population Survey provided in the US Bureau of Labor Statistics' Geographic Profile of Employment and Unemployment: <https://www.bls.gov/opub/gp/gpappend.htm>

FIGURE 2.1.2
Age Composition of Long- and Short-Term Unemployed
in North Carolina [2008-2012 Average]



Source: IPUMS-CPS.

II. COMPOSITION AND THE PREVALENCE OF LONG-TERM UNEMPLOYMENT

In light of our finding that the long- and short-term unemployed were similar along most observable characteristics, it is hardly surprising that these characteristics are insufficient to explain the historic increase in long-term unemployment seen in North Carolina.

The mass layoffs occurring during the recession did change the makeup of North Carolina's unemployed population to a degree. For example, the share of unemployed who were male, older, and from the goods-producing sectors increased between 2007 and 2010. However, this period also saw a large uptick in the prevalence of long-term unemployment within all demographic groups. This widespread increase in prolonged

joblessness was a much more important factor than the changing face of who was represented among the unemployed.

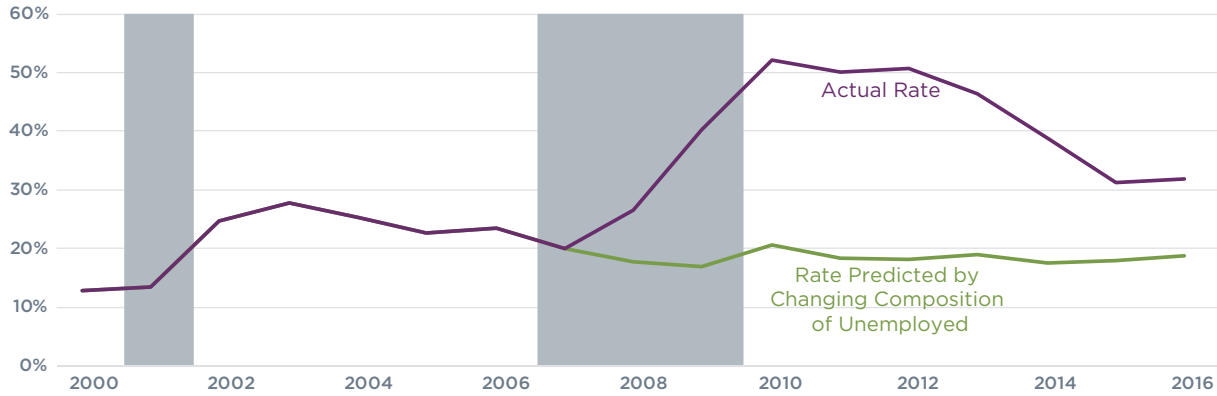
The pervasive nature of long-term unemployment can be illustrated using a counterfactual exercise. We perform a calculation to determine whether changing demographic attributes can explain the increased prevalence of long-term unemployment.⁴ The long-term share of North Carolina's unemployed increased considerably between 2007 and 2010. However, we show that there would be hardly any increase in long-term unemployment during this period if we only accounted for changes in the composition of the state's unemployed population (*Figure 2.2.1*). The growing prevalence of long-term unemployment in North Carolina was caused by prolonged jobless durations across all the state's various demographic groups, rather than by an increased propensity for certain demographic groups to join the ranks of the unemployed.

⁴ This counterfactual exercise is based on a decomposition of the aggregate long-term unemployed share into composition and intensity components:

$$\frac{\# \text{ Long-Term Unemployed}}{\# \text{ Unemployed}} = \sum \left(\frac{\# \text{ Unemployed}_i}{\# \text{ Unemployed}} \right) \left(\frac{\# \text{ Long-Term Unemployed}_i}{\# \text{ Unemployed}_i} \right)$$

Where i denotes a given demographic group. We calculate the predicted change in long-term share by summing the product of intensity components $\left(\frac{\# \text{ Long-Term Unemployed}_i}{\# \text{ Unemployed}_i} \right)$ fixed at 2007 levels and the observed change in the share $\left(\frac{\# \text{ Unemployed}_i}{\# \text{ Unemployed}} \right)$ components in each subsequent year, using the demographic categories reported in figure 2.1.1.

FIGURE 2.2.1
Long-Term Unemployed as % of Total Unemployed
in North Carolina, Actual vs. Predicted [2000 - 2016]



Source: Author's analysis of data from IPUMS-CPS. Gray bars represent periods of recession defined by the National Bureau of Economic Research.

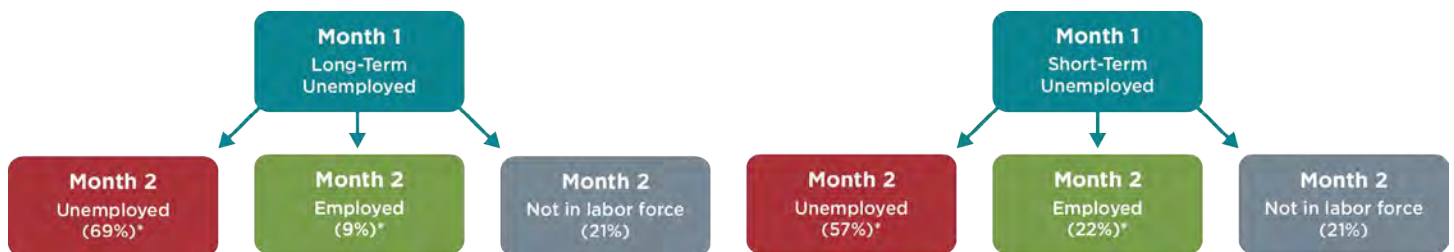
III. OUTCOMES OF THE LONG-TERM UNEMPLOYED

The rise of long-term unemployment and its widespread reach are even more concerning when we consider the poor outcomes faced by this population. Labor economists have consistently found that jobseekers who endure longer jobless spells experience worse re-employment outcomes, a phenomenon known as “duration dependence”. In this section, we exploit the short panel structure of the CPS

to quantify the outcomes experienced by the long-term unemployed in North Carolina during the months immediately following their survey date.

First we measure the change in labor force status between a given survey month (“Month 1”) and the following month (“Month 2”) among respondents who were interviewed in both months (*Figure 2.3.1*). The long-term unemployed were much less likely to be recorded as employed in the following month and were more likely to remain unemployed than their short-term counterparts.

FIGURE 2.3.1
Outcomes of Long- and Short-Term Unemployed
in North Carolina One Month After Initial Survey [2008-2012 Average]

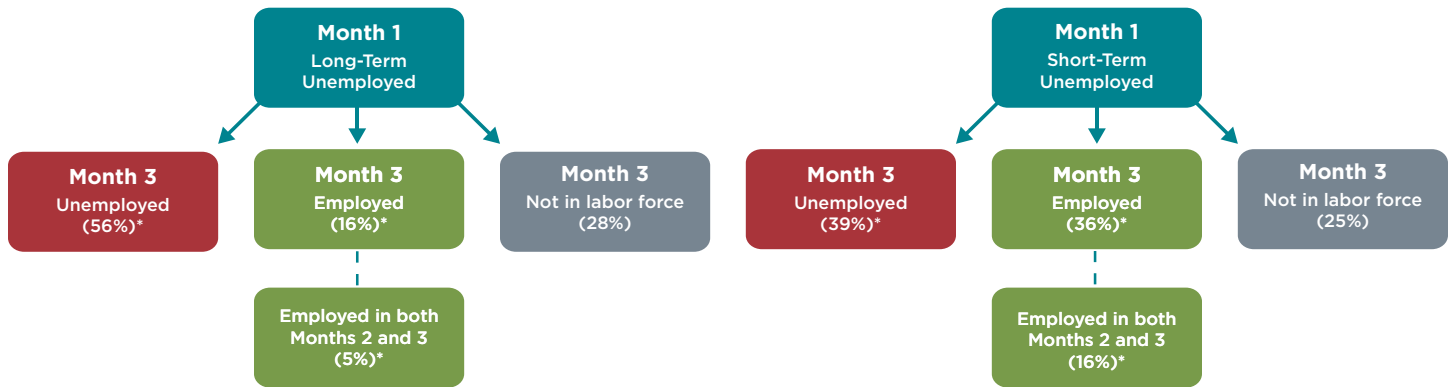


*Estimated differences between long- and short-term unemployed are statistically significant at 90% confidence level.
 Source: IPUMS-CPS. Estimates do not sum to 100% due to rounding.

By the second month after the initial survey date (“Month 3”), both the short- and long-term jobless saw higher probabilities of transitioning out of unemployed status. However, the long-term unemployed remained far less likely to find a job than their short-term counterparts (*Figure 2.3.2*).

We also assess whether individuals maintained employed status over the course of both Months 2 and 3, to gauge the persistence of these job-finding transitions. As expected, we find that the long-term unemployed were substantially less likely to experience persistent transitions to employment.

FIGURE 2.3.2
Outcomes of Long- and Short-Term Unemployed
in North Carolina Two Months After Initial Survey [2008-2012 Average]



*Estimated differences between long- and short-term unemployed are statistically significant at 90% confidence level.
 Source: IPUMS-CPS.

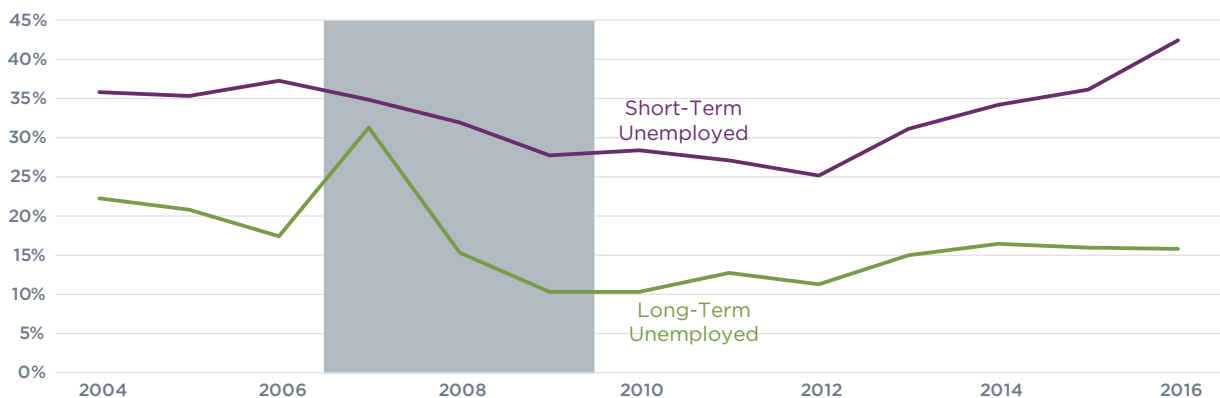
IV. OBSERVABLE DIFFERENCES AND DURATION DEPENDENCE

Although the phenomenon of duration dependence has been widely documented, researchers disagree regarding what causes the poor outcomes experienced by the long-term unemployed. One potential cause of duration dependence is that the long-unemployed have unique attributes making them less likely to find work. In this section, we confirm that observed differences between the long- and short-term unemployed do play a role in explaining their disparate outcomes, but we find that this role is relatively small.

We arrive at this finding by estimating a statistical model that predicts job-finding rates based solely on the observed characteristics of jobseekers.⁵ The resulting predictions allow us to determine the degree to which these characteristics contributed to the disparity in job-finding rates between the long- and short-term unemployed.

The long-term unemployed experienced much lower job-finding rates than their short-term counterparts between 2004 and 2016, except for a brief spike during 2007. The gap between these two groups' job finding rates has widened in recent years as North Carolina's labor market has tightened (Figure 2.4.1).

FIGURE 2.4.1
Job-Finding Rate for Long- and Short-Term Unemployed
in North Carolina [2004 - 2016]



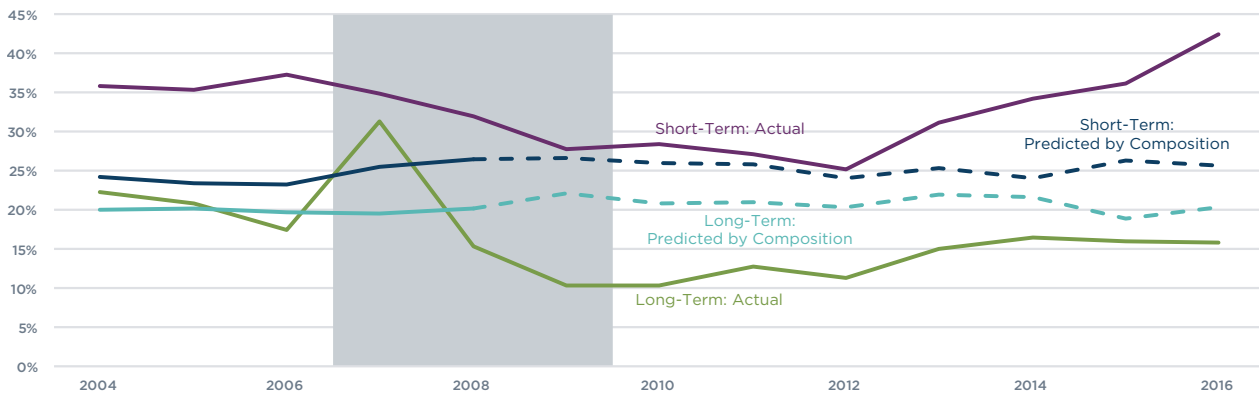
Source: IPUMS-CPS. Values are expressed as annual averages of monthly job-finding rates. Gray bar represents period of recession defined by the National Bureau of Economic Research.

⁵ This counterfactual exercise borrows from Krueger et al. (2014). We estimate a logistic model on 2004-2008 data and apply the coefficients from this model to predict job-finding rates during the estimation period and forecast period based on the observed attributes of the long- and short-term unemployed. Explanatory variables in the model include: Race/ethnicity, sex, marital status, industry, occupation, educational attainment, entrant status, expectation of layoff, and imputed experience. We aggregate and report job-finding rates as annual averages.

During the years 2004 – 2008, which we use here as a baseline period, our model predicts a much smaller difference in job finding rates than is recorded in the actual data. In subsequent years, which we forecast using our model estimates and observed compositional changes, the predicted gap in job finding remains narrow, despite what appears to

be a widening gap in the actual data (*Figure 2.4.2*). These results indicate that observed characteristics account for only 28% (4.6 percentage points) of the gap in job-finding rates between the short- and long-term unemployed during the period examined. The remaining 72% cannot be explained by observed differences between these two groups.

FIGURE 2.4.2
Job-Finding Rate for Long- and Short-Term Unemployed in North Carolina, Actual vs. Predicted [2004 - 2016]



Source: Author's analysis of data from IPUMS-CPS. Values are expressed as annual averages of monthly job-finding rates. Gray bar represents period of recession defined by the National Bureau of Economic Research.

V. DISCUSSION

The long- and short-term unemployed in North Carolina differed little in their observed characteristics during the Great Recession and its aftermath. While the long-term unemployed were generally older, there were few other detectable differences between this group and their short-term counterparts. For instance, despite the large number of job losses in goods-producing industries, workers from these sectors were equally represented among both the long- and short-term unemployed. Overall, we find that the changing composition of our unemployed population cannot explain the increased rate of long-term unemployment in our state.

Individuals experiencing long-term jobless spells in North Carolina subsequently found employment at much lower rates than their counterparts who had only been unemployed for a short period. We demonstrate that a small portion of this disparity in job-finding outcomes can be explained by differences in observed characteristics between the two groups.

The remaining portion of the gap in job-finding rates might be explained in part by variation that isn't observed in survey data, such as differences in skill level. A portion of the disparity might also be due to the impact that prolonged jobless spells have on individuals' job prospects by, for

example, sapping the motivation of jobseekers or creating "resume gaps" that are unattractive to employers.^{6,7} The cause of duration dependence remains a source of contention among economists, and quantifying these potential causes is outside the scope of this report.

While the CPS provides an important perspective on unemployment in North Carolina, there are limitations to the insights that can be derived from this data source. The survey's state-level sample is relatively small, making it difficult to draw robust conclusions for demographic subgroups or for discrete time periods. In addition, while the short panel structure of the CPS makes it possible to observe the short-run job-finding outcomes of the unemployed, it cannot be used to follow individuals over a longer time horizon, making it impossible to determine whether the poor outcomes of the long-term unemployed persist in the years following job loss.

In the following chapter, we perform a similar analysis of North Carolina's long- and short-term unemployment insurance (UI) recipients. Although this population differs from the unemployed population in several respects, we find many of the same patterns among UI claimants as we see among the unemployed. Furthermore, longitudinally-linked data on UI claimants allow us to explore some of these patterns at a finer level of detail and on a much longer time horizon.

⁶ Krueger and Mueller (2011) use a survey of unemployed workers to show that the long-term unemployed spend less time searching for a job than those experiencing shorter jobless spells.

⁷ Kroft et al. (2013) use a resume audit approach to show that jobseekers undergoing prolonged jobless spells are less likely to receive a callback for an interview than identical jobseekers with shorter jobless spells.

CHAPTER 3: UI RECIPIENTS, PART ONE

The record levels of long-term joblessness occurring in North Carolina during the Great Recession were reflected in the record numbers of unemployment insurance (UI) claims filed in our state. A total of 1.3 million individuals were paid UI benefits by North Carolina during the years 2008 – 2012. In this chapter, we use data from North Carolina’s Common Follow-up System (CFS) to paint a picture of these UI recipients, complementing our examination of unemployed workers in the previous chapter.

In section I of this chapter, we categorize these workers by their patterns of UI receipt. While we continue our focus on long-term unemployment, we also distinguish between individuals who experienced a single spell of UI receipt during the period studied and those who collected benefits over the course of multiple spells.

In section II, we describe the characteristics of these UI recipients. Long-term and short-term UI recipients differed little in their demographic makeup, echoing our findings in the previous chapter. Contrary to expectations, the hard-hit goods-producing sectors and non-metro counties were underrepresented among long-term UI recipients.

In section III, we measure the employment and wage outcomes of UI recipients, finding that long-term UI recipients had far worse employment and wage outcomes than their short-term counterparts.

In section IV, we demonstrate that observable differences between the long- and short-term UI categories can explain none of the disparity in job-finding outcomes and only a negligible portion of the gap in wage outcomes between these groups.

Section V concludes by discussing our findings.

I. PATTERNS OF UI RECEIPT

We examine the entire population of UI claimants who were paid benefits for at least one week between January 2008 and December 2012. UI data from the CFS allow us to track individuals’ spells of UI receipt over this entire period, giving us a richer picture of labor market activity than permitted by the Current Population Survey (CPS) data examined in the previous chapter. For instance, while the CPS measures an individual’s unemployment duration only at the point of time when the survey is administered, UI data from the CFS can be used to measure the total duration of UI receiving spells after their completion. Moreover, UI data allow us to differentiate between those who received UI benefits during a single spell and those who collected UI over the course of multiple spells.

We group the 1.3 million UI recipients in North Carolina by the duration of their UI spells and the number of spells they experienced during the 2008-2012 period.¹

Among this population, 42% collected UI benefits over the course of multiple spells, and 58% underwent at least one long-term spell of UI receipt. Subdividing the population of UI recipients further, we find that 24% had one UI spell of short duration, 18% had multiple UI spells of short duration, 33% had one UI spell of long duration, and 25% had multiple UI spells with at least one of long duration.

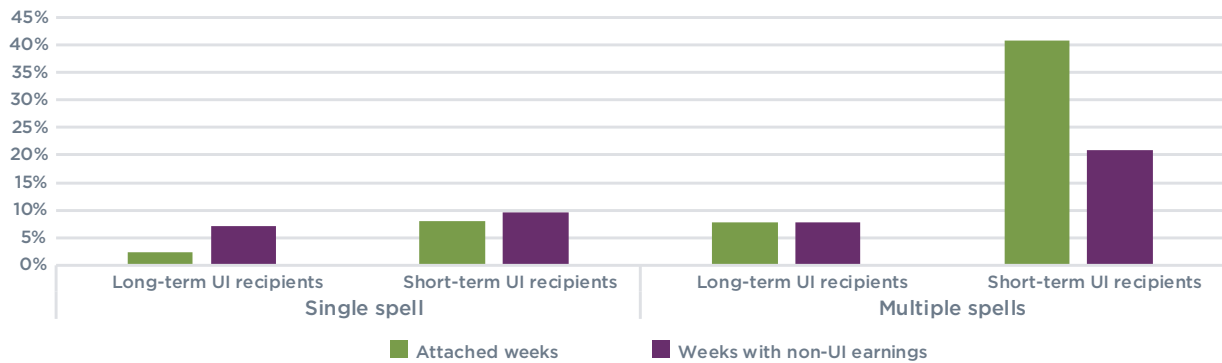
Claimants in these four categories differed by both the amount and the nature of their UI activity. The average number of paid UI weeks per person ranged from a low of 11 in the short-term/single-spell category to a high of 87 in long-term/multiple-spell category. However, for the multiple-spell categories, these weeks of UI collecting were spread out over the course of several spells.

¹ In this section, we use the “A-type” measurement of UI spells described in Chapter 1, defined as periods of continuous receipt of UI benefits. We define duration as the total number of paid UI weeks within a spell.

The short-term/multi-spell category was distinguished from the other groups by far higher rates of “attached” UI claiming. Attached claimants remain on the payroll of their employer during a temporary period of slack work and are not required to

conduct active job search. The short-term/multi-spell category was also much more likely to receive non-UI sources of income during their UI spells, suggesting that they had stronger attachment to the workforce than other claimants (*Figure 3.1.1*).

FIGURE 3.1.1
Attached Weeks and Weeks with Non-UI Earnings as % of Total UI Weeks Paid in North Carolina, by Category of UI Recipient [2008-2012]



Source: North Carolina Common Follow-up System.

II. OBSERVED CHARACTERISTICS OF UI RECIPIENTS

This section describes the composition of these four groups of UI recipients, generally echoing our findings from the previous chapter that the long- and short-term unemployed were similar along most observed dimensions.² Although the Great Recession induced disproportionate job losses in certain sectors, we see workers from all demographic groups represented among the categories of UI recipient examined here (*Figure 3.2.1*).

Black/non-Hispanic individuals were overrepresented among long-term UI recipients (*Figure 3.2.2; Figure 3.2.3*). As in the CPS, we also see a smaller share of Hispanics among long-term UI recipients than their short-term counterparts, although the difference is relatively small. Most other observed differences in composition between the long-term and short-term UI categories were smaller than 10 percentage points.

One noteworthy and unexpected distinction between these groups was that workers from goods-producing industries were underrepresented among long-term UI recipients, despite the large job losses occurring in these sectors. The long-term UI groups also included a disproportionate share of workers from the prosperous Charlotte and Triangle regions and a relatively small share from non-metro counties, which experienced slow recovery from the recession. As in the previous chapter, we find here that long-term unemployment was a widespread phenomenon, and that it was not concentrated in the sectors or regions most impacted by the recession.

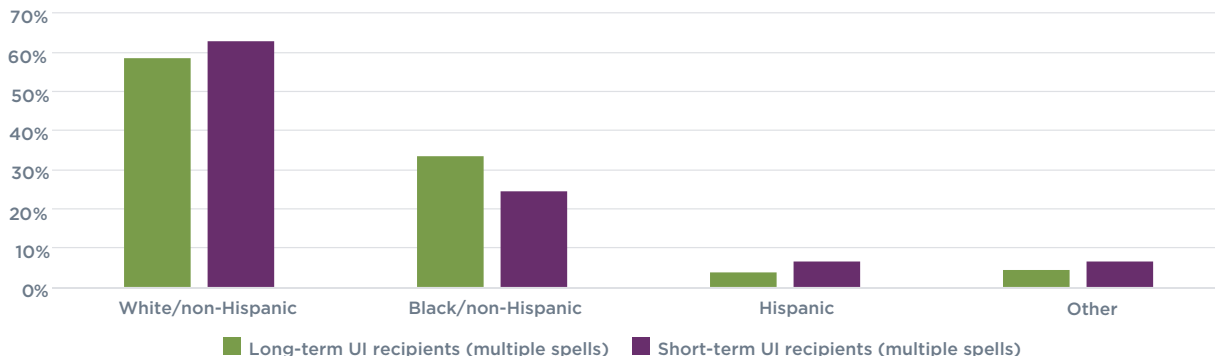
² We assign demographic and work history attributes for each UI recipient based on the information provided at the start of their first UI spell during the study period.

FIGURE 3.2.1
Composition of UI Recipients in North Carolina [2008-2012]

	Single spell			Multiple Spells		
	Long-Term [27+ weeks]	Short-Term [<27 weeks]	Difference [pct. point]	Long-Term [27+ weeks]	Short-Term [<27 weeks]	Difference [pct. point]
Age						
< 25	11%	15%	-4%	11%	10%	1%
25-54	71%	72%	-1%	73%	73%	0%
55+	18%	13%	5%	15%	17%	-2%
Race/ethnicity						
White/non-Hispanic	59%	63%	-4%	55%	59%	-5%
Black/non-Hispanic	33%	24%	9%	36%	23%	13%
Hispanic	4%	6%	-3%	4%	8%	-4%
Other	4%	6%	-2%	6%	10%	-5%
Sex						
Male	50%	57%	-7%	58%	66%	-7%
Female	50%	43%	7%	42%	34%	7%
Previous industry of employment						
Service-providing sector	69%	64%	6%	55%	38%	17%
Goods-producing sector	24%	29%	-5%	39%	56%	-17%
Not available	7%	8%	0%	6%	6%	0%
Geography						
Charlotte/Raleigh/Durham MSA	35%	33%	2%	32%	25%	7%
Other MSA in NC	36%	36%	0%	36%	39%	-3%
Non-metro area in NC	21%	22%	-2%	26%	28%	-3%
Outside NC	6%	7%	-1%	4%	6%	-2%
Not available	2%	2%	0%	1%	1%	0%

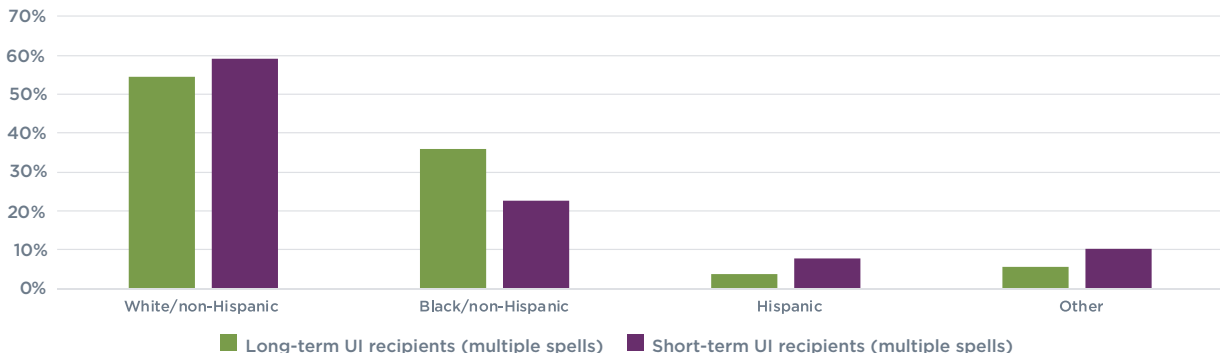
Source: North Carolina Common Follow-up System.

Figure 3.2.2
*Racial/Ethnic Composition of Single-Spell UI Recipients
in North Carolina [2008-2012]*



Source: North Carolina Common Follow-up System.

FIGURE 3.2.3
Racial/Ethnic Composition of Multiple-Spell UI Recipients in North Carolina [2008-2012]



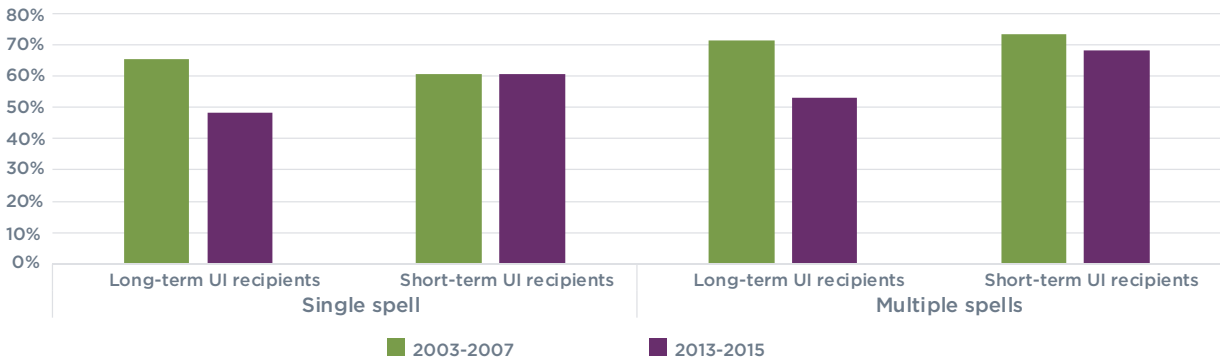
Source: North Carolina Common Follow-up System.

III. OUTCOMES OF UI RECIPIENTS

We complement our examination of duration dependence in the previous chapter by quantifying the outcomes experienced by UI recipients in the years after the Great Recession. Here we assign 2008-2012 UI recipients from each category to a cohort and compare their employment rates and average wages during the five years prior to the recession (2003-2007) and the three years after the recession for which we have data (2013-2015).

The average share of claimants employed in a UI-covered job in North Carolina differed little between the short-term and long-term UI recipient categories during the pre-recession period. However, after the recession, the long-term categories saw much lower employment rates than their short-term counterparts (*Figure 3.3.1; Figure 3.3.2*). Long-term UI recipient categories saw their employment rates decline by 26% between the pre- and post-recession periods, while the short-term categories saw a less than 1% increase for those with single UI spells and a 7% decline for those with multiple UI spells.

FIGURE 3.3.1
Employment Rates, Pre- and Post-Recession, by Cohort of 2008-2012 UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

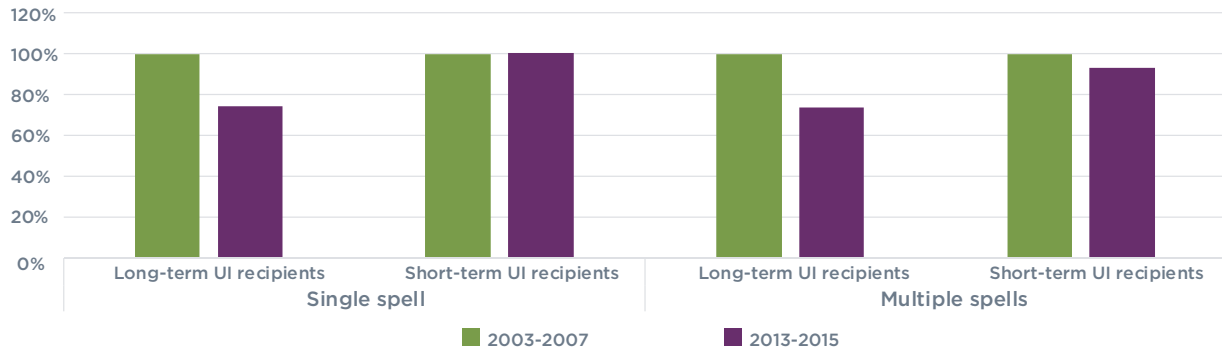
The long-term claimant categories also experienced much worse wage outcomes than their short-term counterparts (*Figure 3.3.3; Figure 3.3.4*). Average inflation-adjusted wages of employed workers in the long-term UI groups declined 20% among those with single UI spells and 15% among those

with multiple UI spells.³ Meanwhile, short-term recipients' real average wages increased 1% among those with single UI spells and less than 1% among those with multiple UI spells, an outcome generally in line with aggregate wage trends during this period in North Carolina.⁴

³ All wage amounts in this report are adjusted to 2015 dollars using the Consumer Price Index for All Urban Consumers (CPI-U) from the US Bureau of Labor Statistics.

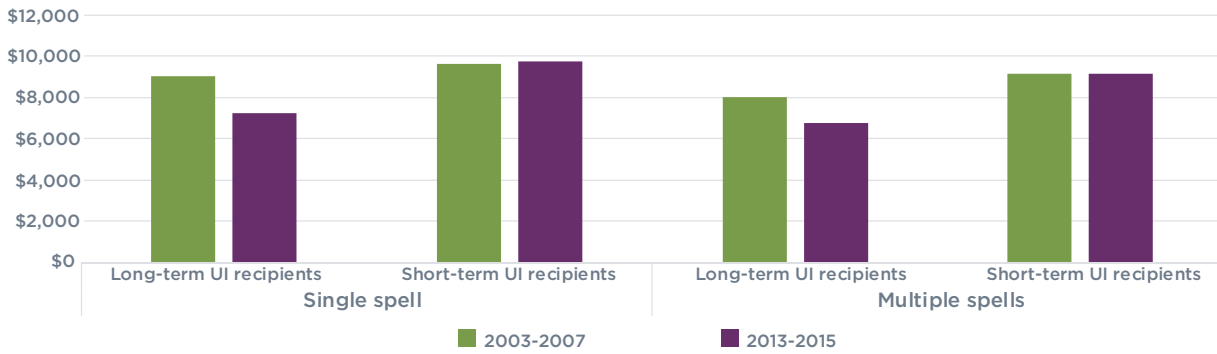
⁴ Real average wages in North Carolina increased 0.5% during this period. Source: Quarterly Workforce Indicators (U.S. Census Bureau)

FIGURE 3.3.2
*Employment Rates, Pre- and Post-Recession,
 by Cohort of 2008-2012 UI Recipients in North Carolina [Indexed to 2003-2007]*



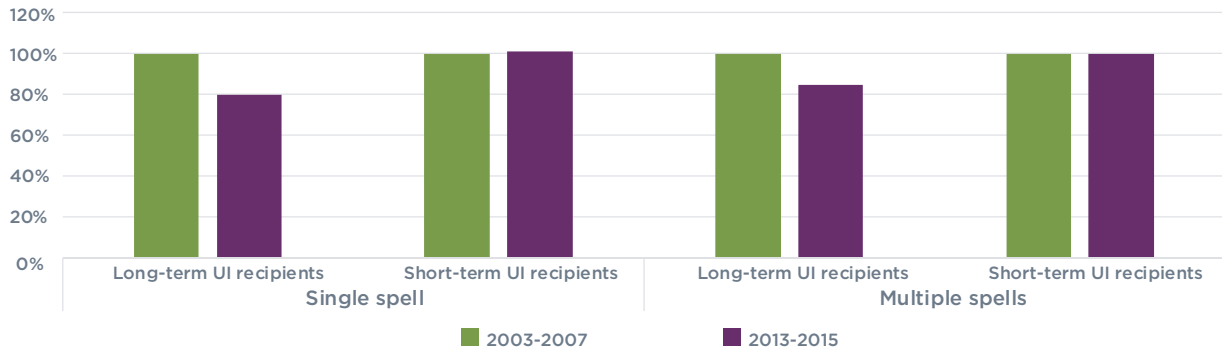
Source: North Carolina Common Follow-up System.

FIGURE 3.3.3
*Real Average Quarterly Wages, Pre- and Post-Recession,
 by Cohort of 2008-2012 UI Recipients in North Carolina*



Source: North Carolina Common Follow-up System. Wage amounts are adjusted to 2015 dollars using the CPI-U.

FIGURE 3.3.4
*Real Average Quarterly Wages, Pre- and Post-Recession,
 by Cohort of 2008-2012 UI Recipients in North Carolina [Indexed to 2003-2007]*



Source: North Carolina Common Follow-up System. Wage amounts are adjusted to 2015 dollars using the CPI-U.

IV. OBSERVABLE DIFFERENCES AND DURATION DEPENDENCE

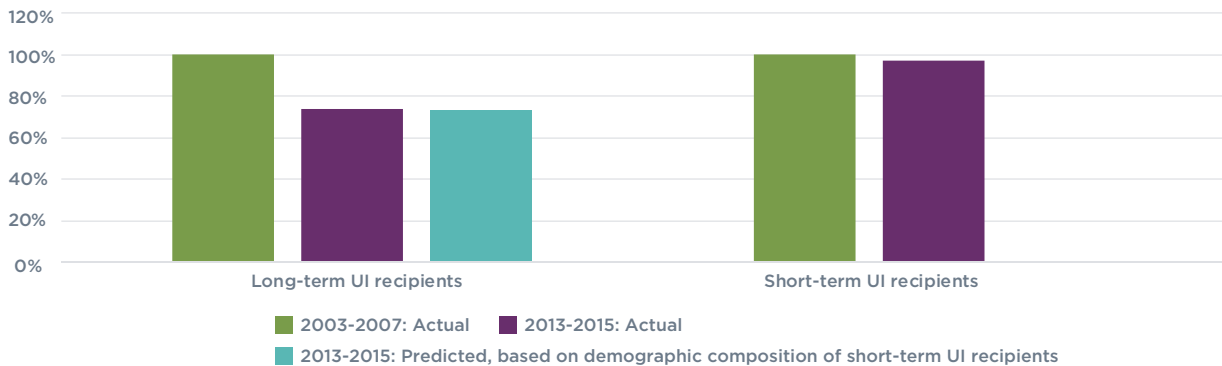
As with our analysis of the long-term unemployed, we perform a counterfactual exercise to determine whether observable characteristics can explain the disparity in outcomes between short-term and long-term UI recipients.⁵

We combine the categories described above into one “long-term” and one “short-term” cohort of UI recipients. The long-term cohort saw much steeper declines in employment than the short-term group, decreasing 26% (vs. 3%) between the pre- and post-recession periods. If the long-term UI group had the same demographic makeup as the short-term

group, we predict that their employment rate would have declined by a slightly greater amount (28%). By implication, observable characteristics cannot explain any of the disparity in employment outcomes between these groups (Figure 3.4.1).

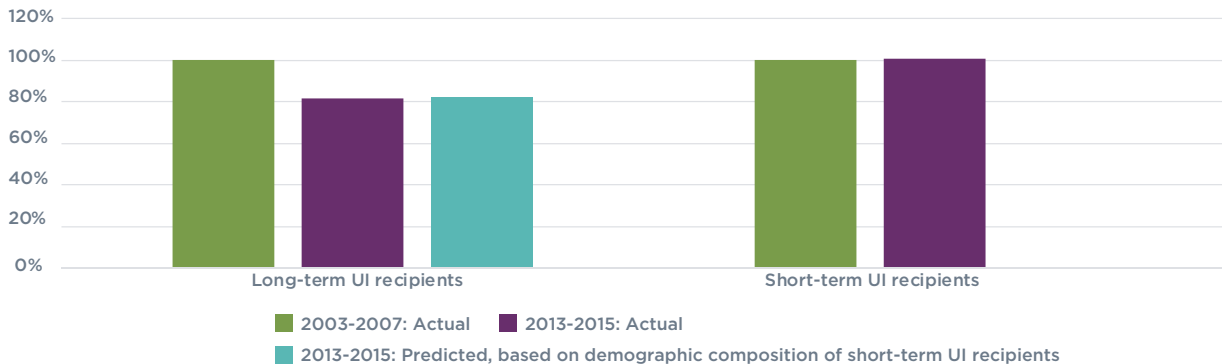
The cohort of long-term UI recipients also saw much lower wage outcomes than their short-term counterparts, with their average wage declining 18% (vs. increasing 1%) in real terms between the pre- and post-recession periods (Figure 3.4.2). If the long-term UI group had the same demographic makeup as the short-term group, we predict that their average wage would have declined by a marginally smaller amount (17%). This indicates that observable composition can explain only a negligible amount of the difference in wage outcomes between these groups.

FIGURE 3.4.1
Employment Rates of UI Recipients in North Carolina, Actual vs. Predicted [Indexed to 2003-2007]



Source: North Carolina Common Follow-up System.

FIGURE 3.4.2
Real Average Wages of UI Recipients in North Carolina, Actual vs. Predicted [Indexed to 2003-2007]



Source: North Carolina Common Follow-up System. Wage amounts are adjusted to 2015 dollars using the CPI-U.

⁵ This analysis follows a similar approach to the counterfactual exercise in Chapter 2 section II. Here we decompose employment rates into share and intensity components using the following identity:

$$\frac{\# \text{ Employed}}{\# \text{ Total}} = \sum \left(\frac{\# \text{ Total}_i}{\# \text{ Total}} \right) \left(\frac{\# \text{ Employed}_i}{\# \text{ Total}_i} \right)$$

Where i denotes a given demographic group. We calculate the predicted difference in employment rates by summing the product of the intensity components $\left(\frac{\# \text{ Employed}_i}{\# \text{ Total}_i} \right)$ of the long-term UI recipients and the difference in share components $\left(\frac{\# \text{ Total}_i}{\# \text{ Total}} \right)$ between the long-term and short-term UI recipients, using the demographic categories reported in figure 3.2.1. We follow the same approach in our analysis of wage outcomes.

V. DISCUSSION

Our examination of UI recipients during the Great Recession and its aftermath closely complements our findings from previous chapter. We contrast UI recipients who underwent long-term and short-term spells, also distinguishing between workers who experienced single instances of UI spells and those who collected UI benefits over the course of multiple spells.

As with the unemployed, long- and short-term UI recipients differed little in their observed characteristics. While long-term UI recipients were more likely to be black/non-Hispanic, there were few other major differences between these groups and their short-term counterparts. The reach of long-term unemployment beyond the sectors of the economy most impacted by the recession is demonstrated by our finding that service-producing industries and the Charlotte and Triangle regions were relatively overrepresented among long-term UI recipients.

We also find that long-term UI recipients faced much worse re-employment and wage outcomes than their short-term counterparts, reflecting the duration dependence seen

among the long-term unemployed in the previous chapter. We demonstrate that none of the disparity in job-finding outcomes and only a negligible portion of the gap in wage outcomes can be explained by these groups' observed characteristics.

As in the last chapter, the cause of duration dependence remains unexplained. While it is difficult to predict whether a UI recipient will have a long-term claiming spell, and even harder to determine why long-term UI recipients experience poor outcomes, the findings from these chapters suggest that this population may require heightened levels of assistance from the workforce system.

One necessary weakness of this chapter is that, in our effort to capture every individual who received UI benefits during the study period, we are unable to draw precise conclusions about the outcomes of discrete layoff events. In the following chapter, we focus on a narrower cohort of workers with identifiable separation dates who started UI spells between July 2008 and June 2009 in order to explore a broader range of outcomes related to employment, job quality, and re-allocation.

CHAPTER 4: UI RECIPIENTS, PART TWO

Between July 2008 and June 2009, at the height of the Great Recession, there was a sharp increase in the number of initial claims filed for unemployment insurance (UI) in North Carolina. In this chapter, we take a closer look at a subset of UI recipients with identifiable separation dates who were laid off during this turbulent period.

By focusing on this narrower cohort of displaced workers with distinct layoff events we can more precisely track long-run outcomes than was possible for the broader group described in Chapter 3. We are also able to quantify a broader array of outcomes for this cohort, including several measures of job quality and re-allocation.

In section I of this chapter, we report outcomes for our overall cohort of workers who lost their job during the height of the recession. This group experienced employment declines that persisted at least six years after their layoff date, but those who found work saw wage gains that were generally consistent with trends in the broader workforce.

In section II, we compare workers who underwent long-term UI spells to their short-term counterparts. As in previous chapters, we find that long-term UI recipients exhibited considerable “duration dependence”, experiencing much worse employment and job quality outcomes than short-term recipients.

In section III, we briefly examine the outcomes of additional cohorts grouped by their demographic attributes.

Section IV concludes by discussing our findings.

I. DISPLACED WORKERS

To obtain comparable measures of pre- and post-layoff activity, we restrict our sample to those UI recipients with identifiable separation dates who, based on the nature of their UI claiming activity, were most likely to seek work after layoff and were most likely to be employed at an in-scope employer during the period prior to their layoff date.¹ A total of 100,879 UI recipients met the conditions for inclusion in this sample of displaced workers.

First, we examine these UI recipients' employment outcomes. The share of this cohort who were employed in a UI-covered job in North Carolina plunged dramatically after their layoff date (*Figure 4.1.1; Figure 4.1.2*). Although employment rates trended slightly upward for three years after layoff, by year six employment remained 38% (37 points) lower than its peak in the quarter prior to layoff.^{2,3}

¹ The cohorts analyzed in this chapter are comprised of claimants with “B-type” claiming spells starting 2008q3 – 2009q2 who began their spells as non-attached claimants; had an NC residence listed on their first benefit payment; collected state UI benefits (rather than federal or military UI benefits); and were classified as intrastate claimants (rather than interstate claimants or commuters).

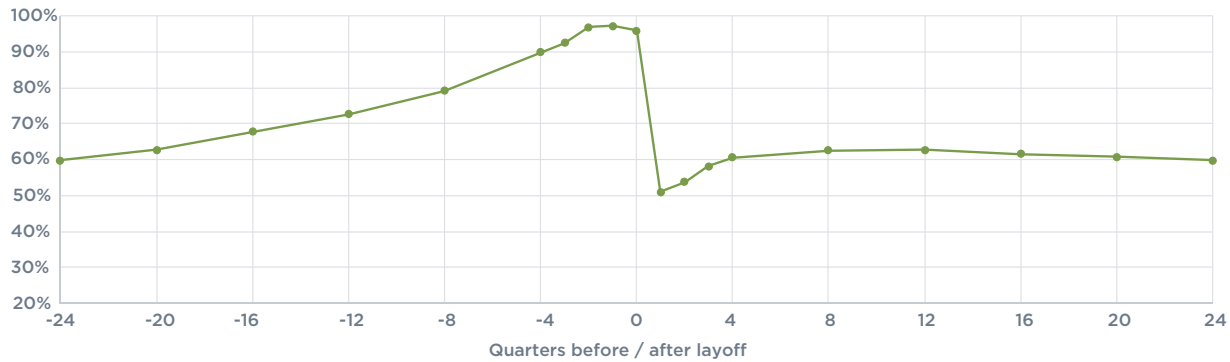
² Employment rates do not sum to 100% in any quarter due in part to differences in timing between separation and final wage payments and in part to missing records in our UI claims and UI wage records data.

³ The indexed graphs in this chapter use baseline periods corresponding to the quarter in which each indicator peaked or displayed an inflection point. The graphs depicting employment and wage outcomes are indexed to the quarter prior to layoff, while graphs depicting other outcomes are indexed to the quarter of layoff.

FIGURE 4.1.1

Employment Rate, Pre- and Post-Layoff

Cohort: Sample of 2008q3-2009q2 UI recipients in North Carolina

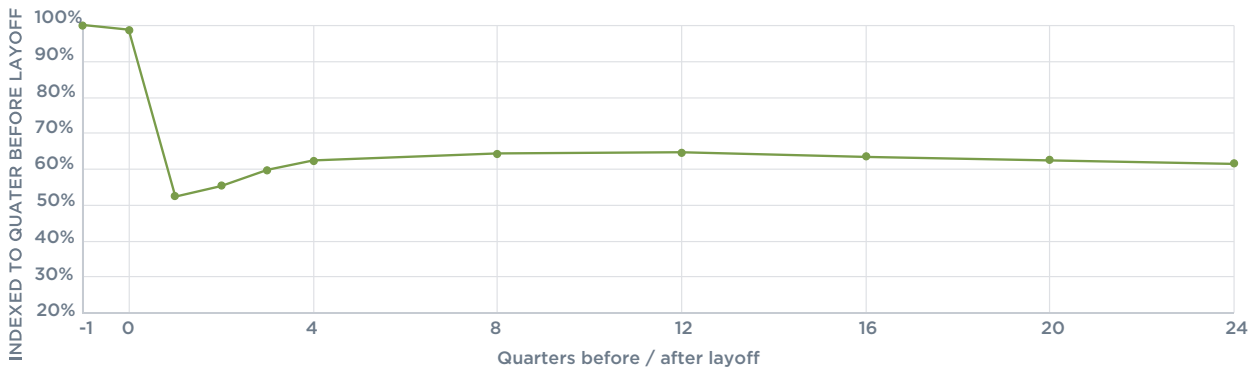


Source: North Carolina Common Follow-up System.

FIGURE 4.1.2

Employment Rate [Indexed]

Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

We now turn our attention to the quality of jobs held by those in our sample during their employed quarters. We consider two measures of job quality: i) the real average wage earned during a quarter; and ii) the share of workers whose primary job was in the temporary help services industry (NAICS 561320), which we use as a proxy for jobs with non-standard and precarious employment arrangements.⁴

Displaced workers experienced a steep decline in wages coincident with their layoff date (Figure 4.1.3; Figure 4.1.4). Average wages increased at a rapid clip starting the second

quarter after the layoff date, and by the sixth year were 5% (+\$404) higher in real terms than in the quarter before layoff, an outcome generally in line with aggregate wage trends during this period in North Carolina.⁵

A small portion of workers in this cohort were primarily employed in the temporary help industry during the quarter of layoff. After layoff, the share of workers finding work in this sector increased sharply, but then declined and, by the sixth year, had reverted to 42% (-3.6 points) lower than the layoff quarter (Figure 4.1.5; Figure 4.1.6).

⁴ Job security in the United States has grown steadily more precarious over recent decades as employee-employer relationships have weakened and non-standard employment arrangements have proliferated (see for example Kalleberg [2011]). Temporary help agencies provide labor to clients' businesses; these workers are recorded as employed at the agency that pays them, not at the establishment where they report for work. Most of those recorded as employed in this industry have non-standard work arrangements by definition, with the potential exception of those who report for work at the temp agency itself.

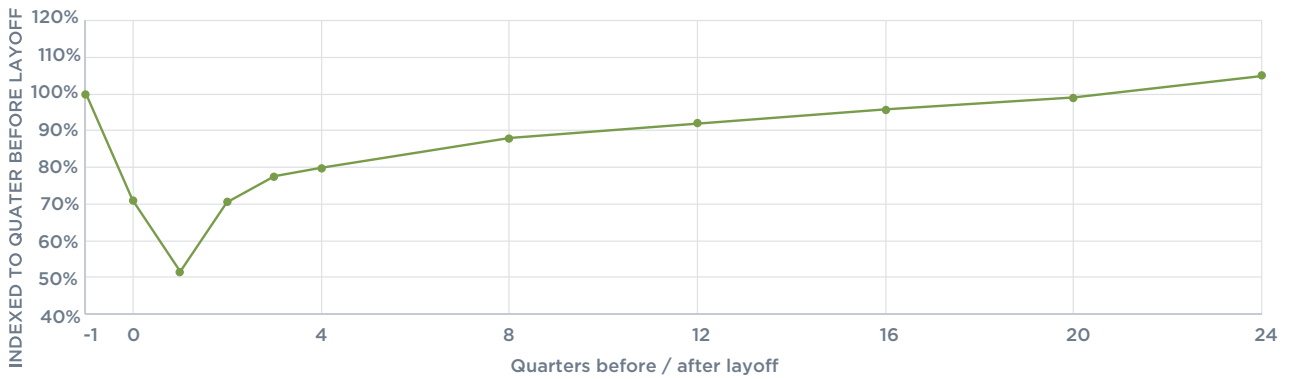
⁵ Real average wages in North Carolina increased 4.3% between July 2008-June 2009 and July 2014-June 2015. Source: Quarterly Workforce Indicators

FIGURE 4.1.3
Real Average Quarterly Wage, Pre- and Post-Layoff
 Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina



Source: North Carolina Common Follow-up System. Wage amounts are adjusted to 2015 dollars using the CPI-U.

FIGURE 4.1.4
Real Average Quarterly Wage [Indexed]
 Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina



Source: North Carolina Common Follow-up System. Wage amounts are adjusted to 2015 dollars using the CPI-U.

FIGURE 4.1.5
Percent with Main Job in the Temporary Help Services Industry, Pre- and Post-Layoff
 Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina

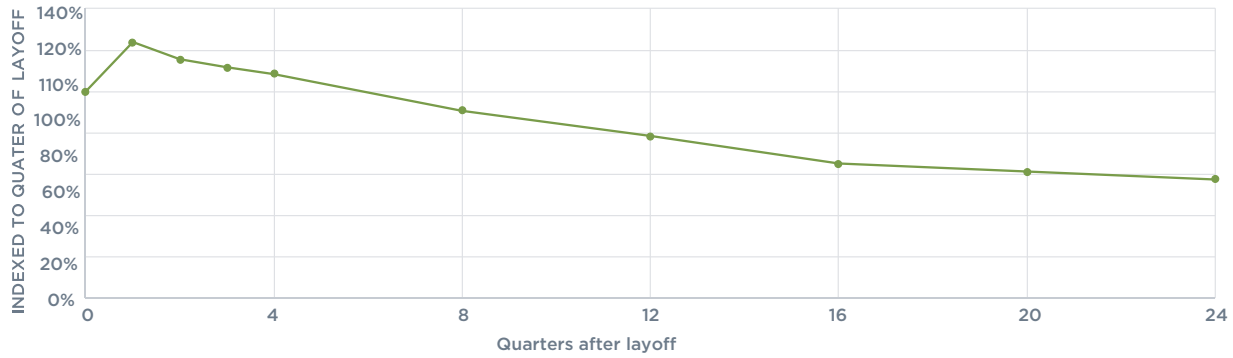


Source: North Carolina Common Follow-up System.

FIGURE 4.1.6

Percent with Main Job in the Temporary Help Services Industry [Indexed]

Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

Finally, we examine the re-allocation of displaced workers to new industries and new employers. We consider two measures of re-allocation for those who obtained employment: i) the share of workers whose main job was in the same industry sector (2-digit NAICS) as the employer that laid them off; and ii) the share of workers whose main job was at the same employer that laid them off.

Displaced workers shifted away from their layoff industry at a rapid pace in the quarters after their layoff date (Figure

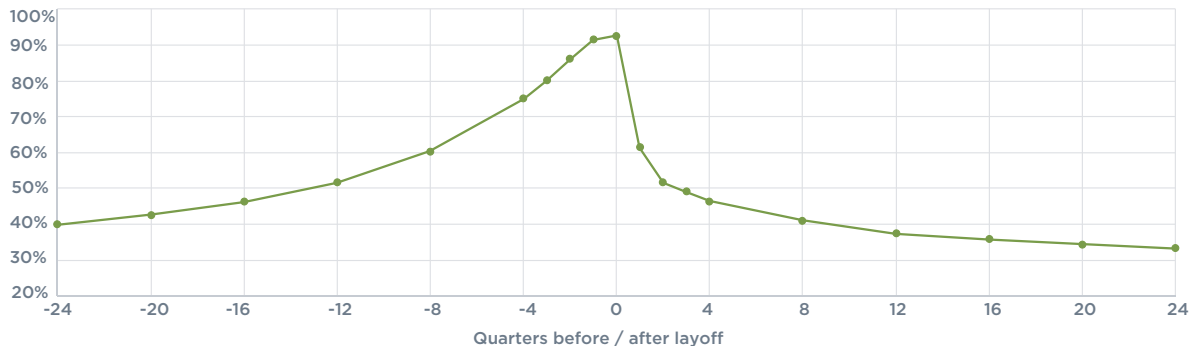
4.1.7; Figure 4.1.8). The likelihood of returning to their layoff industry declined through the sixth year after separation, by which it had decreased 64% in relative terms.

This cohort also saw a sharply decreasing likelihood of working for the same employer as the one that laid them off (Figure 4.1.9; Figure 4.1.10). This likelihood declined through the sixth year after separation, by which it had decreased 90% in relative terms.

FIGURE 4.1.7

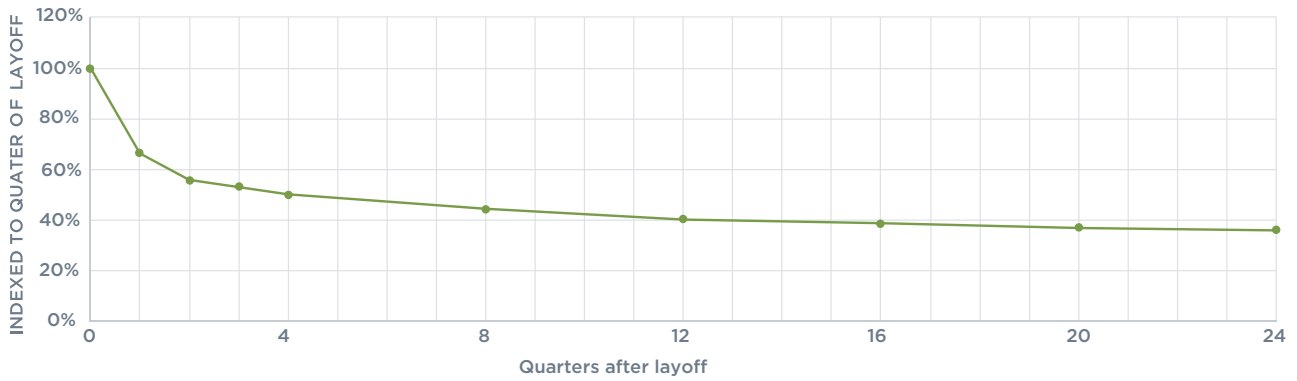
Percent with Main Job in the Same Industry as Layoff Employer, Pre- and Post-Layoff

Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina



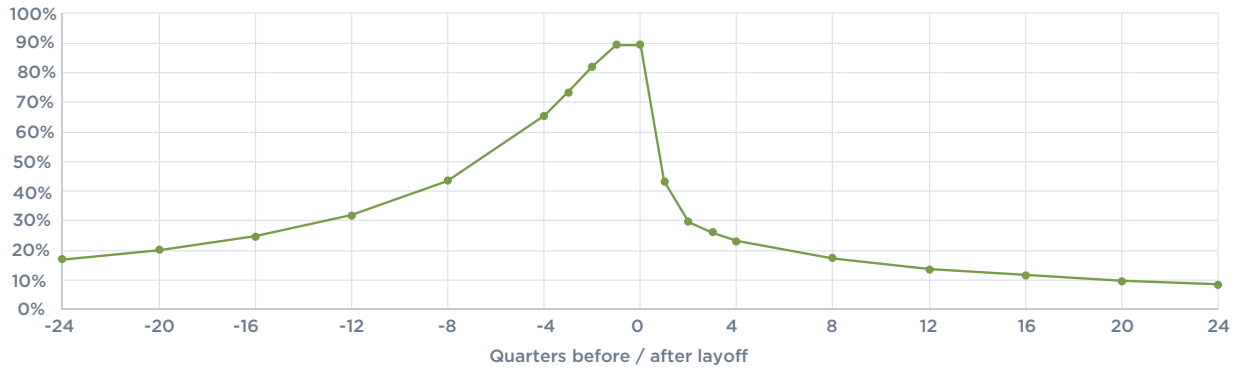
Source: North Carolina Common Follow-up System.

FIGURE 4.1.8:
Percent with Main Job in the Same Industry as Layoff Employer [Indexed]
 Cohort: Sample of 2008q3-2009q2 UI recipients in North Carolina



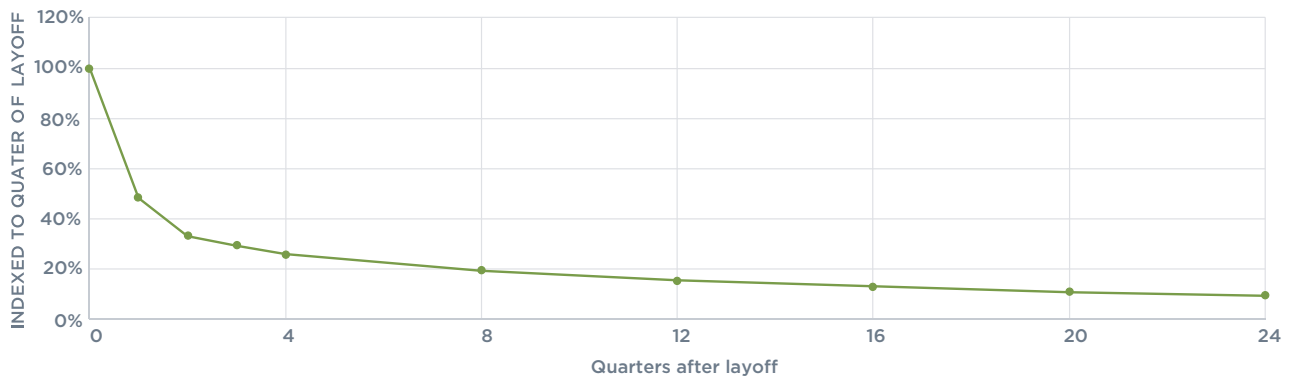
Source: North Carolina Common Follow-up System.

FIGURE 4.1.9
Percent with Main Job at Same Firm as Layoff Employer, Pre- and Post-Layoff
 Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

FIGURE 4.1.10
Percent with Main Job at the Same Firm as Layoff Employer [Indexed]
 Cohort: Sample of 2008q3-2009q2 UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

II. LONG-TERM VS. SHORT-TERM UI RECIPIENTS

We now divide our cohort of laid-off workers to differentiate between those who experienced a long-term UI spell and those who experienced a short-term UI spell.⁶

Short-term and long-term UI recipients had similar employment rates in the years prior to layoff, with the long-term group showing a slightly higher rate. However, long-term recipients saw a much larger and more persistent decline in employment rates after layoff, consistent with the duration dependence we found in previous chapters among long-term UI recipients and the long-term unemployed (Figure 4.2.1; Figure 4.2.2). Although their outcomes

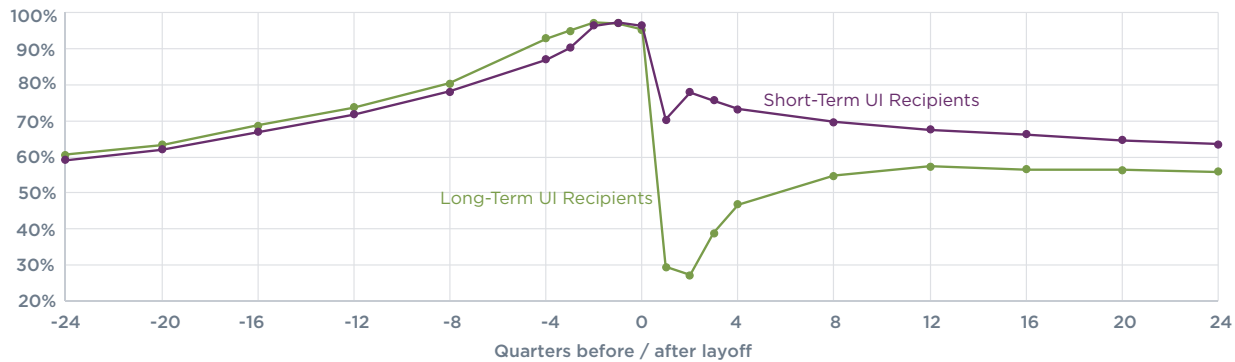
started improving after two quarters, the relative decline in employment was eight points larger among long-term recipients than short-term recipients six years after layoff.

We also see evidence of UI duration dependence on job quality outcomes. Short-term and long-term UI recipients earned similar wage levels in the years prior to layoff, with the short-term earning slightly more. However, long-term recipients saw a much larger decline in wages after layoff (Figure 4.2.3; Figure 4.2.4). Average wages earned by the long-term cohort were substantially lower than for short-term UI recipients throughout the post-layoff period, and remained below pre-layoff levels six years after layoff. By this time, the relative wage gain among long-term recipients was 11 points lower than among short-term recipients.

FIGURE 4.2.1

Employment Rate, Pre- and Post-Layoff

Cohort: Sample of Long- and Short-Term UI Recipients in North Carolina

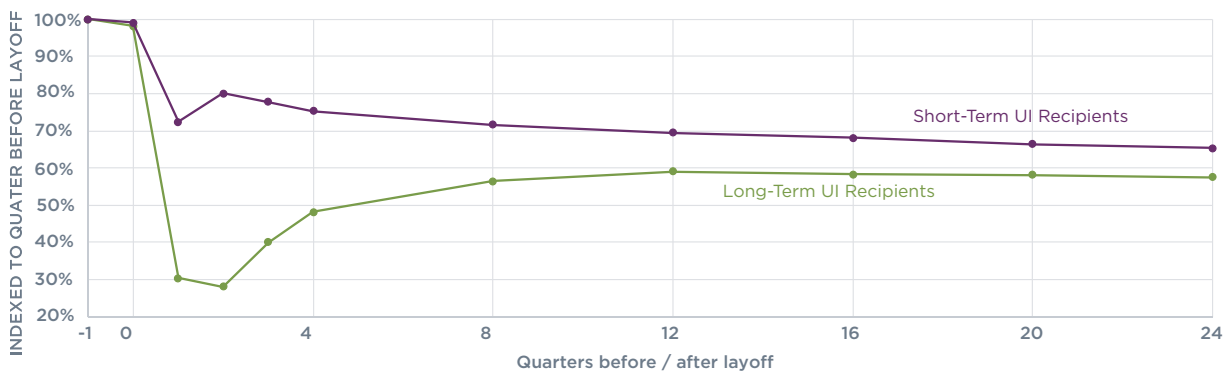


Source: North Carolina Common Follow-up System.

FIGURE 4.2.2

Employment Rate [Indexed]

Cohort: Sample of Long- and Short-Term UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

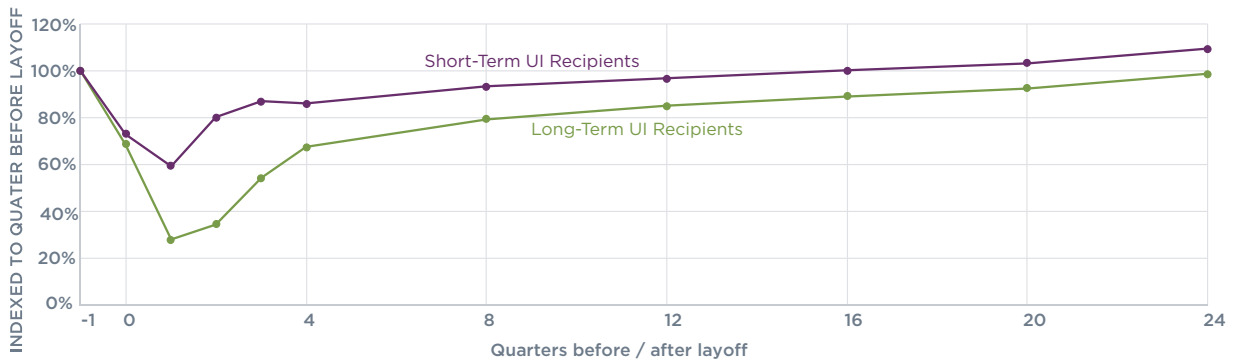
⁶ There are 52,898 (52%) persons in the short-term recipient cohort and 47,981 (48%) in the long-term recipient cohort.

FIGURE 4.2.3
Real Average Quarterly Wage, Pre- and Post-Layoff
 Cohort: Sample of Long- and Short-term UI Recipients in North Carolina



Source: North Carolina Common Follow-up System. Wage amounts are adjusted to 2015 dollars using the CPI-U.

FIGURE 4.2.4
Real Average Quarterly Wage [Indexed]
 Cohort: Sample of Long- and Short-term UI Recipients in North Carolina

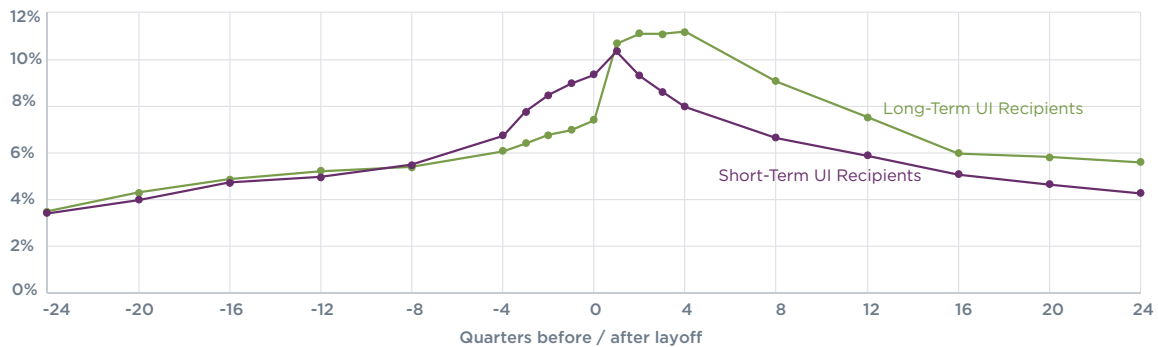


Source: North Carolina Common Follow-up System.

Short-term UI recipients were more likely than their long-term counterparts to be primarily working in the temporary help industry in the quarters immediately preceding layoff. After layoff, the share of long-term recipients employed in this

industry shot upward and only started to decline two years after layoff (Figure 4.2.5; Figure 4.2.6). Long-term recipients were more likely than short-term recipients to be primarily employed at a temp agency six years after layoff.

FIGURE 4.2.5
Percent with Main Job in the Temporary Help Services Industry, Pre- and Post Layoff
 Cohort: Sample of Long- and Short-term UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

FIGURE 4.2.6

Percent with Main Job in the Temporary Help Services Industry [Indexed]

Cohort: Sample of Long- and Short-term UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

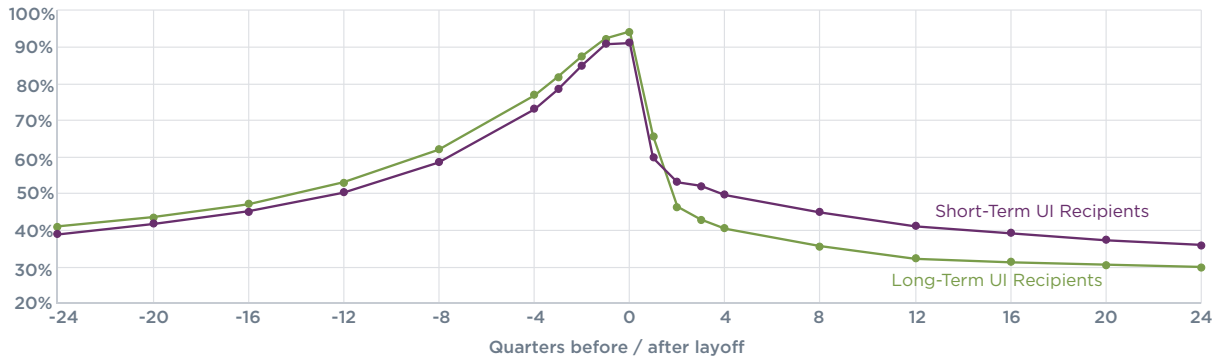
Long-term UI recipients also had higher rates of re-allocation after layoff than short-term recipients (Figure 4.2.7; Figure 4.2.8). The relative decline in the share of workers employed in the same industry as their layoff employer was eight points larger among long-term recipients than their short-term counterparts six years after layoff.

Likewise, long-term recipients were less likely to return to their layoff employer (Figure 4.2.9; Figure 4.2.10). The relative decline in the share of workers employed at their layoff employer was five points larger among long-term recipients than their short-term counterparts six years after layoff.

FIGURE 4.2.7

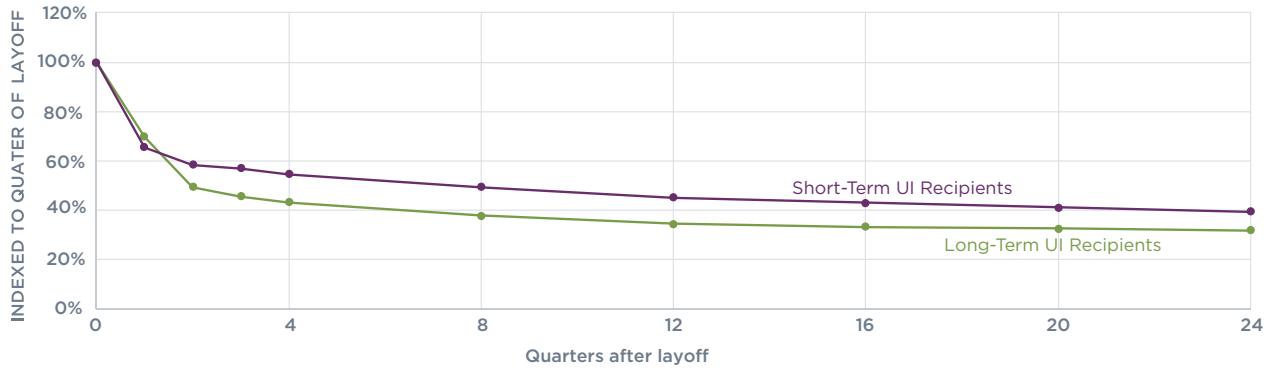
Percent with Main Job in the Same Industry as Layoff Employer, Pre- and Post-Layoff

Cohort: Sample of Long- and Short-term UI Recipients in North Carolina



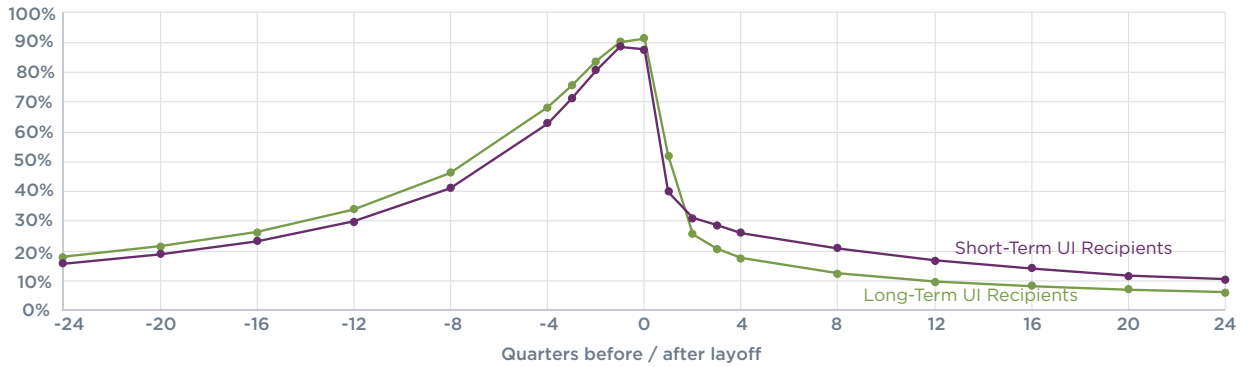
Source: North Carolina Common Follow-up System.

FIGURE 4.2.8
Percent with Main Job in the Same Industry as Layoff Employer [Indexed]
Cohort: Sample of Long- and Short-Term UI Recipients in North Carolina



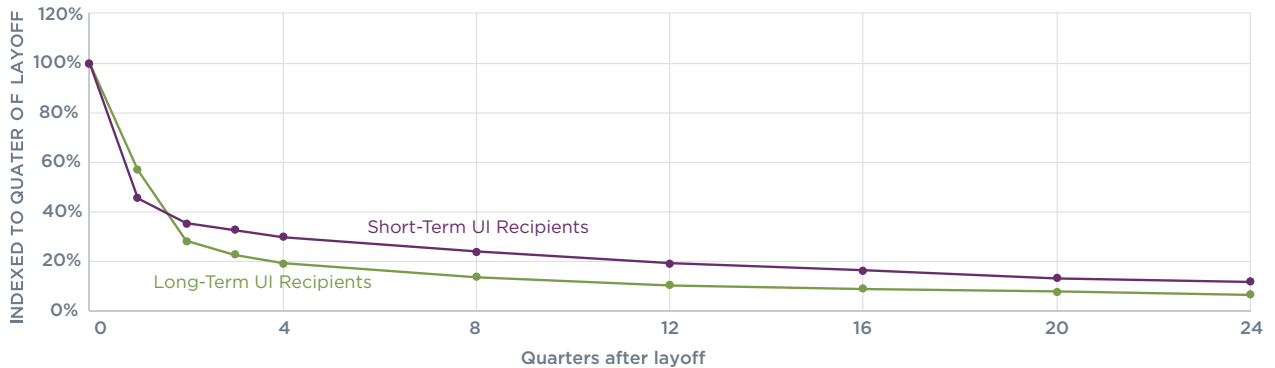
Source: North Carolina Common Follow-up System.

FIGURE 4.2.9
Percent with Main Job at Same Firm as Layoff Employer, Pre- and Post-Layoff
Cohort: Sample of Long- and Short-Term UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

FIGURE 4.2.10
Percent with Main Job at the Same Firm as Layoff Employer [Indexed]
Cohort: Sample of Long- and Short-Term UI Recipients in North Carolina



Source: North Carolina Common Follow-up System.

III. OTHER COHORTS

In this section, we briefly compare the relative employment, job quality, and re-allocation outcomes of subsets of displaced workers differentiated by:

- Age
- Race/ethnicity
- Sex
- Geography
- Previous industry of employment
- Tenure at layoff employer

As in the previous chapter, we assign characteristics to each UI recipient based on the information provided at the start of their UI spell (*Figure 4.3.1*).

The disparities in employment outcomes between demographic groups were generally smaller than the eight-percentage point gap seen between long-term and short-term UI recipients. The only groups experiencing relative employment declines eight or more percentage points larger than their counterparts were older persons (compared to younger persons).

Disparities in wage outcomes between demographic groups were also less severe than the 11-percentage point gap seen between long-term and short-term UI recipients. Groups experiencing relative wage declines 11 points or more than their counterparts included older persons (compared to younger persons) and workers with more than three years' experience at their layoff employer (compared to those with less tenure). These groups also saw larger relative likelihoods of transitioning to the temporary services sector than their counterparts. In addition, despite the higher rates of re-employment at a temp agency, these groups otherwise saw relatively lower likelihoods of transitioning to a different industry or a different employer after layoff.

IV. DISCUSSION

Workers displaced during the Great Recession experienced poor employment outcomes, with their likelihood of returning to work in a UI-covered job in North Carolina remaining low throughout the years following layoff. However, the wages earned by those who were fortunate enough to obtain employment were generally consistent with the real wage gains seen by workers statewide.

The situation was more dire for long-term UI recipients. Those who underwent long-term spells of UI receipt experienced much worse employment and job quality outcomes than their short-term counterparts. This finding of “duration dependence”, which mirrors our findings from the two previous chapters, provides further evidence of the challenges faced by the long-term jobless.

One provocative finding to emerge from our examination of other cohorts of displaced workers is the stark disparity between the outcomes of younger and older workers. For every age group examined, claimants from older age groups had much lower relative re-employment probabilities and much poorer relative job quality outcomes than those from younger age groups. This finding might suggest that older claimants faced unique barriers to re-employment after the Great Recession.⁷ However, this finding may also reflect typical lifecycle patterns of employment; even under normal circumstances, workers tend to see smaller percent increases in their employment rates and wage earnings with each passing decade.⁸

Our results thus far lead us to believe that long-term UI recipients may require heightened levels of assistance to help them re-train or up-skill for a new job and to connect with new employers. Some of these individuals may benefit from participating in active labor market programs administered by North Carolina's workforce development system.

⁷ See for example Johnson (2009).

⁸ These lifecycle patterns have been widely documented in the literature; see for example Polachek (2008). They are also evident in cross-sectional data published by federal statistical agencies, such as the Census Bureau's Quarterly Workforce Indicators.

FIGURE 4.3.1
Outcomes Six Years After Layoff as % of Pre-Layoff Conditions,
by Cohort of UI Recipients in North Carolina

	Employment	Job Quality		Re-Allocation	
	Employment Rate	Real Average Wage	Main Job in Temporary Services Sector *	Main Job in Same Industry as Layoff	Main Job at Layoff Employer
Age					
< 25	70%	132%	53%	30%	7%
25-34	67%	113%	55%	36%	7%
35-44	66%	105%	56%	39%	9%
45-54	61%	97%	58%	42%	12%
55+	36%	82%	74%	50%	19%
Race/Ethnicity					
White, non-Hispanic	60%	106%	58%	38%	10%
Black, non-Hispanic	66%	104%	57%	37%	9%
Hispanic	63%	101%	51%	41%	11%
Sex					
Male	61%	106%	65%	38%	10%
Female	63%	104%	49%	38%	9%
Geography					
Charlotte/Raleigh/Durham MSAs	63%	107%	58%	37%	7%
Other MSAs	61%	105%	56%	37%	10%
Non-metro areas	61%	101%	62%	40%	12%
Previous Industry of Employment					
Construction	58%	101%	1291%	45%	11%
Manufacturing	63%	97%	992%	35%	15%
Service-providing	62%	107%	43%	35%	8%
Tenure at Layoff Employer					
One year or less	60%	112%	45%	31%	5%
Between one and three years	62%	104%	62%	35%	8%
More than three years	62%	96%	120%	45%	17%

**These percentage changes are calculated from a small base and should be interpreted with caution.
Source: North Carolina Common Follow-up System.*

CHAPTER 5: CONCLUSION

I. FINDINGS AND IMPLICATIONS

A. LONG-TERM UNEMPLOYMENT

Long-term unemployment reached unprecedented levels during and after the Great Recession. One of the primary themes of this report has been describing how the long-term unemployed and long-term unemployment insurance (UI) recipients differed from their short-term counterparts.

We find that there were relatively few observable differences between these groups, and that such differences tended to be small. Most surprisingly, the industry sectors and geographic areas hardest-hit by the Great Recession were no more likely to be represented among the long-term unemployed or long-term UI recipients than among their short-term counterparts. Long-term unemployment was a widespread phenomenon that affected workers in all industries, demographic groups, and regions of North Carolina, despite the concentrated impact that the recession had on particular sectors of our state's economy.

We learn from the Current Population Survey (CPS) that long-term unemployment in North Carolina was more prevalent among older age groups. Contrary to expectations, long-term unemployment was no more common among persons previously working in goods-producing industries than among those from service-providing sectors. Other measured differences between the long- and short-term unemployed were generally small.

We also see a larger concentration of black/non-Hispanic claimants among long-term UI recipients. Contrary to expectations, we find that long-term UI receipt was relatively less common among claimants previously working in the goods-producing sectors or living outside North Carolina's metro areas. Other measured differences between long- and short-term UI recipients were generally small.

The similarity between these groups' characteristics presents a challenge for workforce professionals hoping to identify individuals at high risk for prolonged jobless spells. It might be difficult for workforce planners to devise a demographically-targeted approach for preventing long-term unemployment since many of the demographic groups examined here are represented among both the long- and short-term unemployed to comparable degrees.

Moreover, our results suggest that there is no clear relationship between structural patterns of job loss and the incidence

of long-term unemployment. A strategy targeted at helping North Carolinians from the hard-hit goods-producing sectors or non-metro areas would not have efficiently reached the long-term UI recipient population, who were relatively more concentrated in service-providing sectors and metro areas.

Despite the absence of obvious predictors that would aid in targeting individuals at the start of their unemployment spells, it is nonetheless important for workforce professionals to provide heightened levels of assistance for those who enter long-term unemployment and long-term UI receipt. The urgency of assisting this population is made apparent by our findings with respect to duration dependence.

B. DURATION DEPENDENCE

The historic rates of long-term unemployment seen during and after the Great Recession are concerning enough in themselves given the interruptions in wage-earning experienced by these unemployed workers during their jobless spells. Even more disconcerting is the widely-documented phenomenon of duration dependence, wherein individuals experience worse re-employment outcomes the longer they remain unemployed.

We find that long-term unemployed respondents to the CPS had a lower probability of finding a job in the months immediately following the survey than their short-term counterparts. We also find that among the UI recipient cohorts we examine—including the entire group collecting UI benefits during the Great Recession and its aftermath, as well as the narrower sample of those displaced during the height of the recession—claimants experiencing long-term UI spells were much less likely to find jobs in the following years. Among those long-term recipients who found work, their post-layoff wage losses were much larger than those experienced by their short-term counterparts, and persisted for at least six years after their layoff date.

While duration dependence is apparent among the populations studied here, the causes of these poor outcomes are difficult to quantify. One potential explanation is that the long-term jobless have certain attributes that make them less likely to obtain work. However, we find that observed characteristics explain only a fraction of the difference between outcomes among the long- and short-term unemployed, and almost none of the difference between outcomes among our long- and short-term UI recipient groups.

It is possible that unmeasured differences between these groups (such as skill level) can account for some of the disparity in outcomes, which may suggest the need for services to improve the employability of the long-term unemployed. It is also possible that prolonged jobless spells gradually sap the motivation of jobseekers, suggesting that workforce professionals should aim primarily to limit the duration of these spells. Finally, there might be employer-side factors at work—such as discrimination against the long-term unemployed—which would suggest the need for enhanced job-matching and placement services to help these jobseekers “get their foot in the door”.¹

Unfortunately, there is no consensus among researchers regarding which of these factors plays the most important role in causing duration dependence. Moreover, it is difficult for us to quantify the role played by these factors in North Carolina given the limitations of the data used in this report.

The lack of a clear cause for duration dependence makes it difficult to craft targeted interventions for assisting the long-term unemployed. However, whether duration dependence is caused by the poor employability of long-term unemployed individuals, or is due the scarring effects of the long jobless spell itself, this population may benefit from intensive application of the tools available to workforce professionals. A conservative approach might consist of efforts to improve the employability of the long-term unemployed while ensuring that they are placed in a new job as soon as practical. Workforce programs that provide simultaneous employment and training may be of considerable benefit to this population.

¹ See for example Krueger and Mueller (2011) and Kroft et al. (2013).

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Labor & Economic Analysis Division
NC Department of Commerce

nccommerce.com/LEAD | lead@nccommerce.com | 919.707.1500